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Abstract
The following abstracts are those that were presented at the research competition of the Student Medical Summit held in University College Dublin on the 3rd February 2018. For more information about the Student Medical Summit visit www.studentmedicalsummit.org or contact info@studentmedicalsummit.org.

Keywords: SMS; undergraduate research conference; poster competition

Table of Contents

Conference Abstracts
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Index

21. The immunosuppressive microenvironment in colorectal liver metastasis
22. Assessing role of SATB2 and SATB2-AS1 genes in colorectal cancer
23. Investigating impact of enhancer methylation on gene expression in metastatic colorectal cancer
24. Identification of mutations of members of the protein tyrosine phosphatase (PTP) gene family as novel therapeutic options for the treatment of solid tumour cancers
25. The clinical utility of Epstein-Barr virus DNA (EBVDNA) for the screening and disease monitoring of nasopharyngeal carcinoma (NPC) patients – A review of current status
26. Two cases of angiosarcoma of the right atrium presenting as haemoptysis
27. Co-morbidities, co-medications, and concordance in breast cancer survivors: A prospective cohort study
28. Managing non-melanoma skin cancer: Adequacy of skin malignancy resection in a model 3 hospital
29. Retrospective review of use of chemotherapy & radiology resources by oncology patients
30. Mechanism of resistance to targeted therapy in breast cancer
31. Preoperative inflammatory markers as predictors of postoperative complications in colorectal cancer patients
32. Making best practice for the correction of iron deficiency anaemia in the patient journey
33. Follow-up CVS risk management for women who have had a CVS complication of pregnancy: A single-centre audit
34. Donor breast milk – Should it be in routine use for preterm and low birth weight infants?
35. Maternal education and race/ethnicity are associated with foetal growth: Preliminary results from NYU children's environmental health study
36. The impact of sleep hygiene on maternal glucose tolerance and adiposity in overweight and obese pregnant women
37. Prognosis of patients with apparent treatment resistant hypertension – A feasibility study
38. Long-term outcomes of SLED vs CRRT at a tertiary care hospital
39. Investigation of ambulance usage and in-hospital delay in patients with acute coronary syndrome
40. Antiplatelet versus anticoagulation therapy in extracranial cervical arterial dissection
41. Clustering of non-communicable disorders in Kuwait
42. Investigations for biomarkers of haemorrhagic transformation
43. Evaluating the perspective of' health practitioners with regards to the heart failure pathway
44. Impact of the National Screening Services' 'Diabetic Retinascreen' Programme on vitrectomy rates for advanced diabetic eye disease in a regional treatment centre
45. The role of the Glucocorticoid Receptor (GR) and the Androgen Receptor (AR) in Triple Negative Breast Cancer in response to DNA damaging chemotherapy treatment
46. Examination of the care pathways of adults with diabetes undergoing haemodialysis for end stage renal failure
47. Does diabetic ketoacidosis at diagnosis of type 1 diabetes mellitus predict poor long-term glycaemic control
48. Poor knowledge on the assessment of underweight in children and adolescents among paediatric trainee doctors in Ireland
49. Safety of testosterone therapy in a large clinical cohort of men with prostate cancer
50. Analysis of inflammation after injections of non-viral gene therapy in organs
51. Cardiovascular disease risk score in Malawian adults with HIV
52. The effectiveness of glucocorticoid-induced osteoporosis prevention in polymyalgia rheumatica (PMR) patients
53. Effects of various bacterial TLR ligands on intracellular TNF-α production by blood monocytes and the potential of Infliximab to mitigate it
54. A clinical review of HIV management and antiretroviral resistance in a rural South African hospital.
55. What are the decisional needs of youth with juvenile idiopathic arthritis, their caregivers and their healthcare providers, regarding pain management?
56. Looking before we YEEP: An evaluation of the experiences of healthcare transitions for young people with 22Q11DS
57. Patient safety ward round checklist via an electronic app: Implications for harm prevention
58. Homeless health in Dublin
59. The war on roses: An audit on flower and plant policies in 19 Dublin hospitals
60. A clinical assessment of the effects of Orkambi ® (lumacaftor-ivacaftor) in patients with mild/moderate cystic fibrosis lung disease homozygous for the Phe508del mutation
61. Need for holistic health care
62. Retrospective audit examining potential predicting factors for non-attendance at follow up appointments in a pain management programme
63. Assessing the accuracy of the key parameters of aortic valve structure and function to detect severe aortic stenosis
64. Knee arthroscopy does not improve pain, disability and stiffness scores in patients with knee osteoarthritis: Data from the osteoarthritis initiative
65. Microanatomy of the thumb carpometacarpal (1CMC) joint

66. Spatial variations in the arrangement of the facial nerve within the parotid gland and its relationship to the retromandibular vein, and the analysis of its clinical significance to the extra oral surgical approaches to the mandibular condyle
67. A cadaveric study of variation in the branching pattern of aortic arch vessels in an Irish population
68. Factors associated with surgical site infection in patients undergoing infra-inguinal bypass
69. Transplantation in primary biliary cirrhosis: An effective use of a valuable resource?
70. The use of magnetically-controlled growth rods (MCGR) and traditional growth rods (TGR) in a paediatric population
71. Predicting outcomes in acute exacerbation of chronic obstructive pulmonary disease: A review of the literature
72. The road to consultancy: What it takes to get to the top
73. Managing anxious patients undergoing magnetic resonance imaging: Evidence versus common practice in Ireland
74. Introduction of methoxyflurane into tertiary Irish emergency medicine practice
75. Can triage nurses accurately predict admissions and discharges?
76. An evaluation of the 4AT delirium screen tool use by emergency department (ED) staff in routine clinical practice
77. Dublin-wide paediatric emergency psychiatry: Paediatric consultation-liaison psychiatry presentations

Poster Abstracts

1. Implications for glaucoma: NFATc3 regulates pro-fibrotic gene expression induced by oxidative stress in human lamina cribrosa cells

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Aims and Objectives: Glaucoma is an optic neuropathy affecting nearly 70 million people worldwide. Extracellular matrix (ECM) remodelling of the lamina cribrosa (LC) is a significant pathological mechanism contributing to glaucoma development. Dysregulated calcium homeostasis, oxidative stress and mitochondrial dysfunction have recently been described as the main drivers of ECM remodelling. High levels of intracellular [Ca_i] potentiates NFATc3 causing elevated pro-fibrotic gene expression in various tissues, and most likely LC tissue. The purpose of this study is to attenuate pro-fibrotic gene expression in stressed LC cells via the calcium/calcineurin/NFATc3 pathway, using calcineurin inhibitor, cyclosporine A (CsA). Theoretically, this should mediate the effects of high [Ca_i], restricting ECM remodelling and providing neuroprotection in glaucoma.
Methods: LC primary cell cultures were pre-treated with 10nM of CsA, a previously assayed optimal quantity. Subsequently, both pre-treated cell cultures and untreated LC cell cultures were exposed to 400nM of hydrogen peroxide for 24 hours, simulating the oxidative stress experienced in glaucoma. The expression of specific genes of interest, namely TGF-®$_1$, collagen1-A and periostin were measured using RT-PCR.
Results: Analysis displayed significant attenuation of gene expression in 2/3 target genes (TGF-®$_1$ and COL1-A1) pre-treated with CsA. In addition, decreased pro-fibrotic gene expression was also exhibited in pre-treated stressed cells when compared to untreated cells in the absence of oxidative stress (control).
Conclusions: The results suggest an increase in pro-fibrotic gene expression, caused by oxidative stress, can be inhibited or potentially reconditioned to baseline levels by CsA pre-treatment. This provides a credible link between calcium/calcineurin/NFATc3 pathway regulation and the prevention of ECM remodelling of the LC tissue, and the future use of CsA as a neuroprotective agent in glaucoma.

2. Glycosignature in healthy and degenerated human intervertebral disc

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Aims and Objectives: Discogenic low back pain affects 42% of patients with chronic low back pain. Degenerative disc disease is described as failure in cellular response to external stresses leading to physiologic dysfunction and disc destruction. Glycosylation patterns of tissues give insights into the spatially and temporally regulated inflammatory and degenerative processes. The degeneration of the human disc is a process never investigated by lectin histochemistry. This study aims to characterize the glycoprofile of the IVD histochemically using plant lectins in healthy and diseased tissue.

Methods: Staining with several lectins (Con A, SNA, MAA, DSA, UEA-I, PNA, WGA and WFA) of formaldehyde-fixed sections of foetal (n=2) and degenerated tissue (n=2) was performed with ethical approval.
Results: Staining with all lectins showed a lamellar arrangement of binding in ECM of the AF of foetal tissue that was lost in Thompson Grade III/IV tissue. A significant increase in sialylated/galactosylated motifs was seen in degenerated tissue when compared to healthy tissue. There are significant differences in fucosylation, mannosylation and GlcNAc expression in healthy vs. degenerated tissue and characteristic changes in patterns of binding.
Conclusion: This study has shown that healthy and degenerated human discs present distinct glycosylation trends intracellularly and ECM in AF and NP tissue. The carbohydrate moieties detected may correlate with adhesion molecule/proteoglycan expression which could play a role in the degenerative process of intervertebral disc disease. This pilot study offers insight into the glycoprofile of the IVD and the alterations in this glycoprofile that occur in a disease model.

3. A sight for sore eyes: Differential expression of key markers of apoptosis and the cell cycle in the glaucomatous lamina cribrosa

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Aims and Objectives: Glaucoma is a chronic neurodegenerative disease & a leading cause of irreversible vision loss. Glaucomatous damage is initiated at the lamina cribrosa (LC) region of the optic nerve head. The LC is a specialised fenestrated region consisting of fibroelastic beams through which unmyelinated retinal ganglion cell axons pass before becoming the optic nerve. The LC meshwork normally functions in the support of surrounding neural tissues, in glaucoma however, changes in LC microarchitecture contributes to progressive retinal ganglion axonal degeneration. Apoptosis is a tightly regulated process of programmed cell death, which can be initiated through either extrinsic or intrinsic apoptotic pathways. The extrinsic pathway is a death receptor mediated apoptotic cascade, while the intrinsic pathway is regulated by pro-apoptotic molecules released from the mitochondria in response to cellular stress. Both extrinsic & intrinsic pathways converge at the execution phase, which triggers cell death. Disruption to the normal function of these apoptotic pathways, as seen in cancer, can result in failed apoptotic cell clearance & consequently uncontrolled cell proliferation. Preliminary work from our laboratory has suggested that glaucomatous LC cells become highly proliferative, indicating pathological inactivation of apoptosis. Therefore, the aim of this project was to perform a global analysis of the differential protein expression of 43 key markers of proliferation, cell cycle arrest & apoptosis in the glaucomatous LC.
Methods: Primary human LC cells (normal and glaucoma) were grown under standard cell culture conditions of 37°C and 5%CO_2. Protein was extracted from cell lysates and 1000 µg from each sample applied to an antibody array membrane, followed by incubation with a HRP conjugated secondary antibody. Chemiluminescent detection and densitometry analysis was used to quantify the protein expression levels for each of the targets of interest.
Results: Results showed a stark difference in the expression levels of all 43 apoptosis/cell cycle targets, with protein expression levels being significantly decreased or absent in our glaucomatous sample. Statistically significant decreases in protein expression ($p<0.05$) were found in glaucoma related to both the intrinsic and extrinsic apoptotic cascades (Cytochrome C, Bcl-2 family, TNF, TRAIL receptors, Caspases 3&8, Fas, HSPs) and cell cycle-regulatory proteins (p21, p27 p53).
Conclusions: In conclusion, our novel findings reveal a significant dysregulation of both apoptotic and cell cycle machinery in response to glaucoma in the LC. This is likely to be a key mechanism responsible for fibrotic glaucomatous disease development in the ONH.

4. Heterozygous TRPV2 knockdown in rats promotes capillary dropout in the retina

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Aims and Objectives: The stretch-sensitive non-selective cation channel, TRPV2, has been implicated in the myogenic response in rat retinal arterioles. Loss of myogenic tone is a key feature of early diabetic retinopathy, while down regulation of TRPV2 occurs in experimental diabetes (~50% loss of mRNA and protein) and in human subjects (reduced expression prior to onset of DR). In the present study, we aimed to investigate if heterozygous TRPV2 knockdown (TRPV2+/-) in rats induces diabetic-like vascular pathology in the retina.
Methods: Rat retinas from heterozygous (TRPV2+/-) and wildtype (TRPV2+/+) P90 and P360 animals were dissected for flatmount preparation and immunolabelling. Confocal imaging was used to assess the expression of TRPV2 and cellular markers of diabetic pathology with quantification using IMARIS software.

Results: Reduction of TRPV2 expression was confirmed in association with retinal arteriolar smooth muscle (34.8% in P90 TRPV2+/- compared to TRPV2+/+ rats). The no. of acellular capillaries (collagen IV positive/Isolectin B4 negative) per area of retina was significantly increased in inferior and temporal regions of the superior and deep retinal plexus but only in the inferior region of the intermediate plexus in P90 TRPV2+/- compared to TRPV2+/+ rats. In P360 rats there was a significant increase in capillary dropout in nasal and temporal regions of the superior plexus, but only in the nasal region of the deep plexus. A trend towards reduced numbers of pericytes (no. of NG2 positive cells) was also observed in P90 and P360 TRPV2+/- vs TRPV2+/+ rats however the changes were not significant.
Conclusion: Collectively, the significant increase in acellular capillaries and the trend towards a decrease in pericyte numbers suggests a possible link between TRPV2 downregulation and vascular pathology associated with diabetic retinopathy. Thus this model warrants further investigation to determine its relevance as a model of retinopathy in the absence of hyperglycaemia.

