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Abstracts from the 6th International Academic and Research Conference
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Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical and Basic Science Research

INVESTIGATING THE PATHOLOGY OF PERINATAL BRAIN INJURY

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Background: Cerebral palsy affects 1/400 people in the UK, incurred by perinatal brain injury by inflammation and hypoxia, leading to significant motor and cognitive difficulties. This involves increased oligodendrocyte precursor cell proliferation and block in differentiation/survival of pre-myelinating oligodendrocytes, leading to lack of myelin and axonal damage. There is no cure for cerebral palsy and a detailed understanding of the pathology of perinatal brain injury is required to develop therapies to promote normal myelination. Our previous work showed that in the adult nervous system, pro-inflammatory macrophages (iNOS+/CD68+) drive oligodendrocyte progenitor proliferation whereas anti-inflammatory macrophages (MR+/CD68+) drive survival/differentiation. Although activated macrophages (CD68+) are increased in cerebral palsy, their activation state and role in white matter injury is unknown. Here we investigated whether macrophage activation is associated with white matter pathology following perinatal brain injury.

Methods: Post-mortem human brain tissue of controls and infants affected by perinatal brain injury was immunostained for markers of macrophage activation (CD68+/iNOS+/MR+) and oligodendrocyte lineage cells (NogoA+/Olig2+).

Results: We observed an imbalance of macrophage activation towards the pro- inflammatory macrophage (CD68+/ iNOS+) correlated to an increase in oligodendrocyte precursors (Olig2+).

Conclusions: Our data shows for the first time an imbalance in macrophage activation towards pro-inflammatory macrophages correlated to proliferation of oligodendrocyte precursors. We hope that this can be harnessed to develop therapies promoting activation of the anti-inflammatory macrophage phenotype to drive oligodendrocyte survival/ differentiation and myelin repair following perinatal brain injury.

Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical and Basic Science Research

IS THERE A LINK BETWEEN VENOUS THROMBOSIS AND ATHEROSCLEROSIS?

Kingdon JHG, Modarai B, Smith A, Saha P.
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Background: Epidemiological evidence suggests that deep vein thrombosis (DVT) is associated with an increased risk of myocardial infraction and stroke, which persists for over 20 years. It is unclear, however, if a direct causal relationship exists between DVT and atherosclerosis and how this might occur. Inflammation is common to the pathogenesis of both conditions and may be the link between them.

Aim: To determine whether DVT accelerates plaque progression in an animal model of atherosclerosis.

Methods: Venous thrombosis or sham operation was surgically induced in the inferior vena cava of ApoE-/- & LDLr-/- mice fed a high fat western diet for three months (two independent models of atherosclerosis). Plaque volume in the brachiocephalic artery (BCA) was measured using magnetic resonance imaging (MRI) at 28 days following thrombus induction. The aortic root was harvested for histological analysis of plaque size and structure. Blood, spleen and aorta (beyond the aortic root) were harvested for flow cytometric analysis of the inflammatory cell content.

Results: Plaque volume was 33% larger in ApoE-/- mice with a DVT (2.4±0.15mm3 vs 1.8±0.11mm3 in sham controls, n=20/gp, P<0.01) and the cross-sectional area of the plaque was 18.3% larger in LDLr-/- mice with a DVT (58.62±2.3% vs 40.24±6.4% in sham controls, n=18, P=0.017). This was associated with an increase in circulating 'inflammatory' monocytes, a reduction in splenic 'inflammatory' monocytes and an increase in macrophages in the aorta.

Conclusion: These results suggest that DVT directly accelerates the progression of atherosclerotic plaque in both ApoE -/- and LDLr-/- mice fed a high fat western diet. It appears that this relationship is associated with an increase in the recruitment of inflammatory monocytes. Future studies will focus on the effect of early venous thrombolysis on plaque progression.

Third Prize
Category: Clinical and Basic Science Research

EFFECTS OF PRENATAL MATERNAL DEPRIVATION OF PROTEIN ON SPINE PLASTICITY IN OFFSPRING

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Dendritic spines are considered the morphological correlates of memory. They are dynamic and essential for synaptic plasticity. A lot of work has been done to explore the effects of malnutrition on brain development. However, not much is known about the physical dynamics of the spines in adulthood following protein deprivation. With this study, I aimed to investigate the effect of prenatal protein malnutrition on dendritic spine dynamics using in vivo two-photon imaging in mice, which had not been previously studied. The results showed that there was a reduction in the average size of spines overall as well as average size of stable spines, accompanied with a reduction in spine density in the protein deprived group. There was also a decrease in percentage of spines that are stable but interestingly, an increase in percentage of new persistent spines in the protein deprived group compared with control group. The results suggest that protein deprivation leads to the inability of spines formed to grow in size or stabilise and are eventually lost resulting in a lower density. It led me to conclude that the prenatal protein deprivation leads to underdeveloped brains lasting even in adulthood. Moreover, these observations demonstrate that the deprivation of protein alone is sufficient to cause a detrimental effect in spine dynamics, which could have an adverse implication on learning and memory.

Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical Audit

APPROPRIATENESS OF REFERRALS AND DIAGNOSTIC YIELD OF COLONOSCOPY IN MALTA

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Background: Colonoscopy is a common investigation used for clinical evaluation of the lower gastrointestinal tract. Evidence-based guidelines about its appropriate use have been developed by several expert panels, including the British Society of Gastroenterology (BSG). The aim of this audit was to assess the appropriateness of referrals for colonoscopy at Mater Dei Hospital, Malta, according to BSG guidelines. A comparison was drawn between the diagnostic yield of clinically indicated vs 'not clinically indicated' colonoscopies.

Methodology: All patients who underwent colonoscopy, within the Gastroenterology Department at Mater Dei Hospital, Malta, during June and July 2014, were included in the audit, excluding paediatrics. Data was retrieved retrospectively: colonoscopy datasheets were used, and the reason of referral for colonoscopy was recorded and compared to BSG guidelines. Diagnostic yield was calculated as the number of colonoscopies which yielded a clinically significant finding that altered patient management, as a percentage of total colonoscopies. This was separately calculated for indicated and 'not clinically indicated' colonoscopies.

Results: Two hundred and one patients (59.2% males; 40.8% females; mean age 54.7years) underwent colonoscopy during the study period. 84.6% of colonoscopies were clinically indicated. The diagnostic yield for colonoscopies which were clinically indicated was 48.2%. For colonoscopies not clinically indicated, the diagnostic yield was 12.5%.

Discussion: The majority of colonoscopies performed during the study period were indicated. Diagnostic yield for clinically indicated colonoscopies was significantly higher in comparison to colonoscopies not clinically indicated.

Conclusions: Colonoscopies which are indicated by BSG guidelines, yield more clinically significant findings and are recommended for the rational utilisation of finite healthcare resources. Further improvement is therefore required to reduce the number of inappropriate referrals for colonoscopies in Malta. However, some indications not included in BSG guidelines gave significant endoscopic findings and may be considered in future BSG guidelines revision.

Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical Audit

Monitoring of Gout in Primary Care: A Clinical Audit

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Background: Hyperuricemia has been shown to be the single most important risk factor for developing gout. In patients starting on allopurinol, the British Society of Rheumatology (BSR) 2007 guidelines recommended serum uric acid (SUA) monitoring at three months and annually thereafter with a target level of <300 micromol/L. We aim to audit our general practice to determine whether the guidelines are being adhered to.

Methodology: A retrospective EMIS data collection was carried out on 51 patients' SUA levels at three months and at one year after being first prescribed allopurinol. Standards were set at 80% for both monitoring and target SUA levels. A re-audit was commenced after recommendations were made to the practice including patient information leaflets and staff education on the management of gout. The re-audit was undertaken after three months.

Results: The initial audit cycle showed that at three months, six of 48 (12.5%) patients had their SUA levels monitored. Only two of these six patients (33.3%) had achieved target SUA levels. At one year, three of 46 (6.5%) patients were monitored and only one (33.3%) of these patients achieved target SUA levels. The re-audit cycle demonstrated that 20 of 50 patients (40%) had their SUA levels checked. Eight of these 20 patients (40%) achieved target SUA levels.

Discussion: The poor monitoring and target SUA levels in the first audit cycle was mainly attributed to the lack of knowledge on the BSR guidelines. The re-audit cycle displayed an improvement, although not yet achieving the audit standard. However, it is expected to continue improving given the changes implemented.

Conclusion: There is currently a limited awareness regarding the long term management and follow up of gout. Education is imperative and SUA levels should be regularly monitored to reduce the risk of recurrent gout attacks.

Winners in Individual Categories
Oral presentations

Third Prize
Category: Clinical Audit

Monitoring of NOAC Therapy at Gresleydale Healthcare Centre

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Background: Novel Oral Anticoagulants (NOACs) are used more for conditions previously managed with warfarin. These drugs require monitoring, outlined by the Derbyshire Joint Area Prescribing Committee. Specifically, baseline blood tests (FBC, U+E, LFT, clotting) and weight. This must be followed by quarterly review of compliance and side effects, with annueal repetition of blood tests (more frequently if renal function abnormal). This audit aims to ensure safe prescribing of NOAC therapy at Gresleydale Healthcare Centre and identify strategies to improve monitoring.

Method: A report was run in System One by searching for agents used at the practice (apixaban, dabigatran, rivaroxaban). Notes were searched retrospectively for a NOAC prescription and any monitoring performed.

Results: Eight patients were identified. Six commenced therapy in secondary care (SC) and two in primary care (PC). Baseline bloods, weight and drug counselling were completed for those started in PC. This information was not available for patients started in SC. Quarterly review of compliance, side effects and possible under-treatment was not done for any patient. At the time of audit, three annual blood tests were due to have been performed. Two out of three were done, though due to patients seeing a doctor for other reasons. Two patients were due for repeat renal function testing, due to previously abnormal results. One of the two tests had been performed, again due to patients presenting to a doctor for other reasons.

Discussion: Recommended monitoring is not being performed, with most investigations being completed for other purposes.

Conclusion: Strategies to improve monitoring of NOAC therapy are:
1) Educate prescribers and patients about required monitoring
2) Form a register of patients on NOACs, run quarterly reports in System One to identify required monitoring and recall patients appropriately
3) Create a template for use in System One to record NOAC reviews accurately

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Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical and Patient Related Work

Acute Ischaemic Bowel Secondary to Superior Mesenteric Artery Syndrome in a Patient with Small Bowel Scleroderma

Phillips GA, Bird N, Elmasry M, Shahzad K.
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Background: Superior mesenteric artery syndrome (SMAS) is an uncommon but potentially lifethreatening cause of abdominal pain, vomiting and weight loss caused by abdomino-vascular occlusion of the duodenum and superior mesenteric artery (SMA). Initially insidious symptoms can progress to bowel obstruction and subsequent mesenteric ischaemia if untreated.

Case Study: A 56-year-old lady with mild COPD and previous DVT presented with acute-onchronic post-prandial epigastric pain, vomiting, cachexia and 10.5 kg weight loss. Clinical examination, serum investigations and plain radiographs highlighted only a raised CRP and she was discharged. Outpatient computed tomography (CT) and bi-directional endoscopies were unremarkable whilst barium follow-through exhibited delayed duodenal transit and jejuna appearances suggestive of bowel scleroderma. The patient was re-admitted six weeks later with worsening symptoms and further weight loss, exhibiting similar serum and radiological results. She deteriorated three days' post-admission with peritonism, absent bowel sounds, haemodynamic instability and a raised serum lactate. CT angiography confirmed acute bowel ischaemia secondary to SMAS, demonstrating a reduced aorto-mesenteric distance and angle with extensive liver and portal venous gas evident. Laparotomy found widespread bowel necrosis, mesenteric gas and an absent SMA pulse. The patient was palliated and passed away hours later.

Discussion: This patient suffered acute-on-chronic SMAS exacerbated by concomitant bowel scleroderma, causing SMA compression secondary to duodenal dilatation and smooth muscle atrophy. Unfortunately, the diagnosis was confirmed after the development of bowel ischaemia. Most reported cases have been successfully managed conservatively with nasogastric feeding and dietary support after early diagnosis, highlighting the importance of increased awareness of this condition.

Conclusion: This case emphasises the importance of considering SMAS as a differential diagnosis in presentations of abdominal pain and vomiting, especially in the presence of risk factors such as predisposing conditions, weight loss, recent surgery and immobilisation. Early diagnosis and implementation of treatment is vital to improve outcomes.

Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical and Patient Related Work

Introducing a Day One Post-Operative Proforma for Elective Lower Limb Arthroplasty Patients – Improving Patient Care and Junior Doctor Confidence.

Miller KMC, Olivier J, McLintock R, Dahill M.
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Background: The assessment of post-operative patients is vital to identify any deviation from the normal clinical path. It had been noted on the elective Orthopaedic ward that there was a large degree in variability in the post-operative reviews that were documented by doctors. Our aim is to improve patient care by reducing review variability post elective lower limb arthroplasty by the introduction of a standardised proforma.

Methodology: We developed a quantitative composite score comprising the 12 most important aspects for clinical review. Patient notes were analysed retrospectively post total knee/hip replacement as to whether these parameters had been assessed. Junior doctors also received a focused teaching session on performing a comprehensive post-operative review. Data was collected before and after the introduction of the proforma to assess whether the standard and consistency of patient reviews had improved.

Results: Before any intervention the average scores were 7.3/12 (THR, n=13) and 5.9 (TKR, N=20). After implementing the proforma the average score for THR was 8.3/12 (n=23) and 7/12 (n=23) for TKR. On average there was a 19% increase in score for THR and 22% increase in score for TKR. Qualitative studies showed that the proforma helped junior doctors feel significantly more confident in assessing patients.

Discussion: This project has developed a standardised review process for elective arthroplasty patients. It provides a simple and user friendly interface for sharing medical information among health care professionals, in addition to improving the consistency of care to create positive outcomes for patients.

Conclusions: Our proforma facilitates the standardisation of patient care, reduces the variation of post-operative review, and significantly improved confidence of junior doctors assessing patients. Further work will include the introduction of a teaching session for new rotating junior doctors and a view to implement it as a formal trust-certified proforma.

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Winners in Individual Categories
Oral presentations

Third Prize
Category: Clinical and Patient Related Work

Augmented reality - An innovative approach to medical education

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Background: Literature suggests an under-representation of ENT teaching at the undergraduate level. Anatomy and physiology are closely intertwined and is often difficult to teach, being conceptually more abstract, requiring pictorial and visual-spatial thinking. Traditional twodimensional images struggle to meet students' learning needs and cadaveric resources and three-dimensional models are limited. Augmented reality is a live view of the physical, real world supplemented by an interactive virtual layer of sensory input, including: animations, videos and images. Emerging studies offer mixed views concerning its application as a clinical and educational tool, acknowledging its potential while highlighting the need for further improvements and validation.

Description of Innovation: A 48-page 260x260mm perfect-bind, hard-backed illustrated book was designed and produced with augmented reality capabilities. HP Autonomy's free-to-use augmented reality app, "Aurasma", uses a smartphone's or tablet's camera to recognise real world images and overlay digital media over them.

Discussion: This new medium provides additional insight for learners by capitalising on digital technology to present abstract ideas as 3D structures and animations, while retaining the reliability of a physical hardcopy book. The content is shareable not just physically but also digitally by means of social media. Its limitations stem primarily from technically-related issues: reliance on an Internet connection and a third party application - the unavailability of either due to inaccessibility or supersedence might render the virtual overlays inaccessible. Additionally, these books would need to be more widely accepted and integrated into mainstream use before becoming more cost-effective by means of bulk production.

Conclusion: Augmented reality is useful in heavily visual-spatial reliant aspects of the medical curricula, such as Otolaryngology and anatomy. It incontestably flaunts the advantages ofcombining both digital and hardcopy mediums yet incontestably exhibit technical limitations. While clearly still requiring improvement, it represents an exciting and promising new adjunct in medical education.

Winners in Individual Categories
Poster presentations

First Prize

Have You Cleaned Your Stethoscope Today? A National, Multi-Center Study on Stethoscope Cleaning Practices

Goryaeva M, Ali S, Cereceda-Monteoliva N, Kotronias RA, Ward N, Sherliker G.
Salford Royal Hospital, Manchester

Background: Stethoscopes have been implied to transmit microorganisms, including Methicillin Resistant Staph Aureus (MRSA) and Clostridium Difficile (C. difficile). Therefore, a contaminated stethoscope could conceivably confer a significant risk of healthcare-associated infections (HCAIs). Currently, there is no consensus on optimal stethoscope cleaning methods. This study aims to assess current cleaning practices at four sites across the UK.

Methods: One hundred and ninety-nine responses were collected from healthcare providers at four UK NHS trusts. Both Likert-style and free-text questions were used to capture attitudes towards cleaning stethoscopes, current cleaning behaviours and potential suggestions to increasing stethoscope cleaning.

Results: 92.5% of respondents felt it is clinically important to clean the stethoscope regularly and 76.9% felt that clean stethoscope could reduce the number of HCAIs. Reasons given against were that of a lack of evidence. Only 7.5% of respondents clean their stethoscope in between every patient, and 11% of respondents have never cleaned theirs. 61.3% of respondents noted that they use their stethoscope in isolation rooms, with 23% of those never cleaning their stethoscope either before or after the consultation. Better distribution of antiseptic wipes around clinical areas was identified as the best motivator to improve cleaning practices.

Discussion: Despite a consensus among medical professionals about the importance of stethoscope cleaning, current stethoscope cleaning practices are inadequate and could therefore play a role in infection spread. Personal stethoscopes are frequently used in isolation rooms, which is pertinent in view of previous reports demonstrating contamination of stethoscopes with microorganisms such as C.difficile and MRSA.

Conclusion: The study highlights that a better availability of antiseptic wipes in clinical areas may motivate healthcare providers to clean their stethoscopes more frequently. Future studies could look at the distribution of antiseptic wipes in clinical areas and also the role of visual reminders such as posters

Winners in Individual Categories
Poster presentations

Second Prize

Elucidating the Regulation and Downstream Consequences of KMO Gene Expression in Alzheimer's and Huntington's Diseases

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Introduction: The kynurenine pathway (KP) is the major route of tryptophan degradation in mammals and produces the neuroactive metabolites kynurenic acid (KYNA), 3- hydroxykynurenine (3-HK) and quinolinic acid (QUIN). Changes in the amounts of these KP metabolites are associated with many neurodegenerative diseases, including Alzheimer's, Huntington's and Parkinson's diseases. A number of studies have highlighted the importance of the KP in the progression of these disorders,and KP enzymes, in particular kynurenine 3- monoxygenase (KMO), are promising therapeutic targets. Recent studies confirmed the efficacy of KMO inhibition in several disease models. Thus, we are keen to gain a better understanding of factors affecting KMO gene expression in mice and humans.

Discussion: Microarray analysis previously identified two AD associated genes, Psen2 and Apcs, as being the most upregulated and downregulated genes in the liver of Kmo knockout mice. We have used qPCR to validate the increase in Psen2 expression in Kmo knockout mice and human microglial cells treated with KMO inhibitors. In addition, as the human KMO transcript overlaps with that of an adjacent gene Opsin 3, we hypothesised that antisense silencing might occur. An inverse correlation was observed between the expression of KMO and Opsin 3 in cells treated with compounds that modulate KMO expression, suggesting that antisense silencing may occur. The extent of the overlap between the two transcripts was tested but the results suggest that the KMO transcript is shorter than expected, and further analysis needs to be performed to understand the mechanism underlying our observations. In total, this study has elucidated both the upstream factors regulating KMO expression, as well as downstream genes controlled by it.

Third Prize

Anatomical Considerations in the Surgical Approach to the Vertebral Artery

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Background: Surgical revascularisation of the vertebral artery by transposition to the common carotid artery provides secondary prevention of posterior circulation strokes in patients who have not responded to best medical therapy or endovascular therapy. Surgical revascularisation provides an alternative treatment, however, it is associated with a high complication rate.

Aims: To demonstrate the anatomical relations of the vertebral artery to surrounding structures commonly damaged during surgical revascularisation and hypothesise methods to avoid damage.

Methods: Hemi neck dissections were undertaken with reference to published surgical approaches to demonstrate the relevant anatomy. Findings: The cervical sympathetic trunk was adhered to the vertebral artery and at greatest risk of injury. The thoracic duct, recurrent laryngeal nerve, phrenic nerve, brachial plexus and apex of the lung were encountered in each approach.

Discussion: The study showed that despite an evidence-based approach to the vertebral artery there is still potential to damage structures early in the procedure. Complications can be minimised by following a set of key principles intraoperatively to protect the vertebral artery. Conclusion: The results from the study provide awareness of the anatomical relations of the vertebral artery in a surgical context and potential methods to avoid complications. To continue developing the safest approach to the vertebral artery further dissections are needed to trial the hypothesised methods and directly involve surgeons specialising in the procedure.

Oral Presentations

Category: Clinical and Basic Science Research

The Role of Group II Metabotropic Glutamate Receptors in Synaptic Transmission and Plasticity at the Cornu Ammonis 2 Region of the Hippocampus

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Background: Group II metabotropic glutamate receptors (mGluR) are known to depress neuronal transmission via inhibition of neurotransmitter release at glutamatergic synapses. They can also mediate long term depression(LTD) in several regions of the brain. However, their roles in the hippocampus, particularly the cornu ammonis 2 (CA2) region remains unclear.

Objectives: Our research aims to elucidate the physiological/pharmacological profiles of group II mGluRs within the CA2 and will study their significance in mediating plasticity within the CA2.

Methods: We have used electrophysiological techniques on wildtype and mGluR2 deficient rats in combination with group II mGluR modulating drugs.

Results/Discussion: Using DCG-IV (group II mGluR agonist), we identified that activation of group II mGluRs leads to depression of synaptic transmission and LTD induction in the TAP-CA2 synapse in a dose-dependent manner. Using LY541850 (mGluR2 agonist, mGluR3 antagonist) on wildtype rats, DCG-IV on mGluR2 deficient rats, we have further evidence that activation of mGluR 2/3 alone can induce significant depression of synaptic response and induce LTD. We found that activation of either subtype of group II mGluRs does not saturate the slice to further depression during activation of the other group II mGluR subtype.We thus established that mGluR2 and mGluR3 may have synergistic effects on one another. Finally, we found that the chemical LTD obtained during drug application does not saturate the synapses to subsequent electrical LTD stimulated using a low frequency stimulus (1Hz,900 stims), the converse is also true. This shows that both processes may not be mechanistically equivalent.

Conclusion: These results suggest important roles of group II mGluRs as regulators of CA2 activity which may have significant implications in explaining the mechanism behind the clinically beneficial (eg.neuroprotective/anxiolytic) effects of group II mGluR modulation. These results also help elucidate the physiological role of the CA2 episodic memory construction in the hippocampus.

Functionalising Stem Cells Using Protein Surfactant Bioconjugates

Amir ZN.
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Introduction: The therapeutic potential of stem cell based regenerative medicines have been widely publicised and well established. However, the key limitations facing stem cell based therapies of **central necrosis among large-scale tissue engineered constructs** and **lack of *in vivo* stem cell imaging**, are preventing widespread clinical acceptance and advancement of the field. These limitations can be overcome by functionalising stem cells. This involves the integration of exogenous proteins and their individual properties into the cells. Current mechanisms include gene manipulation, direct cell surface engineering and artificial membrane anchors. However, these have their individual issues.

Methodology: An alternative approach was established by the Perriman group, involving chemical cationisation followed by electrostatic conjugation of proteins with anionic surfactants to form protein-surfactant bioconjugates. This was utilised to address the two stem cell limitations individually. To tackle central necrosis, mesenchymal stem cells (MSCs) were partitioned with myoglobin-surfactant bioconjugates, before undergoing osteogenic tissue engineering. Successful functionalisation was assessed histologically and through zeta-potential studies. To address the lack of *in vivo* stem cell labelling, MSCs were partitioned with the superparamagnetic magnetoferritin-surfactant bioconjugates. Successful functionalisation was assessed using MACS Separation, Transmission Electron Microscopy and MTS cell-viability assays.

Discussion: Overall, the cationisation and conjugation reactions were found to successfully introduce alterations to the protein, which allowed successful cell membrane integration. The used of myoglobin to minimise central necrosis however, showed inconclusive results highlighting further work is needed. On the other hand, bioconjugated magnetoferritin was able to successfully functionalise cells without cytotoxicity.

The Effects of Delta N17, an FGF21 Antagonist, in the Siberian Hamster

Mawella R.
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Introduction: Fibroblast growth factor 21 (FGF21) is a circulating protein, shown to have beneficial effects in glucose and lipid metabolism when administrated exogenously. It therefore has potential as a therapeutic agent for obesity and diabetes. However, its biological functions are poorly understood.

Aim: The aim of this pilot study was to investigate the biological functions of endogenous FGF21via blockade of FGF21 signalling with delta N17, an antagonist, in the Siberian hamster.

Method: Hamsters were maintained in long day state and metabolic parameters were measured in metabolic chambers. In the first experiment, six hamsters were continuously infused with delta N17 and six hamsters with saline for five days. A caloric restriction was applied to half of the hamsters in each treatment group to elevate endogenous FGF21 production.

Results: A significant reduction in body weight($p<0.01$) and a significant interaction between time and treatment in RER ($p<0.01$) were observed in the calorie restricted hamsters. No significant effects were seen in food intake, VO2 or locomotor activity in the calorie restricted hamsters or on any parameter measured in the ad lib fed hamsters. Another experiment investigated the effect of 80% caloric restriction for seven days on hypothalamic deiodinase II (DIO2) gene expression. A significant decrease in DIO2 expression($p<0.01$) was seen in calorie restricted hamsters. In the final experiment, four hamsters were subcutaneously injected with delta N17 and four hamsters with saline in fasted and refed conditions. This acute delta N17 administration showed no significant effects on VO2, RER or locomotor activity.

Conclusion: Delta N17 appeared to have a lack of effect on physiology and behaviour, apart from two isolated results. The reduction in bodyweight was opposite to expectations and could suggest that delta N17 is a partial agonist of endogenous FGF21.

Construction of a Contractile Patch for Cardiac Tissue Engineering

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Introduction: Heart failure is the end stage of a variety of cardiovascular diseases, of which the most important one is the presence of scar tissue following a Myocardial Infarction (MI). Today's treatment can only slow down disease progression, but don't succeed to approve cardiac function or to regenerate cardiac tissue. Experimental treatment such as cellular therapy and bioactive xenogeneic patches try to overcome these current limits.