5. Characterising key signalling pathways regulating developmental competence in oocytes and cumulus cells

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Aims and Objectives: The ability of an embryo to develop successfully greatly relies on the quality of the oocyte from which it has been generated. Currently it is not possible to accurately predetermine an embryo's ability to provide a viable pregnancy prior to transfer. By performing a meta-analysis on published microarray data, candidate genes and signalling networks associated with oocyte quality were previously identified. The objective of this project was to characterise candidate proteins expressed in cumulus oocyte complexes, which may be linked to the ability of an oocyte to develop following fertilisation.
Results: Immunohistochemistry studies performed on bovine and human oocytes showed ATRX to be localised to the chromosomal area of GV oocytes, and highly expressed in the corresponding cumulus cells. Immunoblotting studies performed on Xenopus oocytes, bovine oocytes and ovarian tissue showed dynamic regulation of candidate biomarkers ATRX, AVEN, Caspase 1 and P53 in response to altered culture conditions prior to cryopreservatiom; time (4hours vs 24hours) and temperature (four degrees Celsius versus body temperature) of transportation from collection point to laboratory.
Conclusion: In conclusion, ATRX detection in the cumulus cells could potentially act as a non-invasive method for improved oocyte selection during assisted reproduction technologies, resulting in increased take home baby rate.
Acknowledgement: The author would like to acknowledge funding from the Wellcome Trust Biomedical Vacation Scholarship.

6. An evaluation of epilepsy care in preschool aged children in Ireland

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Aims and Objectives: Epilepsy has complex care needs including both regular and rescue medication. Rescue medication helps prevent seizures progressing to Convulsive Status Epilepticus. We aimed to review acute management of seizures in children under 5 years and assess parental experiences of support in the community with the use of rescue medication.
Methods: Conduct a chart review of attendances to A&E (2008-2017) with seizures, examining use of medication pre- and in- hospital. A survey for parents of children under 5 years with epilepsy (We would like to acknowledge Epilepsy Ireland for their assistance with contacting parents).
Results: 70% of those surveyed had rescue medication prescribed and 55% had used it. 10% could not access childcare because of their epilepsy. Of those who attended childcare, 53% of parents resorted to training childcare staff in the use of rescue medication themselves. 122 attendances to A&E were included in the chart review. 63% were brought in by ambulance. 44% received rescue medication before attending hospital. Mean length of stay was 3 days. 20% received in hospital phenytoin and 11.5% were admitted to ICU.
Conclusions: Rescue medication is being used by many patients. Parents reported difficulty sourcing childcare due to their child's epilepsy. There is a need for increased availability of professional training in use of rescue medication for childcare workers. More than half of these children required an ambulance to get to hospital. ICU admission is still a prevalent outcome from seizures. Active treatment of seizures with rescue medication in the community is important to help combat these issues.

7. A smart approach to the diagnosis of minimal hepatic encephalopathy

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Aims and Objectives: Minimal Hepatic Encephalopathy (MHE) occurs in >30% of chronic liver disease (CLD) patients, and is associated with poor prognoses. Detection is difficult due to time constraints with the gold standard PHES (psychometric hepatic encephalopathy score). The EncephalApp Stroop Test is a suggested alternative, we aim to validate this for MHE in Ireland.
Methods: 35 CLD patients and 61 controls were recruited. Patients performed PHES and Stroop; time taken for each was recorded. Stroop on+off times were analyzed using cut-offs from previous publications (>190s). ROC analysis was used to establish a local Stroop cut-off time.
Results: Time taking was 25minutes, PHES(20mins) and Stroop (5mins). Older age and less education correlated with poorer Stroop performance ($r=0.62$, $p<0.0001$ and $r=-0.322$, $p<0.0001$, respectively).
More CLD patients had positive PHES, 4/35 (11%) vs. 3/61 (7%). 57% CLD patients had positive Stroop, 11% had positive PHES ($\kappa=0.1765$). PHES-positive CLD patients had higher Stroop on+off times than those with negative PHES, mean 260s vs. 190s, $p=0.02$.
ROC analysis gave a study-specific Stroop on+off time of >187s as a positive cut-off, (sensitivity=100%, specificity=59%), with 2 fewer false positives and better correlation ($\kappa=0.2404$).
Conclusion: This is the first Irish study investigating Stroop test efficacy for MHE. Stroop was quicker and easier to perform. ROC analysis generated similar local cut-off to previously published values. This suggests Stroop may be a convenient filter test for MHE.

8. Lower GI involvement in myotonic dystrophy: An association between patient phenotype and anorectal physiology measurements?

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Introduction: Myotonic dystrophy (DM) is a multisystem autosomal dominant disorder. Gastrointestinal involvement is common with IBS-like symptoms often seen. It is unclear what causes some patients to experience constipation while others become incontinent. This study aims to investigate whether there is a link between patient symptoms and physiology measurements.
Methods: In this observational retrospective cohort study, 34 DM patients who had undergone anorectal physiology (ARP) testing at the UCLH GI physiology unit were identified. Patient data was obtained using clinical notes. Patients were divided based on their dominant symptoms – constipation, incontinence, both. Statistical methods included Pearson-Chi Square, Spearman Correlation, and Mann-Whitney U-test carried out using Excel.
Results: There was an association between increased BMI and incontinence ($p=0.0396$), a slight association between reflux and constipation ($p=0.054$), but none observed with dysphagia ($p=0.628$). “Both” and “incontinence” patients had lower values than “constipation” for anal resting pressure.
We found modest positive correlations in “both” and “incontinence” groups between AR pressure and max tolerated volume ($r=0.619$, $r=0.445$).The mean rank and median values for maximum tolerated volume were lower for incontinence [9.88&100] in comparison to constipation [15.59&120]($p=0.0244$).
Discussion: The results indicate some association between ARP results and the primary GI symptom experienced by the patient. For example, reflux and constipation association yet no association between any symptom and dysphagia. Secondly, the incontinent group observed lower resting pressures. This reflects a dysfunction in smooth muscle when DM is a striated muscle disorder. Lastly, patients with constipation demonstrated a greater tolerance to distension than other groups.

9. Copying correspondence between practitioners following a neurology out-patient clinic; patients' and general practitioners' (GPs) perspectives

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Aims and Objectives: UK legislation recommends that letters between clinicians regarding patient care should be copied to the patient. This practice is not currently recommended in Ireland. Literature describes advantages and disadvantages of copying letters. To date, no study has surveyed patients' or practitioners' opinions on this practice within the field of Neurology or in the Irish Context.
Methods: Cross-sectional study sampling patients attending a Neurology outpatient-clinic, and GPs in the Munster area. Questionnaires with Likert-rating and open-ended questions were used.
Results: 130 questionnaires were completed by patients (n= 55) and GPs (n= 75).
95% of patients felt the letter helped them remember what was discussed. 93% felt more involved in their care and 98% agreed it enhanced understanding of their condition. 100% wished to continue receiving correspondence. 85% of patients disagreed that letters cause worry/anxiety while only 50% of GPs disagreed (Fisher's Exact Test, $p< 0.001$).
Whilst 4% of GPs stated correspondence increases patients' confusion, 77% agreed the practice was useful. 73% felt patients are more actively involved in care when they receive correspondence and 89% reported that, were they a patient, they would like to receive correspondence. Concerns reported included impact on workload and identification of situations where copying correspondence would not be appropriate.
Conclusion: Copying correspondence improves patients' satisfaction, understanding, and involvement. Concerns were minimal and primarily voiced by practitioners. The practice is beneficial and should be offered to all patients in future practice.

10. Evaluation of oculomotor performance in healthy volunteers using wearable eye-tracker

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Aims and Objectives: Saccadic eye movements are influenced by attention, learning, working memory and decision making and have been found to correlate with neurological function. Heitger *et al*. found oculomotor deficits in mild head injury patients compared to healthy controls. This study aims (a) to test a wearable eye-tracker as a measure of oculomotor performance and (b) determine baseline characteristics for oculomotor performance in healthy volunteers.
Methods: Twenty-one healthy volunteers (mean age 33±12 years, 62% female) completed three tasks (horizontal and vertical anti-saccades and memory saccades) while wearing an eye-tracker (SensoMotoric Instruments), as well as a Standardized Assessment of Concussion (SAC) to measure cognitive function. Student's *t* test was used to compare means of our healthy volunteers with those reported in Heitger's study[2].
Results: We found a higher percentage of horizontal anti-saccade (HAS) directional errors in our cohort (40%) compared to reported data[2] (20%, chi sq=9.52, p=0.002). For HAS, our cohort had significantly lower mean gain of primary saccade (overshoot from desired eye position) than reported data[2] (p=0.03) while mean final eye position (p=0.16) and mean absolute position error (p=0.45) were not significant. For memory saccades, mean gain of primary saccade (p=0.46), mean final eye position (p=0.21) and mean absolute position error (p=0.88) were not significant compared to literature. There was negative weak correlation (r=-0.27, p=0.24) between HAS and SAC scores.
Conclusion: Wearable eye-tracker produced comparable data to traditional set-up. Novel baseline characteristics that were established for oculomotor performance in our cohort can be compared to brain injury patients, post-concussion, in future to assess oculomotor performance.

11. Comparison of LASIK outcomes based on different ablation profiles

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Aims and Objectives: LASIK is refractive surgery for the correction of myopia, hyperopia, and astigmatism. Different ablation profiles provide different outcomes that impact the cornea in terms of shape, pachymetry and asphericity. We aimed to

(a) collect and analyse topographical data as well as refractive outcomes (b) The LASIK ablation profiles studied were Wavefront Optimised (WFO), Wavefront Guided (WFG), Contoura (Topography-guided), Custom-Q (Asphericity-guided), and Ray Tracing. A retrospective study of myopic and myopic astigmatism LASIK was carried out. Patients received Contoura (n=69 eyes), Custom-Q (n=56 eyes), Ray Tracing (n=22 eyes), Wavefront-guided (n=62 eyes) and Wavefront-Optimised (n=86 eyes) giving a total of 295 eyes.
Results: With all profiles, as the amount of myopia increased, so did the corneal curvature flatten more. Ray Tracing and Contoura LASIK created more corneal flattening per dioptre than the other profiles. The Q-value increased accordingly, as the amount of myopic correction increased. At lower dioptre range (0 to -4), Contoura appeared best. Custom-Q is the most economical with tissue under -3 diopters. Above -4 diopters, Ray Tracing uses the most tissue/dioptre of treatment.
Conclusion: The results of modern day LASIK are excellent in terms of vision for all ablation profiles with Ray Tracing showing the greatest gain in vision. Wavefront Guided was best, followed by Ray Tracing, Contoura, Custom Q and Wavefront Optimised in that order for uncorrected vision. For best-corrected vision, Ray Tracing was best. All 5 profiles provided 6/5 or better best-corrected acuity. In terms of predictability, Ray Tracing was best.
Acknowledgement: The author would like to acknowledge the mentorship, time and guidance given from Dr. Arthur Cummings, Madam Liz Brennan and Madam Stephanie Naughton.

12. Retrospective study of first episode psychosis in the South Lee Mental Health Service: Is there a need for early intervention?

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Aims and Objectives: A pilot early intervention in psychosis service (EIS) was set up within the South Lee Mental Health Service (SLMHS) in Cork in 2016. The aim of the study is to evaluate if EIS was associated with: 1) Shorter duration of untreated psychosis (DUP) 2) Lower rates of hospital admissions at first presentation to the service 3) A lesser number of hospital admissions within 6 months of presentation, and 4) A reduced number of bed days overall.
Methods: Files of those who presented with a first episode in psychosis to the SLMHS from January 2016 to February 2017 were identified and a retrospective case review carried out. A between participants design was employed to compare demographics, clinical characteristics and hospital admissions for those admitted to EIS and community mental health teams (CMHTs).
Results: Forty patients were assessed. DUP was found to be longer for those who presented to the EIS (U=121, p=0.03). Hospital admissions varied significantly between the groups: There were fewer admissions at first presentation (χ^2 (1)=6.51 p=0.01) and within the first 6 months of presentation (χ^2 (1)=5.56 p=0.02) for those who presented to the EIS. There was also a significant difference in total number of hospital bed days (U=131, p=0.047), with the EIS group having fewer.
Conclusion: EIS is associated with fewer hospital admissions and fewer bed days overall. EIS is associated with better patient outcomes in the first 6 months of treatment and a reduction in economic cost.

13. A systematic review of the effectiveness of art psychotherapy for children

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Aims and Objectives: Child Art Psychotherapy is an understudied treatment modality. This has led to Art Psychotherapists finding difficulty in establishing their role in Child and Adolescent Mental Health Services (CAMHS) in Ireland. The aim of this review is to question the clinical effectiveness of art psychotherapy for use in CAMHS. If proven to be effective, this review can be used when budgeting and deciding on the provision of different services.
Methods: Literature previously published on this topic was collected and reviewed. Articles were retrieved from searching 3 databases (Web of Science, PubMed and EBSCO) using the terms; child, adolescent, art therapy, psychotherapy, mental health, CAMHS. The articles were subject to the following exclusion criteria: articles referencing clients above the age of 18 and articles that involve art therapy as a co- therapy that could not be assessed separately were excluded. Art psychotherapy as an intervention to improving mental health in children was included, as were articles with a clinical outcome published.

Results: The results demonstrate that most studies yielded positive outcomes that suggest the effectiveness of art therapy, however this was with small sample sizes (mainly case studies). There was only one randomised control trial (RCT) within our study inclusion criteria. Therefore, conclusive evidence that proves the effectiveness of art therapy for children was not found
Conclusion: In conclusion, further research in the form of RCTs is needed to answer the above question. To offer the most beneficial service to CAMHS, this intervention needs to be researched with robust methods and outcome measures.

14. Development of an online teaching module based on nature's treatments for anxiety and insomnia

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Aims and Objectives: An estimated 43% of people with an anxiety disorder seek alternative treatment such as herbal medicines. Insomnia is a symptom commonly associated with anxiety and a disorder in its own right. Medications such as benzodiazepines are fast-acting agents that can both induce and maintain sleep, however, disrupt normal sleep architecture. Although herbal remedies such as valerian extracts have slower onset of action, they improve sleep parameters without disrupting normal sleep architecture. Six plants were examined, *V.officinalis, H. lupulus, M. recutita, C. nobile, M. officinalis, L. angustifolia,* and *P. incarnata*, for their use in treatment of anxiety and insomnia.
Methods: Searched PubMed, EMA, and Medicines Complete databases for pharmacological variables including active constituents, posology, mechanism of action, clinical evidence, side effects, and quality control analysis. Ninety-four articles were analysed to obtain best evidenced based information on the plants and subsequently summarized into an interactive slideshow.
Results/Conclusion: Plant extracts all had active constituents shown to interact with GABAergic system, such as demonstrating agonistic activity at GABA-A receptors and modulating activity of enzymes responsible for the synthesis and metabolism of GABA. Additionally, many constituents exert agonistic activity at serotonin receptors. Common posology of plants studied include ethanolic/aqueous extracts, herbal teas, and dried extracts in capsules. No major adverse effects have been reported using herbal extracts at recommended doses. However, use is generally not advised in pregnant women and children due to limited evidence on safety. Although sedative effects typically result from high enough concentrations of extracts, efficacy is controversial. Moreover, in comparison to conventional medications, significantly higher doses of plant extracts are necessary to produce pharmacological effects. Combinations of plant extracts have been reported to have a higher efficacy than single extracts. Quality control analyses on active constituents of plants have highlighted issues of standardization in commercial products.

15. A review of savant syndrome and its neuroanatomical basis

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Aims and Objectives: Savant syndrome is an extraordinary but rare condition in which individuals with developmental disabilities such as autism spectrum disorder show exceptional skills in a particular area that appear in contrast to their overall mental abilities. Savant syndrome can be congenital or acquired following central nervous system injury or disease. It affects males more frequently than females. Skills cover five general areas: music, art, calendar calculating, mathematics and visual-spatial skills. Associated is an impressive memory. This review aims to establish insight into the present state of knowledge on savant syndrome and analyse the anatomical basis for such an unusual syndrome by examining all existing neuroimaging studies carried out on individuals who possess savant abilities.
Methods: A literature search was undertaken from 1946 to 2017 using MEDLINE database. To be included in the review, studies needed to have subjects with savant syndrome and neuroimaging findings from which data could be extracted.
Results: Thirteen studies were obtained with the majority showing anatomical abnormalities and differing patterns of brain activation. The most common underlying disability observed was autism spectrum disorder. The anatomical abnormalities of the brain varied considerably and the left hemisphere was involved more frequently than the right.
Conclusion: Due to the rare and highly individual nature of savant syndrome and the limited studies in the literature, it is difficult to ascertain the exact neuroanatomical changes associated with savant syndrome. Further study is warranted into the pathophysiology of savant syndrome and the link to autism spectrum disorder.

16. "Neurophobia": More nurture than nature?

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Aims and Objectives: "Neurophobia" is a fear of studying neurology by medical students. The aim of this study was to investigate if neurology now has a stigma attached to it causing medical students to have a preconceived phobia of the subject.
Methods: An online questionnaire was circulated among medical students through social media and by email. Questions focused on students' perceptions of neurology before and after studying the subject.
Results: There were 137 responses. The percentage of students who say that they would not consider neurology as a specialisation in the future rises from 20% in preclinical students to 26% in early clinical students and 56% in clinical students showing a gradual decrease in interest in neurology throughout the medical training. Neurophysiology (38%) and neuroanatomy (32%) were felt to be the most difficult aspects of neurology. 49% said that a stronger emphasis on neurology in their basic science modules in first year would have prepared them for the subject while only 15% said it would not. Almost half of respondents agreed that a change in the methods of teaching could help to promote neurology in a more positive light while fewer than 9% disagreed with this.
Conclusion: The results indicate that, contrary to our initial hypothesis, "neurophobia" is not innate in medical students but is acquired during the course of their medical training. The implication is that while medical students show an interest in neurology, current medical training is not adequately preparing students for clinical neurology and is discouraging students from pursuing a career in neurology.

17. Evaluation of the CUMH NHSP and the developmental outcomes of language in children with profound hearing loss

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Aims and Objectives: The ability to access sound in childhood profoundly impacts language development. Therefore, early identification of hearing loss and timely intervention can significantly improve early language development. Thus, the Newborn Hearing Screening Programme (NHSP) at CUMH was established in 2011. Currently there is a knowledge gap regarding specific impacts of PCHI on paediatric development, important to medical practice and evidence-based counselling of parents.
The aim of this study is to evaluate the CUMH NHSP and describe developmental outcomes.
Methods: We audited the CUMH NHSP using BAPA guidelines. Charts of eligible children hospitalized 2011 - 2016 were reviewed with focus on investigations and development. Statistical analyses were completed using SPSS Statistics.
Results: From 2011- 2016, 41 children were hospitalized for PCHI investigations. Years of birth were 2005 – 2016 including 25 males, 16 females. Hearing loss was identified at birth for 29 cases and audiometry completed within 3 months of age in 27. Of all cases of PCHI, 10 are unilateral, 31 bilateral. Investigations were guided by checklists in 10 cases, and PCHI aetiology has been identified in 24. Connexin mutations (6), ANSD (5), and congenital CMV (4) were most common. Speech delay was the commonest developmental concern in 31 children.
Conclusion: Overall trends in PCHI aetiology and developmental sequelae paralleled published data. Analyses did identify recommendations that will continue to improve the CUMH NHSP. This study will provide patients and caregivers with evidence-based data to guide their experience with hearing loss.

18. Systematic review and proposed study design for neuromodulation therapy in dementia

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Aims and Objectives: The aim of this research was to (a) investigate the methodologies of previous dementia research using electroencephalography (EEG) event related potentials (ERPs) and previous Portable Neuromodulation Stimulator (PoNS) research design and (b) to propose the framework for a study combining these two areas.

Event related potentials are small voltages which are evoked in the brain in response to specific stimuli or events. This study involved a systematic review of the methodologies of the study design and procedures involved in ERP recordings and analysis in patients with probable Alzheimer's, in particular the P300 and N400 ERP components.
Methods: PoNS is used for Cranial-Nerve non-invasive neruomodulation to induce neural activity in the trigeminal (CN-V) and facial (CN-VII) nerves. It does so by electrostimulation using 143 gold-plated electrodes in contact with the anterior-dorsal aspect of the tongue. This aims to induce neuroplasticity and neuronal regeneration. CN-NINM has been evidenced to enhance and accelerate recovery with numerous impairments caused by brain injury. This study reviews previous PoNS study design with an emphasis on areas critical in its potential application for Dementia treatment.
Results: Resulting from this analysis was the proposed study design to investigate whether routine PoNS exposure can halt or slow the progression of Dementia with probable Alzheimer's. This study framework involves monitoring each participant's P300 and N400 amplitude and latency alongside Mini-mental status examination scores and Clinical Frailty index scores over a period of 24 weeks with a PoNS using active group, and a non-PoNS control group.
Acknowledgements: The author would like to acknowledge funding from the Dean's SSRA 2016 International Summer Research Scholarship, UCD.

19. NK cell immunometabolism: Impact for cancer therapy

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Aims and Objectives: NK cells have diverse functions including recognising and killing malignant tumour cells. As NK cells undergo activation and cytokine production, metabolic regulation is enforced to meet increased energy requirements. Early studies have demonstrated that NK cells undergo metabolic shifts in response to stimulation. This study aimed to determine the importance of two metabolic pathways; glycolysis and oxidative phosphorylation, in NK cell killing of tumour cells.
Methods: Leukaemia cells were loaded with fluorescent dye. In assay, the dye is released as freshly-isolated NK cells cause cell lysis. The recorded fluorescence correlated to number of tumour cells killed.

- To validate the impact of cytokine stimulation on NK cell killing, investigations were carried out +/- stimulatory cytokine IL-2.
- To determine the role of oxidative phosphorylation, NK cells were treated +/- inhibitor oligomycin.
- To determine the role of glycolysis, cells were cultured +/- galactose media causing glucose starvation.

NK cell activation, IFN- γ and Granzyme-B production were also analysed under each condition.
Results: It was confirmed that IL-2 stimulation of NK cells improves killing from basal levels. Without oxidative phosphorylation, NK cell killing, activation, IFN-γ production and Granzyme-B production were significantly reduced. With impaired glycolysis, NK cell activation and Granzyme-B production remained unchanged, however killing was negatively impacted.
Conclusion: Collectively, the results validate the effect of cytokine stimulation and highlight the importance of NK cell immunometabolism in NK cell killing. Subsequently, the possibility of manipulating these processes to boost NK cell killing capacity in the treatment of cancer could be a realistic goal for the future.

20. Is an increased frequency of smudge cells associated with prognostic markers in chronic lymphocytic leukaemia?

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Aims and Objectives: Smudge cells, which are characteristic of Chronic Lymphocytic Leukaemia, are formed during the preparation of blood smears. These ruptured leukaemic cells have been associated with better overall survival in CLL. In this study, the relationship between percentage of smudge cells and other established prognostic markers such as Lactate Dehydrogenase (LDH) and CD38 was explored.
Method: Blood smears were prepared and fixed using Wright-Giemsa stain. Smudge cells were calculated as a percentage of a total 200-cell count in the smears of 22 CLL patients. This data was analysed statistically to give a correlation of LDH levels and CD38 expression with the average smudge cell percentage.
Results: The median percentage of smudge cells was 12.8% (range 3.5-58.8%). A moderate positive correlation between LDH and smudge cell percentage ($r=0.583$) was found. A weak negative correlation ($r= –0.255$) between smudge cell percentage and CD38 levels was identified. There was no statistical significance in the percentage of smudge cells between male and female patients ($p = 0.213$). Immunophenotyping data was consistent with the typical levels of expression of surface markers in CLL.

Conclusions: The percentage of smudge cells varies from patient to patient. Blood smears have been thought to be a possible useful tool for early determination of prognosis. Our findings revealed that a modest correlation between smudge cell percentage and the prognostic factors LDH and CD38 exists. The correlation for CD38 was similar to previous findings, suggesting an inverse relationship may be present. A larger cohort should be examined to affirm the true prognostic value.

21. The immunosuppressive microenvironment in colorectal liver metastasis

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Aims and Objectives: Colorectal cancer (CRC) is the 4th most prevalent cancer in the western world with over 50% of patients that present with primary CRC developing secondary metastasis to the liver.
The livers unique positioning, anatomy, and tolerant immunology facilitates the reason why colorectal metastasis are so common within the organ.
The aim of this study was to evaluate the changes that occur in the cytokine microenvironment of liver challenged by CRC with specific regards to cytokines IL-10, IL-6, and GM-CSF.
Methods: Using E.L.I.S.A as its main experimental technique, this study examined the levels of IL-10, IL-6, and GM-CSF in healthy donor liver, colorectal tumour bearing liver tissue, and liver tissue directly adjacent to colorectal tumour. Secondarily, Immunohistochemistry was used to compare the prevalence of immune cells and IL-10 production respectively in the 3 different sample types.
Results: When compared to healthy donor liver, tumour bearing and adjacent liver tissue showed large inter-individual variability between samples for the immunosuppressive cytokine IL-10. IL-6 and GM-CSF were significantly increased in tumour bearing liver and adjacent liver tissue to tumour in comparison to healthy donor sample. From the immunohistochemistry, IL-10 was demonstrated to be produced predominantly by the parenchyma of both donor and tumour bearing liver sample, away from the areas of obvious lymphocyte aggregation.
Conclusion: These findings show that liver compromised with CRC has a differing microenvironment to healthy donor liver, evidenced by the increases in IL-6 and GM-CSF along with the large inter-individual variation found in IL-10 tumour bearing samples in comparison to donor.
From these results, future work may be aimed at the impacts of these cytokines on the liver microenvironment and their potential diagnostic and prognostic effects.

22. Assessing role of SATB2 and SATB2-AS1 genes in colorectal cancer

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Aims and Objectives: SATB2-AS1 is an antisense transcript to SATB2 where SATB2 is identified as a well categorized tumour suppressor gene in colorectal cancer (CRC). Hence, it is plausible that SATB2-AS1 might play a role in CRC progression. The aim of study was to investigate the expression levels of SATB2-AS1 both in vitro and in vivo.
Methods: mRNA expression of SATB2 and SATB2-AS1 was observed in SW620 (metastatic) and SW480 (benign) CRC cell line and in vivo orthotopic mice models. Both cell lines are treated with either FOLFOX alone, combination of FOLFOX and Avastin, Avastin alone or vehicle. RNA was extracted to synthesise cDNA followed by gene specific expression testing using quantitative real-time PCR (qRT-PCR).
Results: Endogenous levels of both SATB2 and SATB2-AS1 were higher in SW480 compared to SW620 cell line. Increase in SW620 combination treated samples, in SW480 FOLFOX alone treated sample and decrease in SW480 combination treated samples were observed in SATB2 mice models relative to vehicle. Meanwhile, Increase in SW620 Avastin alone treated samples and in SW480 combination treated samples were observed in SW480 derived mouse model compared to the vehicle. We also examined the potential silencing of the SW620 genes due to DNA methylation (5'-aza- 2'-deoxycytidine treatment) relative to SW480. Both cell lines show no significant alteration but were significantly elevated relative to vehicle.
Conclusion: Elevated SATB2 and SATB2-AS1 levels suggest a plausible protective role of both genes in CRC. Moreover, we show that both SATB2 and SATB2-AS1 tend to be co-regulated by DNA methylation. Future studies are needed to assure the precise role of this anti-sense transcript in CRC.

23. Investigating impact of enhancer methylation on gene expression in metastatic colorectal cancer

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Aims and Objectives: DNA methylation is suggested to have integral roles in regulating genes involved in development of metastatic colorectal cancer (mCRC). This study identified two genes: Colon Cancer Associated Transcript 1 (CCAT1)[1] and Forkhead Box D2 (FOXD2)[2], potentially regulated by differentially methylated enhancers. The impact of enhancer methylation on their expression remains to be elucidated. This research aimed to ascertain expression levels of these genes in vitro and in in vivo models developed using CRC cell lines.
Methods: We carried out complementary DNA (cDNA) synthesis using RNA extracted from two CRC cell lines: SW480 (benign) and SW620 (metastatic) grown in vitro and used to generate in vivo mouse models. This was followed by quantitative PCR (qPCR) to estimate gene expression levels.
Results: We found that endogenous FOXD2 and CCAT1 mRNA levels were significantly lower in the SW620s compared to the SW480s. Further, we observed an increase in FOXD2 and CCAT1 levels in the SW620s and SW480s following treatment with 5'-Aza-2 deoxycytidine (DNA demethylating agent). In SW620 orthotopic mouse models, mRNA levels of FOXD2 were higher and CCAT1 were lower in animal-derived tumours treated with FOLFOX, Avastin, and combination (FOLFOX + Avastin), compared to vehicle (DMSO), with upregulation of both genes in the treated orthotopic SW480 counterpart.
Conclusion: We suggest DNA hypermethylation of the associated enhancers as a potential regulatory mechanism for FOLFOX (a potential mCRC tumour suppressor) and CCAT1 (a potential mCRC oncogene) in these cell lines. Further studies would succor in determining the potential of methylation-sensitive genes as putative therapeutic targets for mCRC treatment.