Target: The first aspect of the experiment is the search for an optimal decellularization process for pericardial tissue. Once decellularized, the acellular pericardium was loaded with a natural growth factor (GF) cocktail, derived from platelet-rich plasma (PRP). To apply this patch as a scaffold for cell deliverance adhesion, proliferation and migration of different cell types (porcine Adipose-Derived Stem Cells (pADSC), porcine Mesenchymal Stem Cells (pMSC) and cardiomyocytes) were evaluated. The patches were cellularly cultivated statically and dynamically in a bioreactor.

Methods: Porcine pericardium is decellularized by a patented detergent-enzymatic process. Acellular pericardium was loaded with 2mg/ml heparin. Next heparinized pericardium was incubated with platelet gel supernatant, rich of growth factors. Growth factor release was measured by ELISA assays for TGF-β1 and bFGF (n=6). On the GF-loaded pericardium pADSCsand pMSCs were added in static and dynamic conditions utilizing a bioreactor (resp. n=10 and n=1).

Results: After a 24h time span the acellular heparinized pericardium displayed a constant release of 62.76 ± 0.49pg/ml bFGF and 25.25 ± 0.37ng/ml TGF-β1. A significant difference was found between heparinized (test) and non-heparinized (control) pericardium. After 24h the release of TGF-β1 in the test group was 1.19 ± 0.25ng/ml more than the control group (P=0,009). For bFGF a rise of 17.26 ± 0.40 pg/ml was noticed P<0.001. Both pMSCs and pADSCs showed excellent adhesion and proliferation on the GF-loaded pericardium. Scaffolds with pMSCs showed more cell invasion.

European Cancer Incidence is Significantly Reduced in Huntington's Disease Patients – Unravelling its Protective Mechanisms

Ramesh R, McNulty P, Pilcher R, Neciunaite R, Jones L, Farewell D, Stone T, Holmes P.
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Background: Huntington's disease (HD) is a neurodegenerative genetic disorder caused by the trinucleotide expansions of CAG that results in the formation of elongated poly-Qtracts. It is hypothesised that these poly-Qtracts accumulate intracellularly causing cellular apoptosis prior to tumour-induced cell division. Thus, expanded poly-Qtracts may be a potential protective mechanism against cancer. This theory is based on evidence from studies in Denmark and Sweden who both report a reduction of cancer incidence in HD patients. However, no study has explored the relationship between CAG length and cancer incidence.

Methods: Six thousand five hundred and forty HD patients were identified using data from the European Huntington's Disease Registry. The age-standardised incidence ratio (SIR) for specific types of cancer was calculated by comparing risks to general population data from the WHO.

Results: One hundred and seventy-three of 6540 patients reported a previous history of cancer. The overall SIR for all cancers was 0.26, 95% CI 0.22-0.30. Each individual type of cancer had a SIR below one with statistically significant confidence limits. The average CAG repeat length in cancer patients was 42.06 in comparison to non-cancer patients (44.07). Non-cancer patients were also found to have an earlier average age at HD diagnosis (45.71) in comparison to cancer patients (57.97).

Conclusion: Individuals with early-onset HD and longer CAG repeats have a lower cancer incidence in comparison to late-onset HD patients as they experience its protective effects much sooner.

Discussion: Non-cancer patients have longer polyQtracts that protect against cancer by accumulating intracellularly, restricting cellular proliferation and increasing apoptosis. Furthermore, other polyQ diseases such as hereditary ataxia showed a similar reduction in cancer incidence, albeit to a lesser extent. More research is warranted to investigate these exact mechanisms of HD in the hope of establishing a break-through in cancer research.

Assessing the Effects of Transcranial Direct Current Stimulation upon Attention in Lewy Body Dementia: A Crossover Trial

Ashcroft JA, Elder G, Taylor JP.
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Background: Lewy body dementia (LBD) is the second most common form of dementia affecting over 700,000 people in the UK. Individuals with LBD display impaired attentional function and current treatments for this attentional dysfunction are limited in efficacy, therefore alternative therapeutic options are needed. Transcranial direct current stimulation (tDCS) is a simple, cheap and non-invasive technique used to activate areas of the brain by applying a weak electrical current across the scalp through two electrodes. tDCS applied to the dorsolateral prefrontal cortex (DLPFC) has been found to improve cognition in healthy individuals and dementia cohorts without worsening pre-existing symptoms. This study aimed to conduct a cross over trial to assess whether a single session of tDCS improved attentional performance in LBD patients.

Material/Methods: Twenty-three participants diagnosed with LBD received 20 minutes of both active tDCS (0.08mA/cm2) applied to the left DLPFC and sham stimulation in two separate sessions. Following stimulation participants completed four attentional tasks (simple reaction time, choice reaction time, digit vigilance and an attentional network task).

Results: There were no significant differences in any attentional measures between post-sham and post-active tDCS attentional task outcomes (percentage of correct response, correct response reaction time, power of attention, cognitive reaction time, executive control and conflict control).

Discussion: Implementing repeated tDCS sessions, adjusting the current density of stimulation, and stratification of patients in terms of cognition among other methodological modifications should be considered to improve tDCS efficacy.

Conclusion: A single session of active tDCS did not lead to attentional improvements in LBD patients.

Absolute Systolic Ankle Blood Pressures, Glycosylated Haemoglobin (HbA1c), and Family History of Diabetes in European and Non-European Young Adults

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Background: Currently, high brachial-systolic-blood-pressures, body-mass-index (BMI) and familyhistory of diabetes, are used to screen for high risk of diabetes in Europeans. There is evidence that increased ankle-systolic-blood-pressures and waist-height-ratio (WHtR) are associated with diabetes. Young non-Europeans have more central obesity and lower brachial-systolic-bloodpressures. Absolute-systolic-ankle-blood-pressures increase with central obesity and diabetes more in non-Europeans than in Europeans. The aims of this study were to investigate relationship of absolute-systolic-ankle-blood-pressures and WHtR with glycosylated haemoglobin (HbA1c) concentration and family history of diabetes in European and non-European young adults.

Methods: This was a cross-sectional study, in which 145 Europeans and 90 non-Europeans, aged 18-30 years, had height, weight, waist, absolute-systolic-brachial-blood-pressures (B) and absolute-systolic-ankle-blood-pressures (posterior tibial (PT) and dorsalis pedis (DP) on left (L) and right (R) sides) using Doppler ultrasound measured. Statistical analysis performed using independent t-test, chi-square test ($P<0.05$) and partial correlations.

Results: Non-Europeans were older, had more family history of diabetes (67.78% vs 36.55%), but comparable BMI and WHtR to Europeans. Absolute-systolic-ankle-blood-pressures were lower, but HbA1c (34.15 mmol/mol vs 32.92 mmol/mol, P=0.005) was increased in non-Europeans. Differences in absolute-systolic-blood-pressures (LB (+2.99 mmHg, P=0.327), RB (+8.10 mmHg, P=0.013), LPT (+11.69 mmHg, P=0.002), LDP (+8.17 mmHg, P=0.04), RPT (+9.34 mmHg, P=0.014), RDP (+7.98 mmHg, P=0.057)) were associated with a family history of diabetes only in non-Europeans. No correlations between absolute-systolic-blood-pressures (except RDP in non- Europeans, P=0.039), BMI, or WHtR were found with HbA1c concentration after age adjustment.

Discussion: Increases in absolute-systolic-ankle-blood-pressures in non-Europeans with diabetes family history possibly reflect sub-clinical arterial stiffening in the leg arteries of young, asymptomatic non-Europeans. This could potentially reflect future risk of diabetes.

Conclusion: Young non-Europeans have higher HbA1c concentrations, and significant increases in absolute-systolic-ankle-blood-pressures with a family history of diabetes, compared to Europeans. Prospective studies are needed to investigate the value of absolute-systolic-ankleblood- pressures as a diabetes-screening tool in non-Europeans.

Association of ACE Gene Polymorphism in Type-2 Diabetes Mellitus with Hypertension among North Indian Population

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Introduction: Type-2 Diabetes mellitus (T2DM) and Hypertension (HTN) is one of the biggest upcoming disease worldwide, with the number of people affected continually increasing. This study includes 40 T2DM with HTN cases and 40 controls. ACE gene polymorphisms in cases and controls were evaluated by polymerase chain reaction

Methods: Aims and Objectives: 1. To investigate the association of ACE gene polymorphism in T2DM with HTN among North Indians. 2. To study the different allele and genotype frequencies of ACE gene in T2DM with HTN and controls. Material and Methods: DNA extraction Five millilitres of peripheral blood was collected from all the subjects in 0.5M EDTA tubes. Reactions were performed with 10 pmol of each primer: forward primer 5'-CTGGAGACCACTCCCATCCTTTCT-3', reverse primer 5'-GATGTGGCCATCTTCGTCAGAT -3', in a final volume of 20 µl containing 3 mM MgCl2, 50mMKCl, 10mM Tris-HCl (pH 8.4), 0.5mM of each dNTPs and 2U Taq polymerase. PCR amplification was carried out under the conditions: initial denaturation at 94°C for 5 minutes, followed by 35 cycles of denaturation at 94°C for 45 seconds, annealing at 60°C for 1.15 minutes, extension at 72°C for 2.30 minutes and final extension at 72°C for 5 minutes. PCR products were separated on 2.0% ethidium bromide stainined agarose gel and visualized by UVP BIOLMAGING gel doc system.

Results: The products were 490 bp for allele I and 190 bp for allele D Frequencies of ACE ID, DD and II genotypes in T2DM with HTN cases and controls were 67.50%, 5.00%, 27.50% and 62.50%, 25.00%, 12.50% respectively. Frequency of ACE I and D allele was 60%, 40% in cases and 42.5%, 57.5% in the controls respectively. Findings of this study conclude that ACE gene polymorphism is associated with T2DM with HTN

Conclusions: In our study among the 40 hypertensive and T2DM cases, the genotype frequency of ACE I/D, D/D, I/I was 67.50%, 5.00%, 27.50% respectively. Further investigation with larger sample size may be required to validate this study.

Effect of a Single High-Dose Intramuscular Corticosteroid Injection on Body Composition in Rheumatoid Arthritis Patients.

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Background: Rheumatoid arthritis (RA) is characterised by reduced muscle and increased fat mass, termed rheumatoid cachexia (RC), which exacerbates disability and cardiovascular disease risk. A case study by Wilkinson *et al.* (2015) reported substantial muscle loss (~2kg) in a RA patient following an intramuscular corticosteroid (IM CS) injection administered to treat a disease flare, which was not spontaneously reversed after 12 weeks. This exploratory study is the first to investigate whether this adverse effect on body composition of IM CS injection, a routine, NICE recommended (CG79, 2009) treatment for active RA disease, is typical? It was hypothesised that the IM CS injection exacerbates RC.

Methods: Eight RA patients treated by IM CS Depo-Medrone® (methyl prednisolone) gluteal injection for a disease flare were recruited from the Peter Maddison Rheumatology Centre, North Wales. Immediately post -injection, subjects underwent dual energy X-ray absorptiometry scanning. Values for appendicular lean mass (ALM; a surrogate measure of muscle mass), total lean mass (TLM), total fat mass (TFM) and trunk fat mass (TrFM) were obtained at baseline, four weeks and 6-9 months post-injection. Statistical analysis was by paired T-test.

Results: Results showed a significant loss of ALM (-0.93kg, $P<0.01$) and a non-significant trend for loss of TLM (-1.11kg, $P=0.17$) at four weeks relative to baseline. These changes remained evident at 6-9 months' follow-up (n=5).

Discussion: There is strong evidence of muscle wasting in the limbs following IM CS injection to treat RA disease flares, which does not spontaneously reverse by 6-9 months. There was no evidence of changes in fat mass. Thus the IM CS to treat RA disease flares could be contributing

Coronary Artery Dominance in the Maltese Population

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Background: The coronary artery giving off the posterior descending artery (PDA) is defined as the dominant artery. Right dominance has been reported in 85-90% of individuals. The aim of this study is to determine the incidence of coronary artery dominance in the Maltese population.

Methodology: Consecutive invasive coronary angiograms (CA) performed between June 2012 and June 2013 at Mater Dei Hospital were retrospectively analysed using CVIS Philips database. The CA of patients in whom dominance was not reported was reviewed. In the setting of occluded coronary arteries, dominance was determined by the filling of the PDA via collaterals or via the saphenous vein graft in prior bypass surgery. Foreign patients and patients in whom the PDA could not be identified were excluded. Gender and age group patterns were determined.

Results: Two thousand seven hundred and twenty-seven CA were reviewed. The CA of 412 (15.1%) patients was examined since dominance was not reported. One thousand nine hundred and seventy-eight were males and 749 were females. Two hundred and sixty-seven (9.8%) were in the 30-60-year age group and 2460 (90.2%) were in the 61-90-year age group. Right dominance was present in 83.3% while left dominance was present in 16.7%. Right dominance was present in 84.5% of females and 82.8% of males. Left dominance was present in 15.5% and 17.2% respectively. Right dominance occurred in 82.5% of the 30–60-year age group and in 83.2% of the 61–90-year age group.

Discussion: Malta is an island state with a population of 400,000 with one major hospital where above 99% of invasive CA are performed. Hence, it is ideal for such a study.

Conclusion: The right coronary artery is the dominant artery in 83.3% of the Maltese population.
This is similar to literature reports. There is no difference between gender and age groups.

The Effect of Glucose Supplementation on the Metabolism of Articular Cartilage, and its Potential for Therapeutic Use.

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Introduction: Increasingly, clinicians world-wide are injecting high concentrations of glucose into joint spaces, for treatment of osteoarthritis and ligamentous injuries. Despite its clinical use since the 1950s, there is little evidence regarding its safety and its mechanism of action at the molecular level. As evidence based medicine is a pertinent part of clinical practice, it is essential to assess the safety and determine the potential benefit of high concentrations of glucose supplementation on the metabolism of articular cartilage.

Methods: Randomised control trial of 20 bovine articular cartilage explants per arm, n=4 explants per treatment arm. Each arm was supplemented with glucose at concentrations of 0%, 6.25%, 12.5%, 25% or 50% for up to seven days in culture; where arm two of the trial received two additional glucose supplementations throughout the seven-day period to replenish the media. Media was sampled throughout and tested for three primary outcomes: sulphated glycosaminoglycans (sGAG), nitric oxide (NO) and lactate dehydrogenase (LDH).

Results: Higher concentrations of glucose, and more frequent supplementation significantly reduced the amount of sulphated glycosaminoglycans and nitric oxide released from the cartilage explants. There was minimal release of lactate dehydrogenase across all concentrations, with no clear trend.

Discussion: Glucose supplementation decreased the release of inflammatory markers (NO), possibly by upregulation of inflammatory response mediators. A positive effect on cartilage metabolism was further demonstrated by the decreasing release of sGAG, an effect which is prolonged by replenishment of glucose. Whether it is anabolic or anti-catabolic effect is unclear in this study.

Conclusions: Preliminary studies suggest that supplementation with high glucose concentrations had positive effects on articular cartilage metabolism. Further work is required to effectively validate the safety of glucose as a prolotherapy agent, preferably replicating this experimental setup on human articular cartilage explants.

Is Dysconnectivity of Corticostriatal Circuitry a Risk Phenotype for Bipolar Disorder? A Resting - State Functional Magnetic Resonance Imaging Study

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Background: Bipolar disorder is a common psychiatric condition characterised by a fundamental impairment of mood regulation. Dysregulation of corticostriatal circuitry is thought to be critical in the aetiology of bipolar disorder however the specific role of the nucleus accumbens, an area in the ventral striatum, has been under-researched. The objective of this study was to use resting-state functional magnetic resonance imaging (rs-fMRI) to characterize disease-specific changes in corticostriatal connectivity and further, to characterise phenotypic similarities in asymptomatic first-degree relatives. The focus was on nucleus accumbens interactions with prefrontal cortex.

Methods: This was a case-control cross-sectional study which recruited 38 euthymic bipolar patients from clinical cohorts in South Wales along with 32 of their asymptomatic first-degree relatives and 23 controls from the local community matched for age, sex and reading ability. The main outcome was Z-maps showing between group differences in whole-brain correlations of left and right nucleus accumbens seeds.

Results: In both patients and relatives, increased positive correlation in bilateral orbitofrontal cortex ($p<0.05$) and increased negative correlation in bilateral dorsolateral prefrontal cortex ($p<0.05$) was found compared to controls. Although patients and relatives also both showed significant changes in posterior and middle cingulate cortex ($p<0.05$), patients could be delineated from relatives by a focus of increased negative correlation in subgenual anterior cingulate cortex (sgACC) ($p<0.05$).

Discussion: Bipolar disorder is associated with widespread dysregulation of corticostriatal circuitry that can best be described as hyperconnectivity in ventral areas and hypoconnectivity in dorsal areas. This phenotype is a vulnerability marker for bipolar disorder and potentially other common psychiatric conditions. Further research should evaluate how inter-individual differences in rs-fMRI functional connectivity may mediate the efficacy of therapeutic interventions.

Conclusion: This study contributes evidence for corticostriatal dysconnectivity as a risk phenotype for bipolar disorder.

Anticonvulsant, Anxiolytic and Sedative Properties of the Fruit of Sarcocephalus Latifolius in Rats

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Background: This study was conducted to evaluate the anticonvulsant and the sedative anxiolytic activity of the fruit extract of *Sarcocephalus latifolius* (synonym, *Nauclea latifolia*) Smith (Rubiaceae) in rats.

Materials/Methods: The ethanolic extract of the plant fruit was screened for its anxiolytic activity using simple activity meter. Anticonvulsant activities of the extract was evaluated on four experimental animal models at doses of 200, 400 and 800 mg/kg,i.p in rats using maximal electroshock seizure (MES) test, pentylenetetrazole (PTZ) test, picrotoxin (PIC) and strychnine (STR) - induced seizures test. Sodium valproate (400 mg kg) was used as a reference anticonvulsant drug for all models.

Results: The plant showed marked sedative anxiolytic effect and significant decrease in the motor activity ($p< 0.001$) since the first dose (200 mg/kg) in a dose-dependent manner. The doses 400 and 800 mg/kg of the extract significantly ($p < 0.01$ - $p < 0.001$) reduced the duration of seizures induced by maximal electroshock (MES) and delayed the onset of tonic- clonic seizures produced by strychnine respectively. All the tested doses significantly protected the animals up to 100% from pentylenetetrazole and picrotoxin- induced seizures.

Discussion: *S. latifolious* have potential anxiolytic-sedative properties. The antagonism of PTZinduced seizures suggests that it interacts with GABAergic neurotransmission since PTZ is a selective blocker of the chloride ionophore complex to the GABA-A receptor. Picrotoxin (PIC)- induced seizures is known to be a non-competitive GABA antagonist. The antagonism of PICinduced seizures suggests the interaction of the extract with the GABA-ergic neurotransmissionThe inhibition of STR-induced seizures suggests that it possesses anticonvulsant properties. *S. latifolious* completely antagonized MES-induced seizures probably by prolonging the inactivation of sodium channels.

Conclusion: The ethanolic extract of the fruit of *S. latifolius* possess sedative, anticonvulsant and anxiolytic properties. So it is recommended for the treatment of insomnia anxiety and epilepsy.

Investigating Microstructural Changes in Parkinson's Disease and its Clinical Phenotypes Using Diffusion-Weighted MRI

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Background: Diffusion-weighted MRI (DWI) has been used to investigate microstructural changes in the brain associated with Parkinson's disease (PD). PD is a heterogenous disease with two main clinical phenotypes, namely the postural instability and gait disorder (PIGD) and tremordominant (TD) forms. These may differ in their underlying neuropathophysiological traits, and the aim of this study was to determine whether DWI can further characterise and differentiate these phenotypes.

Methods: MRI images were obtained from 37 PD patients and 20 age-matched controls. PD patients were divided into PIGD (n=18) and TD (n=15) groups. Maps of apparent diffusion coefficient (ADC) and fractional anisotropy (FA) were compared between the groups, using voxel-based analysis and regions of interest (ROI) methods. ROI analysis focussed on basal ganglia regions, due to the nature of PD pathology. Increased ADC and reduced FA values reflect disruptions in tissue integrity and neuronal tract organisation.

Results: ROI analyses revealed significantly higher median ADC values in the caudate in the PD and PIGD groups, when compared with controls. The PD group also showed higher ADC in the thalamus, whilst the PIGD group had higher ADC in the putamen compared to controls. VBA found areas of increased ADC in the frontal lobe bilaterally in PD patients. A similar pattern was observed in the PIGD group, with increased ADC also seen in areas related to executive functioning and motor-related white matter tracts. No significant differences in ADC were seen in the TD group compared to either controls or the PIGD group, when using the same statistical thresholds.

Conclusion: Microstructural damage for the PIGD subtype may explain clinical observations of faster disease progression and an increased predisposition to cognitive impairment in this PD sub-group. In a clinical setting, proper classification is important regarding expectations of the disease course and optimal management guidance.

A Comparison of MRI Muscle Fat Content in The Lumbar Paraspinal Muscles to Patient Reported Outcome Measures in Patients with Lumbar Degenerative Disc Disease and Focal Disc Prolapse

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Objectives: To assess the fatty atrophy of the lumbar paraspinal muscles (LPM), as determined using MRI, in patients with lumbar degenerative disc disease (DDD) and focal disc prolapse, and to determine if fatty atrophy is associated with patient reported outcome measures (PROMS).

Methods: Study Design: Retrospective Study. One hundred and sixty-five patients with lumbar degenerative disc disease were identified from a PROMS database of >1500 patients. These patients were divided into two study groups: DDD alone (n=58) and DDD with disc prolapsed (n=107). A grid was randomly applied to the axial scans at the L3/4, L4/5 and L5/S1 levels. The muscle to fat ratio of the LPM was recorded and compared to the PROMS data. Subcutaneous fat thickness at each level was also measured.

Results: This study found no difference in the muscle fat ratio between the DDD and disc prolapse groups. There was no association between the muscle fat ratio and any of the PROMS in either group. There was significantly more subcutaneous fat at all levels in the DDD group as compared to the disc prolapse group. In DDD and disc prolapses, subcutaneous fat was thicker in women ($p=0.013$ and 0.001). In DDD patients, more subcutaneous fat was associated with disability ($p<0.001$). Muscle content of erector spinae and multifidus negatively correlated with increasing age in both groups at the L3/4 level.

Conclusions: Muscle fat content in the LPM does not appear to relate to PROMS. Muscle content decreases with age. Those with low back pain (DDD) have greater subcutaneous fat thickness.

Functionalising Stem Cells Using Protein Surfactant Bioconjugates

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Introduction: The therapeutic potential of stem cell based regenerative medicines have been widely publicised and well established. However, the key limitations facing stem cell based therapies of **central necrosis among large-scale tissue engineered constructs** and **lack of *in vivo* stem cell imaging**, are preventing widespread clinical acceptance and advancement of the field. These limitations can be overcome by functionalising stem cells. This involves the integration of exogenous proteins and their individual properties into the cells. Current mechanisms include gene manipulation, direct cell surface engineering and artificial membrane anchors. However, these have their individual issues.

Methodology: An alternative approach was established by the Perriman group, involving chemical cationisation followed by electrostatic conjugation of proteins with anionic surfactants to form protein-surfactant bioconjugates. This was utilised to address the two stem cell limitations individually. To tackle central necrosis, mesenchymal stem cells (MSCs) were partitioned with myoglobin-surfactant bioconjugates, before undergoing osteogenic tissue engineering. Successful functionalisation was assessed histologically and through zeta-potential studies. To address the lack of *in vivo* stem cell labelling, MSCs were partitioned with the superparamagnetic magnetoferritin-surfactant bioconjugates. Successful functionalisation was assessed using MACS Separation, Transmission Electron Microscopy and MTS cell-viability assays.

Discussion: Overall, the cationisation and conjugation reactions were found to successfully introduce alterations to the protein, which allowed successful cell membrane integration. The used of myoglobin to minimise central necrosis however, showed inconclusive results highlighting further work is needed. On the other hand, bioconjugated magnetoferritin was able to successfully functionalise cells without cytotoxicity.

Does Intra-Operative Local Infiltration Analgesia Administered as an Adjuvant Therapy During Total Hip Replacement and Total Knee Replacement Improve Acute Post-Operative Pain?

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Background: Acute pain is a common complication following total hip and knee replacement (THR, TKR) which can delay discharge, potentially increase risk of complications and reduce patient satisfaction. Various pain relief techniques are available such as Local Infiltration Analgesia (LIA).

Aim: The aim was to identify any reduction in analgesia intake and length of stay (LOS) following primary THR and TKR comparing those who did or did not receive adjunctive intra-operative LIA.

Methods: A retrospective study was done on a prospective dataset from August 2013 to November 2015. Four cohorts were identified: Group 1 THR and TKR patients received general anaesthesia and regional/peripheral nerve block while Group 2 THR and TKR patients received general anaesthesia and LIA. Our sample size calculation had a significant difference in LOS of 0.5 days, a power of 80% and p value≤0.05. In-patient analgesia was converted to morphine equivalent for comparison.

Results: For THR, Group 2 (n=102) had significantly less analgesic intake on the day of surgery and first day post-surgery ($p<0.02$) than group 1 (n=101). There was no difference in LOS between the two groups. Both TKR groups had significantly less analgesic intake on the day of surgery and first day post-surgery ($p<0.01$). However, Group 1 (n=88) had a statistically significant difference in LOS (median 3.3 days) compared to Group 2 (n=118, median 4 days) for TKR.

Discussion: Various studies show advantages of using LIA in both THR and TKR such as reduced analgesic intake and reduced LOS. However, a meta-analysis of randomised controlled trials shows no significant advantages of using LIA.

Conclusion: In our study, although there was a reduction in analgesia intake on day of surgery and the first day post-surgery in patients who had adjunctive LIA, its use did not result in earlier discharge.

Awareness, Beliefs and Barriers of Organ Donation Among Saudis in Madinah City, Saudi Arabia

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Background: Although organ transplantation is considered as the only preferable treatment for end-stage organ disease, there are not many organ donors among Saudis.