24. Identification of mutations of members of the protein tyrosine phosphatase (PTP) gene family as novel therapeutic options for the treatment of solid tumour cancers

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Aims and Objectives: Protein Tyrosine Phosphatases (PTP) are a family of genes that regulate many important cellular processes involved in the cell cycle such as cell growth, which is central to cancer development. This study aimed to identify mutated PTP genes across 15 common solid tumour cancers and to determine biological pathways affected by the oncogenic PTP that was most frequently mutated. Chemical inhibitors for the oncogenic PTP were then found for potential use in cancer treatment.
Method: The cBioPortal tool for Cancer Genomics was used to identify mutations in members of the PTP gene family in 15 cancers. The UniProt database and STRING were used to study protein-protein interactions. The KEGG Pathway Analysis Tool was used to determine which cellular pathways were affected by the mutated PTP and their role in cancer development. The PubChem BioAssay tool was used to find potential chemical inhibitors for the mutated PTP.
Results: PTPN6 (protein tyrosine phosphatase non-receptor type 6) was the most upregulated and mutated PTP (in 11 out of 15 tumours). Cellular pathways disrupted by PTPN6 mutations were the JAK-STAT, VEGF, MAP-Kinase and PI3K pathways. CHEMBL509443 and CHEMBL449613 inhibitors were active against PTPN6 and had limited cross-reactivity. The upregulation of PTPN6 in tumour samples indicates that it may be an oncogene.
Conclusion: The pathways affected by PTPN6 mutations have been strongly linked to cancer growth and metastasis. The inhibitors identified, if developed into clinical drugs, could potentially be used to treat solid tumour cancers with PTPN6 mutations, which accounts for 38% of solid tumour cancers on cBioportal.

25. The clinical utility of Epstein-Barr virus DNA (EBVDNA) for the screening and disease monitoring of nasopharyngeal carcinoma (NPC) patients – a review of current status

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Aims and Objectives: Nasopharyngeal Carcinoma (NPC) is highly associated with Epstein-Barr Virus (EBV) infection and therefore the aim of this study was to review the clinical utilities of EBVDNA for screening and monitoring of NPC.
Methods: A literature review was conducted in Pubmed using keywords "EBV DNA" combined with terms "Nasopharyngeal Carcinoma" or "NPC". 11 studies showing clinical utilities of EBVDNA in terms of NPC were reviewed. Subjects in all 11

studies are from Southern China, Hong Kong, or Southeast Asia as they showed similar histological subtypes of undifferentiated nonkeratinizing carcinoma.
Results: Comparing to the current gold-standard (nasoendoscopy), the detection of NPC via EBVDNA showed a mean sensitivity, specificity and false positives of 90-99%, 88-100% and 0.2-7% respectively. As a screening tool in asymptomatic patients, the sensitivity and specificity were 97.1% and 98.6% respectively, and screened patients had a superior 3-year progression-free survival compared to a historical cohort. As a monitoring tool, the presence of EBVDNA could be detected 17.4-24 weeks before recurrence was detected clinically, suggesting that EBVDNA could have a role in predicting recurrence. In addition, post-treatment EBVDNA concentration could influence further clinical management as the hazard ratios for both death and recurrence are significantly different between those with positive or negative EBVDNA post-treatment, 34.5 and 22.9 respectively. Challenges to use EBVDNA clinically include identification of better cut-off points and need for cold-chain in transporting blood specimens.
Conclusion: EBVDNA poses a unique opportunity as a tool to identify and monitor high-risk individuals for NPC and warrant further studies particularly in endemic regions.

26. Two cases of angiosarcoma of the right atrium presenting as haemoptysis

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Aims and Objectives: Primary malignant cardiac tumours are a rare clinical entity associated with a poor prognosis. Cardiac angiosarcoma arises from the endothelial subepicardium and mesenchymal tissue typically presenting as a bulky, infiltrative mass in the right atrium. The histopathology of cardiac angiosarcoma represents an often poorly differentiated cell line predisposed for distant metastases. Patients' clinical presentations vary, often with non-specific signs and symptoms until late in the disease course, presenting a diagnostic challenge to the clinician. We report two patients with cardiac angiosarcomas presenting with hemoptysis and extensive lung metastases.
Methods: Case reports were acquired with informed consent.
Results: We present a case report of two patients who presented with several weeks of hemoptysis. Further imaging techniques suggested right atrial masses with extensive pulmonary metastases. Lung biopsy confirmed the diagnosis of primary cardiac angiosarcoma. The extensive metastatic pulmonary tumour burden caused the haemoptysis. Following chemotherapy, clinical and radiological improvement was evident.
Conclusion: Angiosarcomas are thought to account for 33% of all primary cardiac tumours. Metastases occur in approximately 66-89% of cases at the time of diagnosis, with lung metastases comprising the majority. In concordance with similar case reports, cardiac angiosarcoma with secondary lung metastases should be included in the differential for hemoptysis when preliminary testing is negative. While transsesophageal echocardiography remains the gold standard diagnostic imaging tool for primary cardiac tumours, FDG-PET/CT was able to detect the primary cardiac malignancy and therefore may hold benefit in unexplained hemoptysis with concern for a malignant cardiac aetiology.

27. Co-morbidities, co-medications, and concordance in breast cancer survivors: A prospective cohort study

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Aims and Objectives: Breast cancer is the most prevalent cancer among women worldwide, with 1.7 million diagnosed in 2012. In Ireland, there is little information on the extent of co-morbidities and co-medications in breast cancer survivors. This study aims to examine: (1) the prevalence of co-morbidities compared with a general Irish female population (TILDA), (2) the prevalence of co-medications and (3) co-medications as a proxy for disease in an Irish national breast cancer cohort.
Methods: There were n=974 women diagnosed with breast cancer consenting to a self-completed questionnaire (July 2014 - Aug 2017), recruited from five hospitals (Cork University, Beaumont, Mid-Western Regional, Galway University, and St James's).
Results: The most prevalent co-morbidity was hypertension (27.1%, total n=844), followed by arthritis (13.9%, total n=828), and asthma (9.1%, total n=831). Prevalence of co-morbidities in this cohort was significantly lower compared to a general population (TILDA), of the same ages.
77.3% (n=752) of female breast cancer survivors were on 0-4 co-medications. The remainder (22.7%, n=222) had polypharmacy (5+ co-medications). The most prevalent co-medication was alimentary tract drugs (38.2%, n=372), followed by nervous system drugs (32.8%, n=319), and cardiovascular drugs (27.9%, n=272).

There was significant discordance between CVD drugs and reporting of Heart Disease; similarly for respiratory drugs and reporting of Asthma/COPD ($p<0.001$).
Conclusion: The significantly lower prevalence of reported co-morbidities in this breast cancer cohort compared to TILDA is of interest. The lack of agreement between selected co-morbidities and co-medications is likely due to under-reporting in breast cancer. Further studies would be helpful to replicate our findings.
Acknowledgements: The authors wish to thank the Irish Cancer Society and BREAST-PREDICT for their contributions. We also thank the research staff and patients in each of the hospitals for their participation.

28. Managing non-melanoma skin cancer: Adequacy of skin malignancy resection in a model 3 hospital

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Aims and Objectives: Nonmelanoma skin cancer (NMSC) represents the most common cancer in Ireland, which is expected to double in the next 30 years. Early diagnosis and complete surgical removal is a required standard for treatment, with excision margins of 3-6mm as outlined in guidelines. Complete excision is a required surgical standard for treatment. The aim of this study was to conduct an audit of non-melanoma skin cancer excision in a Model 3 Hospital (St. Lukes Kilkenny) focusing on degree of compliance with existing guidelines and burden on surgical services for re-excision.
Methods: This retrospective clinical audit was conducted at St. Lukes Hospital, Kilkenny. Study included records from 242 patients, Data collected included patient demographic, skin cancer site, histological diagnosis, deep and peripheral margins, as well as the level of training of the surgeon.
Results: A total of 242 excisions were performed from 2013-2015. Excisions on face accounted for 47% of cases. Tumour diameter (mean ± SD) was 12.73±0.81 and depth 4.78±0.21 at time of excision. Lateral and deep margins were both clear in 67.5% (133/197) of cases as per histology reports. Overall, Non-Consultant Hospital Doctor (NCHD) level surgeons performed the majority of skin cancer excisions, with an overall complete excision rate of 66%.
Conclusion: Nonmelanomatous skin cancer primarily effects the Irish population at an age of 60 or older. An educational intervention on excision margins will provide value in reducing the overall rate of incomplete excisions (26%) and use of valuable surgeon time and resources.

29. Retrospective review of use of chemotherapy & radiology resources by oncology patients

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Aims and Objectives: Oncology patients use many hospital resources while undergoing chemotherapy. Late chemotherapy (received within the last 14 days or a new protocol started within last 30 days of life) and extreme imaging (>4 scans in a 12-month period) both show little evidence of benefit in patient outcomes. Our aim was to review cancer patients', use of late chemotherapy, the day ward, CT imaging and bone scans.
Methods: This study was a retrospective review of 100 cancer patients who received chemotherapy in UHG. Data were obtained from MOSAIQ & PAS systems and patient letters and analysed using IBM SPSS 24.
Results: All patients received chemotherapy, with 15% receiving late chemotherapy and 42% receiving chemotherapy in the last 6 weeks of life. Compared to males (31.4%), females (53.1%) were significantly more likely to receive chemotherapy within the last 6 weeks of life (p-value = 0.028). Most patients (95%) received chemotherapy in the day ward at some point during their illness, with a median of 12 visits per patient [range: 1-51]. In addition, 24.2% of patients received bisphosphates during their visits to the day ward. Taxol was the most frequently prescribed IV chemotherapeutic drug.
Looking at use of radiation resources, 75% of patients experienced extreme imaging. The most images taken within a 12-month period of a patient during their illness was 14 [range: 1-14, median = 6]. Radiation dose exposure during these 12-month periods displayed a median of 71.5mSv exposure [range: 2-131mSv].
Conclusion: Late chemotherapy and frequent imaging are standard practice, despite little indication of benefit.

30. Mechanism of resistance to targeted therapy in breast cancer

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Aims and Objectives: PI3K mutations are the most frequent genomic alteration in breast cancer. Activating mutations in PI3K result in hyperactivation of downstream signalling pathways that drive cell growth, metabolism, proliferation, and survival. Direct pharmacological inhibition of PI3K is therefore an attractive therapeutic strategy. Although PI3K-specific inhibitors are showing promising results in clinical trials, resistance to these therapies is common. We have previously shown in both preclinical models and patients that activity of mTOR, a critical signalling node downstream of PI3K, drives resistance to PI3K inhibitors. However, the underlying mechanisms that mediate this resistance to therapy were not fully understood.
Methods: We performed a knockdown screening of >1000 genes to determine which ones were responsible for drug resistance. Therapeutic combinations were tested in cancer cell lines, mouse xenografts, and patient samples.
Results: In this work, we demonstrate that in cancer models resistant to PI3K therapy, PDK1 blockade restores sensitivity to these inhibitors. SGK1, which is activated by PDK1, contributes to the maintenance of mTOR activity and cell survival. Targeting either PDK1 or SGK1 blocks mTOR activation and restores the anti-tumoural effects of PI3K inhibition in resistant *in vitro* and *in vivo* models.
Conclusion: We have elucidated the molecular mechanism that allows mTOR to retain activity, conferring resistance to PI3K therapy. Importantly, this study uncovers new aspects of the biology of PI3K signalling upon pharmacological inhibition and offers novel therapeutic approaches for the clinical setting.

31. Preoperative inflammatory markers as predictors of postoperative complications in colorectal cancer patients

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Aims and Objectives: A prognostic value of inflammatory markers in the clinical outcomes of colorectal cancer (CRC) patients undergoing resection has been proposed. This retrospective study aims to determine the predictive value of preoperative inflammatory markers in postoperative complications of CRC patients regarding type and severity.
Method: Patients (n=218) who electively underwent potentially curative resection in the Mater Misericordiae University Hospital between 2009 and 2016 were reviewed. C-reactive protein (CRP), white blood count (WBC), platelets, neutrophils, lymphocytes, platelets-to-lymphocyte ratio (PLR), neutrophil-to-lymphocyte ratio (NLR), hemoglobin, and carcinoembryonic antigen (CEA) levels were collected. Other variables accounted for include age, sex, BMI, medical history, operation type, and tumour characteristics. All 30-day postoperative events were included and patients were assigned Clavien-Dindo (CD) grades accordingly. Analysis was performed using SPSS v20.
Results: Multivariate regression analysis indicates that CRP is correlated to postoperative wound dehiscence ($p=0.001$), sepsis ($p=0.019$), and respiratory and cardiovascular complications ($p=0.007$). Platelets are correlated to urinary and neurological complications ($p=0.011$ and $p=0.010$, respectively). WBC are correlated to respiratory complications ($p=0.042$), lymphocytes to wound infection ($p=0.003$), and CEA to anastomotic leak ($p=0.032$). CRP shows significant association to CD grade ($p<0.001$). The value of CRP after which a postoperative complication is likely to occur is 5.5 mg/L, compared to 17.5 mg/L after which the complication is likely severe, i.e. CD 3-5.
Conclusion: Preoperative levels of these markers, most prominently CRP, are independent predictors of postoperative complications for CRC patients. Further prospective studies are recommended to determine their clinical applicability and to stratify patients into risk categories.

32. Making best practice for the correction of iron deficiency anaemia in the patient journey

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Aims and Objectives: Pre-operative iron deficiency anaemia is well documented to be associated with poor outcome as well increased hospital stay post-operatively. The condition is particularly prevalent in patients undergoing curative resection for non-metastatic colo-rectal neoplasms, particularly those of which the tumour is present in the ascending colon. The standard treatment for pre-operative iron deficiency anaemia is a perioperative allogenic blood transfusion (ABT), however this method is limited to counteracting the effects of acute anaemia caused by blood loss and diminished postoperative erythropoiesis

associated with major surgery. Indeed this perioperative acute anaemia is amplified for that cohort of patients with existing pre-operative iron deficiency anaemia increasing their risk for requiring ABT. ABT is known to be associated with poor clinical outcome and increased hospital stay as well as being expensive and reliant on selfless donations from the general public. The aim of this study is to minimize the amount of patients undergoing curative bowel resection for colorectal cancer requiring perioperative ABT by addressing the issue of pre-operative iron deficiency anaemia, and formulating a safe and cost effective way of correcting haemoglobin levels in the afflicted patients.
Methods: We examined the blood work of 214 patients undergoing curative bowel resection in the mater hospital between February 2010 and January 2016.
Results: From those patients who were anaemic pre-operatively, we noted the date of onset of anaemia and determined the time between onset and date of surgery. From this we were able to determine which patients would benefit from a course of oral iron supplementation pre-operatively, which from current data suggests requires a period of 2 months.

33. Follow-up CVS risk management for women who have had a CVS complication of pregnancy: A single-centre audit
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Aims and Objectives: The aim of this audit was to determine whether women who develop complications of pregnancy, such as gestational diabetes (GD) and pregnancy-induced hypertension (PIH), were followed up by their GPs with regard to their future cardiovascular risk. A second aim was to assess whether the condition was communicated from the obstetrician to the GP on discharge letter.
Methods: A search was carried out on the practise management system, SOCRATES, for pre-specified code words. A total of 43 cases were found. Data was gathered on whether the woman's blood pressure was recorded at the 6 week postnatal check, whether an Oral Glucose Tolerance Test (OGTT) was carried out within 6 months post-delivery and whether the complication of pregnancy was noted on the maternal hospital discharge letter.
Results: 34 cases of complications of pregnancy were included in the analysis.
Maternal blood pressure was recorded in 57.6% of cases. OGTTs were carried out within 6 months of delivery in 50% of cases. However, of those diagnosed with GD, the proportion increases to 57%. Among the women diagnosed with a complication other than GD, none had an OGTT. The pregnancy complication was recorded on 18 (53%) of the hospital discharge letters.
Conclusion: It is clear that much remains to be done to promote awareness regarding the association of certain complications of pregnancy and future cardiovascular risk. In addition, further research is needed to establish the most appropriate level and frequency of monitoring these women require in the months and years following the pregnancy.

34. Donor breast milk – Should it be in routine use for preterm and low birth weight infants?
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Aims and Objectives: Human breast milk (HBM) provides optimal nutrition for infants and is the recommended nutrition for all neonates. 60.7% of UK NICUs offer donor breast milk (DBM) yet there are no national guidelines on its use in Irish practice. We conducted a literature review examining the positive and negative aspects of DBM to inform consensus guidelines for Ireland.
Methods: Following standard search strategies, 18 studies were analysed, focusing on potential disadvantages (pasteurisation) and benefits (cost effectiveness and necrotising enterocolitis [NEC] prevention). A comparison was made between DBM and formula milk. The population studies included premature and low birth weight (LBW) infants who consumed DBM.
Results: In preterm and LBW infants, feeding with formula compared with DBM resulted in a RR of 2.77 of NEC development but no statistical difference in mortality between the two groups. Decreased hospital stay, and the prevention of sepsis and NEC supported the cost effectiveness of DBM. While the pasteurisation of DBM inactivates bacterial and viral contaminants, there are some concerns regarding the risk of infection due to the coincidental inactivation of beneficial immune cells.

Conclusion: Adequately screened DBM is a suitable alternative to formula. There is limited data available on the comparison of formula versus nutrient-fortified DBM. This limits the applicability of the findings of this review, as nutrient fortification of breast milk is now common practice in neonatal care. The cost of DBM was variable, but its cost is modest in comparison with the cost of managing a single case of NEC.

35. Maternal education and race/ethnicity are associated with foetal growth: Preliminary results from NYU children's environmental health study

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Aims and Objectives: Previous studies suggest that socioeconomic status and race/ethnicity influence foetal Growth. This study explored associations of maternal education and income with foetal weight and head circumference in a socioeconomically and racially diverse cohort.
Methods: Participants were women enrolled in NYU Children's Environmental Health Study who gave birth at Bellevue (n=54) and Tisch (n=149) hospitals between October 2016 and July 2017. Demographic data and maternal prepregnancy height and weight were collected via questionnaire. Head circumference (HC) and estimated foetal weight (EFW) percentiles were extracted from sonography reports across three trimesters. We collected HC and birthweight (BW) from the EMR. Income level was defined as annual household income/# of people supported by that income. Covariate-adjusted linear regression was used to estimate associations of income level and maternal education with foetal growth.
Results: Income level was not associated with foetal growth. First and second trimester EFW percentiles were higher among Hispanic vs. white women (beta=35.38; 95% confidence interval [CI]=4.50, 66.26; beta=26.63, 95% CI=6.65, 46.60). Third trimester EFW and BW percentiles were lower among black vs. white women (beta=-36.05, 95% CI=-59.06, -13.04; beta=-32.97, 95% CI=-53.46, -12.49). HC was smaller among black vs. white newborns (beta=-1.68, 95% CI= -2.86, -0.50) and larger among higher educated (≥bachelor's degree) vs. lower educated (≤high school diploma) women (beta=2.26, 95% CI=0.94, 3.59).
Conclusion: Foetal weight gain trajectories varied by race/ethnicity and maternal education was positively associated with HC at birth in our cohort. These findings suggest black women and women of lower education should be monitored to improve foetal growth outcomes.

36. The impact of sleep hygiene on maternal glucose tolerance and adiposity in overweight and obese pregnant women

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Aims and Objectives: Sleep is thought to deteriorate throughout pregnancy. This is particularly pronounced in overweight or obese women. Current literature indicates that poor sleep is strongly associated with metabolic derangements, resulting in adverse maternal and fetal outcomes in pregnancy. Therefore, the aim of this study was to investigate the impact of sleep on metabolic health and adiposity in overweight and obese pregnancy.
Methods: This was a prospective, cohort study of 220 overweight and obese pregnant women recruited at the National Maternity Centre, Dublin. Sleep data was obtained in the first and third trimester using aspects of the Pittsburgh Sleep Quality Index, and Berlin Questionnaire for Sleep Disordered Breathing. Wellbeing was assessed using the WHO-5 index. Blood samples and anthropometric measures were also taken at these time points.
Results: Sleep hygiene parameters were found to worsen significantly throughout pregnancy. Perceived wellbeing increased significantly from the first to the third trimester (56.45 ± 14.61 vs 60.12 ± 14.77 %) (P<0.001). Sleep disturbance was significantly associated with increased BMI (P<0.001) and increased insulin resistance (P<0.02) in the first trimester. In the third trimester, sleep disturbance was significantly associated with reduced glucose (P<0.03) and HDL cholesterol (P<0.04) levels. Increased sleep quality throughout pregnancy was significantly associated with higher glucose levels (P<0.001).
Conclusion: There was a significant relationship between poor sleep hygiene and increased insulin resistance and adiposity in this cohort of women. Further investigation into the impact of sleep on glucose homeostasis in this population is required.

37. Prognosis of patients with apparent treatment resistant hypertension – A feasibility study

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Aims and Objectives: Most cases of hypertension can be effectively treated with lifestyle changes together with medications, but within this population lies a group with more difficult to treat hypertension – those with apparent treatment resistant hypertension (aTRH). The American Heart Association and the UK National Institute for Health and Care Excellence have both highlighted the need for further research into the prognosis of patients with resistant hypertension, both apparent and true.
Methods: In sixteen practices affiliated to a university research network, 646 patients had been identified with apparent treatment resistant hypertension. To inform a planned full cohort study of these patients, we conducted a feasibility study within three practices to determine participation of practices and patients, availability of outcome measures and data collection duration time
Results: All three practices fully participated and 205/210 (98%) patients were followed up for a median of 23 months. Thirty-five outcome events of interest occurred – the most common was new onset of retinopathy (9 cases). Eight percent (17/210) had the main composite outcome of death or serious incident cardiovascular event. Of the six patients who died, identification of cause of death was possible from practice records in five; the national General Register Office was successfully used for the final patient. There were 123 admissions, both day and overnight, recorded in 94 individual patients. Average manual systolic blood pressure measurements improved from baseline by 5 mmHg to 138 (SD 19) mmHg, diastolic remained the same at 75 (SD 12) mmHg. Average eGFR increased from 60.7 (SD16.3) to 66 (SD19.7) mls /min /1.73m^2. The average time for data collection per patient was 12.6 minutes. **Conclusions:** This study demonstrates that the proposed methodology for a full cohort study within general practice of patients with apparent treatment hypertension is both acceptable to practices and feasible. Importantly, individual patient record review facilitates consideration of adherence, dosing and white coat hypertension. Further development of the appropriate components of a composite outcome measure is appropriate.

38. Long-term outcomes of SLED vs CRRT at a tertiary care hospital

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Aims and Objectives: Critically ill patients with severe acute kidney injury (AKI) who receive renal replacement therapy (RRT) have a high mortality. In patients with AKI and hemodynamic instability, continuous renal replacement therapy (CRRT) has been widely used though sustained low efficiency dialsysis (SLED) has emerged a less costly alternative. The primary objective was to compare the clinical outcomes at hospital discharge of patients initiated on SLED versus CRRT for the treatment of AKI in the ICU setting.
Methods: We conducted a retrospective cohort study which compromised patients who received RRT for AKI at St. Michael's Hospital in Toronto, Canada, between April 2007 and December 2014 in any of the hospital's four ICUs. The primary outcome evaluated at 30 days post RRT initiation was all-cause mortality, adjusted for the Sequential Organ Failure Assessment (SOFA) score.
Results: 207 patients were identified as being initiated on CRRT while 104 patients were initiated on SLED Mean SOFA scores were 16.9 for CRRT and 15.6 for SLED. Mortality at 30 days in CRRT recipients was 43.7% compared to 55.8 % on SLED (p-value 0.088). After adjustment for the SOFA score, mortality was not significantly different between the two groups (OR 1.11, 95% CI 0.65-1.90 for comparison of CRRT vs SLED).
Conclusion: While the study was small and non-randomized, the difference in hospital mortality between the two modalities was not found to be statistically significant. Our next step is to link our data to administrative databases to enable the follow-up of patients to 90- and 365-days following RRT initiation.

39. Investigation of ambulance usage and in-hospital delay in patients with acute coronary syndrome

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Aims and Objectives: Acute coronary syndrome (ACS) refers to a group of clinical symptoms consistent with acute myocardial ischaemia, including unstable angina, non-ST-, and ST-elevated myocardial infarction. It is recommended that emergency medical services (EMS) are activated in suspected cases. EMS are a key link in the chain of survival, having many benefits, such as faster first medical contact and reduced in-hospital delay. However, many patients still self-transfer to hospital and so EMS are underutilized. The aims of this study were to assess the proportion of ACS patients using an ambulance vs. self-transport to hospital, the factors influencing this, and to investigate differences in in-hospital delay between groups.
Methods: Data regarding CUH ACS patients from 2007-2016 was obtained from the Coronary Heart Attack Ireland Register (CHAIR) and analysed using SPSS.
Results: 4229 cases were obtained from the CHAIR service. Exclusion and inclusion criteria were applied, leaving 1964 cases for overall analysis. 533 (27.1%) patients directly used an ambulance, 1098 (55.9%) presented to their GP first and 333 (17%) presented directly to A&E. Logistic regression showed that age, clinical factors, smoking status, and diagnosis each had a statistically significant effect on ambulance usage. Mann-Whitney U-tests showed between-group differences in in-hospital delay.
Conclusion: Ambulance services are underutilized by patients experiencing ACS. Patient's age, type of ACS, medical history and smoking status impact on their use of ambulance service. Further research is needed but awareness campaigns and health education programs could be organised to achieve greater ambulance usage in ACS patients.

40. Antiplatelet versus anticoagulation therapy in extracranial cervical arterial dissection

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Introduction: Arterial dissection in the extracranial cervical arteries (eCAD), often caused by trauma, accounts for up to 25% of strokes in patients under 45yrs. eCAD is traditionally managed by antiplatelet, anticoagulant or combined therapy, with no consensus on the most appropriate therapy.
Aim: To compare the outcomes of anticoagulation vs antiplatelets in treatment of eCAD. Primary endpoint was subsequent stroke. Secondary endpoints were recovery from initial stroke, re-dissection and mortality.
Methods: Any patient diagnosed with eCAD from 2005 to July 2017 was included. Patients' clinical data, imaging, therapy and outcomes were analysed.
Results: Over twelve years, 39 patients presented with eCAD. Twenty-seven were males. Thirteen were under 45yrs (mean 50.4 yrs ± 16.8 SD). 30.8% of dissections were precipitated by trauma. Eighteen patients (46.2%) presented with an ipsilateral stroke and one died prior to commencement of therapy. A further 28.2% presented with headache, whereas 20.5% had visual disturbance. Seventeen patients (43.6%) were managed with antiplatelet therapy, seven with anticoagulation and thirteen with combined therapy. Four patients required surgical intervention, all of whom were post trauma. No patients developed subsequent ipsilateral stroke. Of patients initially presenting with stroke, 37.5% of the antiplatelet group progressed to full recovery compared to 100% of those on anticoagulation and 57.1 % on combined therapy ($p=0.230$). Re-dissection did not occur in any patient. No further mortality occurred. Overall survival at 5 years was 97.4%.
Conclusion: Recurrent stroke is rare. The choice of therapeutic approach does not have a significant impact on outcomes in eCAD patients.

41. Clustering of non-communicable disorders in Kuwait

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Aims and Objectives: Non-communicable disorders (NCDs) are the leading cause of death worldwide, killing 40 million people each year. The health burden of NCDs in Kuwait and other developing countries is high. The objectives of this study was to determine the level of clustering of diabetes, smoking, hypertension, raised cholesterol and obesity amongst Kuwaiti adults.