Objectives: To assess knowledge and attitude of Saudis in Madinah, Saudi Arabia, towards organ donation and to determine factors intervene with willingness of family to donate a member's organ.

Methods: A cross-sectional study, data were collected through a valid structured interview questionnaire from 290 participants during organ donation campaign in May 2015. The questionnaire included socio-demographic data and data about participants' awareness and knowledge on organ donation. Data was analysed and compared by participants' sex using appropriate statistical tests with the level of statistical significance was defined as $P \leq 0.05$.

Results: Of the interviewed 385 Saudis, 290 agreed to participate in the study with a response rate of 76.3%. The mean age of the participants was 27.2 ± 8.8 years. The study revealed 74.1% of the participants were willing to donate their organs with no significant differences between males and females, although only 2.7% of them reported to have a donation card. Religion, money, and age of the recipient appeared to have no role in their willing of organ donation. However, lack of awareness (21.7%), family refusal (20.6%) and fear of unknown (19.7%) were the most important barriers of organ donation. The participants believed that governmental incentives in the form of monetary and health treatment for donor family and awards would be effective in promoting organ donation.

Discussion and conclusions: The study revealed a considerable proportion of participants were willing to donate their organs, in which religion and financial reasons were not factors. More organ donation campaigns are needed to maximize public positive beliefs.

Risk Factors Associated with In-Hospital Mortality Following Colon Cancer Surgery

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Background: The current rate of in-hospital mortality following colon surgery ranges from 0.8-8.8%. We sought to identify potential risk factors associated with in-hospital mortality following colon surgery as well as to assess the accuracy of mortality prediction of Colorectal (CR) andPhysiological (P) POSSUM scores.

Materials and Methods: A case-control study was conducted including patients who underwent colon surgery for a primary malignant colon tumour that died during their period of hospitalization. Combined rectal resection was the exclusion criterion. The control group as matched according to gender, age, staging and type of resection, in a 1:4 case: control ratio. Data concerning demographics, pre-operative blood test results, intraoperative parameters and post-operative follow-up was retrieved from the database of an ongoing prospective study. Relevant statistical analysis, using GraphPad, encompassed descriptive statistics, Odds Ratio (OR), 95% Confidence Interval (95% CI) and *p*-value.

Results: From the first 200 patients enrolled in a prospective study, a five percent (n=10) mortality rate was ascertained. The mean age was 68.4±13.47 years in the case group compared to 68.2±11.47 years in the control group (age range: 40-92 years). The risk factors found to be associated with in-hospital mortality were: left colon tumours (*p*=0.014, OR=7.0,95%CI=1.47- 33.14), emergency surgery (*p*=0.07, OR=9.75,95%CI=0.78-120.95) intraoperative blood transfusion (*p*=0.005,OR=9.33,95%CI=1.96-44.35) and re-operation (*p*=0.002,OR=39.05,95%CI=3.75- 404.96). CR-POSSUM was more accurate than P-POSSUM (*p*=0.016,95%CI=1.20-5.99).

Discussion: Significant reduction of in-hospital mortality as well as decreased health care costs can be achieved through the creation of a uniform stratification system, identifying high-risk colon cancer surgery patients for more rigorous post-operative care.

Conclusion: The risk factors associated with in-hospital mortality following colon cancer surgery are left colon tumours, emergency surgery, intraoperative blood transfusion and reoperation. Although both POSSUM scores over-predicted mortality, we recommend using CRPOSSUM as a better predictor of mortality.

Age Determination of Epiphyseal Union of Knee and Hand Joint Bones Among Saudi Population in Taif City

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Introduction: The use of the radiography for age determination according to the epiphyseal union stage is widely accepted method. The aim of the present work is to estimate the age of epiphyseal union of hand and knee joints bones among Saudi population in Taif city.

Subjects & Method: A retrospective cross-sectional study was conducted in Armed forces hospitals (four hospitals) in Taif city. All patients who have fulfilled the inclusion criteria and intact from the exclusion criteria were involved. The method which divided the epiphyseal union into five stages was used for assessment of the union of the epiphysis.

Results: A total of 473 patients' X-ray images were involved. Approximately three quarters of the knee images and hand images were males' images (77.25% & 75.41% respectively). The means of age of stage three (age of recent union) in knee joint were 23.63±3.12 and 21.19±3.41 in males and females respectively and 19.84±3.47 and 17.19±1.61 in hand joints for males and females respectively. No significant differences between males and females in the means of age for each stage were observed except for stage four (age of old union) in knee joint (P-value=0.019). There was significant difference between the means of age of stage two and three (Pvalue= 0.000) and between the stage three and stage four (P-value=0.044) in male group of knee joint images. Also, significant difference between the means of age of stage two and stage three in female group of hand joints images was observed (P-value=0.021).

Conclusion & Recommendation: This study suggests that the union of epiphyses of knee and hand in the Saudi population who live in Taif city occur later than other places. More studies have to be done using more female samples.

Recruitment of Older People in Hospital for Research – Challenges and Experience from a Feasibility Study

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Introduction: Recruitment and retention of older people into research has been acknowledged to be challenging. Even more difficult is recruiting older people in acute hospitals who represent significant users of healthcare resources. As part of an ongoing feasibility study to improve physical activity in hospital, data was collected on why older people decided not to participate.

Methods: The PEDAL (Pedal Exercise During Admission to hospital) feasibility study aims to compare the use of a chair based pedal exerciser for older people (≥65 years) admitted as an emergency to hospital with standard care. Patients were spoken to by the research team using the same rehearsed approach and given a participant information sheet. If needed, they were allowed to consider participation over the next 48 hours. As part of the study aim, eligible participants not wanting to participate were asked their reason and with their consent this data recorded.

Results: Over four weeks, 22/38 patients (58%) that were eligible for recruitment did not provide consent. Pertaining to reasons provided: the majority, nine (41%) patients, declared a lack of interest in research; four (18%) cited pain restricting activity; four (18%) described generalized lethargy; two (nine percent) described their current acute illness as a barrier to participation; two (nine percent) did not want to use the pedal exerciser; and four (18%) were put off by other study components. Majority of reasons given were unrelated to the research project.

Conclusion: Older people in hospital are not keen to participate in research. Some of this is modifiable, such as raising awareness of the important contribution this cohort can have on healthcare improvement; better management of pain in hospital; and a hospital environment that is stimulating. Further qualitative work is needed to understand how we can improve participation of older people in hospital into research.

Development of a Cadaveric Learning Module for the Anatomy of Open Inguinal Hernia Repair

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Background: The principle surgical method of repair for inguinal hernias within the United Kingdom is the Open Lichtenstein technique. In order to achieve a safe and effective repair using this method the operating surgeon must have a comprehensive knowledge of inguinal anatomy, which is accepted to be difficult to master. This is partly consequent upon a limited exposure to this region within the current undergraduate medical curriculum.

Aim: The aim of this study was to develop cadaveric pro-sections, which reflect the anatomical needs of the operating surgeon during an open inguinal hernia repair.

Methods: Cadaveric dissection of the inguinal region was performed to produce pro-sections, which highlighted the key anatomical structures relevant to the Open Lichtenstein inguinal hernia repair.

Results: Two cadaveric pro-sections were created revealing the; superficial epigastric vessels, Camper's and Scarpa's fascia, superficial inguinal ring, external oblique aponeurosis, spermatic cord, Ilioinguinal and Iliohypogastric nerves, internal oblique muscle, inguinal ligament and deep inguinal ring.

Conclusion: The present study indicates that cadaveric pro-sections can be used to demonstrate the key anatomical features encountered during Open Lichtenstein repair. These pro-sections may be used to enhance junior surgical trainees' understanding of inguinal anatomy and thus improve the outcomes for the patient.

Spheno-Orbital Meningiomas: A Neurosurgical Challenge

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Background: Spheno-Orbital Meningiomas (SOMs) are complex tumours, accounting for 20% of all orbital tumours. Proptosis is the main clinical sign but it can be surgically reduced. A complete surgical resection is difficult and very complex, considering the frequent SOM extensions into the superior orbital fissure, the cavernous sinus and the peri-orbital area. A multidisciplinary team is often necessary depending on SOM location. This work is the continuation of a clinical-surgical research, started in 2009 by Professor Thierry Civit, published in the French Neurosurgical Journal in 2010, whose goal is to evaluate clinical and surgical procedures at the University Hospital Department of Neurosurgery in Nancy, and their evolution from 2010 to 2016.

Methods: From 2004 to 2009 Professor Civit included 41 patients in his retrospective study. From 2010 to 2016, 19 more SOM surgery patients were included. Pre and Post-operative clinical observation by Professor Civit.
A standardized surgical approach to a fronto temporal craniotomy was used. Prior to 2010, the overall post-operative complication rate (damage to optic nerve, oculomotor nerves and trigeminal nerve) was estimated at up to 20%. **The rationale of this study is to assess post-operative complication rate from 2010 to 2016, i.e. from the 19 patient new series.**

Results: We report clinical improvement and a lower complication rate, due to less aggressive surgical procedure in the new series (clinoidectomy or not, foramen rotundum and foramen ovale opening or not). Evaluation of data collected is still underway.

Discussion: Clinical improvement, high post-operative complication rate and recurrence risk must be taken into consideration to decide the type and extent of surgical removal.

Conclusions: Study results suggest that although SOM management is complex, due to tumour extension, the neuro-surgical approach gives good results with clinical improvement.

Can Interdisciplinary Team Simulation Improve the Management of Neonatal Emergencies?

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Background. In 2014 there were 695,233 live births in England and Wales. Although most babies transition well from relying upon the placenta, to breathing for themselves some neonates require medical assistance during this transition. Providing good newborn life support (NLS) in these instances, is a key skill required of paediatricians and midwives. Often doctors work with midwives to provide NLS. Our local unit provided NLS training for doctors and midwives separately, often outside of clinical areas. Simulation crosses the gap between medical education and clinical practice, allowing healthcare professionals to learn in a realistic but safe environment.

Method. The study investigated whether providing interdisciplinary simulation training in the delivery suite for junior doctors and midwives could improve NLS provision. During 2015 sixteen participants, seven midwives and nine doctors, partook in an NLS test scenario using SimBaby on the labour ward at a level two Neonatal Unit. Participants were debriefed, encouraged to discuss their expected roles and competencies and completed a written questionnaire.

Results. The simulation training identified a need a for inter-professional medical education, highlighting gaps in the understanding of other healthcare professional's abilities and a need for better communication between midwives and doctors during NLS. Fifteen of the sixteen participants felt the training positively impacted their practice in working with other healthcare disciplines in NLS. Feedback indicated specific improvements in human factors such as increased awareness of each other's roles, communication and confidence. Due to the study's success, we aim to provide similar learning opportunities on a more regular basis.

Conclusion. Interdisciplinary simulation training for NLS is a vital resource in improving emergency care by doctors and midwives. The study demonstrates a need for this training and a way to provide it which benefits both doctors and midwives, integrated into the normal working day.

Using Trans-Vaginal Duplex Ultrasound to Detect Pelvic Vein Incompetence in Women: A Diagnostic Readability and Interobserver Variability Study

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Background: The association between chronic pelvic pain in women and pelvic vein incompetence (PVI) is becoming increasingly recognised. While reflux venography remains the 'gold standard' approach for investigating PVI, the use of trans-vaginal duplex ultrasound (TVDU) within the diagnostic workup is gaining popularity as a safe and non-invasive alternative. This study aims to assess the level of diagnostic readability and interobserver variability with using TVDU to diagnose PVI.

Method: At a large University Teaching Hospital, ultrasound scan images for 45 women were made anonymous and retrospectively reviewed by a second vascular scientist to assess diagnostic readability. A further 14 women with clinical suspicion of PVI were prospectively scanned by two blinded vascular scientists to determine interobserver variability. Percentage agreement and Cohen's kappa coefficient (κ) were calculated to determine diagnostic readability and interobserver variability.

Results: Comparison between scan diagnosis and review diagnosis for retrospectively reviewed TVDU images showed 71% total agreement ($\kappa = 0.48$, moderate agreement, $p = 0.000$). Of the 14 women who underwent double scans, total agreement for PVI diagnosis was 93% ($\kappa = 0.84$, very good agreement, $p=0.001$). However, only seven of the 14 patients had matched scan reports (50%).

Discussion: All women were scanned using a standardised protocol. Very good agreement was seen for interobserver variability between the two blinded vascular scientists overall. The differences observed between the unmatched scan reports for the women who underwent double scans suggests that TVDU may be more appropriate as an initial screening tool prior to reflux venography.

Conclusion: TVDU is a useful imaging modality for investigating PVI with good inter-observer agreement.

Assessing Diabetes Knowledge Among a 'High Risk' Maltese Cohort

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Introduction: Type-II Diabetes Mellitus (T2DM) is a global epidemic. The level of education and awareness in a "high-risk" population was explored with reference to their onset of T2DM.

Methodology: A "high-risk" population of 155 individuals (94 males, 61 females) was selected from an on-going, national cross-sectional study. The sample was selected based on the American Diabetes Association's (ADA) criteria of having an impaired fasting glucose (IFG) and of needing an oral glucose tolerance test (OGTT). The tool of measurement was a validated questionnaire. The participants were asked questions about their knowledge of risk factors, complications and management of diabetes. Participants' responses were then compared to the correct answers.

Results: The participants were inhabitants from Malta between the ages of 27 and 71 years old. The majority knew all the risk factors, symptoms and monitoring techniques of T2DM (75.1%, 75.4% and 95.5%). Most of the questions regarding complications and management were answered correctly (57.9% and 80.1%). Specifically, the participants were largely unaware of the association of arthritis and birth control pills with T2DM (47.7% and 67.7%). Friends or relatives and the media were the most common source of knowledge about diabetes (71% and 66.5%).

Discussion: On average, participants answered the majority of the questions correctly, however, certain areas pertaining to the complications, management and contraindications of T2DM was not as comprehensive as others. The management and contraindications are modifiable factor on the onset of T2DM. This being an important aspect of T2DM considering its impact on one's quality of life and the financial burden on the National Healthcare Service.

Conclusion: The media should be utilized as the preeminent portal to further the public's education regarding the complications, management and contraindications of T2DM.

Is Neo-Adjuvant Chemotherapy More Effective Than Endocrine Therapy in Achieving Complete Pathological Response and Facilitating Breast-Conserving Surgery?

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Introduction: Breast carcinoma serves as the most common cancer in the UK. Despite the declining rates in overall mortality, the management of locally advanced breast cancer remains particularly challenging. In recent years neo-adjuvant therapy has attracted much attention. Its ability to reduce tumour size pre-operatively can facilitate breast conserving surgery and downstage metastatic spread. Whilst neo-adjuvant endocrine (NAET) serves as a less toxic alternative to neo -adjuvant chemotherapy (NACT) its comparable effectiveness is widely debated.

Aim: To compare the effectiveness of neo-adjuvant chemotherapy and endocrine therapy in achieving complete pathological response and facilitating breast-conserving surgery in patients with breast carcinoma.

Methods: This retrospective review identified all women administered neo-adjuvant endocrine therapy (NAET) or neo-adjuvant chemotherapy (NACT) for breast cancer between 1st January 2013-2016. The tumour characteristics, radiological response, pathological response and surgical approach of both treatment groups were compared using Student's *t*-test and Chi-squared test.

Results: In total, 63 cases were included; 42 received NACT and 21 received NAET. Tumour sizes were similar at baseline (Mean 30.2mm vs.31.6mm respectively). Those treated with NACT demonstrated significantly greater complete radiological response (29% vs.10%, p=0.080) and complete pathological response (29% vs.0%, p=0.018), with reduced rates of pre-operative disease progression (7%vs.29%, p=0.021). A larger proportion of NAET-treated cases were, however, managed with breast-conserving surgery (62% vs.26%, p=0.006).

Discussion: This study demonstrates neo-adjuvant chemotherapy to be more effective at inducing complete radiological and pathological response than endocrine therapy. Despite this finding, breast-conserving surgery was more prevalent in the NAET group. This trend persisted following stratification for pre-treatment tumour grade.

Conclusion: Neo-adjuvant chemotherapy is more effective at down-staging breast carcinoma than neo-adjuvant endocrine therapy.

Characterisation of MYB in Normal and Malignant Haematopoiesis

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Introduction: The MYB transcription factor is expressed in Haematopoietic Stem Cells (HSCs) regulating proliferation and differentiation but its 60 alternative splice variants are associated with several haematopoietic malignancies of which the *MYB-9S* variant associates with a worse outcome. Our DNase1 digestion analysis has identified a region of hypersensitivity within MYB exon 9, in the vicinity of splice sites which are bound by both *RUNX1* and RUNX1/ETO. We aim to characterise the relative expression levels of *Myb* and *Myb* variants in HSCs and progenitors, as well as determining if RUNX1 and RUNX1/ETO may regulate the expression of splice variants in AML.

Method: Murine bone marrow cells were collected and sorted based on antigen expression into HSCs and progenitor classes. Transfection of the AML cell line with siRNAs was performed, with real-time PCR measuring the expression of *MYB* and splice variants.

Results: Myb expression is shown to decrease as HSCs differentiate with an increase in the proportion of Myb-9s expression. Knockdown of RUNX1 leads to a decrease in MYB expression whereas an increase in MYB is shown with RUNX/ETO knockdown. MYB-8A and MYB-9A expression remained constant with both siRNAs however 9S rose significantly with RUNX1 knockdown and decreased with RUNX/ETO knockdown.

Conclusion: The relative expression of *Myb* and its variants in normal mouse HSCs and progenitor cells show *Myb* splicing is actively regulated during normal haematopoiesis. We show RUNX1 participates in regulating *MYB* transcription and splice site selection. Manipulation of RUNX1 expression in AML cells shows RUNX1 is required to upkeep *MYB* expression and repress alternative splicing possibly via binding at the exon 9 region, acting as an enhancer and interacting with the SWI/SNF complex. There is an active role for RUNX1 and RUNX/ETO in the regulation of MYB alternative splicing highlighting a need to elucidate the exact function of these proteins in AML.

Evaluation of Crohn's Disease Patients' Fracture Risk Using the FRAX® World Health OrganisationFracture Risk Assessment Tool

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Background: Crohn's disease is associated with increased secondary osteoporosis risk through underlying inflammatory processes affecting bone resorption, and absorption of essential nutrients. Osteoporosis is expected to cost the UK healthcare economy £2.2 billion by 2025 through fragility fractures, with a current incidence of over 90,000 per year.

Objectives: To identify Crohn's disease patients in primary care at risk of secondary osteoporosis. Need for bone mineral density (BMD) assessment through dual energy X-ray absorptiometry (DEXA) scan will be evaluated, along with need for treatment, by using the FRAX®World Health Organisation fracture risk assessment tool. As a standard, 100% of Crohn's disease patients should have a fracture risk assessment, have BMD assessed, and be on treatment where indicated.

Methods: Fifteen Crohn's disease patients aged over eighteen and not currently on bisphosphonate therapy were included. Once a full current FRAX® data set was collected, a pre-BMD FRAX® score was calculated to evaluate their need for BMD assessment.

Results: Of the nine patients for whom a pre-BMD FRAX® score was calculated: zero were recommended treatment; five (55.6%) were recommended BMD assessment; four (44.4%) were recommended lifestyle advice and reassurance.

Discussion: The web-based FRAX® tool is accessible, requiring minimal details, which are obtainable swiftly during consultation. The National Institute for Health and Clinical Excellence (NICE) and several studies recommend its use to calculate osteoporotic fracture risk prior to interventions or investigations being carried out; pre-BMD FRAX® score. Clinicians can then decide whether patients require BMD assessment, or lifestyle advice and reassurance. Post-BMD FRAX® score should decide treatment initiation, reducing both unnecessary BMD assessment and treatment.

Conclusion: Crohn's disease patients are a population who benefit from regular surveillance of osteoporotic fracture risk. FRAX® is recommended for this risk assessment, though treatment initiation should only be decided from a post-BMD FRAX® score.

The Evaluation of Patients' Attitudes Towards Self-administration of Medications During Hospital Stay.

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Background: The All Wales Policy for Medicines Administration, Recording, Review, Storage and Disposal recommends that if a patient wishes to self-administer their medicine (SAM) whilst in hospital, they should be supported to do so where possible. Despite this the number of departments supporting this practice is limited. Such programmes have been reported to improve patients' satisfaction with their care in hospital as well as provide other potential benefits. This study aims to identify groups which would benefit the most from piloting such programme.

Method: Questionnaires were distributed to 61 patients in The Cardiff and Vale Orthopaedic Centre(CAVOC) and the responses analysed. The questionnaire considered whether the patient was able to take their own medications at home without help, whether they would wish to continue SAM whilst in hospital, whether they take their medications at set times and what types of medications they consider vital to take at these times, as well as the type of operation.

Results: In total 23 hip, 16 spinal, 13 knee and nine other orthopaedic patients were included in the study. Twenty-nine (48%) patients stated they would feel more comfortable if they could continue SAM whilst in hospital. In this group 10 (34%) patients underwent spinal operation, nine (31%) underwent a hip replacement and four (13%) a knee replacement, with the remaining six undergoing other orthopaedic procedures. Out of the medications that patients felt were vital to be taken at specific times 15 (48%) were analgesics, five (16%) cardiac medications, four (12%) statins and three (nine percent) antidepressants.

Discussion: The findings of this study suggest that problems with pain control may be the most common reason for patients wanting to continue SAM.

Conclusion: Patients admitted to CAVOC for elective spinal operation are the most likely group to benefit from SAM and as such they would be the best group to pilot SAM programmes on.

Category: Clinical Audit

Reducing Morbidity and Mortality from Asthma: The Importance of annual reviews and Self-Management Plans for Children with Asthma

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Background: The recent National Review of Asthma Deaths (NRAD) highlighted inadequacies in asthma management in children in primary care, leading to preventable deaths and admissions to hospital. It reiterated the importance of annual reviews and self-management and recognition of deterioration using personalised asthma action plans (PAAPs). The British Thoracic Society (BTS) subsequently updated guidelines to reflect this advice, stating that children with asthma should be reviewed on an annual basis and this should always include a PAAP.

Methodology: This audit retrospectively assessed adherence to BTS guidelines in a primary care practice by using EMIS to investigate the number of patients aged 16 or under with asthma who were reviewed in the last year and the content of these reviews.

Results: The results showed that uptake of asthma reviews was poor, with only 59.7% being reviewed in the last year. Amongst those reviewed the provision of PAAPs occurred in only 58.6% of reviews. In addition, it was noted that other aspects of the BTS guidelines for asthma reviews were not being used in practice at all.

Discussion: The poor results were analysed and areas for improvement were identified. These included changing the protocol used for asthma reviews within this practice according to BTS guidelines, increasing uptake of reviews using email and text message reminders and notes on prescriptions for those over-using short-acting beta agonists, education of practice staff about PAAPs and providing blank PAAPs to patients checking in for reviews at reception.

Conclusion: Asthma management in this practice was out of line with current BTS guidance and poorly implemented. The recommended changes are intended to improve the practice's management of asthma in children. In addition, these changes could be used to improve care in other primary care practices across the UK and for many other chronic diseases.

The Effects of Continuous Overnight Catheter Drainage (OCD) in Children with Neuropathic Bladders and Other Urinary Tract Pathologies Requiring Clean Intermittent Catheterisation

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Introduction: Vertebral augmentation has been shown to improve pain associated with osteoporotic vertebral fractures (OVF). Its benefit in the 'older-old' is less certain. We aim to compare outcomes of the older-old cohort with those from a younger cohort post-vertebral augmentation.

Methodology: A retrospective analysis of healthcare records of 25 older-old patients (≥ 80-years) and 17 younger patients (<70-years) from the spinal service database on patients that had a vertebral augmentation for OVF was done. Data was collected on patient demographic and outcome [visual analogue scale (VAS), Oswestry Disability Index (ODI), analgesic requirements and healthcare outcomes].

Results: Pertaining to patient characteristics ('older-old' vs younger cohort): mean(SD) age [85.7(3.9) vs 59.5(6.3)]; female gender [72% vs. 65%]; polypharmacy [92% vs. 74%]; living in own home [88% vs. 100%]; independent pre-operative functional state [88% vs. 100%]; and use of walking aid [83% vs. 47%]. Pre-augmentation, weaker opioids were likely to be prescribed in the younger cohort [29% vs. 53%, p=0.06], but similar prescribing for strong opioids in both cohorts [50% vs. 37%, p=0.58]. Overall, improvement in pain was seen in 10 (42%) cases in the 'older-old' cohort and 12 (63%) in the younger cohort. Both cohorts demonstrated similar average preaugmentation VAS [8 vs. 8] and ODI scores [52% vs. 59.6%]. Similar improvement in outcomes were seen in both cohorts ['older-old', younger: average VAS 4, 5; average ODI 35%, 47%; average weak opioid reduction by 57% and 50% respectively; average strong opioid reduction by 25% in the older-old vs. 14% increase in the younger cohort]. Two patients in the older group had their social care needs escalated on discharge.

Conclusions: Vertebral augmentation in our 'older-old' cohort demonstrated improvements in pain/disability indices with a reduction in opioid prescribed. In this selected group, the benefits derived from augmentation were comparable to the benefits seen in a younger cohort.

Antenatal Glucocorticoids: How Often Are They Used and What Are the Outcomes? A Clinical Audit

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Background: Women at risk of preterm labour (PTL) are prescribed antenatal glucocorticoids (aGCs) to reduce the risk of neonatal complications. Despite clear benefits of aGC treatment, evidence suggests aGC exposure may cause harmful long-term endocrinological and metabolic effects. Changes to the Royal College of Obstetricians and Gynaecologists guidelines in 2010, which included recommending giving aGCs to all women having an elective caesarean section (elCS) or induction of labour (IOL) before 39 weeks' gestation, have probably increased the number of women prescribed aGCs. Given aGCs' potential harmful effects, treatment should be limited to those requiring them according to the guidelines.

Aims: To identify all women given aGCs in Lothian in 2013 and determine the proportion in whom treatment may not have been required. To elicit how many women had an elCS before 39 weeks' gestation, and whether they were administered aGCs. To compare the findings to an audit from 2006 when 83 mothers were given aGCs.