Methods: A total of 3918 Kuwaiti men and women aged between 18 and 69 were surveyed using the WHO Instrument for Chronic Disease Risk Factor Surveillance questionnaire. Participant's demographics, medical and family history, physical measurements and blood biochemistry were assessed. A subset of 1593 individuals had completed data regarding their diabetes, smoking, hypertension, cholesterol, and obesity status.
Results: Only 21% of Kuwaiti men and 32% of Kuwaiti women did not have any of diabetes, smoking, hypertension, dyslipidaemia or obesity. Almost 20% of Kuwaiti adults had at least 3 disorder clusters, including 23% of men and 18% of women. The number of disorder clusters increased with age. Over 40% of adults in their 50s had 3 disorder or more. Over half of adults in their 60s had 3 disorders or more. Prevalence of hypertension, dyslipidaemia and obesity but not smoking was higher in individuals with diabetes than in individuals with normal glycaemia.
Conclusion: The high level of NCDs in Kuwait illustrates the great health and socioeconomic challenge facing Kuwait and is an urgent call for detection, management and prevention programmes.

42. Investigations for biomarkers of haemorrhagic transformation

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Aims and Objectives: Ischemic stroke and its complications are leading causes of disability and mortality. Timely reperfusion of the occluded cerebral vasculature can minimize brain damage and optimize patient outcome. A major complication of reperfusion treatment is haemorrhagic transformation (HT). The causative factors responsible for development of ischemia into HT are poorly understood. We aimed to study the expression of biomarkers of HT in brain tissue following temporary middle cerebral artery occlusion and subsequent reperfusion in a rat model of acute stroke.
Methods: TTC staining was utilized to identify extent of infarct and oedema in non-perfusion fixed tissue (n=4) in male Sprague Dawley rats with temporary focal ischemia for 2h, followed by reperfusion of 2h. MMP-9 and BDNF levels were assessed using ELISA to illustrate changes in expression levels in brain regions. Separately, rats were injected with horseradish peroxidase (HRP) 10 minutes prior to perfusion fixation, and immunohistochemistry and immunofluorescence were utilized to characterize changes in MMP-9 expression, HRP infiltration and extent of ischemic infarct in brain tissue (n=1).
Results: Vasogenic oedema and HRP infiltration was seen in the ischemic hemisphere. MMP-9 expression was significantly elevated in cortical and striatal brain regions within the ischemic hemisphere as compared to the contralateral unlesioned hemisphere.
Conclusion: Biomarkers for HT, disruption of the BBB and vasogenic oedema can be observed following transient focal ischaemia. These results demonstrate that MMP-9 elevation in brain tissue is a significant response to cerebral focal ischemia and reperfusion.

43. Evaluating the perspective of' health practitioners with regards to the heart failure pathway

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Aims and Objectives: Heart Failure (HF) is a chronic condition affecting over 90,000 people nationwide. It is responsible for over 20,000 hospital admissions.
Upon diagnosis of HF, patients enter a pathway through which they learn to manage and live with their diagnosis. The community pharmacist (CP) plays an integral role in this pathway.
Methods: Therefore, we administered a validated questionnaire to 32 pharmacists linked to patients of the Heart Failure Unit in St Vincent's to gather *their* perspective of the HF patient pathway. This was a single center study, ethical approval was granted.
Results: Our results showed that 48% (15) of CP's had to re-confirm the diagnosis of HF for patients and 45% (14) no access to the hospital team regarding medication queries. Furthermore, 20% (7) indicated that there were errors on discharge scripts (DS). Results showed that 28%(9) found that patient's regular medications were left off their DS and 53% reported dedicating 30-60 minutes of their day trying to contact medical professionals to clarify medications. Notably, 49% (15) of CPs felt that GP's were not up to date with HF patients and their diagnosis. Finally, 72% (23) of pharmacists felt that it should be standard of care for teams making a medication change on a HF patient's script, to communicate this change and reason for it to the pharmacist.

Conclusion: These results give novel insight into how the HF pathway is perceived by the CP's who *arguably* have the most contact with these patients (in the community). Results suggest there is a gap in communication between CP's & hospital teams. It is pivotal that the CP is informed of medication changes, enabling them to council the patient effectively.

44. Impact of the National Screening Services' 'Diabetic Retinascreen' programme on vitrectomy rates for advanced diabetic eye disease in a regional treatment centre

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Background: Diabetic retinopathy (DR) affects 93 million people worldwide and is one of the commonest causes of blindness in the working age population. Annual screening can help detect sight-threatening DR at an earlier stage which can be treated with optimal medical management and laser, rather than surgical interventions like vitrectomy required for more advanced disease.
Aims: To examine the impact of the National Screening Services' 'Diabetic RetinaScreen' (DRS), on vitrectomy rates for advanced diabetic eye disease in Cork University Hospital's (CUH) regional treatment centre.
Methods: This was a retrospective chart-based review. All diabetes-related vitrectomies for three years before and after the commencement of the DRS in 2013 were identified using surgical and Hospital In-Patient Enquiry logbooks (n=214). Of these, 104 met inclusion criteria. Data was recorded and analysed using Excel and SPSS Statistics.
Results: There were 36 vitrectomies during the three years prior to the DRS, increasing 1.9 times to 68 over the three years post-DRS. Only 23.5% of vitrectomies post-DRS were referrals from its service. However, referral rates rose across the years – 13% in 2014, 17% in 2015 and 43% in 2016. Mean visual acuity (VA) pre-vitrectomy was 1.392 (±0.730) and post-vitrectomy was 0.683 (±0.712), $p=<0.001$.
Conclusion: Vitrectomy rates were higher in the three years following the commencement of the DRS, the majority of which were for patients who had yet to engage with this service. Thus it may be a number of years yet before increased screening uptake with DRS results in a reduction in vitrectomy rates.

45. The role of the glucocorticoid receptor (GR) and the androgen receptor (AR) in triple negative breast cancer in response to DNA damaging chemotherapy treatment

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Aims and Objectives: Triple negative breast cancer (TNBC) is a type of breast cancer that does not express the oestrogen receptor (ER), the progesterone receptor (PR) and does not have amplification of the human epidermal growth factor receptor 2 (HER-2). It is an aggressive form of breast cancer which has poor clinical outcomes. Currently, the standard of care for TNBC patients is DNA damaging chemotherapy, which has a variable response rate. This study aims to evaluate the role of the androgen receptor (AR) and the glucocorticoid receptor (GR) in TNBC, and their ability to modulate DNA damaging chemotherapy and anti-microtubule agents.
Methods: GR expression was evaluated through *in silico* analysis using in house and external data sets. TNBC cell lines were modulated, using both siRNA (ARsi and GRsi) and pharmacological modulation (GR agonist Dexamethasone GR antagonist Mifepristone, AR antagonists Bicalutamide and Enzalutamide). Statistical analysis was carried out using Prism 5.
Results: *In silico* analysis showed that high GR expression was associated with improved clinical outcome versus patients with low GR expression. In TNBC cell lines treated with DNA damaging agents, the GR agonist Dexamethasone increases sensitivity to chemotherapy. Dexamethasone is used to attenuate chemotherapy related side effects in TNBC patients, and may therefore be modulating response. Conversely, in TNBC cells treated with anti-microtubule agents, Dexamethasone decreased sensitivity to chemotherapy.
Conclusion: This study recommends that TNBC patients receiving DNA damaging chemotherapy may benefit from the addition of Dexamethasone. Those receiving anti-microtubule agents should be given an alternative anti-emetic, as Dexamethasone reduced sensitivity to this chemotherapy

46. Examination of the care pathways of adults with diabetes undergoing haemodialysis for end stage renal failure

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Aims and Objectives: Assess Current Care Pathways of all patients with Diabetes undergoing Haemodialysis in CUH to establish whether management is concordant with the Guidelines of the Joint British Diabetes Societies and Renal Association.
Methods: Structured patient interviews to assess availability and utilisation of diabetes-specific services. Structured interviews with medical, dietetic and nursing staff to assess therapeutic management interventions. Review [HbA1c] over a six-month period. The findings were compared with the designated Guidelines.
Results: 49/51 patients took part in interviews. 73% had not attended their G.P. for diabetes specific care in previous 6-months. 35% have never attended a Hospital Diabetes Clinic. 37% had not undergone a foot examination in previous 12 months. 80% followed Renal and Diabetes diets. 84% attended regular retinal screening.
Management of Glycaemic Control: diet alone (n=12), oral hypoglycaemic agents/insulin (n=39). Recommended [HbA1c] is 58-68mmol/mol. 67% of patients had mean [HbA1c] <58mmol/mol. 6% had mean [HbA1c] > 80mmol/mol.
Interviews with health care staff revealed: 1) an annual review of each patient by disciplinary teams involved in care was not available as recommended by guidelines. 2) absence of routine foot inspection of this high-risk patient group.
Conclusion: Overall, Care Pathways may not effectively manage the complex needs of this group. Dietary and ophthalmologic management is concordant with recommendations. However, management of glycaemic control and foot complications is fragmented, with the burden of care falling primarily on the Haemodialysis Service due to low attendance at G.P. and Diabetes Services.

47. Does diabetic ketoacidosis at diagnosis of type 1 diabetes mellitus predict poor long-term glycaemic control?

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Introduction: Diabetic ketoacidosis (DKA) is an acute, major, life-threatening complication of type 1 diabetes mellitus.
Aims and Objectives: This study aimed to determine 1) whether DKA at diagnosis of type 1 diabetes mellitus is associated with poor long-term glycaemic control; 2) whether there are confounding factors which may impact the mode of presentation of type 1 diabetes mellitus or subsequent glycaemic control.
Methods: This study was conducted via review of 102 patient files extracted from the Young Person's Type 1 Diabetes Clinic at Cork University Hospital. DKA was defined as a venous pH<7.3 and/or a bicarbonate level<15 mmol/L. Glycaemic control was measured using the average of the patient's three most recent HbA1C levels, recorded a median of 11yrs post diagnosis.
Results: Data analysis revealed a significant association between DKA at diagnosis and absent honeymoon phase, p=.017. No significant difference in glycaemic control at follow-up was found between individuals with DKA at diagnosis and no DKA, p >.05. Certain sociodemographic factors were found to predict worse glycaemic control at follow-up: Individuals using recreational drugs and those reporting mental health difficulties were found to have higher levels of HbA1C at follow up (p=.008, .002 respectively) compared to individuals who did not.
Conclusion: Diabetic ketoacidosis at diagnosis of type 1 diabetes mellitus was shown to be associated with absent honeymoon phase in this study. Furthermore, individuals who utilise recreational drugs or have mental health difficulties had significantly worse glycaemic control at follow-up.

48. Poor knowledge on the assessment of underweight in children and adolescents among paediatric trainee doctors in Ireland

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Background: Paediatricians have an important role in assessing children with potentially life threatening levels of underweight. A British study conducted in Great Ormond Street Hospital (GOSH) demonstrated that clinical knowledge among

paediatric trainee doctors on the assessment and management of underweight in children, is often unsatisfactory. No formal study has been undertaken to date to assess levels of knowledge among Irish paediatric trainees. The aim of this research was to identify the current knowledge base of paediatric trainees on the assessment of an underweight child/adolescent.
Objectives/Aims: Cross-sectional telephone surveys of paediatric junior doctors, from each centre that provides acute inpatient general paediatric care in Ireland, were recorded. The questionnaire was based on Junior MARSPIAN (Management of Really Sick Patients under 18 with Anorexia Nervosa) (2) guidelines and included questions on the clinical features of underweight, ECG changes, and the refeeding syndrome.
Results: 100% (n=19) of eligible hospitals participated in the telephone survey. Responses were recorded from 34 paediatric trainees. 35% (n=12) identified BMI as the appropriate measure for assessing underweight in children. 79% (n=27) did not identify the clinical cardiovascular complications of severe underweight, while 62% (n=21) reported they did not know the ECG findings in a child with severe level of underweight. 44% (n=15) identified some clinical features of the refeeding syndrome, 14% (n=5) were unable to define it. These findings were similar to the GOSH study.
Conclusions: We recommend the incorporation of the Junior MARSIPAN guidelines into paediatric training programmes to potentially improve clinical diagnosis and management of underweight children.

49. Safety of testosterone therapy in a large clinical cohort of men with prostate cancer
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Aims and Objectives: Limited evidence exists regarding the safety of testosterone therapy (TTh) in men with a history of prostate cancer (PCa), rendering it a controversial issue in clinical practice. We present our findings regarding TTh in men after PCa treatment.
Methods: A retrospective review identified men who received TTh for testosterone deficiency after diagnosis and/or treatment of PCa over the previous 5 years. Biochemical recurrence rates for radical prostatectomy and radiotherapy were operationally defined based on PSA levels. For men on active surveillance, progression was defined as any biopsy showing a higher Gleason score than initial diagnosis.
Results: We identified 320 men with both PCa and testosterone deficiency diagnoses. Of these, 202 men received TTh with a follow up of more than 3 months. Mean age was 68 years, and mean follow-up was 47 months. PCa treatments included radical prostatectomy (n=92), radiotherapy (n=50), high intensity-focused ultrasound (n=3), and active surveillance (n=57). Seven men had advanced or metastatic PCa at time of TTh. Biochemical recurrance was observed in 6 men after radical prostatectomy (6.5%), 1 man after XRT (2.0%), and 2 after high intensity focused ultrasound. Progression was noted in 2 men on active surveillance (3.5%).
Conclusions: To our knowledge, this is the largest study of TTh in a group of men with PCa. Recurrence rates were consistent with published rates for the various forms of PCa treatments and for active surveillance. These results provide reassuring information regarding TTh for symptomatic men with testosterone deficiency and a history of PCa.
Disclosures: Dr. Morgentaler has served as consultant or received honorarium for AbbVie, Acerus, Aytu, Bayer, and Besins. Dr. Krakowsky has served as consultant for Acerus. Dr. Conners has served as consultant for Aytu and Lilly. Mr. Magauran has no disclosures.

50. Analysis of inflammation after injections of non-viral gene therapy in organs
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Aims and Objectives: With recent development of non-viral vectors (NV) in gene therapy, NVs has become an exciting alternative in disease modification. An example of a gene therapy targeted disease is recessive dystrophic epidermolysis bullosa, resulting from the deficiency of anchoring collagen (COL7A1), rendering patients susceptible to blisters and infection.
The group has previously demonstrated successful COL7A1 expression in vivo following NV gene delivery and currently aims to evaluate the safety profile of this newly developed therapy consisting of polyplexes formed from the combination of DNA and a highly branched synthetic polymer (HPAE), will be tolerated in vivo following repeated intradermal applications.