Methodology: "Maternity TRAK" was used to identify all patients who were treated with aGCs and all those who had elCS/IOL prior to 39 weeks' gestation. Information on the mothers, their aGC treatment and pregnancy outcomes was recorded**.**

Results: Four hundred mothers were identified. One hundred and five were treated for PTL (data available for 98), 50% of whom delivered preterm. Two hundred and ninety-five women (data available for 294) were anticipated to need delivery by elCS or IOL before 39 weeks' gestation; 51.36% of them were treated with aGCs.

Discussion/Conclusion: As hypothesised, more mothers were given aGCs in 2013 than 2006. A significant proportion of those treated for PTL delivered at term, highlighting the fundamental issue of poor PTL diagnosis and it resulting in potentially harmful aGC treatment. Surprisingly, many mothers who had an elCS were not given aGCs, suggesting the guidelines were not closely followed in 2013.

Government Health Facility, Inner City Kampala: Improving Documentation Standards throughout the Intrapartum Period

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Background: Maternal morbidity and mortality levels remain at unacceptable levels, almost exclusively in the developing world, with Sub Saharan Africa seeing more than half of these cases. Documentation serves as the primary means of communication between healthcare providers working various shift patterns and across multiple healthcare facilities. Therefore, it is an essential component in providing safe and effective healthcare.

Methodology: The Perinatal Institute formulated guidelines that standardize documentation during the intrapartum period. We performed a prospective, monthly, snapshot audit against an adapted version of the guidelines (for use in a low resource setting) reviewing all available patient notes.

Results: Prior to our intervention, documentation standards were poor and extremely variable throughout the department. Following a series of interventions, we noted a significant improvement in many aspects of the required documentation. Documenting of admission observations increased from eight percent to 48%. The use of partograms was previously 0%, increasing to 24%. We noted that perineal trauma and repair increased from 48% to 89% and 20% to 71% respectively. Signing of a delivery note was initially seldom completed with a rise from 38% to 78% post intervention.

Discussion: Interventions implemented involved weekly teaching, departmental inductions for new staff & students and guidelines/prompts posted in communal areas within the department. Involving all staff members each week for teaching was complicated by high levels of absenteeism and shift patterns. It was noted that a lack of commitment from administration to provide relevant paperwork impacted on documentation standards and the sustainability of comprehensive documentation during the intrapartum period.

Conclusion: Despite the small scale of these basic interventions, a significant improvement was recorded in the documentation of many key points formulating a thorough record of the intrapartum period. These encouraging results are likely to see greater improvement if interventions remain in place.

The Effect of a Patient Diary on Mobilisation Post Colorectal Surgery - A Closed Loop Audit.

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Background: The Enhanced Recovery Programme (ERP) is an evidence-based approach aimed at improving postoperative patient outcomes in colorectal surgery, reducing postoperative complications and length of stay. This is achieved through pre-operative preparation, reducing the physical stress of the operation, a structured approach to postoperative management and early mobilisation. This closed audit cycle assessed the impact of a patient diary on the percentage of patients mobilising within 24 hours of surgery.

Methodology: All patients admitted for colorectal surgery between August 2014 to January 2015 (cycle 1) then July 2015 to September 2015 (cycle 2) were identified from the prospectively collected ERP database and analysed with descriptive statistics.

Results: Five hundred and ninety-five patients identified in the first audit cycle and 70 in the second cycle. Forty-five percent of patients in the first cycle mobilised within 24 hours of surgery, improving to 56% in the second cycle. Older patients had more compliance with mobilisation in the first cycle but no correlation in the second cycle. Average length of stay was four days over both cycles with positive correlation between early mobilisation and shorter length of stay.

Discussion: The first audit cycle identified that 55% of patients on ERP were not mobilising within 24 hours of their surgery, which was correlated with longer inpatient stays. Introduction of the patient diary improved mobilisation to 56% suggesting that this was a positive implementation, particularly in the younger patient. The small cohort size of the second cycle reduces the power of the data but it is still possible to draw useful conclusions.

Conclusion: Early mobilization of colorectal patients following ERP in the first 24 hours has increased followed the implementation of a patient diary (56% v 45%). There are still a large number of patients non-compliant with early mobilization. We have introduced regular teaching for the nursing staff to improve our compliance with the ERP.

Impact of A CUP Service at the Royal Derby Hospital- One Year On

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Background: Nine thousand six hundred UK patients are diagnosed with Cancer of Unknown Primary (CUP) each year. CUP represents 3-5% of all malignancies. Studies show the diagnostic pathway to be lengthy, fractured between specialities, and that patients find it a difficult diagnosis to accept. In 2010 National Institute of Health & Clinical Excellence issued guidelines recommending a Multidisciplinary Team (MDT) approach to CUP patient management. In 2013 Royal Derby Hospital (RDH), serving 600,000 people, launched a CUP MDT led by a Consultant Oncologist and two Specialist Nurses.

Methodology: Utilising an in-house database of patients referred to CUP MDT, data for May 2014-15 was extracted, analysed and compared with data audited from May 2013-2014.

Results: One hundred and nineteen patients were referred to CUP MDT in May 2014-2015. Seventy-four percent of patients were seen by a member of CUP MDT. Fifty-six (47.1%) were eventually diagnosed with CUP, 50 (42%) had a primary cancer site identified and 13 (10.9%) did not have cancer. Mean age was 72.2 years with minimal gender variation. Mean survival was 62 days with patients who died before registration, and 71 days without that data set. There were substantial reductions in number of MDT discussions per patient. Thirteen (10.9%) patients had Positron Emission Tomography (PET) scans. Fifty-eight (48.7%) patients solely received best supportive care.

Discussion: Average age, gender, life expectancy, and cancer subtypes reflect national trends. Primary site identification, investigations and treatment show alignment with national guidelines. Reduction in number of MDT discussions is encouraging as it improves patient experience, as do Palliative Medicine and Specialist Nurse input.

Conclusion: RDH CUP MDT has demonstrated improvements in speed and accuracy of diagnosis in a co-ordinated approach to care. A recommendation would be to participate in future gene expression profiling trials, when available, to optimise diagnostic accuracy, treatment options and survival.

Appropriate Prescribing of Antibiotics in Sepsis in the Emergency Department, And Evaluation of the Time to "Sepsis 6."

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Introduction: Sepsis is a common and potentially life-threatening condition that is associated with high morbidity and mortality, which directly correlates with time to treatment from identification. Approximately 32,000 deaths in the UK annually can be attributed to sepsis. This audit aimed to assess correct identification of sepsis, time to treatment, and appropriateness of the antibiotics prescribed according to the clinical source of infection.

Methods: CAS cards from A&E from 1st - 31st August 2015 which were coded for sepsis in adults were collected. The demographics of patients, physiological data, blood test results and time to treatment (using the sepsis six and the ED Trust guidelines as a standard) was collated onto an Excel spreadsheet.

Results: Out of a total of 38 CAS cards coded, 16 pertained to severe sepsis as per Trust criteria. Antibiotics were prescribed and given in 75% cases within the hour. Of the antibiotics that were given, 47% followed trust guidelines, and 67% of chest sepsis and 67% of urosepsis were prescribed appropriately. Intra-abdominal sepsis was poorly prescribed for with only 20% of cases following guidelines.

Discussion: Multiple study limitations were identified, including small sample size and likely underreporting of sepsis, as the audit is reliant on the data sheet being completed for each case. In addition, current ED & Trust antibiotic guidelines did not include neutropenic or intra-abdominal sepsis, areas of particularly poor prescribing practice.

Conclusions: As an ED, our management of sepsis is timely, however, our antibiotic prescribing could be improved. Empirical antibiotic guidelines have been altered and updated with the support of the microbiology department. ED prescribers have immediate access to the policy which now includes neutropenic sepsis and intra-abdominal sepsis. As of April 2016, we are in the process of re-auditing.

Are Uric Acid Levels Being Checked Appropriately in a North Lincolnshire GP Practice?

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Background: Allopurinol is a prophylactic treatment for gout, featuring on the WHO's list of essential medicines for a basic health care system. The aim of allopurinol is to maintain serum uric acid levels below 300micromol/L, and NICE recommends that these levels are checked every three months for 12 months, then yearly. Studies have shown this is not being followed, so we collected data from our GP practice to evaluate this.

Method: 15th March 2016 was used as a point to record patients taking allopurinol and was a date to look retrospectively to see how many of these patients had their serum uric acid level checked in the last year. All registered patients on any dose of allopurinol from the 1st March 2015 were included to ensure the opportunity for a yearly test was met.

Results: Of the 52 patients taking allopurinol, only seven had their serum uric acid level checked in the last year, leaving 45 patients who had been prescribed allopurinol for at least a year and had not been tested once. Of these 45, six patients were commenced on allopurinol in the first three months of 2015, meaning they had also not received the initial three monthly serum uric acid testing to titrate their dose appropriately.

Discussion: These results show that the GP practice was not following updated guidance to test serum uric acid. GPs may not be aware of the information, or not following it because it is still only a recommendation, not part of the NICE guideline.

Conclusion: The GP practice was not following the recommendation for serum uric acid to be checked yearly in 87% of patients on allopurinol. This might be detrimental to the patients, but further study is needed in order to evaluate this and whether it is a global problem.

Delay in Treatment of Non-Emergent Surgical Resection in Colorectal Cancer Patients Does Not Lead to Adverse Short-Term Oncological Outcomes

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Introduction: There is a 6-8-month delay in colorectal cancer (CRC) treatment with the increasing incidence of CRC in the UK. Cancer Waiting Time (CWT) of 31 days till treatment has been recommended by guidelines and this study aims to evaluate the impact of delayed CWT with tumour progression in CRC patients.

Method: A retrospective study was performed on all non-emergent CRC patients treated between 01/01/2013 to 21/01/2016 at the Royal Preston Hospital, UK. A comparison of change in tumour diameter, tumour stage, rates of resection margins was performed between patients with CWT within 31 days and more than 31 days.

Results: The mean CWT found is 52 days with an overall shorter CWT in younger patients (age <60) than older patients, 43 and 54 days respectively, $p<0.05$. No association was found between CWT and percentage change in tumour diameter or staging, $p>0.05$. A CWT of more than 31 days had a smaller decrease in tumour diameter (-3.25% vs -3.95%), increase in tumour staging (+1.32 vs -0.0349) and higher R1 resection margins rates (2.2% vs 1.2%), but these were statistically not significant, $p>0.05$.

Conclusion: CWT of more than 31 days was not associated unfavourable outcomes and a review of the current NICE CWT guidelines is warranted.

Audit on Availability and Usefulness of Educational Resources Regarding Paediatric Epilepsy

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Method: Eleven subjects participated in this audit. A questionnaire was compiled on the availability and understandability of educational materials regarding epilepsy. The questionnaire was translated into Maltese and distributed to parents of epileptic children before outpatient appointments. Data was collected and analysed.

Results: Affected children ranged from 1–14years. 36.4% were diagnosed under a year ago, 54.6% within 1-5 years ago and 9.1% over five years ago. 81.8% of parents were given information on epilepsy, whereas 18.2% were never given. Of those given, 54.5% were given after the first seizure, 18.2% within a year and 9.1% over one year after first seizure (18.2% not given). 72.7% were only given a verbal explanation, with only 27.3% given information leaflets. 45.5% have never heard of the Caritas Malta Epilepsy Association. 54.5% have no contact number in case of an emergency during a seizure. 54.5% of children do not know about epilepsy (27.3% not applicable as they were under five years of age).

Discussion: Although most parents were given information, many were given late. The majority were only given a verbal explanation, with no leaflets, videos or other materials for them to have at home. Studies have shown that patients only retain little information of what you explain during a clinic, therefore educational materials are essential. The majority did not have a contact number in case of an emergency, emphasising the need for a specialist epilepsy nurse in Malta. More education for children is needed, as it is essential that they know what they are suffering from.

Conclusion: Data will continue to be collected.

Recognition and Response to the Deteriorating Patient- A Clinical Audit

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Aims: Identifying the acutely unwell among all patients to prioritise immediate response forms the essence of effective patient management. This audit was aimed to analyse 1) the adherence of recognition, escalation and response to the current guidance according to Standardised Early Warning System (SEWS) guidelines and 2) qualitative aspects of the response such as time to respond, clinical improvement based on next SEWS score, and consultant involvement.

Methods: Patients with SEWS 3 and above were identified at consistent intervals using 1) bed side SEWS charts and 2) the list for acutely unwell patients in Acute Receiving Unit. Data on patient episode escalation, response pathway, outcome and follow-up outcome were collected using the Electronic Patient Record (EPR) system prospectively. Various parameters were analysed of which primary outcome was auditing the adherence with SEWS guidelines.

Results: One hundred and sixty-six patients with SEWS≥3 were recognised at the Acute Receiving Unit and studied. Eighty-eight of 166 patients had SEWS ≥4 were followed up and the escalation response pathway was analysed. Compliance with frequency of observation of vital signs were only noted in 43% of episodes of deterioration. Only 42.5% of cases had a clearly documented follow-up arrangement. Consultant involvement occurred in only 31/88 episodes and in 42/88 episodes the grade of doctor was not recorded. Episode of deterioration prompted ceiling of care arrangements in only two patients. 12.5% continued to be acutely unwell after intervention.

Discussion: Early detection and response reduces associated mortality and morbidity. SEWS was implemented as an initiative to improve the factors leading to inconsistent identification and response to deteriorating patients. Poor documentation of various parameters on EPR may lead to some spurious results in this audit.

Conclusion: These results warrant improving 1) adherence to SEWS 2) improving EPR documentation and 3) introducing an interventional checklist; all of which will be reviewed annually.

Using Improvement Methodology to Reduce Complications Associated with Cannulas

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Background: Cannulation is an essential aspect of today's care however its use is not without complications. Cannula-related infection is an avoidable harm in hospital in-patients. Our aim was to reduce the number of unnecessary cannulas thereby reducing the complications from cannulation.

Methodology: Our process measures were the number of cannulas on the ward, number of cannulas that were in use and number of cannulas correctly logged on the computer system. We applied improvement methodology using PDSA cycles and process mapping. The first intervention introduced a communication screen giving staff a one-stop facility to check the cannula status of all their patients. The second introduced safety huddles; staff collectively using the communication screen to actively review the status of each patient. The third change introduced 'Check Cannula' stickers on the prescription chart. These prompt staff to assess the need for the cannula during drug rounds. The final intervention introduced a cannula prompt on the observations laptop making a daily cannula check mandatory when observations were updated.

Results: The primary aim was reduction in the percentage of patients with an unnecessary cannula. There was no significant change from baseline after interventions 1-3. Process mapping identified the main problem was inadequate recording of cannulas on the electronic patient record, this actually decreased from ~50% to 39% after introduction of Check Cannula stickers. The cannula prompt on observation laptops increased 'cannula removal within 72 hours' from 30% to 87%, and 100% of cannulas were logged in.

Discussion: We learnt that to make an effective change to a system it must include standardisation (electronic, not a mix of paper and electronic) and that the reminder needs to be when staff are at the patient bedside and able to respond in real time.

Conclusion: 'Making it easy' for staff dramatically improved reliability of cannula recording and removal.

Blood Transfusion Thresholds in ITU

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Background: General Practitioners (GP) are responsible for ~75% of all antibiotic prescriptions in the NHS, therefore appropriate prescribing in primary care is essential in the battle against increasing bacterial resistance. This study was carried out in order to analyse the co-amoxiclav prescribing patterns of the GP practice that supplied the most broad-spectrum antibiotic prescriptions in the Nottingham North & East CCG.

Methodology: Three months of patient records were retrospectively audited, identifying the presenting complaints that resulted in co-amoxiclav prescriptions. The latest Nottinghamshire antibiotic prescribing guidelines were consulted in order to ascertain whether the prescriptions were appropriate or inappropriate, and to identify which alternative antibiotics should have been used.

Results: Twenty-seven patient records were identified; from which 13 (48%) patients were inappropriately prescribed co -amoxiclav, 10 (37%) prescriptions were appropriate and four (15%) patients were prescribed co-amoxiclav based on specialist hospital advice.

Discussion: The main reason for the high number of inappropriate co-amoxiclav prescriptions was that the practice had not been following the latest Nottinghamshire guidelines for treating urinary tract infections (UTIs). In fact, all 10 patients presenting with UTIs were inappropriately given co-amoxiclav prescriptions. Alternative narrow-spectrum antibiotics were identified within the guidelines for all 13 inappropriate cases. Furthermore, four out of the 10 appropriate coamoxiclav prescriptions could have been replaced with alternative narrow-spectrum antibiotics, reducing the risk of bacterial resistance in the community.

Conclusion: This study highlighted the key areas where the practice could improve its antibiotic prescribing behaviours. All prescribers were made aware of the latest Nottinghamshire prescribing guidelines and aide-memoires were placed in clinic rooms. Had the guidelines been applied to their full potential, the practice could have reduced its number of co-amoxiclav prescriptions in this three-month period by 63% (from 27 to 10 prescriptions). A further study is planned in November 2016 in order to close the audit loop.

Paediatric Early Warning Scores Audit

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Background: Catalysed by the 2008 report 'Why children die' and the endorsements of NICE and the NPSA, the last ten years have seen an exponential increase in the use of Paediatric Early Warning Scores (PEWS) to monitor hospitalised children. It is widely held that abnormal vital signs tend to precede significant physiologic deterioration, thus the report called for implementation of tracking systems to trigger timely intervention and prevent harm caused by inattention? This re-audit contributes to the emerging bibliography on local implementation of PEWS.

Methodology: This prospective re-audit of all patients <16 years of age presenting to the emergency department over a 2-week period examined PEWS recording in patient notes, after a previous audit found that the department was not routinely adhering to this standard. Data were collected on how often PEWS is recorded, whether this varies with triage category and breakdown of PEWS for 'scoring' patients. Demographic and documentation data were also collected to delineate trends in departmental activity.

Results and discussion: Recording of PEWS improved from 15% in 2013 to 67% in 2016, but current practice does not reflect locally agreed policy. It is problematic that 9.8% patients had neither PEWS nor baseline observations recorded, and that 2% PEWS were calculated incorrectly. Waiting time has increased, with half as many patients being seen within an hour as in 2013. This figure is further complicated when one adjusts for triage category, with all Red, Blue, and most Green patients seeing a clinician within their respective target times, but the minority of Orange and Yellow patients.

Conclusion: Whilst concluding that the department has improved its performance from 15% to 67%, this number is noted to be far from perfect and the audit findings are used to generate a number of specific recommendations relating to education, implementation, policy standardisation, and simplifying documentation.

Smoking Cessation Referrals in Elective Orthopaedics

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Background: It is established that smoking has a negative effect on surgical outcomes within orthopaedic surgery. Current guidance recommends that all smokers should be offered referral to smoking cessation prior to surgery in order to optimise outcomes. The aim of this study was to establish the efficacy of both GPs and pre-admission clinic in referring patients to smoking cessation prior to their admission.

Method: This was a retrospective, snapshot study to assess whether smokers undergoing elective orthopaedic procedures were offered referral to smoking cessation pre-operatively. Data was collected over a six-month period within one health board. Only active smokers at the time of pre-admission clinic were included.

Results: Of the 37 patients questioned, 22 (59.5%) patients were referred to smoking cessation by either their GP, pre-admission clinic or both. Eleven (29.7%) patients were offered cessation services by their GP, in contrast to 19 (51.4%) patients by pre-admission clinic. Seven (31.8%) patients who were offered referral accepted, representing 18.9% of the audited population.

Discussion: The data suggests that referral to smoking cessation by GPs and pre-admission clinic is suboptimal. A possible causative factor is that GPs are not up-to-date on current guidance; though it could be argued that cessation services should be offered to all smokers. Staff in preadmission clinic are likely to be aware of current guidance, therefore failure in this setting requires further investigation and improvement through intervention. Data also suggests patient uptake of this service is poor.

Conclusion: Despite the strong evidence within the literature and established guidance, referral to smoking cessation service is suboptimal. Acceptance by patients is limited by their will to want to quit. Although there is little we can do at present regarding the latter, we must improve our approach in offering this service to improve surgical outcomes.

An Audit Evaluating the Inappropriate Prescription of Proton Pump Inhibitors

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Background: The increasing concern that proton pump inhibitors (PPIs) are inappropriately and overly-prescribed for the treatment of upper gastrointestinal disorders remains contentious. As well as a large cost burden, an accumulation of literature now demonstrates an association of PPI use with adverse long-term effects including an increasing incidence of community acquired pneumonia and Clostridium difficile. Our aim was to prospectively reassess whether PPIs are being appropriately prescribed in accordance with NICE guidelines and whether PPI use is being adequately reviewed.

Methodology: We reviewed patient notes, drug charts and referral letters of 150 (60% female, mean age 71 years) inpatients at a university hospital in the UK, over a period of four consecutive days.

Results: Of the 77 inpatients using PPIs, 66 (44%) patients were using PPIs prior to hospital admission, indicating prescriptions had been initiated in primary care, while the other 11 inpatients had started using PPIs during their hospital stay. Approved prescription for PPI therapy was only recorded for 22 (29%) of these patients while the remaining 55 (71%) were found to be using PPIs for unknown or unapproved indications. A review of PPI use during hospital stay had only been documented for 23 (30%) of these inpatients.

Discussion: Although PPI use is prevalent among hospital inpatients, less than a third fulfilled NICE guidelines. Among the unapproved indications, the majority of prescriptions were for protective therapy against aspirin and steroid use. Some patients were continuing to be prescribed PPIs for past peptic or NSAID-associated ulcers for periods extending beyond the eight weeks recommended by the guidelines.

Conclusion: While our data is a snapshot, these results are likely to represent trends in the overprescribing of PPIs in the general community. Our results further demonstrate a continuing need for improved evaluation of PPI prescription in primary and secondary care.

A Completed Audit Cycle: Local Re-audit of College of Emergency Medicine Renal Colic National Audit

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Background: In 2012 the College of Emergency Medicine (CEM) conducted a national audit on management of renal colic. Local results showed a poor response to pain, lack of homogeneity of care and use of outdated investigations. This re-audit looked at the current ED performance against the same standards, and specifically at changes made since the previous audit.

Methodology: A retrospective case-note review of 50 consecutive patients presenting to the ED with renal colic, between October-December 2015, was carried out. ED cards and electronic patient records were accessed.

Results: The action plan from the 2012 audit was completed – the results were presented at an ACE day, and an evidence-based departmental guideline for suspected renal colic produced.
Below are key findings from this re-audit:

- 18% of case notes showed guideline use
- 100% of patients had appropriate follow up organized
- 62% of patients had a CTKUB, all within 24 hours. 10% had USS.
- Results documented of 64% of FBC and 56% of renal function tests
- 100% pain scores documented
- AAA exclusion in 22% of patients over 50 years
- 38% of patients received analgesia within 30 minutes, and 66% within 1 hour
- 60% of patients were re-evaluated for analgesia. 6% in severe pain and 17% in moderate pain were re-evaluated within 60 minutes.

Discussion: Direct ED referral system for CTKUB reflects good interdepartmental collaboration. Improvements also seen in documentation of laboratory tests and pain scores. Time to receive and re-evaluate analgesia and exclusion of AAA are still areas to improve. The guideline should be updated for young female patients who often had USS instead.

Conclusion: Creation of the guideline helps to ensure patients receive appropriate investigation, management and follow up – their use should be encouraged. Focuses for reaudit include updating the guideline to reflect best practice and inclusion of clear analgesia advice.

Is the Relationship Between Anaemia and Elective Joint Replacements Being Noted and Treated?

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Background: Anaemia is prevalent condition in the elderly population and is a known complication of elective joint replacement due to perioperative blood loss. Anaemia postsurgery is associated with morbidity and mortality and studies have shown that treating preoperative anaemia reduces these. Existing guidelines acknowledge this and recommend diagnosis and treatment of anaemia prior to elective surgery.

Method: Theatre lists of elective surgery in Scunthorpe and Goole were used to identify patients who had undergone elective hip or knee replacements in a three-month period. The online blood results and clinic and discharge letters showed whether anaemia was identified and subsequently treated.

Results: In Goole, 4.8% had preoperative anaemia, all of whom continued to have anaemia postoperatively. 72.6% of the total Goole patients had postoperative anaemia and of these, three were treated. In Scunthorpe, 28.6% had preoperative anaemia and again all continued to be anaemic postoperatively, in fact all of the Scunthorpe patients had anaemia postoperatively, however only one patient was treated.

Discussion: It is important to assess anaemia preoperatively as recommended by guidelines to minimise complications peri- and postoperatively and this audit found that in this area, few cases of anaemia were being treated preoperatively. In some cases, patients were not being assessed for anaemia at the preoperative assessment. The preoperative assessment could be used as a good time to assess anaemia and treat prior to surgery.

Conclusion: Although this was a small audit, it has shown anaemia is being missed preoperatively which may affect outcomes. The consequence of this may be a useful place for further study in the future.

Maintaining Our NHS Budget: CRP Testing in Total Knee and Total Hip Replacements

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Background: C- Reactive protein (CRP) is an acute phase protein which measures the acute phase response to local and systemic events that accompany inflammation.

Methodology: A retrospective analysis of the number of CRP requests taken between February 2015 - June 2015, analysis of the CRP levels and any associated post-operative complications. The number of CRP requests per month were calculated.

Results:

- The CRP level following surgery was always high, reaching its peak at DAY 3 in total hip replacements (THR) and DAY 4 in total knee replacements (TKR)
- The number of CRP requests of no clinical benefit decreased by 40%.
- The number of CRP requests which had no clinical indication were always higher at each junior doctor change over

Discussion: In August 2013- January 2014 we audited the number of CRP requests for elective THRs and TKRs, evaluated the trend of CRP rise following surgery and evaluated any postoperative issues that developed. We identified 87% had a CRP request of no clinically proven benefit. Following a presentation of our findings at our local department, we closed the loop by re-auditing our elective THR and TKR patients between February 2015 - June 2015. The number of CRP requests of no clinical benefit decreased by 40%. The number of CRP requests which had no clinical indication were always higher at each junior doctor change over. However, the number of requests gradually decreased showing an increase experience after working for some time in the orthopaedic wards.

Conclusion: Our audit has ensured that a cost-effective improvement has been made to the delivery of health care, thus meeting the aim of a closed loop. We are increasing the educational awareness amongst junior doctors to further decrease the number of CRP requests of no clinical benefit.

An Audit Evaluating Adherence to the Pulse Oximetry Monitoring Protocol for Detecting Critical Congenital Heart Disease in a Paediatric Hospital, USA

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Introduction: Congenital heart disease is present in 0.9% of live births. Of these, ¼ are critical – requiring intervention within the first year of life. Early diagnosis is important: many lesions rely on a patent ductus arteriosus, with its closure resulting in rapid deterioration.
This audit evaluates adherence to the pulse oximetry monitoring protocol for detecting critical congenital heart disease. The protocol recommends oxygen saturation measurements at 24 – 48 hours of life – earlier measurement increases false positive results because of transitioning circulation, while later measurement may be too late for intervention.

Methods: Clinical notes for 147 neonates in a well-patient nursery from 26th March 2014 – 23rd April 2014 were used (pre intervention n=64(43.5%); post intervention n=83(56.5%)). Gestational age, pulse oximetry time and results, echocardiography (if performed) and prenatal ultrasound results were collected. The intervention (8th April 2014) was a senior nurse practitioner individually discussing the guideline with the nurses.

Results: Pre-intervention, 26.6% (n=17) neonates received inappropriate screening: 4.7% (n=3) received screening before 24 hours and 21.9% (n=14) after 48 hours. Post-intervention, 12.0% (n=10) neonates were inappropriately screened – 4.8% (n=4) before 24 hours, 6.0% (n=5) after 48 hours and 1.2% (n=1) received no screening. The difference in the proportion of neonates inappropriately screened pre- and post-intervention (14.5%) is statistically significant (95% CI 1.6% to 27.4%, p=0.0273).

Discussion: There were some limitations. Owing to time constraints, there was no interval between pre-intervention and post-intervention data collection. Therefore, the longer-term impact of the intervention was not evaluated. Furthermore, benefits of the intervention may be lost with staff changes.

Conclusions: Most neonates received appropriate screening, and the intervention showed some improvement. Further recommendations include using posters to remind staff about the guideline, and explanations at staff inductions. A re-audit after a longer period is also indicated.

An Audit on the Management Strategies of Fifth Metatarsal Fractures

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Background: Fractures of the fifth metatarsal bone is amongst the most common fracture of the foot. The aim of this audit was to compare the management choices at Stepping Hill Hospital against the hospital protocol and look at effects of non-concordance to these guidelines.

Methodology: This was a retrospective study. Patient data was compiled using identifiers that were collected in a book in the fracture clinic from August 2014 until December 2014 which will include patients who had their injury at the start of 2013. This was then used to extract the relevant data using clinic letters and X-rays from patient systems including PACS, Evolve, Bluespire and Advantis and set out on an excel spreadsheet.

Results: The results show that for the management of the fractures in the sample, (76 patients) 77.8% of the patients were correctly managed using an aircast boot according to the hospital protocol. 57.8% of patients were appropriately managed with their advised weight bearing status depending on the type of the fracture they had.

Discussion: There is a specific management protocol which should be followed accordingly, for example all these fractures mentioned should be managed using an air cast boot. Two recommendations that have resulted from this audit includes that these patients should bereferred to the foot and ankle clinic and this audit should be presented to the department.

Conclusion: In conclusion the concordance of the management of the fifth metatarsal fractures in this sample was a lot better with the choice of splint, in comparison to the advised weight bearing status given to the patients. At 57.8% of concordance, I believe that there is an area of improvement in this respect but I also believe that this could potentially be easily managed with the recommendations given in this audit.

An Audit of Catheter Related Bladder Discomfort After Laparoscopic Radical Prostatectomy

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Background: Postoperative catheter related bladder discomfort (CRBD) can be a distressing complication for patients in whom a urinary catheter was inserted during a laparoscopic radical prostatectomy (LRP) operation. The urge to void and distressing suprapubic discomfort is caused by disordered bladder contractions. It is possible that spinal opiates may help alleviate these distressing symptoms and improve post-op patient comfort and recovery.

Aims: To determine:

- Prevalence of significant CRBD in post-LRP patients.
- If the use of spinal opiates had an effect on: Pain scores, Opiate usage, Length of stay

Methods: Observational data was collected on anaesthetic technique, and pain and CRBD scores using a 0-10 scale in the recovery room and the next post-operative day.

Results: Over a three-month period, 36 patients were audited; all had general anaesthesia but 56% also had spinal diamorphine (0.8-1 mg). Eleven patients had a recovery CRBD score of >=3 (0-10 scale), only three of which had had spinal opioids pre-op. Spinal opioid was associated with lower recovery room CRBD ($p=0.03$) and surgical site pain scores ($p=0.01$), but increased length of stay ($p=0.03$). Next day CRBD and surgical site pain scores were similar in the two groups. No correlation was found between pain scores and opioid use.

Discussion: Use of spinal opioid appears to reduce surgical site pain and CRBD on the day of surgery but has no impact on pain levels on the following day. The increased length of stay associated with spinal opioid is difficult to explain but may be due to chance or other patient factors. The continuous high use of post-op opioid might indicate the need for opioid administration education for recovery nurses.

Conclusion: Use of spinal diamorphine can be beneficial for overall patient comfort in the first post-operative 24 hours after laparoscopic radical prostatectomy surgery.

The Follow-up of Patients Prescribed Allopurinol at York Road Group Practice (YRGP)

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Background: Allopurinol is a urate-lowering drug used in the treatment of gout. In order to monitor its effectiveness in lowering serum uric acid (SUA) levels, follow-up is recommended. This audit will evaluate whether patients prescribed allopurinol at YRGP are adequately monitored.

Methodology: The EMIS system at YRGP was used to collate data on all patients prescribed allopurinol. Data was then analysed against standards adapted from NICE recommendations in the prevention of gout:
1. A SUA test has been performed
2. SUA level is < 300 μmol/L
3. Patient has had a medication review in the last year.
4. Patient has undergone screening for cardiovascular risk factors including a) blood pressure b) HbA1c and c) fasting lipid within the last five years
Compliance was set at 80%. Data was re-audited three months later.

Results: A total of 174 patients were included; 89 (cycle 1) and 85 (cycle 2). Compliance is summarised below:
1. Cycle 1: 89% Cycle 2: 98%
2. Cycle 1: 22% Cycle 2: 22%
3. Cycle 1: 76% Cycle 2: 88%
4a. Cycle 1: 100% Cycle 2: 100%
4b. Cycle 1: 67% Cycle 2: 93%
4c. Cycle 1: 97% Cycle 2: 95%

Discussion: In cycle 1, compliance was suboptimal for standards 2, 3 and 4b. In addition to this, only 34% of cases with SUA levels > 300 μmol/L had a SUA level test performed in the last year. A meeting was held to highlight areas that needed improvement. Vast improvement in compliance was seen in cycle 2, however there was no change in compliance to standard 2.

Conclusion: Review of medication and cardiovascular risk factors was done particularly well in this audit. Improvement is needed in the monitoring SUA levels of patients taking allopurinol. Onscreen reminders have been suggested as a way to improve compliance.

Quality Improvement Project: Outstanding Paediatric Investigations and Results in a District General Hospital

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Background: Junior doctors often find it challenging to manage outstanding paediatric investigations. Common obstacles include uncertainty over clinical decision making and the inevitability of non-attendance. We hereby present our experience at a district general hospital. Methodology: Five outpatient job lists were analysed retrospectively. Documentation of postdischarge management was analysed in a smaller subset. A questionnaire was distributed to gauge current satisfaction and perceived problems. A local guideline was then formulated outlining responsibilities of staff, escalation pathways and recommendations for managing results. Effectiveness of this guideline was then assessed for 25 patients.

Results: One hundred and twelve investigations (n=98) were retrospectively assessed, and 37 investigations (n= 25) were prospectively assessed. Sixty-three percent of staff were dissatisfied with the existing system. Problems related to poor communication and uncertainty over indications and management. After implementing the guidance, inclusion of adequate patient identifiers and background information improved from 89% to 100% and 71% to 96% respectively. Documented indications for investigations worsened from 89% to 80%. Incorrect estimations of the result date rose from 45% to 73%. The viewing of results within 48 hours of reporting rose from 70% to 100%, and documentation improved from 55% (n=11) to 92% (n=24).

Discussion: Improvements were observed in the inclusion of adequate patient identifiers and background information, but not in the clear indication for investigations. From our retrospective analysis, the main limitations were investigations not being performed (12%) and a lack of adequate patient identifiers (eight percent). After implementing the new guidance, the aforementioned factors were observed in four percent of cases, and results were promptly viewed with clear documentation of post-discharge management. Different methods of data collection may bias the findings.

Conclusion: The development of local guidance defined roles amongst staff and highlighted clear escalation pathways. Results were viewed promptly and documented appropriately. Further improvements include optimising the handover of such investigations.

Category: Clinical and Patient Related Work

Case Report: A Rare Case of Retained Foreign Material in the Pelvicalyceal System Precipitating Sepsis Following Percutaneous Nephrostomy.

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Case Report: Percutaneous nephrostomy is a common, effective and safe procedure. A patient presented to our hospital with signs of sepsis one month after a left-sided percutaneous nephrostomy for an obstructing ureteric calculus.

Investigation: Plain film radiograph of the abdomen (AXR) and computed tomography of the Kidneys, Ureters and Bladder (CT KUB) showed a radio-opaque mobile linear density overlying the left kidney, separate to the in-situ nephrostomy.

Discussion: We believe this to be the first reported case of a retained hydrophilic guidewire fragment caused by manipulation without the use of an introducer sheath during the nephrostomy procedure. The highly radio-opaque foreign body was not picked up by the radiology department on screening during the procedure, follow up AXR or initial reporting of the CT KUB upon re-presentation. With the potential to act as a nidus for infection, it was removed using the nephrostomy tract for access and the patient went on to recover with no further complications. We discuss the rare complication of retained foreign bodies in the renal system, and the potential safety hazard posed by manipulation of guidewires through an access needle without use of an introducer sheath.

A Case of Treatment Resistant Bipolar Disorder Attributed to Cushing's Disease

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Background: Depression, mania and psychoses are documented as the commoner psychiatric manifestations of Cushing's Syndrome (CS) However, very little is known about the association of how CS can exacerbate a relapse in Bipolar Affective Disorder (BAD). BAD is a severe and persistent mental health illness, with a tendency to relapse following a variety of triggers. Here is case report of a patient with treatment resistant bipolar affective disorder secondary to CS.

Case Presentation: A 47-year-old female was diagnosed with a relapse of BAD following presentation with increased and pressured speech, irritability and sudden behavioural changes. Aripiprazole and lithium were commenced and titrated accordingly, but there was no improvement in behaviour in the first four-weeks of her admission. Later however, Ms. P had a depressive episode and complained of weight gain and oedematous legs. Physical examination further revealed abdominal striae, hirsutism and dysglycaemia. Cushing's Syndrome was suspected, confirmed by elevated serum cortisol and ACTH levels. Subsequent imaging of the pituitary was performed but revealed no pathology. Within three days of commencement of medical treatment for CS, Ms. P presented with jaundice and proximal myopathy. A computerised tomography (CT) scan revealed multiple metastatic lesions in the liver, lung and pancreatic head, confirmed as cancer of unknown primary with paraneoplastic syndrome. Palliative treatment was offered but unfortunately, within two weeks of diagnosis, the patient died.

Discussion: This case highlights that in the setting of a coexistent mental health disorder, Cushing's Syndrome is extremely difficult to diagnose until symptoms present in their full-blown manner. Early diagnosis of Cushing's may have improved symptoms, but would not have altered the devastating outcome.

Conclusion: Psychiatric illness and relapse should warrant thorough investigation for potential organic triggers, and further considered when patients do not show the desired improvement after therapy aimed solely at the psychiatric element.

Ileal Conduit Volvulus: A Case Presentation

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Background: Ileal conduit volvulus is a rare complication occurring in patients with urinary diversion post radical cystectomy. So far, only seven cases were reported in the literature. Moreover, only two cases of this ileal loop diversion complication were reported in association with parastomal hernias, both of which were acutely managed non-surgically. We would like to present a case of ileal conduit volvulus associated with an old parastomal hernia, which was managed surgically within 24 hours from presentation, with salvage of the conduit and good outcomes for the patient.

Case Report: An 86-year-old male patient noticed no urine drainage in his stoma bag. He has a background of bladder malignancy, chronic kidney failure and an old parastomal hernia. Examination was normal, but high WCC and impossibility to catheterise the stoma we noted. Over the following hours, he became unwell: pyrexial, hypotensive, tachycardic and hypoxic. An urgent CT scan showed distension of the ileal conduit, enlarged parastomal hernia, hydronephrosis and hydroureters. An exploratory laparotomy was urgently arranged and the ileal conduit was found twisted on itself. Fortunately, the conduit warmed up and gained a pink colour on restoration of blood supply. The patient made a full recovery post-op.

Discussion: Complications of the ileal conduit can present as late as 12 years after cystectomy. Recognising the presentation can be difficult and appropriate management is still not certain. While some clinicians prefer percutaneous drainage and late elective surgery, in this situation emergency laparotomy without conduit revision was deemed appropriate. Regardless of the approach, immediate intervention is necessary to prevent irreversible kidney damage and death.

Conclusions: In conclusion, ileal loop diversions require long term follow up. Conduit volvulus is a rare and potentially reversible cause of renal impairment and accurate radiological diagnosis and prompt management are key in preventing further complications.

Varicella Complicated by Deep Vein Thrombosis: A Case Report

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Background: Varicella is usually a benign and self-limited disease in childhood. However, serious complications may occur.

Case Report: Sixteen-month-old girl, presented to the emergency room on the seventh day of varicella and fifth day of fever, with lethargy and painful swelling of the right lower leg (RLL), noticed after an unwitnessed fall the previous day. On physical examination she was irritable, with a hard swelling of the upper 1/3 of the RLL, with bruising and inflammatory signs from the proximal RLL to the thigh and a petechial rash on the right lower limb. Blood tests showed haemoglobin 10.8g/dL, leucocytes 17x103/μL, neutrophils 11x103/μL, platelet count 142x103/μL, sedimentation rate 81mm/h, prothrombin time 14.2(11), INR 1.28, partial thromboplastin time 23.6(30), C-reactive protein 26.3mg/dL, creatine phosphokinase 27UI/L. X-ray was normal and ultrasound revealed subcutaneous tissue thickening in the medial area of the right thigh, without collections or effusions. Flucloxacillin and clindamycin were started. The next day, sustained irritability and further swelling of all limb, with areas of redness and bruising, motivated new ultrasound that showed an obstructive thrombus from the external iliac vein to the arch of the great saphenous, without permeability. Abdominal doppler ultrasound was normal. Enoxaparin was started. Blood culture was positive for Streptococcus pyogenes and ampicillin initiated. Subsequent studies showed a weakly positive acute lupus anticoagulant, decreased protein S (40%) and antithrombin (67%). Scintigraphy excluded osteomyelitis. After 24 hours of treatment, the patient showed clinical improvement, with no fever, improved mobility and inflammatory signs.

Discussion/ Conclusion: Thrombotic events are a rare and serious complication of varicellazoster virus (VZV) infection. A transient and unspecific immune response occurs, with increased clearance of natural anticoagulants, mainly protein S. VZV infection is a known risk factor for invasive disease by Streptococcus pyogenes, which may have acted as a trigger or thrombotic initiation cofactor.

Kikuchi Disease: A Curious Case of Cervical Lymphadenopathy in a Young Woman

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Background: Kikuchi disease is a rare, idiopathic, generally self-limited cause of lymphadenitis that occurs most commonly in young Asian women. It commonly presents with cervical lymphadenopathy, fever, leukopenia and skin rash. Knowledge and identification of Kikuchi disease is important given the risk of misdiagnosis with other diseases such as lymphoma and SLE.

Case: This case study reports a 36-year-old lady of Chinese origin who presented with a fourweek history of painful enlarging neck swellings and swinging pyrexia, associated with night sweats, lethargy, myalgia, rash and 4kg weight loss. She was previously fit and well. She has a family history of gastric cancer and her father had tuberculosis. Examination revealed marked, very tender bilateral supraclavicular lymphadenopathy. CRP was raised at 69 however bacterial cultures, virology and vasculitis screen were all negative. CT neck/thorax/abdomen/pelvis showed multiple right cervical lymphadenopathy with surrounding inflammatory change but no other abnormalities. Ultrasound-guided neck biopsy showed necrotising lymphadenitis, suggestive of Kikuchi's lymphadenitis. She was commenced on non-steroidal anti-inflammatory drugs and prednisolone to good effect.

Discussion: The aetiology of Kikuchi disease remains unclear; however, several authors have reported an association between Kikuchi disease and systemic lupus erythematosus (SLE), with Kikuchi disease diagnosed before, during, or after a diagnosis of SLE. A definite diagnosis of Kikuchi disease may only be made via histopathological analysis by lymph node biopsy. Once confirmed, it is usually managed conservatively with antipyretics and analgesia alone, however corticosteroids have been used in more severe cases.

Conclusion: There is a broad differential diagnosis for acute cervical lymphadenopathy, and thorough review of a patient's medical history and examination is important in narrowing this differential. This case report highlights consideration of Kikuchi disease as an important differential diagnosis in cervical lymphadenopathy, given its drastically different course and treatment.

You Can Lead a Horse to Water

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Background: Cervical smear uptake in the United Kingdom(UK) reduced in 2014-2015 to just 74%. The Northwest falls below this national average. Uptake of cancer screening is lower in lower socioeconomic groups compared to the national average.

Aim: To evaluate the effect of telephone reminders on cervical smear uptake in women overdue for testing.

Methods: All women who were overdue their smear at a general practice in a deprived area in the Northwest of England were identified. A random selection was telephoned. After discussing the benefits of the programme they were invited to make an appointment. These women were followed after one month to identify attendance.

Results: Six hundred and ninety-seven women had not had their smear. One hundred and ninety-two (27.5%) were randomly selected. Sixty-nine patients (36%) were able to be contacted. Forty-three women (62%) agreed to book in; 11 (16%) did not want a smear test. Six women had already had a smear test (nine percent). Nine women (13%) had a reason for being exempt.

The 43 women who had agreed to book in were reviewed. Eight (19%) had had their smear, five (12%) had an appointment booked, one patient had left the practice, and 29(67%) hadn't booked in, including two women who did not attend. Overall 13/192 (6.8%) eligible women had either booked and/or attended for a smear.

Discussion: The results of this small study show that a doctor speaking to women directly to reiterate the benefits of smear tests is of marginal benefit to this population. Indeed, many women seemed to agree and understand the reasons, but not enough to encourage them to attend.
This demonstrates that more work needs to be done on behavioural change to help women to move from the pre-contemplation stage into the contemplation stage. It is not known if
additional follow-up calls or other means of contact (such as leaflets, videos, television advertising) may have more effect.

Delayed Human Bite Presenting as Extensive Skin Necrosis Requiring a Posterior Interosseous Artery (PIA) Flap – A Case Report

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Background: Human bites have been reported as the third most common type of mammalian bites, after dog and cat bites. The polymicrobial nature of human bites can result in severe soft tissue infections. Early debridement, irrigation and antibiotics administration can often limit progression. Few cases outlining severe complications of human bites have been documented in the literature.

Case report: We report the case of a 71-year-old retired gentleman with a background of Schizophrenia who presented to the Emergency Department with a nine-day old infected human bite to the dorsum of his non-dominant left hand. This resulted from an occlusion bite from the patient's wife. Extensive skin necrosis and epidermolysis affecting nearly half of the dorsum as well as significant pus collection were observed. Microbiology culture was positive for Streptococcus Anginosus. Aggressive debridement and multiple washouts were performed before a posterior interosseous artery flap was fashioned to reconstruct the resulting defect.

Discussion: Human bites are associated with a higher infection rate than animal bites. Human bites occur most commonly on upper limbs. Hand wounds exhibit a higher rate of infection due to the avascular nature of tendons and joints.

Conclusion: The common mistaken assumption of a seemingly innocuous injury often delays presentations, which can result in significant soft tissue damage requiring extensive reconstruction.

Case Report: Iliacus Haematoma in a Patient on Warfarin – Can Anticoagulation Be Continued?

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Background: Iliacus haematoma is rare but may be seen in individuals on anticoagulation. Patients commonly present with pain, swelling, worsening mobility and display neurological deficit. Both surgical and conservative management options can be used and this is guided by patient's symptoms, haemodynamic status and presence of neurological impairment. In cases associated with anticoagulants, the drug is often discontinued to prevent further bleeding and allow recovery.

Case Report: An 83-year-old woman was admitted with right hip pain and weakness following a fall. She was taking warfarin for atrial fibrillation, with an INR of 3.4 on admission. Various investigations including Magnetic Resonance Imaging and Computerized Tomography confirmed a right iliacus haematoma. The patient was haemodynamically stable and managed non-operatively with warfarin being continued during most of the admission, lowest INR recorded was 1.9. The patient improved with analgesia and physiotherapy, and eventually was discharged to a community rehabilitation unit.

Discussion: We have not yet come across a case where anticoagulation was continued in the acute phase of iliacus haematoma. Discontinuing the anticoagulant drug in many cases has shown to be sufficient management. The decision about continuing or stopping anticoagulation rests with the medical team who must weigh up risks of bleeding against occurrence of thromboembolic events. There have been cases where stopping anticoagulation was associated with death directly from the underlying condition that required treatment with anticoagulants. This raises the issue of whether anticoagulation can be continued, in particular concerning high risk cases such as those with active thromboembolic disease and mechanical heart valves.

Conclusion: Our case describes a patient with an iliacus haematoma associated with anticoagulation therapy, which was successfully managed conservatively with warfarin safely continued in hospital.

Bilateral Intratonsillar Abscess: A Novel Management Approach to a Rare Emergency in ENT

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Background: We present only the second documented case of bilateral intratonsillar abscess (ITA) in an adult. ITA management is controversial due to the infrequency of its presentation. The sole use of intravenous antibiotics has been shown to be effective in children, but invasive intervention predominates in adults.

Case: A 42-year-old male presented to the emergency department with stertor, severe trismus, difficulty in breathing and inability to swallow saliva. He had a two-week history of progressively worsening sore throat, fever and a one-week history of voice change and reduced oral intake. On examination the patient was dehydrated and had widespread tender cervical lymphadenopathy. The oropharynx was difficult to examine due to trismus, resulting in jaw opening being limited to 2cm. There was no deviation of the uvula or swelling of the soft palate or later pharyngeal wall Serum blood tests indicated an inflammatory response and an acute
kidney injury. CT findings showed a low attenuation masses at the tonsils bilaterally, diagnosing bilateral ITA. Due to the risk of rapid deterioration and airway compromise the decision was made to use a wide bore needle to aspirate pus from both ITAs, followed by IV antibiotics.

Discussion: We have presented only the second documented case of bilateral ITA in adults, which demonstrates a number of exceptionally valuable lessons. In terms of diagnosis, contrast CT should be considered in cases of apparent tonsillitis where there is partial airway obstruction, such as stertor. The use of needle aspiration is common in the management of unilateral ITA and we have demonstrated its efficacy as definitive management in bilateral ITA, as an alternative to hot tonsillectomy.

Conclusion: Needle aspiration is an effective management strategy for bilateral ITA and contrast CT is an essential investigation in severe tonsillitis unresponsive to IV antibiotics.

Anti-D Immunoglobulin Prophylaxis in Female RhD-negative Renal Transplant Recipients of Child-Bearing Age

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Background: The RhD antigen is highly immunogenic, and if an RhD-negative female becomes sensitized any subsequent RhD-positive infants are at risk of haemolytic disease of the newborn. This is usually preventable with administration of anti-D immunoglobulin before a sensitizing event. In renal transplant, exposing an RhD-negative patient to an RhD-positive allograft can represent a sensitising event. This is significant as, with increasing renal transplantation and recipient survival, there is potential for increasing pregnancy rates amongst transplant recipients.

Description: On admission, at-risk patients who may benefit from anti-D prophylaxis must be identified. The following criteria were devised: female transplant recipient, age ≤ 45, RhDnegative, receiving an RhD-positive transplant, no previous RhD exposure, absence of existing anti-D antibodies and absence of circumstances where pregnancy would be impossible. If the criteria are met, the patient should receive prophylaxis – intramuscular anti-D immunoglobulin at the time of transplantation. If for any reason an at-risk patient was not identified prior to transplantation, anti-D immunoglobulin should be given as soon as possible, and within 72 hours of transplantation.

Discussion: Alloimmunisation in RhD-negative patients given RhD-positive transplants has been previously documented. This is a relevant issue – data from the UK Transplant Registry show that, over the five- year period, 10% of transplants in those under 45 were the transplantation of RhDpositive kidneys into RhD-negative females. In terms of the doses required for prophylaxis, because of the paucity of evidence there is wide variation in clinical practice, with doses ranging from 500 IU to 2500 IU.

Conclusion: As prophylaxis is a simple, relatively cheap procedure that has not been associated with any adverse effects to date, anti-D prophylaxis is strongly recommended in at-risk patients. As there are no national guidelines, local protocols are required which address the need of this small but significant group.

A Confusing Headache

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Introduction: A 38-year-old woman presented with a three-week history of a bilateral frontal headache and right sided hemiplegia and paraesthesia. In the days preceding admission, the patient developed confusion and disorientation, language impairment and blurring of vision. She had an elective caesarean section six weeks prior to symptom onset but had no other past medical history. Observations were normal except for a fluctuating blood pressure.

Investigations: Biochemical markers in the serum and CSF were normal. A CT scan showed bilateral low attenuation lesions in the posterior hemispheres and a CT angiogram showed an atherosclerotic pattern at the right and left carotid bifurcation. A MRI scan indicated multiple lesions within the posterior hemispheres with restricted diffusion.

Discussion: The initial clinical diagnosis was of posterior reversible encephalopathy syndrome (PRES) given her risk factors for this and lack of other stroke risk factors. Further investigations to rule out common aetiological causes of stroke were also negative. A second MRI scan performed four weeks later demonstrated irreversible volume loss at the original lesion sites, implying that ischaemic stroke was the cause.

Conclusion: Headache, encephalopathy and visual changes are commonly occurring symptoms in young adults that are non-specific and fit a broad range of illnesses. Included in this differential is stroke, PRES and mitochondrial disorders. The appearances of these diseases can also overlap on common imaging modalities. This case illustrates subtleties helpful in distinguishing them: accounting for the risk factors for each disease and their weight diagnostically, recognising the most sensitive screening tests for determining aetiology in young stroke as well other key tests valuable in the process.