Methods: A total of 28 SKH1 mice (n=7) were injected, every 2nd day for 12 days with buffer alone (A); buffer+COL7A1 (B); PEI+COL7A1 (D) and HPAE+COL7A1 (G). Quantitative Polymerase Chain Reaction (qPCR) was used to determine the extent of hepatic distribution of the polyplex vectors following application. Serum samples were analysed with Enzyme-linked Immunosorbent Assay (ELISA) to detect cytokine up-regulation.
Results: Post-therapy, gross dissection did not reveal any macroscopic signs of toxicity, however microscopy revealed hepatocellular necrosis in both groups. ELISA indicated that there was no up-regulation of inflammatory cytokines following treatment. qPCR revealed substantial concentration of COL7A1 in the liver.
Conclusion: No toxicology data was previously reported for the use of sodium acetate buffer in mice, therefore future assessments are needed to determine the cause of the liver lesions. However, as no differences were found between groups, the study indicated no adverse events related to the polymer in the treatment groups when compared to the controls.

51. Cardiovascular disease risk score in Malawian adults with HIV

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Aims and Objectives: Human Immunodeficiency Virus (HIV) is associated with increased cardiovascular disease (CVD) risk. Despite the high prevalence of HIV, there are very few data on the assessment of CVD risk in Sub-Saharan Africa (SSA). We aimed to assess the utility of existing CVD risk scores in an SSA cohort with a high proportion of young HIV-infected individuals and to assess whether they correlate with carotid intima media thickness (IMT) and pulse wave velocity (PWV).
Methods: Retrospective analysis was done on 389 Malawian adults (279 HIV-infected, 110 HIV-uninfected). WHO/ISH, SCORE, FRS, ASCVD, QRISK2 and D:A:D scores were calculated for each individual. HDL-cholesterol was not available; thus, a standardised value of 50mg/dL (1.3mmol/L) was used for scores that required this. Scores were compared to IMT and PWV using Spearman's rho.
Results: Median (interquartile range) age and systolic blood pressure were 36 (31-43) years and 122 (110-130) mmHg. 201 (51.7%) patients were male. FRS and QRISK2 included the largest number of patients and correlated most closely with IMT and PWV. D:A:D (a risk score specific for HIV-infected patients) and SCORE identified more patients in moderate and high risk groups.
Conclusion: Currently available risk scores are of limited use in resource-limited settings due to the requirement for laboratory measures and age restriction. QRISK2 would be the best available score as it includes most of the patients and correlates well with IMT and PWV. D:A:D may be useful to identify CVD risk in HIV-infected patients but requires modification to exclude HDL-cholesterol for the calculation of risk.

Key:

WHO/ISH	- World Health Organisation/ International Society of Hypertension Risk Prediction Chart
SCORE	- Systematic Coronary Risk Evaluation
FRS	- Framingham Risk Score
ASCVD	- American College of Cardiology/ American Heart Association Atherosclerotic Cardiovascular Disease Risk Calculator
QRISK2	- QRISK2 Risk Calculator
D:A:D	- Data Collection on Adverse Events of Anti-HIV Drugs Risk Calculator

52. The effectiveness of glucocorticoid-induced osteoporosis prevention in polymyalgia rheumatica (PMR) patients

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Aims and Objectives: Studies indicate that <50% of PMR patients receive glucocorticoid-induced osteoporosis (GIOP) prevention when nearly all should be prescribed bone protective therapy (BPT) according to current guidelines. Our objective is to determine if PMR patients in Cork are adequately protected from GIOP by examining bone densitometry (DXA) scan results, BPT use, and adherence to guidelines.
Methods: PMR patients with a documented history of glucocorticoid use who underwent a DXA scan at Cork University Hospital from 01/01/2016 and 27/10/2017 were included in the analysis. Patient demographic information, use of BPT, and DXA T-scores were obtained from chart review.

Results: 153 patients were identified, of whom 69% were female. 73 (47.7%) were taking BPT consistent with current guidelines and 42 (27.5%) were not taking any BPT. At the most recent DXA scan, 42 (27.5%) had normal BMD, 84 (54.9%) were osteopenic, and 27 (17.6%) were osteoporotic. The mean T-score of patients receiving BPT, -1.76, is significantly lower than the mean T-score of patients not receiving BPT, -1.41 ($p=0.04$). In a regression analysis, BMI and BPT were significantly associated with osteoporosis or osteopenia ($p=0.007$ and $p=0.049$ respectively). In 91 individuals who underwent ≥2 DXA scans, patients not receiving bisphosphonates were more likely to have BMD loss over time ($p=0.022$).
Conclusions: Despite guideline recommendations, many patients are not prescribed adequate BPT, demonstrated by a high rate of osteoporosis and osteopenia. The results suggest that PMR patients in Cork are not optimally protected from GIOP, uncovering an opportunity to improve the current management of PMR.

53. Effects of various bacterial TLR ligands on intracellular TNF-α production by blood monocytes and the potential of Infliximab to mitigate it

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Introduction: Inflammatory bowel diseases (IBD) are chronic inflammatory conditions which affect the gastrointestinal tract. Infliximab is an antibody which binds TNF-α and is used to treat IBD by neutralising this pro-inflammatory molecule. Although Infliximab is an effective therapy for IBD, the mechanisms of resistance remain to be elucidated.
Aims and Objectives: The aim of the current study is to determine the effect of different bacterial TLR ligands on stimulating the production of pro-inflammatory molecules like TNF-α by monocytes and the effect of Infliximab on mitigating it.
Methods: IBD Patients or healthy controls were be recruited by a qualified research nurse and blood was taken (pre- and post-Infliximab infusion for IBD patients). The levels of pro-inflammatory molecules was assessed using the multicolour flow cytometry assay in development in our research lab. This technique allows for assessment of specific cell types using differently labelled fluorescent markers. CD14 and CD45 positive cells (monocytes) were assessed for the production of intracellular TNF-alpha following incubation with TLR ligands (Flagellin, MDP and LPS) and an inhibitor of the release of cytokines from the cells.
Results: The results shows an increase of intracellular TNF-α when blood monocytes are stimulated with any bacterial TLR ligands, and also with 5LPS, 6.25MDP and 1000FLA.There's also low concentration of intracellular TNF alpha cytokine when patients where infused with Infliximab.
Conclusion: Our studies suggest that intracellular cytokine TNF- α production increase when stimulated with bacterial TLR ligands compare to baseline and patients infused with Infliximab have very low intracellular monocyte TNF- α which makes it a good target for treating patients with IBD.

54. A clinical review of HIV management and antiretroviral resistance in a rural South African hospital

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Aims and Objectives: Of the estimated 33 million people infected with HIV worldwide, approximately 7 million of them live in South Africa. The country has by far the highest number of HIV positive inhabitants internationally and has the third highest prevalence of the virus, with approximately 19.2% of the population infected. To combat this, South Africa has rolled out the largest antiretroviral (ARV) programme in the world and in May of 2016 announced the major new initiative to supply ARVs to everyone in the country infected with the virus, regardless of CD4 count. As a result, ARVs are now widely available, free of charge, to almost every South African diagnosed with HIV.
Despite this, there remains many socioeconomic barriers to implementing such measures and adherence to ARV regimens remains highly variable, further perpetuating the epidemic. Of all the HIV positive people in the country, nearly a third reside in the north-eastern province of KwaZulu-Natal (KZN), with the bulk of these in the rural north of the province.
Methods: A clinical audit of HIV management was carried out, amongst all admissions to the male medical ward, at a rural hospital in northern KZN over a four week period in July 2017.
Results: The results displayed low levels of viral suppression combined with high levels of resistance to first line drugs.
Conclusion: These figures were benchmarked against the rest of South Africa and against similar studies in Europe. Although further, large scale research is required, our data does suggest that greater access to ARVs alone is a relatively ineffective method of combating the spread of HIV in a rural setting.

55. What are the decisional needs of youth with juvenile idiopathic arthritis, their caregivers and their healthcare providers, regarding pain management?

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Aims and Objectives: Juvenile idiopathic arthritis (JIA) is one of the most common causes of chronic musculoskeletal pain in youth, and can negatively impact quality of life. Youth with JIA, their families and health care providers face a variety of challenging decisions when choosing pain management options. However, there seems to be a lack of information on how these decisions are made. The aim of this research was to explore and summarize decisional needs among youth with JIA, their caregivers, and health care providers, with a focus on pain management, to ultimately develop a decision support intervention.
Methods: A systematic search was conducted in major electronic databases. Studies were included if they assessed decisional needs of youth with JIA from their own perspectives, those of their caregivers or health providers. Out of the 47 included articles, only 11 discussed pain specifically. Excerpts were extracted and a narrative analysis was conducted to classify them into the different domains of shared decision making using the NVivo10 system. The most common domains were: 1) pain as an important value for youth and families, 2) the need for more information on a variety of pain management options and 3) how coping with pain would be improved by providing more information.
Results: The results demonstrate that there is a need to provide more information to youth and caregivers about a wide variety of pain management options, and to support youth and families when making these decisions.
Conclusion: A decision support intervention will be developed to address these needs in clinical practice.

56. Looking before we YEEP: An evaluation of the experiences of healthcare transitions for young people with 22Q11DS

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Aims and Objectives: The importance of well managed transition care has been increasingly recognised. Individuals with 22Q11DS, a rare genetic disorder with complex medical, psychiatric and learning difficulties, face particular challenges with transition into adulthood. This aim of this current project was to review existing transition policy and gather the lived experience of Young people with 22Q11DS by establishing a Young Experts by Experience Panel, YEEP.
Methods: Ethical approval was obtained from UCD ethics committee, and YEEP recruited via the national support organisation, 22Q11 Ireland. A semi-structured interview schedule was designed and informed by a rapid review of relevant literature on healthcare transitions in rare disease populations. Three focus groups were conducted over a 4-month period.
Results: The overwhelming experience by YEEP members (N=6, aged 21-37) was of a difficult and stressful transition, with poor transfer of information between healthcare services and an overall lack of knowledge by new providers of their complex disability burden, requiring multiple retelling of their story. YEEP piloted and edited a transition tool to enhance patient-clinician communication. Future planned work is to develop a Transition Training Video, incorporating seminal messages from the literature, discussions with professionals, parents and YEEP members about transitioning from Employment, Education, Family, and Healthcare.
Conclusion: Optimum transition experience is critical to engagement with new services, treatment efficacy and overall quality of life. Such care should be planned and co-ordinated, with the young person central to the process. A Transition Training Video coupled with a Transition Toolkit, would assist in this endeavour.
Acknowledgements: The author would like to acknowledgement the support given by Ms Anne Lawlor, Chairperson of 22Q11 Ireland, and the members of the YEEP group which made the SSRA experience so enriching.

57. Patient safety ward round checklist via an electronic App: Implications for harm prevention

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Aims and Objectives: Patient safety is a value at the core of modern healthcare. Though awareness in the medical community is growing, implementing systematic approaches similar to those used in other high reliability industries is proving difficult. The aim of this research was twofold; to establish a baseline for patient safety practices on routine ward rounds, and to test the feasibility of implementing an electronic patient safety checklist application.
Methods: Two research teams were formed; one auditing a medical team to establish a procedural baseline of 'usual care' practice, and an intervention team concurrently enforcing the implementation of the checklist. The checklist was comprised of eight standard clinical practice items. The programme was conducted over a two week period and one month later a retrospective analysis of patient charts was conducted using a global trigger tool to determine variance between the experimental groups. Finally, feedback from the physician participants was considered.
Results: The results demonstrated a statistically significant difference on five variables of a total of 16. The auditing team observed low adherence to patient identification (0.0%), hand decontamination (5.5%) and presence of nurse on ward rounds (6.8%). Physician feedback was generally positive.
Conclusion: The baseline audit demonstrated significant practice bias on daily ward rounds which tended to omit several key proven patient safety practices such as prompting hand decontamination and obtaining up to date reports from nursing staff. Results of the intervention arm demonstrate the feasibility of using the Checklist App on daily ward rounds.

58. Homeless health in Dublin

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Aims: Clinical experience suggests homeless people age faster than their housed peers. We sought to measure frailty, cognition, multimorbidity, usage of acute unscheduled healthcare and quality of life in Dublin's homeless population and to compare to data collected on housed participants in the Irish Longitudinal Study on Ageing (TILDA).
Methods: Assessments took place in homeless hostels and a homeless day centre. Grip strength was measured with a hand dynamometer; timed get up and go test was carried out. A questionnaire adapted from TILDA assessed physical activity, exhaustion and unintentional weight loss. The Montreal Cognitive Assessment Test (MoCA) assessed cognition. Primary care and SJH patient records were screened for diagnoses and hospital usage.
Results: 20 were assessed for physical frailty (range 40-71). Mean grip strength was 30kg (SD 9.4kg). Mean time for TUG was 16.61sec (SD 8.33sec). 33% of homeless individuals were deemed frail using the Fried Frailty Score versus <10% of age-matched controls. 12 completed the MoCA, mean age 58.3 (range 53-66); median score 14 (range 4-21), whereas age-matched controls had median 25. 31 residents of Sundial House were screened for multimorbidity and hospital usage. Average number of chronic conditions per person was 6.3 (± 3.5) (range 1 – 15). 27/31 residents had ≥2 mental and physical conditions. In 2016, mean number of ED attendances was 5/person; mean number of inpatient bed days was 30/person.
Conclusion: There exists significant correlation between frailty and premature aging in homeless individuals in addition to higher rates of dementia and comorbidities versus the general population.

59. The war on roses: An audit on flower and plant policies in 19 Dublin hospitals

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Aims and Objectives: The World Health Organisation defines human health as "the state of complete physical, mental and social well-being and not merely the absence of disease". This definition of health looks beyond traditional approaches to include the patient's surroundings, such as the natural elements, as potential means of optimising patient care and comfort. This study aims to discern the policies of 19 Dublin hospitals towards plants and flowers on-site, and to determine the underlying reasoning.
Methods: The policies of 19 Dublin hospitals were assessed using a pre-prepared questionnaire with defined outcomes. This involved either a physical meeting or a phone call to the relevant infection control nurses of each institution.