Tako Tsubo Prevalence

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Background and aim: Tako-Tsubo Cardiomyopathy (TTC) is characterized by a clinical onset mimicking an Acute Coronary Syndrome (ACS) with transient apical Left Ventricular dysfunction in absence of significant coronary artery disease. In the patients admitted with the suspicion of ACS, the prevalence of TTC largely varies according to different Authors. The present investigation has been aimed to assess the real prevalence of TTC in our centre and to ascertain the reasons for the higher prevalence we already observed (Facciorusso A *et al.*: Int J Cardiol. Vol 134 (2009), pp 255-259) compared to other Authors.

Materials, patients, methods All the 379 patients admitted in our CCU were assessed on the basis of clinical history (kind of stress and comorbidities), 12-lead ECG, Troponin-I and CK-mb peak value, echocardiography, coronary arteriography, LV angiogram and complications.

Results: Twenty (19 females) out of 379 patients fulfilled TTC Mayo Clinic criteria with a resulting prevalence of 5.28%. A triggering stress was, almost always, identifiable: it was emotional (n: 16, 80%) or physical (n: 2, 10%). No fatalities were recorded during hospitalization. No heart related mortality was observed in 47 ±13 months follow up. Only one patient died because of ovarian cancer (n: 1, five percent). In the follow up time the overall TTC recurrence rate was low (n: 2, 10%).

Conclusions: The high prevalence of TTC observed in our previous study has been confirmed on a wider basis by the present research. Our higher sensitivity in diagnosing TTC compared to Literature data is probably the result of a careful interrogation of patients that are carefully investigated also for emotional mild stresses in the days before admission especially in the cases in which a significant coronary involvement is not demonstrated at angiography. Clinical history recording thus appears very important in the correct identification of TTC.

Improving the Transition between Paediatric and Adult Services

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Background: Cerebral palsy (CP) is the most common physical disability affecting children in developed countries after trauma. Children with CP are managed by a multidisciplinary team which may include medical specialists in; rehabilitation, developmental paediatrics, gastroenterology, respiratory medicine, endocrinology, general surgery, neurosurgery and orthopaedic surgery which are accompanied by a wide range of allied healthcare providers. Transition has been defined as "the planned move of young people from paediatric to adult services". Transition is essential because of the volume of workload as well as the recognition that the adult providers may offer a more appropriate environment for adult patients. This shift of information of presents potential problems in terms of ensuring totality whilst enabling the information to be easily accessible and useable by the recipient.

Description of Innovation: To identify the "minimum data set", we interviewed adult service professionals from medical and allied health care backgrounds. This information was correlated and streamlined to produce a single A4 page template. Producing a "minimum data set" to was our main aim rather than providing exhaustive detail. When introducing additional documentation, it is essential that the time demand required is minimised to improve compliance.

Discussion: The transition document was well received by the members of the adult services. Users reported that the assessment of new patients was made more efficient and that it facility accurate planning of future treatments. The paediatric teams found the document easy to complete during/after their last meeting with the patient.

Conclusion: Professionals involved with transfer of patients between paediatric and adult services should embrace concept of transition documentation. It addresses some of the potential pitfalls when transferring large amounts of paper documentation and facilitates a smooth transition. This example was specific to orthopaedics but we feel that a similar concept could be applied in many specialties.

Attitudes Towards Female Genital Circumcision (FGC) Within a Female Somali Community in North London

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Background: Female Genital Circumcision (FGC) also called Female Genital Mutilation or 'cutting' is defined by the World Health Organisation (WHO) as 'all procedures that involve the partial or total removal of the external female genitalia or other injury to the female genital organs for non-medical reasons' (WHO, 2013). FGC takes place in 29 countries, around the world including parts of Africa, the Middle East and some parts of South Asia (UNICEF, 2013). It is becoming increasingly seen in Western countries such as the UK because of the influx of migrants especially those coming from Somalia (Royal College of Midwives, 2013). Maternal health care and obstetric practice are most effected.

Case Report: The aim of the study was to determine the reasons for this practice from Somali woman living in the UK, using a case study approach. A total of seven Somali women currently living in north London volunteered to be interviewed and provided personal accounts of their experiences of the procedure, the personal difficulties they faced daily as a consequence and their beliefs of what had been done to them. FGC is part of the Somali culture. It created difficulties during childbirth for some of the women and within their martial relationships, while others were left psychologically traumatised.

Discussion: FGC is seen as part of the Somali woman's identity. It is influenced by religious belief, migration, the generational gap, men and the lack of education for women.

Conclusions: Education of Somali women is imperative if this custom is to be prevented but it must come from within the community itself if it is to be heard. These findings have consequences for practitioners in obstetrics and gynaecology because the bodily changes incurred hinder and complicate childbirth, menstruation and fertility.

The Use of PARP Inhibitors to Treat Meningeal Metastases in BRCA-Mutation Positive Ovarian Cancer

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Background: Amongst their varied intracellular roles, PARP enzymes locate and bind singlestranded DNA breaks and initiate base excision repair. In normal cells, inhibiting PARP triggers formation of double-stranded DNA breaks, which can instead be repaired by homologous recombination (HR). However, in cells where HR is defective, such as tumour cells in BRCAmutation positive cancers, this 'second-line' repair is dysfunctional. Thus PARP inhibition selectively kills cancer cells whilst sparing cells with functioning BRCA proteins. In December 2014, olaparib (Lynparza) became the first PARP inhibitor (PARPi) to be approved for use in the EU and USA.

Case study: In this report I describe the case of M, a BRCA2-mutation positive patient with metastatic ovarian cancer, treated with olaparib. Originally diagnosed in 2010 with stage IV ovarian cancer, M underwent chemotherapy and surgery to enter a two- year remission. However, in July 2012, a solitary left parietal lobe metastasis was identified. Unsuccessful radiotherapy, surgery and chemotherapy led to rapid deterioration as the metastases spread to her spine and leptomeninges. In April 2015, with severe neurological deficits including loss of facial sensation, continence and mobility, M was given compassionate access to olaparib therapy. Since April 2015, M has continued on olaparib therapy with great success. She has experienced almost complete return of neurological function, now living independently. Her CA125 is stable, and she tolerates the olaparib well.

Discussion and conclusion: There are no cases in the literature documenting treatment of leptomeningeal metastases of ovarian cancer with a PARPi. This case exhibits a potentially lifechanging treatment for a largely treatment-resistant oncological complication. PARPis are an exciting field in women's cancer medicine, holding much promise for the treatment of both ovarian and breast BRCA-mutation positive cancers. Small improvements have also been observed in BRCA wild-type individuals on olaparib, suggesting further possibilities for their future use.

Patients´ Attitudes Towards Medical Students in the Maltese Population

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Background: Practical teaching via patient contact is a fundamental part of the medical course but there is little information about the impact this has on patients. Studies in other countries such as the UK, for example revealed the need for patients´ to be notified that medical students will be present through reminders in appointment letters and hospital posters.

Method: Questionnaires were completed anonymously by members of the general public in either English or Maltese who had received health care from the Mater Dei hospital.

Results: Fifty-eight people fully completed the questionnaire. On average, 30/58 people agreed that they are comfortable with medical students being present at their out-patients appointments, on the ward and at surgical operations. The same number of people agreed with students performing clinical examinations and taking their medical history. Nineteen out of 58 agreed with medical students performing simple procedures such as stitching during their operations. Twenty out of 58 agreed with accepting medical students according to their gender. Thirty-one of out 58 were aware that they have a right to refuse medical students. Twenty-three out of 58 were comfortable with the number of students visiting them (usually six). Twenty-five out of 58 agreed that they should be notified of student presence at the hospital.

Discussion: Most people questioned were comfortable with students being present during their hospital visit. Fewer people were happy about the number of students visiting them and performing simple procedures. Most importantly, not all patients knew they had right to refuse medical students.

Conclusion: The majority of people questioned were happy with students taking an active part of their care, yet there are still discrepancies regarding patients´ knowledge of their rights. This study highlights the importance of informing patients, whilst keeping group sizes to a minimum to maximise patient centred care. It would be interesting to extend these results with a greater cohort and compare with other hospitals overseas.

Post-Operative Constipation as the Atypical Presenting Feature in Clostridium Difficile Infection

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Background: Clostridium difficile infection (CDI) is one of the commonest nosocomial infections worldwide, which typically develops when the normal colonic microbiome has been altered by antibiotic therapy. The classical presentation described in medical literature is with diarrhoea, and stool culture or stool cytotoxin assay are confirmatory.

Case report: A 74-year-old gentlemen developed constipation, one week post-femoral to below knee popliteal bypass. On examination, the abdomen was distended, but soft and non-tender. Phosphate enemas were unsuccessful. Over a period of four days, the white cell count increased from 11x109/L to 64x109/L and CRP increased to 300mg/L. The constipation was unresolving and CT imaging of the abdomen showed non-specific colitis predominantly involving the caecum and left hemicolon, with no evidence of an obstructing bowel lesion. Eventually he developed severe sepsis, which quickly progressed to septic shock and acute renal failure. He underwent laparotomy with subtotal colectomy and was transferred to Intensive Care Unit in the post-operative period. Finally, stool cytotoxin assay was positive for Clostrium difficile toxin. He was treated with intravenous metronidazole and oral vancomycin, but developed multi-organ failure and died.

Discussion: A case of CDI is defined by the presence of symptoms, classically diarrhoea and abdominal pain, and positive laboratory results (stool culture, stool cytotoxin assay or PCR) or colonoscopic/histopathological features of pseudomembranous colitis. CDI presenting with constipation is not commonly described in the literature, but the development of ileus secondary to severe CDI causes pooling of secretions in a dilated, atonic colon, masking the diagnosis.

Conclusion: While CDI typically presents with diarrhoea, the absence of diarrhoea or presence of constipation does not exclude the infection. Whilst low on the list of differential diagnosis in a constipated patient, recent antibiotic use and an exponential, otherwise unexplained rise in inflammatory markers should always prompt investigations for CDI.

The Impacts of Deprivation on a Child

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Background: Deprivation is defined in the Oxford Dictionary as "the damaging lack of material benefits considered to be basic necessities in a society". However, in real life, deprivation does not always refer to a shortage of material belongings, deprivation can also mean the lack of essential things - material and social, for a person's general health and wellbeing. The focus has therefore changed to a socioeconomic deprivation.

Case report: A 14-year-old female teenager presented with her mother as she was worried she might be pregnant. She has a physically, emotionally and psychologically traumatic history. Earliest reports of physical and emotional abuse at home by her mother's partner occurred when she was aged seven. She was transferred to foster care at age 10 but returned to the care of her unemployed mother two years later. As a result of her difficult upbringing, she is showing deterioration of mental health, learning difficulties and child protection issues.

Discussion: The World Health Organization has shortlisted nine areas that are thought to be major determinants of health, and early childhood development is considered to be one of the most important. It includes physical, social and emotional development, and her deprivation of this developmental phase is impacting various aspects of her life. One in every two girls who experienced physical abuse will develop a psychiatric disorder which then leads to chronic health conditions in three out of four people with mental illness. Poverty and community deprivation are additional factors that have negatively impacted her wellbeing.

Conclusion: The presence of deprivation means that there are people living without the basic necessities for their health. Social and economic factors as well as health inequalities continue to contribute to this situation. Appropriate measures must be taken at every level to ensure the best outcome for society.

Semi-structured Interview and Focus Group Analysis: Development of an Online Psychoeducation Package for Adolescent Depression

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Background: Depression is common in adolescents with an estimated one-year prevalence of 4-5%. Recognition, prevention and treatment of depression is important as it is a major risk factor for suicide in adolescents and can lead to a number of social and educational impairments and physical ill health. However, this age group is the least likely to seek help for mental health problems and engaging young people with mental health issues and services is an ongoing problem. There are a number of potential benefits of an online package to help with mood and wellbeing in young people, as a low cost intervention which is accessible and flexible to the young person's needs.

Description of development: The overall aim of the research team is to develop an online package for adolescents with, or at risk of, depression and their families/carers. This poster focuses on thematic analysis of semi- structured interviews and focus groups with young people, parents and professionals. Their views were analysed to inform the content and design of the online package.

Discussion: Several important themes were discussed, and this is a reflection of the interest and enthusiasm of the participants. Young people want practical advice about what they can do to help themselves while waiting for treatment. Empowering young people with the language to talk about their own mental health and improving emotional literacy is an important aspect of this.

Conclusion: Insights gained from this analysis confirm that there is a need for an online package aimed specifically at adolescents with depression and have been used in the development of an initial prototype of the package. The design and content of the package has been influenced by findings from this analysis through meetings with the multimedia company and my supervisor to ensure that participants' views were heard.

Neonatal Anaemia and Transient Peripheral Cyanosis Due to a Haemoglobin Variant

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Background: Globin-gene mutations are a rare but important cause of cyanosis and anaemia, especially γ-globin variants. Neonates predominantly express α and γ globins, which combine to form haemoglobin F (α2γ2). Postnatally, globin gene expression shifts from γ to β producing haemoglobin A (α2β2). Thus, significant mutations in γ-globin genes (HBG1/ HBG2) cause selflimited neonatal symptoms.

Case Report: Preterm twin male infant, born after an uneventful pregnancy by vaginal delivery, Apgar 8/10/10. Twenty hours after birth, he was found hypotonic, with tachypnoea, peripheral cyanosis, oxygen saturation 83% (room air), but normal auscultation and arterial pressure. Venous blood gas analysis revealed PvO2 of 38mmHg and haemoglobin of 13g/ dL. Intensive care hospitalization was prompted, he became clinically well, but oxygen saturation persisted low despite high inspired FiO2. On day one (D1): non-invasive ventilation was ineffective, thoracic radiography normal and cardiology detected a *patent foramen ovale* on ultrasound with hemodynamic stability. Since no obvious cause for hypoxemia was found, haemoglobin study was performed with normal result. Nevertheless, molecular study revealed an heterozygous mutation on HBG1 gene: c.202G>A; p.Val68Met, previously described on HBG2 gene (Hb Tomsriver), associated with homozygote common benign variant Hb Sardinia c.227C>T; p.Thr76Il. Anaemia (9g/dL) on D15 prompted red-cell transfusion, finally increasing oxygen saturation to 95%. The non-identical brother remained asymptomatic. No family history was found. Monthly blood analysis revealed, at four-month follow-up, a haemoglobin of 11g/dL.

Discussion: γ-globin gene mutations are a cause of anaemia and cyanosis. Clinical suspicion arises from reduced haemoglobin oxygen saturation without hypoxemia in healthy-appearing neonates without significant cardiopulmonary disease. Diagnostic recommendations include haemoglobin study followed by molecular study. Positive family history can occur, but "de novo" cases, as this one, are described.

Conclusion: Clinicians should be reminded of the low oxygen affinity haemoglobin variants, often underdiagnosed, to offer families appropriate reassurance and avoid unnecessary investigation.

Platypnoea Orthodeoxia Syndrome

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Case report: A 79-year-old gentleman presented with breathlessness following elective surgery. A CTPA revealed no PE but bilateral pneumonia and an incidental dilated ascending aorta. His pneumonia was successfully treated with antibiotics but he remained breathless at rest. His oxygen saturations fell to 88% when sitting upright but improved when he lay flat, a phenomenon known as platypnoea orthodeoxia. Cardiac catheterisation showed normal right heart pressures and a bubble echo showed a right to left shunt. Subsequent transoesophageal echocardiography revealed a patent foramen ovale. Following percutaneous closure of the PFO this gentleman had improved exercise tolerance and his breathlessness was reduced.

Discussion: Platypnoea orthodeoxia syndrome (POS) is characterised by breathlessness and an associated drop in arterial oxygen saturation when in an upright position that is relieved when supine. The dilated ascending aorta was likely causing extrinsic compression of the cardiac anatomy, raising the pressure in the right atrium. Blood was then directed through the patent foramen ovale causing a positional hypoxaemia. For this syndrome to manifest two abnormalities must be present: Firstly an intra-atrial defect allowing blood to flow from the right to the left atrium such as an ASD, PFO or atrial septal aneurysm. This right to left shunting could also be caused by an intrapulmonary shunt in conditions such as pulmonary fibrosis. Secondly, an abnormality that increases the pressures in the right atrium must be present such as pericardial effusion or constrictive pericarditis. Therefore, any cause of a right to left shunt in the presence of raised atrial pressures may give rise to POS. Although POS is a relatively rare condition, 25% of the population have a patent foramen ovale therefore this unusual diagnosis should be considered in any patients with unexplained hypoxaemia that is worse when sitting upright and relieved when prone.

Sudden Death in a 53-year-old Woman with Cushing's Syndrome

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Background: Mortality in Cushing's syndrome is around 10% with 95% of deaths following cardiovascular complications. Other causes include uncontrolled diabetes and infections.

Case report: We present the case of a 53-year-old female who was admitted to day hospital to perform preoperative investigations for bariatric surgery. She had a BMI of 35.1 and a history of poorly controlled type II diabetes, hypertension, dislypidemia and bipolar syndrome. Physical examination revealed a previously unreported Cushing's habitus, which prompted hospitalization and further investigation. Cortisol levels, ACTH levels and dexamethasone suppression tests were consistent with a Cushing's syndrome of adrenal origin. CT scan confirmed a 25mm node in the right adrenal gland and surgical removal was planned. Unfortunately, four days later the patient suddenly collapsed and was transferred to intensive care where she died shortly afterward. Autoptic findings demonstrated concentric hypertrophy of left ventricle and congestive heart failure. Coronary arteries examination was negative except for a non-obstructive fibroatheromasic eccentric plaque in the left main coronary artery. Macroscopic and microscopic examination failed to show any signs of myocardial ischemia or repair fibrosis. Lungs showed evidence of severe bilateral pneumonia, probably fatal and linked to immunosuppression by hypercortisolism. Streptococcus Pneumoniae was isolated.

Discussion: Although reports of infection related deaths exists in Cushing's syndrome, they account for a minority of cases and rarely present with sudden death. Among those who die of pneumonia, opportunistic pathogens usually account for the majority of deaths. Streptococcus Pneumoniae is not commonly reported as causing death in Cushing's syndrome; however fatal infections by this pathogen have been reported in other conditions associated with immunosuppression.

Conclusion: Immunosuppression in Cushing's syndrome is a serious complication that might lead to fatal infection. Hypercortisolism might alter classical features of worsening infection, requiring extra care in order for infections to be correctly diagnosed and managed.

The ECG, a Simple but Important Diagnostic Aid for Rare Cardiomyopathies

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Background: Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC) is characterised by fibro-fatty replacement, dilation and dysfunction of the RV, and life-threatening ventricular tachyarrhythmias. Inheritance is autosomal dominant with incomplete penetrance. Desmosomal mutations are present in 60%. Left ventricular (LV) involvement may occur, resulting in biventricular failure. Diagnosis is difficult and based on the 2010 Task Force criteria. ARVC has a low prevalence of one in 2000 to 5000 individuals, affecting mostly males between 20 - 40 years and is responsible for 11%-22% of sudden cardiac death (SCD) in young athletes.

Case study: A 22-year-old asymptomatic male rugby player presented for a routine preoperative assessment with an electrocardiogram (ECG) showing abnormal right axis deviation (152o) and a right bundle branch block pattern with an epsilon wave in V1. There was no family history of SCD. Echocardiography showed an abnormal right ventricle with a hypokinetic and dilated tip and apicalization of the RV around a spherical shaped LV. Cardiac MRI revealed late gadolinium enhancement and fat infiltration at the apex. Holter monitoring did not show significant ventricular arrhythmias. The patient only satisfied one major and one minor criteria. Expert opinion is being sought and genetic studies done. He was advised to avoid competitive sports.

Discussion: ARVC is diagnosed with two major or one major plus two minor criteria or four minor Task Force criteria. Ventricular tachycardia with a left bundle branch block morphology is usually found. Endomyocardial biopsy is gold standard for diagnosis, but is invasive. Patients benefit from early intervention with restriction of physical activity, anti-arrhythmics and if necessary cardiac defibrillator implantation. Occasionally cardiac transplantation is required. Screening of the first degree relatives should be performed.

Conclusion: This report emphasises the importance of careful assessment of routine ECGs, as it allows for early diagnosis of life-threatening conditions such as ARVC.

Pneumomediastinum Secondary to Cocaine Insufflation: An Uncommon Cause of Central Chest Pain.

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Background: Pneumomediastinum (mediastinal emphysema) is the abnormal presence of air within the mediastinum and can result in life-threatening mediastinitis if missed. Limited evidence attributes a proportion of 'spontaneous pneumomediastinum' cases to cocaine smoking and insufflation.

Case Report: A 20-year-old man presented with an eight-hour history of central pleuritic chest tightness radiating to the back associated with lower neck pain. He was otherwise fit and well and was a non-smoker but admitted to occasional cocaine use and had consumed an unquantified amount of alcohol and cocaine (via insufflation) over the previous three days.

Cardiac, respiratory and abdominal examinations, along with basic observations, were unremarkable, whilst examination of the neck demonstrated right-sided palpable subcutaneous emphysema. Electrocardiography displayed normal sinus rhythm, however postero-anterior plain chest radiography demonstrated a linear shadow outlining the left heart border with significant anterior subcutaneous emphysema. Urgent thoracic computed tomography (CT) with contrast confirmed mediastinal emphysema whilst contrast swallow studies ruled out a concomitant oesophageal perforation. The patient was observed and successfully followed up in the community with further plain chest radiography.

Discussion: Pneumomediastinum usually results from the proximal tracking of free air from ruptured alveoli into the mediastinum. The repeated deep inhalation and Valsalva manoeuvres associated with cocaine use increase intra-thoracic pressure and cause local barotrauma, resulting in alveolar rupture and air dissection along peri-bronchiolar sheaths and subsequent mediastinal emphysema.

Conclusion: Patients frequently present to the Emergency Department complaining of chest pain after using cocaine. Although the majority of these patients will not experience any adverse sequelae, it is important to be vigilant for signs of mediastinal emphysema and prudent to organise a plain chest film to rule out such instances. Most cases of pneumomediastinum require further contrast studies to rule out oesophageal perforation but can usually be managed conservatively if this is excluded.

Recognition and Management of Patients with a Limited Prognosis: A Brief, Mixed-Methods Study in a Gastroenterology Unit

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Background: Palliative care is increasingly integrated into standard care for patients at risk of deterioration from life-limiting illnesses, but significant barriers still exist. This study aims to understand how patients with a limited prognosis are identified and managed in a gastroenterology and hepatology ward, explore the factors that influence this process and evaluate the outcomes.

Methodology: Prospective mixed-methods study. We evaluated the identification, management and outcomes of patients with a limited prognosis (identified using the Supportive and Palliative Care Indicators Tool) over a five-day period with a three-week follow-up. Brief semi-structured interviews with three junior doctors and four senior nurses in the ward team were analysed thematically. This study was approved by the Lothian Caldicott Guardian and relevant NHS Lothian Quality Improvement Team.

Results: Of 41 patients screened, 26 (63%) were identified by the researcher and 11 (27%) by the ward team. Advanced cancer prompted more proactive identification than advanced liver disease (90% vs 23%) due to uncertainties with managing end-of-life care in non-cancer illnesses. A high quality of care in the last days of life was observed, although anticipatory care planning was largely absent. More readmissions occurred among patients with progressive disease not identified by the ward team.

Discussion: Staff were unfamiliar with using a palliative care approach in non-malignant conditions, and planning for end-of-life care was often only a priority when the patient was imminently dying. Five main challenges were evaluated:
1) inconsistent ideas about palliative care,
2) maintaining hope in the face of uncertainty,
3) poor patient understanding,
4) complex team dynamics and
5) healthcare system constraints.

Conclusion: Lack of identification leads to less care planning and less patient awareness. Earlier and more systematic integration of a palliative care approach is needed in caring for patients with advanced, life-limiting gastroenterological conditions.

Alcohol education in schools

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Despite current laws, under-age drinking is incredibly prevalent in our society. Therefore, there is a continuing need to deliver important health messages surrounding the dangers of under-age drinking to an appropriate demographic in an effective way. This project set out to educate adolescent teenagers about the risks associated with under-age drinking using small group teaching delivered by medical students. The teaching focused on the legal, health and social aspects regarding under-age drinking. The sessions were taught to a total of 255 pupils, aged 13- 15 years from a mixture of schools in South Wales. Each session consisted of 3 medical students teaching 10-12 pupils, allowing maximum student participation. Results were obtained via evaluations forms which included qualitative and quantitative feedback. Pupils scored from 1 (strongly agree)–5 (strongly disagree) on whether they learnt valuable lessons, if the sessions were interactive, enjoyable and suitable for their age range and finally if their attitudes towards alcohol has changed. The majority of pupils scored around 1-2 on each section. Qualitative feedback suggested the students believed in the importance of alcohol education, however felt the message would have been better received if the sessions were longer and more interactive.

What Should Be Taught In the ENT Undergraduate Curriculum and How?

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Background: ENT knowledge and skills are important to many specialties, yet teaching time in the undergraduate curriculum is limited. Thus, teaching should focus on topics of greatest importance, and be delivered in a manner that maximises learning. This study aimed to establish which topics should be taught, and how.

Method: Thoughts on key ENT topics, preferred teaching methods and current ENT knowledge were collated through semi-structured telephone interviews with doctors. Data were analysed using Thematic Analysis. This data was then used to form an online questionnaire, where participants graded a list of key ENT topics and teaching methods according to their perceived importance. A four-point scale was used, reduced to two points (little or no importance, useful or important) for analysis. Participants included medical students, nurse practitioners, A&E doctors, local GPs and ENT surgeons. Statistical analysis was performed using IBM SPSS. Difference in proportions were analysed using the Fisher's exact test.

Results: The eight interviewees reported generally poor ENT knowledge amongst non-ENT doctors. Three main themes were identified: indifference to limited knowledge ('Don't know, Don't care'), a wish to stick to basics ('Keep it simple, Stupid!'), and a preference for interactive teaching ('Talk to me!'). Twenty-six key topics were identified. All topics were graded as useful or important by at least 50% of our participants (n=44). Structured small group teaching was graded as useful or important by 95.5%, followed by on line material (84%) and shadowing an on-call doctor (81.8%). Theatre was considered to be of little or no use by 47.7%.

Conclusion: This study provides an important insight into current ENT knowledge, key topics and teaching methods. All topics should continue to be included in the undergraduate curriculum, and structured small group teaching should be the main teaching method. This data will be valuable when constructing an evidence -based curriculum.

Poster Presentations

A Review of Patient Consent in Colorectal Surgery and Adherence to the Local Consent to Examination and Treatment Guidelines

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Background: The patient information and consent to examination and treatment guidelines detail that patients have a right to know and agree to everything that happens to them and that they have the full and proper information given to them prior to any treatment being provided so that they fully understand the risks and benefits and can make informed choices. This audit monitors the implementation of these policies.

Methodology: This was a retrospective study consisting of a sample of 10 patients identified from Colorectal Surgery, Castle Hill Hospital who were admitted in February 2016. A standardized proforma was completed for each patient, using case notes to collect the data.

Results: The sample consisted of 10 colorectal surgical inpatients and in all cases the correct consent form was used. All consent forms were taken by staff that were competent and trained to do so. All consent forms sampled included a discussion of the intended benefits and possible risks of the procedure. However, this was not complemented with additional information for any of the patients. Furthermore, only 50% of patients were explained about any extra procedures, which may become necessary during the procedure.

Discussion: The correct consent form was used for all our patients and all consent forms were in the notes. All patients were consented by trained and competent members of staff. A thorough discussion was held with every patient in our sample however not all patients received all the relevant information in order to make an informed decision.

Conclusion: Although the local guidelines were followed when patients were consented, the audit highlighted a number of aspects that were not followed as thoroughly. As a result, a number of recommendations have been made to ensure full compliance to the guidelines. A re-audit will take place in four months time.

Surgical Outcomes of Joint Synchronous Single-Step Hepatobiliary and Colorectal Resection Surgery vs Multistep Hepatobiliary and Colorectal Resection Surgery: A Retrospective Study

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Background: A significant proportion of patients with colorectal cancer develop metastasis to other areas. Often the metastasis presents in the liver, the only treatment available is simultaneous resection of both organs despite the fact that almost nothing is known about the long-term complications and feasibility of this surgery.

Objectives and aims: Given the fact that the only treatment of this condition is major surgery, and that patients are often in the later stages of their life, it is important to determine the effectiveness of the surgical outcomes. Are the risks acceptable and do age, gender, comorbidities, ASA status, histology, staging and technique make a difference to the prognostic outcome? This study aimed to start the process in answering these crucial questions. As such the aims of the study are:
1) Analysing survival complication rates and surgical outcomes.
2) Comparing the result to other multi-centred studies.

Methods: Patients who had metastatic colon cancer were selected from a single centre and were retrospectively analysed. Their surgical outcomes and complication were recorded within the past seven years.

Results & Discussion: We identified 17 patients who had undergone surgery. Out of these, 16 required surgery for metastatic adenocarcinoma of colorectal origin. Seventy-one percent (n=12) patients presented with a significant post-operative complication that increased hospital stay or significantly affected quality of life. There was a reoccurrence rate of liver (n=5) and rectal (n=1) of 38%, along with a mean survival of 20 months. Other complications were also reported with the commonest being Intra-abdominal fluid collections.

Conclusions: Although this is currently the only surgical procedure available, with results of 71% of patients presenting with complications, it is important to consider whether prolonging life for an average of 20 months is feasible to justify the cost and most importantly the patient's quality of life.

Students' Response to a Wilderness and Expedition Medicine Course Delivered in a Remote Setting

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Background: During the current political climate the future is uncertain for Medical Students. Many have lost interest in medicine as news of strikes take over their social media feeds. Students need to be inspired in a stimulating, educational environment to reignite their passion for medicine.

Description: The past two years has seen over 75 Medical Students complete a Wilderness and Expedition Medicine Course in the French-Alps as part of a month long Student Selected Component organised by Swindon Academy (part of the University of Bristol). Far Away Medicine, a team of highly experienced doctors and expeditioners with a passion for education, delivered the week-long course through a variety of mediums – small group teaching, practical sessions and scenario activities set in the mountains. They succeeded in teaching groups of third and fourth year medical students the skills to manage a mass casualty incident and treat a vastarray of complex trauma injuries based around Advanced Trauma Life Support techniques.

Discussion: We identified a range of transferable skills which students otherwise have no opportunity to put into clinical practice and mapped them onto the General Medical Council's "Outcomes for Graduates" guidance document. We demonstrate how the team engaged students in maximising all possible educational opportunities both within a formal and informal setting. Finally, we present feedback data collated from students who participated in the course over the past two years to highlight why such courses are such an effective educational tool. One hundred percent (n=48) of students 'agreed' skills learnt would be useful in the future and 100% (n=48) would recommend the course to friends.

Conclusion: The blend of inspirational teachers in a stimulating remote environment provided students with an opportunity not only to learn advanced concepts but to reignite their passion for medicine and the privileged opportunities such a career can offer.

A Qualitative Study of How Legal Guardians Experience Deliberate Self Harm Among Adolescents under Their Custody

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This study was conducted in partial fulfilment of a master's degree in mental health nursing at the University of Malta. The data was collected from the Child Guidance Unit.
Background: Deliberate self-harm is the intentional act of causing harm to one's self in the absence of suicidal intentionality, however it's repetitive nature increases the risk of fatality having severe repercussions on global public health. The overall aim was to explore the lived experiences of legal guardians of adolescents who deliberately self-harm.

Method: Heideggerian hermeneutic phenomenology underpinned the study while Interpretative Phenomenological Analysis guided the extrapolation and interpretation of results. Four participants and one pilot study were recruited, consisting of mothers in care of adolescents who received care from the Child Guidance Unit and engaged in deliberate self-harm in the pary year. In-depth semi-structured interviews were carried out and transcripts were produced. These were analysed and themes were extrapolated through abstraction.

Results: Results demonstrated the anguish and distress experienced by legal guardians due to social, financial and familial circumstances faced. Guild and feelings of defencelessness and helplessness were reported as devastating while trying to cope and maintain an adequate level of function-ability.

Discussion; The background of these individuals and socioeconomic factors hugely impact the development of their circumstances, however the dedication of the legal guardians assisted them in enduring their difficult familial stresses.

Conclusion: Further support and education for the legal guardians should be provided from the psychiatric services. Studies recruiting adolescents coming from different cultural backgrounds and investigating any possible discrepancies and a longitudinal study exploring the skills learned by legal guardians and satisfaction gained from the services utilised should be conducted.

A Mechanistic Approach to the Treatment of Acute Promyelocytic Leukaemia

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Background: Acute Promyelocytic Leukaemia is a severe subtype of Acute Myeloid Leukaemia which is characterised by the presence of the oncofusion protein PML/RARA. However despite the severity of this condition it is in fact highly treatable. The purpose of this presentation is thus to review the molecular mechanisms involved in the development of this condition and ascertain how these relate to treatment and its effectiveness.

Description of Review: Current treatment exploits two key characteristics. The first being that the major changes in cellular function and differentiation all stem from the aberrant expression of PML/RARA, and the second, that whilst PML/RARA gains the abilities of both of its components; it is also susceptible to the effects of substances that target either of these components. This therapeutic susceptibility will be illustrated by reviewing the literature describing the use of All-Trans Retinoic Acid (ATRA) and Arsenic Trioxide (ATO).

Discussion: PML/RARA is unresponsive to physiological doses of ATRA, however at therapeutic levels ATRA regains its ability to bind to the RARA component of the oncofusion protein. This stimulates the recruitment of pro-transcription co-activators by the AF-2 domain of RARA, effectively undoing the differentiation block. On the other hand low dose ATO targets the RING domain of the fusion protein, causing a conformational change which allows for the binding of SUMO E2 conjugase UBC9. Poly-sumoylation of lysine residues facilitates the recruitment of RING finger protein 4 ubiquitin E3 ligase, which initiates the proteasome mediated degradation of PML/RARA.

Conclusion: In conclusion, the effectiveness of treatment stems from the fact that it targets a key component involved in oncogenesis rather than targeting all rapidly dividing daughter cells. The success of this form of treatment suggests that the way forward in cancer treatment may lie in a better understanding of the mechanisms that govern oncogenesis in different malignancies.

Teaching Topographical Anatomy Using Ultrasound vs. Anatomical Atlas by Student Tutors

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Background: The aim of this study was to determine if medical students could score higher on a topographical anatomy test when given a short tutoring session by other students using ultrasound as a teaching tool.

Methods: Seventeen third-year medical students from the University of Maribor, Slovenia participated in this project. Before teaching began, a pre-test containing 21 questions was given to all students to determine knowledge levels. Students were divided into five groups of three and one group of two. Three groups were randomly assigned to a teaching class on abdominal anatomy using ultrasound and the other three groups using books. Each group had a three-hour course. Lessons were given by two international medical students (from Canada and Malta) who previously received nine hours of training in ultrasound and who rotated between groups. Content of lessons was kept constant (adhering to checklist) in both types of teaching. After finishing all classes, a post-test containing 21 questions of comparable difficulty to the pre-test was given to the 17 students 24-48 hours after the last teaching session.

Results: MedCalc statistical package program was used in data analysis. With the small sample size, the gain of each group was calculated (post-test score – pre-test score). Both groups were compared by Mann – Whitney test. Median gain value in the ultrasound group was 3.5 and in the book group was 2.0. The distributions in the two groups did not differ significantly (Mann- Whitney U = 31.50, n1= 8, n2= 9, P = 0.66 two tailed). When comparing post-test results with pretest results within each group, scores were significantly higher on post-test ($P<0.05$).

Conclusion: A student tutoring program, based on a small group of students, with any kind of graphical material can augment short-term appreciation of topographical anatomy, with no apparent superiority when using ultrasound.

Covariance of Dimensional Traits of Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder: Implications for Pathophysiology and Diagnostic Practice.

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Background: Autism Spectrum Disorder (ASD) and Attention-Deficit/Hyperactivity Disorder (ADHD) are pervasive developmental psychiatric disorders that have recently received interest because of trait overlap and comorbidity between them. However, studies investigating comorbidity and trait overlap are hindered by additional confounding comorbidities and uncertain and heterogeneous diagnosis of participants.

Objective: The aim of this study is to determine if ASD and ADHD-like personality traits overlap in a healthy population.

Methods: The Autism-Spectrum Quotient (AQ) (Baron-Cohen *et al.* 2001b) and the Conners' Adult ADHD Rating Scale (CAARS) (Conners *et al.* 1999) were administered to a final sample of 118 healthy participants.

Results: Results showed a significant, moderate, positive correlation of total AQ and total CAARS scores. ASD and ADHD-like personality traits that were found to correlate were associated with executive dysfunction: inattention, memory problems, impulsivity, emotional liability, poor attention switching, poor social skills and reduced imagination. Communication deficits and increased attention to detail subscales are suggested to not extend to the ADHD profile, and hyperactivity, restlessness and problems of self-concept subscales are suggested to not extend to the ASD profile.

Conclusion: A moderate, positive correlation was found between total AQ and total CAARS scores in our population, suggesting that ASD and ADHD-like traits overlap in health. This contributes towards future research by suggesting subscales that may correlate in health and that require further investigation directly comparing ASD and ADHD individuals.

Knowledge and Attitude toward Epilepsy among Families of Epileptic and Non-Epileptic Children in Madinah, KSA

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Background: Epilepsy is one of the most common paediatric neurological disorders. Lack of awareness regarding epilepsy among the general population has an influence on epileptic children life. Misconceptions and misinformation should be identified and corrected.

Objectives: The aim of this study is to assess the knowledge and attitude towards epilepsy in families of epileptic children and families of normal children in Madinah, KSA

Methods: A cross-sectional study carried out in Maternity and Children hospital, Madinah, KSA from of March 2015 to December 2015. A self-administrated questionnaire was designed to collect data from participant families.

Results: Out of 168 self-administrated questionnaires, 150 questionnaires had been completed. These were 64 families of epileptic children and 86 families of normal children. Of the whole included families; 67 families (44.7 %) think it is related to Jinn. Logistic regression analysis showed that this was dependent on the education level of the family (p= 0.004), and the area of residence, urban or rural, (p= 0.04). In families of epileptic children, the linkage of epilepsy to Jinn was related to some factors in the clinical data including type of epilepsy (p=0.023), duration of disease (p=0.039), and duration of treatment (p=0.028).

Conclusions: We concluded that, our community still has some misconception regarding epilepsy even in families of epileptic children. Knowledge and attitude toward epilepsy need to be corrected. Planned programs and campaigns need to be carried out for mass society education

PPI Co-Prescription for High Risk Patients Admitted to the Northern General Hospital on Aspirin

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Introduction: It is well known that NSAIDs can lead to GI complications. Particularly, these can lead to GI ulcers and even progress to life threatening GI bleeds. Aspirin inhibits cyclooxygenase in the same manner as NSAIDs, so NICE believes that side-effects and complications of the medications can be deemed to be similar. NICE thus recommends that if a person is at high risk of GI adverse events and on low dose aspirin, they should be co-prescribed a PPI. NICE guidelines deem the following as high risk of GI adverse events: any person over age 65, a history of GI ulcer or bleed, high dose of aspirin, serious co-morbidities or concomitant medications.

Methods: We performed a snap-shot audit of 82 medical in-patients at the Northern General Hospital. We used their clerk in documentation and medicines reconciliation charts to establish their risk status, specialty, whether they were on a PPI and their adherence to the NICE recommendations on arrival to hospital.

Results: We found that 66% of patients with risk factors were prescribed a PPI. This percentage increases with increased number of risk factors.

Discussion: This snap-shot audit highlights a lack of PPI co-prescription in high risk patients with aspirin on arrival to hospital. Even patients with multiple risk factors are left at risk of GI side effects. This may be due to a lack of knowledge about risk factors for GI side effects and potentially a lack of clarity from NICE about what exactly constitutes a risk factor.

Conclusion: PPI co-prescription for patients on aspirin is not universal. This puts patients at risk of GI complications. More work needs to be done to highlight the need for this and improve outcomes as a result.

Fournier's gangrene: A case report

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Mr. P.G., a 65 year old, retired, obese male was referred to casualty by his family physician, following the complaint of a painless swelling in his left testicle, that was accompanied by a burning sensation on passing urine. A mass in the right testicle was also noted. Throughout the course of his admission, a number of investigations were carried out. An ultrasound scan of both testicles, and a computed tomography scan of the abdomen and pelvis, delineated extensive thickenening of the scrotal skin, as well as subcutaneous gas formation surrounding both testicles with extension to the penis and the right inguinal region. The patient was diagnosed with Fournier's gangrene, which is likely to be a complication of his uncontrolled, Type II diabetes mellitus. This condition is classified as a rare and potentially life-threatening disease. Following the diagnosis, the patient received a right orchiectomy, circumcision, subsequent rounds of scrotal debridement, as well as pharmacological therapy to relief his symptoms.

Antibiotic Prescribing in Surgery

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Background: Development of antibiotic resistance is a growing concern currently being addressed by the Department of Health and Department for Environment Food and Rural Affairs with the release of the UK five-year antimicrobial resistance strategy (AMR) 2013 to 2018. The strategy identifies three core areas in the battle against resistance which concentrate on: education, conservation and research. Conservation of antibiotics is achievable on a local level by adhering to antibiotic policies. At Mid Cheshire NHS Foundation Trust recent changes have been applied to the antibiotic policy, for the treatment of intra-abdominal infections, to maintain the effectiveness of current antibiotics and reduce rates of resistance.

Aims:
1) To assess if patients are receiving the appropriate antibiotic as per local policy
2) To assess appropriate course duration of intravenous antibiotics
3) To assess appropriate oral antibiotic stepdown for intra-abdominal infections

Methodology: An observational cross-sectional survey was completed weekly over four weeks for general surgical patients being treated with antibiotics.

Results: Sixty antibiotic prescriptions were recorded in total. 60.78% followed local protocol, 23.53% did not and 15.69% partially followed. Thirty-eight (63.33%) prescriptions were intravenous. 73.08% were justifiable, 26.90% were unjustifiable. Ten intra-abdominal infections were identified that were stepped down to oral antibiotics. Three out of 10 (30%) were switched to the appropriate oral antibiotic.

Discussion and Conclusion: Results demonstrate low adherence to antibiotic guidelines in surgical patients, which may reflect poor knowledge of updated guidelines. Better dissemination of updated guidelines with laminated charts on ward round trollies, a prompt on the drug chart for oral stepdown and microbiology ward rounds may improve adherence to the antibiotic protocol and help fulfil the AMR strategy.

Child Injury Prevention: A Survey of Local Authorities and Health Boards

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Aims: Unintentional home injuries are a significant global public health issue and are a major cause of mortality and morbidity. The aim of this study was to describe and quantify what the child home injury prevention activities of local authorities in England and health boards in Wales.

Methods: A questionnaire was sent to directors of public health in all 153 upper tier local authorities in England and seven health boards in Wales. The questionnaire covered the five broad areas recommended for injury prevention activities by NICE guidelines.

Results: More than half of directors of public health responded (58%) and reported using NICE guidance (75%) and Public Health England guidance (57%) to support their child injury prevention decision making**.** Half (50%) of respondents had a child injury prevention alliance in their area. One fifth (19%) reported that their area had a written child injury prevention strategy. Less than half of responders provided training to practitioners about child unintentional injury prevention (43%), home safety assessments (43%) or an equipment scheme (43%). Of the areas with equipment schemes, most (59%) were small scale, supplying up to 200 families per year with equipment.

Conclusions: There has been recent national guidance on preventing home injuries in childhood, but this is yet to impact substantially on the activities of local authorities and health boards. These agencies may require support to develop further their child injury prevention capability.

Keywords: local authorities, health boards, injury prevention, national survey, England and Wales

Improved Efficiency and Effectiveness with Organised Note Keeping System

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Background: Medical record is essential for the continuity of care of the patients. Daily activities, discussions and management plans regarding patients are documented in the medical notes. Many wards have patients' current admission notes filed together with the previous admission notes in a single folder. This has created inconvenience for the medical staffs to locate the current admission notes for documentation and review purpose on a daily basis. The objective of this quality improvement project is to improve the efficiency of note keeping and to reduce the risk of losing medical records.

Methodology: In Ninewells Hospital Ward 42, all medical notes were filed in a single folder. The new note keeping system was implemented whereby the current admission medical and nursing notes are filed in a single folder while the previous admission notes are filed in separate folder. Questionnaires regarding the time spent looking and filing the medical notes, frequency of referring to previous admission notes, and advantages and disadvantages of both note keeping systems were distributed to all medical staffs in Ward 42 one month after the implementation.

Results: The total average time spent to search and file medical notes in the old note keeping system was six minutes whilst the new note keeping system took three minutes in total. Majority of the medical staffs occasionally review previous admission notes. The new note keeping system has better flow of multidisciplinary knowledge, better access to medical and nursing notes and lower risk of missing medical notes.

Discussion/Conclusion: The new note keeping system is more organised and has favourable outcomes. Medical staffs are able to work more efficiently and the lower risk of missing medical notes allows good continuity of care of the patients. This note keeping system is recommended to all wards across UK hospital.

Clinical Audit Evaluating Delayed Stent Removal in Renal Transplant Cases

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Background: An important step in renal transplant surgery is insertion of a JJ stent to prevent strictures at the vesico-ureteric anastomosis. These stents are removed postoperatively. However, it is recognised that sometimes these stents are not removed on time, which can lead to complications like recurrent urinary tract infections(UTIs).

Methodology: We carried out a retrospective audit of all renal transplants done at the Royal London Hospital over the last five years. Case notes of all patients that underwent renal transplantation since 29/11/2010(n=591) were reviewed to note the dates of renal transplant, stent removal and reasons for delay, if any. A qualitative analysis was also planned to extract themes relating to reasons for delay in stent removal.

Results: The average number of days taken for JJ stent removal was 39.8 days with a range of 1- 269 days. The date of stent removal was not noted in 43 case notes. Three stents remained in situ and were within the post-operative window. Where stents remained in situ beyond 90 days, no reason for delay was documented in five cases. The common themes for delay are represented in the chart below. On average, patients with retained stents had 11.8 episodes of UTI.

Discussion: Current literature suggests that JJ stents should be removed at 2-4 weeks posttransplantation. A previous audit of JJ stent removal found undocumented stent status in 22% of patients. In our centre, this value was 7.3%. However, a limitation of our audit is the lack of data on 13 patients.

Conclusion: We believe retained stent should be considered a never event and recommend that stent removal should be part of a postoperative checklist. In addition, an information leaflet should be provided to patients so they can return for stent removal at a designated time after surgery.

The Assessment of Orthostatic Blood Pressure in an Acute Hospital

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Background: Falls management in hospital includes assessment of orthostatic blood pressure (OBP). Accurate measurement is paramount in falls assessment. A survey was conducted to evaluate OBP assessment among healthcare staff according to our local falls assessment policy.

Methods and sampling: Multidisciplinary healthcare team (MDT) working in geriatric medicine, acute medicine and orthopaedics were asked to complete a self-reported questionnaire. These departments were chosen as their patient cohort represents a significant proportion of 'fallers'. The survey focused on previous falls training, OBP assessment in eight case scenarios, how staff measured OBP (five-key points: 1. lying patient flat; 2. minimum five-min flat; 3. measure BP lying down; 4. standing patient up; 5. take BP immediately and three-min after standing), and significant OBP findings.

Results: Fifty-four out of 100 responses were obtained (10 doctors, 28 nurses (band 5-7), 11 health care assistants (HCA), and five student nurses. Fifteen (27.8%), nine (15.8%) and 30(55.6%) responses were from the acute medicine, orthopaedic wards and geriatric wards respectively. Forty-four (81.3%) had received in-hospital falls training and twenty-five out of 44 (56.8%) in the past six months. Only 12 (21%) participants correctly identified all the clinical scenarios where OBP assessment was needed with no difference among the MDT (p=0.12). Only five (10.4%) participants were able to identify all the five-key points of measuring OBP. Most did not identify the need to lie flat for a minimum five-min (72.9%); and measure BP immediately and after three min standing (75%). Fifty-two (96.3%) participants recognised a 20mmHg systolic-drop as significant but only 33(62.3%) acknowledged a 10mmHg diastolic-drop as significant.

Conclusions & Discussions: Despite a significant majority received hospital falls training, OBP is still inaccurately measured across different directorates by MDT members. Incorrect assessment of OBP affects patient management and can be considered a marker of suboptimal hospital falls training. A review of local training is needed to address this.

A National Teaching Session on the Prescribing Safety Assessment

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Background: Succeeding in the Prescribing Safety Assessment (PSA) has become a General Medical Council (GMC) requirement expected of all UK undergraduate medical students. With only the official PSA website as a validated preparation source, many have little guidance on how to prepare for the PSA.

Description of development: A group of foundation doctors ran a free national teaching session for final year undergraduates on key prescribing safety topics both for the PSA and for foundation year one.

Discussion: The event was held in central London and attended by 33 medical students from six universities. Data from feedback forms were collated and analysed. There was an overall satisfaction rating of 90% for content and usefulness and 92% found the session relevant. 'Common Prescriptions' was rated top at 92%, with students reporting increased confidence to prescribe as a foundation doctor. However, 'Calculations' had a low rating of 48% as students felt they needed more complex questions. The mean score for overall teaching was 9.2/10 with positive comments highlighting satisfaction with; small interactive group sessions, approachability of teachers and the Emergency Prescriptions module. Areas for improvement were stated as the need for increased teaching duration and post-course handouts. A total of 80% of students felt prepared for the PSA after attending the course. However, this data is limited by an absence of feedback from the students after taking the online test.

Conclusion: Teaching is a GMC requirement of all doctors. We demonstrate how junior doctors can create opportunities to gain teaching experience. Our teaching was focussed on passing the PSA, however as the years progress; the course can cater towards more long-term PSA focussed outcomes. There is also scope for Universities to incorporate the feedback we received into their curriculum.

Stem Cell Repair for Cardiac Muscle Regeneration

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The notion that the human adult heart is a quiescent organ incapable of self-regeneration has been successfully challenged. It is now evident that the heart possesses a significant ability for repair and regeneration. Stem cells of endogenous cardiac origin are currently considered to possess the greatest ability to differentiate into cardiomyocytes. The major types of cardiac stem cells that show a promising potential to replace damaged cardiomyocytes include: C-KIT positive (C -KIT+) cardiac progenitor cells, cardiosphere-derived progenitor cells, islet-1 (Isl1+) cardiac progenitor cells, side-population cardiac progenitor cells, epicardium-derived progenitor cells and stem cell antigen-1 (SCA1+) cardiac progenitor cells. Moreover, stem cells of extra-cardiac origin are also thought to restore contractility and vascularization of the myocardium; which include: skeletal myoblasts, bone marrow mononuclear cells, mesenchymal stem cells, endothelial progenitor cells as well as embryonic stem cells. The need for further investigation on cardiac stem cell therapeutic strategies still remains.

Improvements in Patient Surveillance On A Video-EEG Telemetry Unit Over Three Years

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Background: Video-EEG telemetry (VT) aids the diagnosis and management of epilepsy. Drug reduction can increase its usefulness by increasing the likelihood of seizure occurrence. Patient safety is paramount given the risk of injury or fatality. Response times by health care professionals (HCPs) is a risk factor for adverse patient outcomes during VT. We completed three audit cycles of HCP response to seizures in our unit.

Methodology:

- Data gathered retrospectively by observing HCP responses to events in video-EEG recordings
- of patients admitted to the VT unit in the University Hospital of Wales.
- First audit cycle (December 2012-April 2013) – ten patients, 15 events.
- Results used to support epilepsy business case – submitted and approved (July 2013). Drug
- reduction VT introduced for assessing epilepsy surgery candidates.
- Second cycle (April-June 2014) - five patients, 24 events.
- Third cycle (July 2014-15) – 33 patients, 117 events.

Results:
Cycle 1: HCP responded to nine of 14 clinically identifiable events (64%). Median 47s, mean 317s(range 18s-28 minutes).
Cycle 2: Response to 19 of 20 clinical events (95%). Median 12s, mean 25s (range: 0-106s).
Cycle 3: Response to 104 of 106 clinical events (98%). Median 10s, mean 35s (range 0-150s).

Discussion: The first audit showed inadequate response rates and times to patients events. Patients were indirectly observed via a screen on the nursing station. To enable drug reduction VT, improvement was required. The epilepsy business case enabled a room layout modification and funding for a dedicated HCP to directly continuously monitor telemetry beds. Response rates and times improved over the following two audit cycles.

Conclusion: To optimise responses to patient events on VT units, a HCP should directly observe patients at all times. Along with HCP education, this has improved response rates from 64% to 98% and median response time from 47s to 10s on our unit.

Prevalence and risk factors of diabetic retinopathy: A clinical-based cross sectional study in Madinah's Tertiary Diabetic Centre, Saudi Arabia

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Background and objectives: There is a gap in knowledge in Saudi literature about the prevalence of diabetic retinopathy (DR) and its risk associated factors. This cross-sectional study aimed to assess the prevalence of DR in diabetic patients and its associated risk factors.

Materials and Methods: The present study analysed data from 103 diabetic patients attending Prince Abdul-Aziz bin Majed Diabetes care centre, Madinah, KSA in the period from January to June 2015. Diagnosis of DR in the studied patients was established by ophthalmologists through history and ophthalmic examination. The data were analysed by appropriate statistical methods, and multivariate logistic regression analyses were used to estimate the risk.

Results: The prevalence of DR among the studied diabetic subjects was 16.5% (95% CI= 9.33-23.67%). The risk of DR was positively associated with patients' age > 60 years (odds ratio (OR)= 8.10; 95% confidence interval (CI)= 1.40-12.0), poor control of diabetes (OR= 17.5; 95% CI=1.65- 26.93), > five years' duration of diabetes (OR= 6.50; 95% CI= 0.60-13.69), and associated severe hypertension (OR= 4.30; 95% CI= 1.4-13.04), and to less extent type II of DM, female sex, smoking and obesity. A significant reduced risk, however, was found among married patients and those with high level of education.

Conclusion: The study revealed a relatively high prevalence of DR in the studied diabetic patients. The study suggested some risk factors to influence the development of DR among the studied patients. Large sample studies are needed to confirm these findings

Key words: Diabetes Mellitus, Diabetic retinopathy, Prevalence, Risk factors, Saudi Arabia.

Venous Thromboembolism Risk Assessment Trust-Wide Audit

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Background: Venous thromboembolism (VTE) is a common complication of hospital admission, despite validated guidelines. The incidence of deep venous thrombosis (DVT) in patients without adequate prophylaxis is 10-40%. Therefore, it is crucial that patients receive VTE risk assessment on admission, followed by administration of VTE prophylaxis if appropriate. Objectives included benchmarking organisational compliance of VTE prophylaxis to national standards and identifying areas of improvement and good practice.

Method: A prospective audit over a 10-day period across all divisions in an acute hospital setting- medical (n=133), surgical (n=80) and gynaecology/family care (n=20). Data collection was facilitated by a predesigned audit tool ratified by Trust VTE committee. Key focus areas within tool were VTE risk assessment on admission and 24 hours after, documentation, timely administration and missed doses of VTE prophylaxis.

Results: VTE risk assessment was completed on admission in 91% across all wards. Seventy-seven percent of high risk patients received an adequate level of VTE prophylaxis. The right dose was prescribed and administered in 99% of cases. Seventeen percent were found to have missed doses and seven percent had a delay in administration of their prophylaxis. Forty percent of low risk and 16% of high risk patients received a repeat risk assessment 24 hours following admission. All surgical patients received VTE prophylaxis within 12 hours of surgery.

Discussion & Conclusion: This audit showed that VTE risk assessment was completed in 91% of patients on admission which is lower than the nationally recommended standard of 95%. The most important organisational learning is ensuring a repeat risk assessment is conducted 24 hours following admission. Recommendations for quality improvement include highlighting the need for repeat risk assessment in guidelines, incorporating VTE prophylaxis risk assessment into core mandatory training, educating patients through verbal and written communication and finally including prompts in prescribing systems.

Understanding the mechanisms leading to placental dysfunction in advanced maternal age.

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Background: Women of advanced maternal age (AMA), ≥ 35 years at childbearing, are a high risk obstetric cohort, having a 1.75 and 1.23 fold increased risk of stillbirth and fetal growth restriction respectively. However, the incidence of childbearing in women of AMA has increased from 11.1% of livebirths in 1994 to 20.7% in 2014, in England and Wales. Abnormal placental morphology and function has been identified in women of AMA, suggesting placental dysfunction underlies their susceptibility for pregnancy pathologies.

Description of review: This review explores mechanisms underlying placental dysfunction in AMA, focusing on two mechanistic routes; oocyte dysfunction and changes within the maternal environment.

Discussion: Oocytes and pre-blastocyst embryos from women of AMA have reduced mitochondrial function, shorter telomeres and altered epigenetic expression. Extended exposure to oxidative stress while oocytes are residing in the ovary possibly underlies these changes. The ageing process results in a gradual shift towards an increase in reactive oxygen species(ROS)and a pro-inflammatory state. However, women of AMA are younger than those normally considered in the context of ageing. Both ROS and inflammation have adverse effects on placental function and are elevated in pathological pregnancies. Women of AMA with healthy pregnancies have an increased circulating antioxidant capacity, possibly to compensate for increased ROS, and a reduced anti-inflammatory response, possibly predisposing to damage from pro-inflammatory stimuli, compared to women of optimal childbearing age. The involvement of oxidative stress in placental dysfunction in AMA pregnancies is further highlighted by women of AMA with poor pregnancy outcomes having increased lipid peroxidation, suggesting that the antioxidant capacity cannot fully compensate for the increase in ROS.

Conclusion: Literature highlights there are age-related changes within both the oocyte and the maternal environment which could contribute to altered placental function. Determining which factors influence placental function highlights an area for future research.

Clinical Audit Assessing the Time to Medical Assessment and Antibiotic Administration in Paediatric Oncology Patients with Febrile Neutropenia

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Background: Febrile neutropenia is an acute oncological emergency for paediatric patients on chemotherapy. Minimising the time to first antibiotic administration in these patients is of central importance. Recent evidence has led to updated guidelines for antibiotic administration in this clinical setting. Currently, in the Royal Hospital for Children (RHC), Glasgow there are two guidelines for treating febrile neutropenia: the national (MSN) guidelines and the local (RHC) guidelines. This audit aims to evaluate compliance to both guidelines by examining time taken for medical assessment and time to first antibiotic administration.

Methods: Over an 18-day period, attending medical and nursing staff completed a simple proforma, recording timing of events in the Emergency Department (ED), ward 2A and the Day Care Unit (DCU). Subsequent analysis of timings revealed compliance to both protocols. Patient outcomes at 72 hours were also recorded.

Results: Data from 9 patients was collected and analysed. Based on mean timings: The Schiehallion unit (Ward 2A and DCU) complied with both protocols for time to medical assessment. The ED did not. The Schiehallion unit complied to the national (MSN) protocol of administering antibiotics within the first 60 minutes, but not the local (RHC) guideline of 30 minutes. The ED did not comply to either the local or the national guidelines.

Conclusions: CEWS on presentation did not determine time to medical assessment. Lack of CVC line access on presentation was associated with reduced time to first antibiotic administration. Key improvements to the service should be targeted at the out-of-hours service for febrile neutropenia, particularly in the ED.

Theoretical Knowledge of Maltese Radiographers in Adult Basic Life Support: A Pilot Study

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This study provides an insight into the level of awareness concerning adult basic life support amongst a sample of local radiographers. The first aim of this study was to determine whether a sample of radiographers were sufficiently updating themselves on changes occurring within the *European Resuscitation Council* (ERC) Guidelines for Resuscitation. The second aim of this study was to evaluate the radiographers' level of awareness in adult basic life support in relation to sudden cardiac arrest. A cross sectional, non-experimental research design was adopted, and a stratified sample of 25 qualified radiographers was selected. Data were collected via a self-designed, semi-structured questionnaire. Quantitative data obtained from closed ended questions were organized manually and analyzed by means of descriptive statistics. Content analysis was used to analyze qualitative data from open ended questions whereby quotes obtained directly from questionnaires were evaluated, simplified, grouped and presented in tables. An overall score to represent radiographers' level of awareness in adult basic life support was calculated based on the arithmetic mean percentage rate obtained in a total of 14 questions. The study indicated that 75% of the respondents did not keep themselves updated on changes within the ERC guidelines throughout the years of their radiographer career. Moreover, the overall score of in questions testing the radiographers' awareness on adult basic life support was found to be 43%. In conclusion, the level of awareness in adult basic life support demonstrated in the stratified sample of radiographers studied was not as high as would be expected from qualified health care professionals. Therefore, continuing professional education and hands-on training is highly recommended for radiographers to enhance their current level of awareness in this regard.

Atypical Haemolytic Uraemic Syndrome: A Case Report of a Rare Disease

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Background: Atypical Haemolytic Uraemic Syndrome (AHUS) is a rare, life threatening disease characterised by constant and uncontrolled complement overactivation leading to systematic thrombotic microangiopathy (TMA), progressive multi-organ failure and eventually death. We present a case of AHUS presenting as recurrent renal failure and highlight key points regarding the syndrome

Case Report: A 56-year-old man presented to the emergency department with myalgia, fever and diarrhoea on a background of diarrhoeal illness in the family. Investigations revealed Acute Renal Failure (ARF) associated with haemolysis and thrombocytopenia. A septic screen, stool culture, Shiga toxin-producing Escherichia coli (STEC) test, autoimmune screen and viral (Hepatitis, Syphillis and HIV) serology were negative. A renal ultrasound scan was normal. His only significant past medical history was previous drug induced ARF a year previous. He was treated for presumed thrombotic thrombocytopenia (TTP) with dialysis and plasma exchange which improved his clinical and biochemical parameters. The patient represented a few months later with a similar clinical picture, again on a background of a viral illness in the family. Further testing revealed an ADAMTS 13 activity level >40% and a diagnosis of AHUS was made.

Discussion: AHUS manifests with characteristics of TMA (thrombocytopenia, microangiopathic haemolysis and organ dysfunction) in the absence of a positive STEC test and presence of ADAMTS activity > five percent. Up to 40% of patients with AHUS progress to end-stage renal disease and/or die at the first clinical presentation. AHUS is a genetic disease with environmental triggers. Prognosis varies with genotype but up to 50% of cases have no identifiable mutation. Plasma exchange and Eculizumab are the current cornerstones of treatment.

Conclusion: Clinicians need to be aware of AHUS, which usually progresses rapidly with dire consequences. Our patient is enrolled in the 100,000 genomes project. It is hoped that this will provide another piece to the AHUS puzzle.

A Pilot Study of Anatomy Doughnut Rounds

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Background: 'Doughnut Rounds' were first described as an innovative self-directed learning method by Fleiszer, *et al.* (1997), where sessions on critical care were reported to be educational, efficient and enjoyable. Bulstrode, *et al*. conducted a randomised controlled trial in 2003 demonstrating that doughnut rounds are as good as lectures in teaching trauma and orthopaedics to medical students. This pilot study aims to explore the usefulness of Doughnut Rounds in learning clinical anatomy of the lower limb.

Materials/Method: Doughnut Rounds consisted of six weekly hour-long sessions chaired by a fourth year medical student and attended by 6-8 first year students. Each student was asked to prepare five straightforward questions on a different clinical lower limb anatomy topic every week. During each session, students took turns to ask their questions to others in the group. Each in/correct answer was then explained to the students. The fourth year student ensured that the questions were fair and answers given were correct. Each student took an identical Best of Five MCQ test before and after each session to assess changes in their knowledge of the relevantclinical anatomy.

Results: A total of 17 students participated in the study. There was an improvement in MCQ scores in 69.2% of the students who attended the first session and the class average mark increased by 11%. The same trend was observed for the second session, where 77.8% of the students improved with an average increase of seven percent. Subsequent sessions showed similar improvements.

Discussion: Doughnut Rounds are an effective way of learning clinical anatomy of the lower limb. Fourth year students were able to effectively monitor and guide the learning process.

Conclusion: Formulating, asking and answering questions during Doughnut Rounds improves students' anatomical knowledge.

Pseudoxanthoma Elasticum (PXE): A Crucial Clinical Diagnosis

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Background: PXE is a debilitating autosomal recessive disorder with an incidence of one in 70,000 people in the United Kingdom. The pathophysiology of this disorder involves the calcification of elastic fibres particularly in skin, eyes and blood vessels resulting in disfiguring papular skin lesions, central vision loss and heart disease respectively. The variable nature of presentation of PXE makes it a challenging diagnosis to make. Our poster will present the signs and symptoms of PXE, how these may be effectively managed and the current issues surrounding the management options.

Description of Review: Having been inspired by a patient with Pseudoxanthoma elasticum (PXE), we aim to bring the signs and symptoms of this genetic disorder to the fore-front providing a basis for discussion of the management options currently available. In doing so, we hope to highlight the importance of early diagnosis which will offer the best achievable quality of life for PXE-sufferers.

Discussion: We will present an excerpt of a PXE patient's journey through to diagnosis, elucidating the chronology of events. We hope to elicit the current issues surrounding the availability of certain treatments under the NHS for PXE-sufferers and to highlight the importance of recognising the initial cutaneous manifestations of PXE

Conclusion: We hope to raise awareness on PXE and its impact on patients' physical appearance and quality of life with potential assistance from the PXE support group (PiXiE). We encourage doctors to have a level of suspicion for PXE in patients presenting with unexplained commonly occurring symptoms.

The efficacy of electroconvulsive therapy in severe depression: review

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Background: At the 54th World Health Assembly in 2001, the World Health Organisation (WHO)predicted that by 2020, depression may become the second leading cause of the global burden of disease3. This is not surprising as depression rates have been rising dramatically in recent years. Outcomes of severe depression include malnutrition, loss of employment, marital conflicts and in extreme cases and suicide. Electroconvulsive therapy (ECT) was initially a controversial treatment for severe depression as it produced many complications such as fractures. Modern day ECT is very different due to significant advances in anaesthesia, training and techniques.

Aim: This literature review aims to determine the extent to which ECT is an effective treatment for severe depression based on recent (within the past 10-15 years) research. Factors affecting ECT efficacy will also be considered.

Methods: Books and websites such as that of NICE were used to search for background information. Bibliographic databases including Medline and Scopus were used to find relevant literature. Four of the many articles found were selected using the inclusion criteria and discussed.

Results: The results showed that ECT has a high efficacy in treating severe depression, particularly in an acute episode. Speed of remission increases with ECT. Factors affecting ECT include stimulus intensity, glutamate levels and technique (e.g. bilateral is more effective than right unilateral).

Conclusion: Even though ECT now has good acceptance within the medical community, more stringent randomised controlled trials (RCTs) are required to demonstrate the effects compared to both placebos and medication.

A systematic review and meta-analysis of DNA methylation levels and imprinting disorders in children conceived by IVF/ICSI compared with children conceived spontaneously

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Background: Increasing numbers of children are being conceived by assisted reproductive technology (ART). A number of studies have highlighted an altered epigenetic status in gametes from infertile couples and the possibility of an increased risk of imprinting defects and epigenetic changes in ART conceived children, but the results have been heterogeneous. We performed a systematic review of studies to compare the incidence of imprinting disorders and levels of DNA methylation in key imprinted genes in children conceived through ART compared with spontaneously.

Methods: A detailed search strategy was used to conduct electronic literature searches. Abstracts of relevant studies were identified and we compared outcomes of children conceived through ART with those conceived spontaneously. The outcome measures were DNA methylation and the incidence of imprinting disorders.

Results: A total of 351 publications were identified by the initial search. Of these, 26 were excluded as duplicates and 241 were excluded after reviewing the abstracts, then of those remaining 66 were excluded after review of the full text. A total of 18 papers were included in the review. Apart from one case–control study, all were cohort studies. There was a degree of clinical heterogeneity in terms of the study population, type of infertility treatment, and samples obtained from exposed and unexposed children. DNA methylation levels were either presented as categorical data or continuous data. The combined odds ratio of any imprinting disorder in children conceived through ART was 3.67 (1.39, 9.74) in comparison with spontaneously conceived children.

Conclusions: There was an increase in imprinting disorders in children conceived though IVF and ICSI but insufficient evidence for an association between ART and methylation in other imprinted genes. Heterogeneity in several aspects of the studies reduce our ability to assess the full effect of ART on DNA methylation and imprinting.

Check That Dose! Paediatric Amoxicillin Prescribing: A Completed Audit Cycle.

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Background: In 2014 the British National Formulary (BNF) updated its guideline on the recommended dose of amoxicillin for children. The evidence suggested inadequate dosing among children; hence the BNF updated its guideline, increasing the recommended dosages in line with European practice. Our aim was to complete a full audit cycle, determining the nature of paediatric amoxicillin prescribing within a general practice (St Katherine's Surgery, Ledbury) a year post update.

Methodology: Phase 1 involved retrospective data collection reviewing patient records between 1st January 2015 to 31st March 2015. Standards were based on the BNF's updated guideline. Phase 2 involved implementation of change, via the creation of an information leaflet and educational training to practice doctors. Phase 3 involved re-auditing with retrospective data collection between 1st January 2016 and 31st March 2016, completing the audit cycle.

Results: Initially just 30.9% of paediatric amoxicillin prescriptions (N=55) met the recommended standards, with 69.1% failing to meet the criteria. Of the latter, dosages were subtherapeutic in all cases, with eight percent of children re-attending the surgery due to symptom non-resolution. Post intervention (N=51) 88.2% were correctly prescribed compared with 11.8% that did not meet the standards. Of these, none of children re-attended the surgery.

Discussion: Non-compliance with the standards was due to inappropriate under-dosing of paediatric prescriptions, in keeping with original nationwide guidance. Following implementation of the intervention the accuracy of amoxicillin prescribing improved. This suggested that prescribers were unaware of recommended practice until now.

Conclusion: The need to remain clinically vigilant and up-to-date as prescribers is clear, especially given the implications on patient wellbeing in an already vulnerable population. Ensuring recommended practice is communicated requires both personal and team responsibility. Though specific to this general practice, implementing a simple informative aid facilitated prescribing practice greatly.

Natural Polyphenols in the Treatment of Acute Promyelocytic Leukemia: Magic Bullets but Moving Targets

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Background: Polyphenols and triterpenes have reached the first milestone toward their inclusionin the arsenal of anti-leukemic drugs by showing consistent clinical benefits for APL patients as monotherapy or combination therapy (Dahlawi et al., 2013). Resveratrol, ellagic acid and oleanolic acid exert dose-dependent cytostatic and cytotoxic effects against PML/RARα in all leukemic cell lines (NB4, HL-60, K562, U937, PLB-985) (Li et al., 2005; Saiko et al., 2015).

Description of Review: This review corroborates the above statement by taking a look at several experiments including flow cytometry, DNA ladder formation and morphological observations (Cao et al., 2003). Moreover, pharmacokinetic studies have been carried out to consider the bioavailability of these polyphenols and whether their treatment concentrations are achievable in plasma (Mahbub et al., 2013).

Discussion: A plausible mechanism for this effect of polyphenols is the death-receptor pathway, which interacts with the mitochondrial pathways at the level of caspase-3 activation. The latter are then followed by caspase-8 activation or apoptosome formation. The enhancing effect of these polyphenols on ATRA-induced differentiation has been linked with their inhibiting effect on NM23/NDPK function as a differentiation suppressor in APL cells (Hagiwara et al. 2010). These effects of polyphenols have been linked to the free hydroxyl groups present at their aromatic rings, enabling them to proceed in a similar way as potential radical scavengers.

Conclusion: Polyphenols are like magic bullets that can kill cancer cells under different circumstances, but to comprehend their global scope and limitations, we explore the full range of their targets and the potential impact of polyphenols for malignancies with recurrent translocations and expression of fusion chimeric proteins similar to that of PML/RARα (Schenk *et al*., 2014).

Aortic Dissection, Turners Syndrome and Pregnancy: A Case Report

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Background: Acute aortic dissection (AAD) is misdiagnosed in up to a third of patients [1] and can be associated with a normal chest X-ray plus non-specific ECG changes [2].

Case Report: A 35-year-old with TS and of 21-weeks gestation presented to the ED with a history consistent with AAD but no clinical findings. The patient was admitted under the physicians for observation. Whilst in the ED the patient deteriorated and was found to have an acute Stanford A dissection with a right sided haemothorax and haemomediastinum.

Discussion: The risk of AAD in patients with Turners Syndrome (TS) increases by 100-fold [3] with an incidence of two percent in pregnant individuals [4]. Despite this, none of the major Emergency Medicine textbooks list Turner's syndrome as a risk factor for AAD.

Conclusion: The Royal College of Emergency Medicine (RCEM) recently released a safety alert about AAD [5]. AAD can present with no clinical findings, but should still be considered in patients with TS who present with a history suggestive of AAD.

References: [1] I. Asouhidou and T. Asteri, "Acute aortic dissection: be aware of misdiagnosi73," BMC Research Notes, vol. 2, no. 25, 2009. [2] C. Braverman, "Acute Aortic Dissection: Clinical Update," Circulation, vol. 122, pp. 184-188, 2010. [3] L. Matura, V. Ho, D. Rosing and C. Bondy, "Aortic Dilatation and Dissection in Turner Syndrome," Circulation, vol. 116, pp. 1663-1670, 2007. [4] M. Karnis, A. Zimon, S. Lalwani, L. Timmreck, S. Klipstein and R. Reindollar, "Risk of death in pregnancy achieved through oocyte donation in patients with Turner syndrome: a national survey," Fertil Steril, vol. 80, pp. 498-501, 2003. [5] Royal College of Emergency Medicine, "Royal College of Emergency Medicine: Safety Alerts," March 2016. [Online]. Available: http://www.rcem.ac.uk/CEM/document?id=9951. [Accessed 7 April 2016].

Assessment and Management of Severe Traumatic Brain Injury in the Wilderness Setting

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Background: Wilderness medicine describes the provision of medical care in remote settings with limited resources and delayed extrication to definitive care. Traumatic brain injury (TBI) is a significant source of mortality and represents up to 34% of all injuries sustained in the wilderness setting. This review shall focus on the management of severe TBI within the wilderness setting.

Description of review: The MEDLINE, CINAHL and WOK databases were searched from 1990 to 2014 for original studies and guidelines detailing the management of severe TBI. Retrieved studies by were screened against pre-defined inclusion criteria and eligible articles were retrieved.

Discussion: The Glasgow coma score (GCS) is validated tool in the assessment of TBI, particularly as a GCS motor score of 2 and below is confers a poor prognosis. Clinical features including focal neurology, skull fracture, unreactive pupils and seizure are the strongest indicators of intracranial pathology. Whereas post-traumatic headache and repeated vomiting are poor indicators of intra-cranial pathology. Following identification of a severe TBI, care should be focussed on avoiding secondary neurological insults and prompt evacuation. Hypoxia should be treated with bag-valve mask ventilation or a laryngeal airway device as endotracheal intubation is both unfeasible and unproven to affect patient outcomes. Hypotension should be corrected in-field with with isotonic crystalloids. Raised ICP should be mitigated by raising the patient's head, whilst ensuring cervical spine immobilisation. Evacuation to the nearest general intensive care facility must also be prioritised during resuscitation.

Conclusion: Within the wilderness setting, assessment of severe TBI is based upon clinical evaluation, focussing upon prognostic factors such as the GCS. Treatment options are limited and are focussed primarily upon the management of secondary insults; during which prompt casualty evacuation needs to be organised.

Frequency of Using Eye Care among Persons with Diabetes and Diabetic Retinopathy in Indonesia: A Rural-Urban Comparison

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Background: Diabetic Retinopathy (DR) is a microvascular complication of diabetes and the leading cause of blindness. Having annual eye examination routinely is a key to reduce the risk of blindness among persons with diabetes. However, poor compliance is common in many areas.

Method: This was a community-based cross sectional study, involving all adults with diabetes type II in DIY, Indonesia. We obtained all socio-demographic characteristics, behaviour towards general and eye care, and history of past illnesses through interview. Each patient underwent fundus examination. Chi square was used for statistical analysis.

Results: One thousand and ninety-two participants with DM type II were participated and divided into two categories, 488 from urban and 605 from rural. There were 38.4% urban participants and 45.9% rural participants were known having retinopathy diabetic (RD). Of these, only 3.3% of urban patients and 2.6% of rural patients reported to have had regular eye check on monthly basis, 2.2% of urban patients and 2.2% of rural patients were on 3-6 monthly basis. Nearly all participants in urban (95.3%) and rural (95.5%) area had never had an eye examination. There were no significant differences regarding the use of eye care in urban and rural population (p=0.707). Meanwhile, nearly all participants in urban (83.6%) and rural (86.9%) visit physician routinely to control their diabetes (p=0.284).

Discussion: There were no previous studies from Indonesia reporting the use of eye care in the representative community. Therefore, we have no studies to compare. This study provides vital data as the basis on prevention of DR-associated blindness

Conclusion: There are no significant differences between urban and rural person with diabetes regarding the use of eye care. Nearly all of population with diabetes in urban and rural area of DIY, Indonesia has never used eye care. Thus, barrier to eye care services needs to be identified.

Reviewing the Efficacy and Safety of Medical and Surgical Interventions in Treating Patent Ductus Arteriosus in Preterm Infants

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Background: Patent ductus arteriosus (PDA) is a common congenital disease affecting the artery ductus arteriosus (DA). The failure of its closure is termed PDA. PDA can be successfully treated through medical intervention or by surgical means. The medical management involves administering indomethacin or ibuprofen or paracetamol whereas the surgical options are application of a clip on the PDA or suture ligation.

Aim: The aim of this review is to discern which of those interventions is most efficacious in preterm infants with PDA.

Method: Articles that were chosen for this review were subject to identical or very similar limiting parameters. Those that met the criteria were two studies focussing on medical intervention whilst two other studies pertained to surgical closure of the PDA.

Results and Discussion: Results show that none of the studies chosen have a large enough sample size to declare with statistical significance that one intervention is more efficacious or safer than the other. Moreover, there exists a paucity of trials that compares medical therapy, clipping and suture ligation of PDA. Nevertheless, the apparent lack of significance should not be ignored and studies with greater sample sizes are required in the future.

Conclusion: Overall, from the articles that have been reviewed, it can be concluded that pharmacological treatment should remain the first line of treatment in closing PDA in preterm infants, and that surgery should be reserved for situations when medical management fails or is contraindicated.

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