Results: Out of the 19 respondents, 12 (63%) allow fresh flowers in patients' rooms, 14 (74%) allow fresh flowers in offices, 10 (52%) allow potted plants in hospital, and 16 (84%) allow artificial plants in hospital. Reasons cited for banning flowers are as follows: 9/19 stated concerns of infection, allergy (3/19), perceived risk (5/19), workload (7/19), and lack of equipment (2/19).
Conclusion: The lack of a standard HSE policy is evident in the variability of responses, which are largely dependent on the patient setting. Despite the perceived risk of infection, there is insufficient data to establish causality, even in burns and oncology patients. Although dated, the evidence base currently does not justify implementing an umbrella ban and more studies are required to determine the impact and role of natural elements such as flowers in hospitals.

60. A clinical assessment of the effects of Orkambi ® (lumacaftor-ivacaftor) in patients with mild/moderate cystic fibrosis lung disease homozygous for the Phe508del mutation

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Aims and Objectives: Cystic fibrosis (CF) is a life-limiting disease with pulmonary manifestations. In June 2017 the CFTR-modifying drug Orkambi® was approved in Ireland for patients homozygous for the Phe508del mutation. 19 patients with severe lung disease have already commenced Orkambi® therapy in this centre as part of a managed patient access programme.
Methods: Clinical responses to Orkambi® in patients with mild/moderate cystic fibrosis were studied by comparing data from three time points: before commencing Orkambi® therapy**;** at 14 days and at 3 months. Outcomes of interest were pulmonary function tests (PFTs) and body mass index (BMI) and 3 patient reported outcome measures (PROM): CF Questionnaire–Revised (CFQ-R), 24-Hour Symptom Diary and Sino-Nasal Outcome Test-22 (SNOT-22).
Results: 21 patients were recruited and 13 provided data at Day 14. An improvement in quality of life in the "Respiratory" domain of the CFQ-R was seen with an absolute change of +6.1 points (Minimal Important Change (MIC) for this score is ±4 points). A reduction in symptoms was noted in the 24-Hour Symptom Diary with a mean change of -16.8 points (MIC ±17.8).
Conclusion: In contrast to patients with severe lung disease no patients required dose reduction or hospital admission due worsening respiratory symptoms. A trend towards improved quality of life was seen. Changes in FEV_1 were not significant. Changes in BMI and Exacerbations rates will require longer follow-up to detect. Blood and sputum were banked for sputum quantitative bacterial culture and plasma cytokine measurement to compare predictors of response to treatment.

61. Need for holistic health care

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Aims and Objectives: This study addressed the lack of support in other areas of health care for medical patients and a potential approach the health care sector can implement to remediate this. We previously uncovered a role for physicians to incorporate their care beyond the scope of the traditional clinic, and this manuscript builds on our prior study.
Methods: Three focus groups were held with fifteen patients, two of which included patients with chronic and terminal illnesses and family members and the other group contained doctors and health care workers. Content analyses were performed based on grounded theory. Additional information, dietary advice and emotional support were the domains identified as additional components of holistic care aside from medical treatment.
Results: Holistic care components involve treat the entire patients and their needs as opposed to diagnosing a medical case. Although the extent of additional care during medical consultation varied, the general consensus remained that physicians and the health care community must strive to make an attempt for dealing with these other components of health care which are left out. Participants also noted the concept of a dietary plan to compliment medical prescriptions as a viable option to improve holistic care in the future.
Conclusion: In this study, we show that both physicians and patients feel an urge to deal with other components of health care which are left out, such as diet. This study creates a paradigm for future studies and evolution of the traditional medical consultation and approach.

62. Retrospective audit examining potential predicting factors for non-attendance at follow up appointments in a pain management programme

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Aims and Objectives: This paper addresses patient withdrawal from the Ulysses Cognitive Behavioural Therapy, Pain Management Programme (CBT-PMP). Cognitive behavioural therapy has recently emerged as a first line treatment for chronic pain. This four-week therapeutic programme aims to improve the quality of life of patients suffering with chronic pain by tackling psychological, social and physical consequences of pain. On completion of the programme, patients are invited back for a two and six-month follow up. It was documented that 19.19% and 41.5% of patients do not attend their two and six-month follow up respectively. This paper aims to identify factors that predict non-attendance.
Methods: This is a retrospective audit examining all patients who partook in the programme from September 2014 – June 2016. The cohort consisted of 107 patients and no patients were excluded. Average PSEQ, PCS, Anxiety and Depression scores were calculated using the Excel function and combined in charts for analysis of potential impact on attendance rates.
Results: Results compare the average scores of those who attended their six- month follow up, versus those who did not. Anxiety and depression scores were higher in patients who did not attend and self- efficacy was marginally lower. However, catastrophizing proved to be the best predictor of non-attendance, with non-attenders presenting with catastrophizing scores 10% higher than those who attended.
Conclusion: This paper describes the different characteristics of patients who do not attend follow up appointments. Catastrophizing scores were statistically significant in predicting non-attendance. However more research is needed in the grounds of chronic pain management in order to improve patient perception of the disease and more efficient self-management.

63. Assessing the accuracy of the key parameters of aortic valve structure and function to detect severe aortic stenosis

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Aims and Objectives: Echocardiography is the gold standard for diagnosis and grading of severity of Aortic Stenosis (AS). The parameters that assess aortic valve structure and function are Aortic Valve Area (AVA), Mean Pressure Gradient (ΔPm), Maximum Jet velocity (Vmax) and Dimensionless Index (DI). Accurate assessment plays a crucial role in the decision to refer for Aortic Valve Replacement (AVR). Studies have highlighted inconsistencies between the parameters used to diagnose and grade aortic stenosis.
The aim of this study is to identify which ECHO parameter was most consistent with the clinical decision to refer for AVR and to assess the degree of variation in the grading of aortic stenosis based on each parameter.
Methods: A retrospective analysis of the ECHO reports performed prior to AVR, was conducted. AVA, ΔPm, Vmax and DI and Ejection Fraction (EF) were recorded for each patient. Aortic valve parameters were categorised into mild, moderate and severe and EF into normal (>50%) and reduced (<50%) based on guidelines.
Results: In patients whose primary indication for AVR was AS (N=110), 35.5% were female, with a mean age of 70.01 (±11.03) at the time of AVR. Stratified based on their EF, the proportion graded as severe for each parameter was as follows; Normal EF- Vmax= 73.5%, AVA= 89.9%, ΔPm= 67.9% and DI = 69.6%, Reduced EF- Vmax=63.0%, AVA=96.2%, ΔPm= 42.3% and DI=88.0%.
Conclusion: The parameter that was most consistent with clinical decision to refer for AVR was AVA for both normal and reduced EF. DI performed well in those with reduced EF.

64. Knee arthroscopy does not improve pain, disability and stiffness scores in patients with knee osteoarthritis: Data from the osteoarthritis initiative

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Aims and Objectives: We analysed data from the Osteoarthritis Initiative, a multi-centre, longitudinal, observational study of 4796 participants, to assess whether patients with knee osteoarthritis who underwent knee arthroscopy had better pain, disability and stiffness scores than similar patients who did not have a knee arthroscopy. We also assessed whether, within

the context of the Osteoarthritis Initiative (OAI), the annual number of knee arthroscopies has decreased over the nine years of study follow-up.
Methods: We analysed data from the OAI using independent samples T-tests to establish whether there was any significant difference in the Western Ontario and McMaster Osteoarthritis Index (WOMAC) between patients with knee osteoarthritis who had had arthroscopic surgery and those who had not. We then analysed the annual number of knee arthroscopies over the nine years of OAI follow-up.
Results: There is no significant difference in WOMAC pain, stiffness, disability and total scores between patients with knee osteoarthritis who had an arthroscopy and those who had not. The annual number of knee arthroscopies being carried out in the OAI has decreased over follow up in line with the majority of current clinical guidelines.
Conclusion: Knee arthroscopy is of no benefit in the treatment of knee osteoarthritis, and while the practice is decreasing in OAI centres, the literature suggests that it is common in other parts of the world. This illustrates a gap between research and clinical practice which must be addressed if we are to practice evidence based medicine.

65. Microanatomy of the thumb carpometacarpal (1CMC) joint

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Aims and Objectives: Osteoarthritis of the first carpometacarpal-(1CMC) joint is a degenerative joint disease affecting approximately 25% of women and 8% of men to some degree during their lifetime. 1CMC osteoarthritis can be debilitating and may require surgical intervention to restore at least partial joint function. Despite its obvious importance, there is relatively little research published on the 1CMC-joint and the progression of osteoarthritis in this joint. The objective of this research project was to develop an integrated set of methods to examine normal and diseased joint surfaces.
Methods: A 1CMC-joint was obtained from a donor-cadaver. The joint was dissected free and the joint capsule opened. The joint was photographed and 3D visual models were produced by photogrammetry. The bones were scanned by micro-CT. 3D-volume renderings depicting the articular surfaces were obtained. The articular surfaces were examined directly using eSEM and the same bones were then decalcified and processed for routine paraffin histology.
Results: The anatomy and microanatomy of the articular surfaces of the 1CMC-joint is described. The gross appearance of the surfaces is directly correlated with their appearance under low-magnification and by eSEM. This is compared with the appearance of the volume renderings from micro-CT. All of the surface inspection methods are correlated with the cartilage bone interface as seen in histological sections
Conclusion: These methods can be used to give a complete description of the articular surfaces of the 1CMC-joint and to relate this information to that obtained using clinically relevant CT data.
Funding source: WellcomeTrust.

66. Spatial variations in the arrangement of the facial nerve within the parotid gland and its relationship to the retromandibular vein, and the analysis of its clinical significance to the extra oral surgical approaches to the mandibular condyle

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Aims and objectives: It has been shown in many published reports that the facial nerve has considerable variation in its branching patterns. In addition to this, the facial nerve relationship with the retromandibular vein can vary, and this is of great surgical significance.
Method: Three facial halves were dissected and these dissections were of the parotid glands to assess the likelihood of facial nerve variation to the retromandibular vein. Extended pre auricular incisions were made, followed by identification of the one or more of the branches of the facial nerve. These branch/branches were followed in a retrograde fashion to expose the main trunk of the facial nerve. Subsequently the entire facial nerve branching pattern was delineated and the relationship to the retromandibular vein was noted.
Results: Of the 3 facial nerve dissections, all showed the Type II variant where the facial nerve or any of its branches lie deep to the retromandibular vein.
Conclusion: Within the parotid gland, the topographical arrangement of the facial nerve to the retromandibular vein cannot be assumed to be the normally described Type I relationship. These variations pose a risk of inadvertent facial nerve damage

during extra-oral mandibular condyle / mandibular osteotomy or parotidectomy surgical approaches which largely rely on the most commonly accepted Type I variant of facial nerve relationship to the retromandibular vein.

67. A cadaveric study of variation in the branching pattern of aortic arch vessels in an Irish population

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Aim: To investigate rates of variation in the branching pattern of Aortic Arch (AA) vessels in an Irish population.
Methods: A cadaveric study of 24 subjects was conducted. The vessels of the aortic arch were identified, their branching patterns noted and photographed and the following measurements recorded: Angle of the AA to the coronal plane, distance from the midline to the Brachiocephalic Trunk (BCT); Left Common Carotid Artery (LCCA); Right Subclavian Artery (RSCA); Left Subclavian Artery (LSCA), the distance between the BCT and LSCA; the RSCA and the Right Vertebral Artery (RVA), and between the LSCA and Left Vertebral Artery (LVA).
Results: The 'normal' branching pattern (BCT, LCCA, LSCA) was observed in 79%, while 21% expressed variation. Mean distances measured as follows: 9.05mm from the midline to the BCT, 10.76mm from the midline to the LCCA, 21.44mm from the midline to the LSCA, 34.09mm from the BCT to the RSCA, 39.79mm between the LSCA and the LVA and 23.38mm between the RSCA and RVA. The mean angle of the AA to the coronal plane was 59.02 º.
Conclusion: The anatomical variation expressed in the branching pattern of AA is of huge clinical (Fraser et al, 1988), radiological (Delrue et al, 2010; Krupinski et al, 2003) and surgical (Jakanani, 2010; Faggioli et al, 2007) significance, particularly in the diagnosis and treatment of head and neck pathologies and perhaps most vital in life threatening cases of stroke and aortic aneurysms. (Satyapal et al, 2003). A thorough understanding of these variations could vastly improve clinical outcomes for patients with these anatomical anomalies, but could also benefit manufacturers of surgical materials like stents and aortic grafts.

68. Factors associated with surgical site infection in patients undergoing infra-inguinal bypass

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Aims and Objectives: Postoperative complications of lower limb bypass surgery such as surgical site infection (SSI) result in significant patient morbidity. We aimed to identify potentially modifiable risk factors for wound complications to inform infection prevention programmes.
Methods: A retrospective review of 50 consecutive patients with lower limb bypass surgery.
Results: Of the 50 patients with a mean age 64.38 years (range 25-88 years), 34 had below-knee and 16 above knee bypasses with 26 (52%) synthetic grafts implanted. Forty-three patients (86%) had ischaemic heart disease, 15 (30%) had diabetes and ten (20%) a BMI ≥25 kg/m2. Indications for surgery included short distance claudication (n=16, 32%), critical limb ischaemia (n= 15, 30%) and tissue loss (n= 7, 34%). Of the 27 patients where information on surgical antibiotic prophylaxis (SAP) was available, all received SAP within 60 minutes before the incision with co-amoxiclav (19 patients, 40%) and cefuroxime (15 patients, 30%) the most commonly prescribed. The average pre-operative length of stay (LOS) was 4.9 days (range 0-21 days) and post-operative LOS 14.4 days (range 3-58 days). The most common post-operative complication was SSI (ten patients, 20%) followed by haematoma (n=6), seroma (n=5), and lymph leak (n=2). Female gender (p= 0.039), pre-operative length of stay (LOS) (p= 0.039) and post-operative LOS (p=0.022) were associated with SSI. Diabetes (p=0.05) and pre-operative gangrene or ulcers (p=0.939) were not associated with SSI.
Conclusion: Pre-operative LOS is a potential modifiable risk factor for SSI. As SSI was associated with increased LOS, preventative efforts should focus on optimising perioperative elements of the SSI bundle.

69. Transplantation in primary biliary cholangitis: An effective use of a valuable resource?

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Aims and Objectives: Primary biliary cholangitis (PBC) is chronic biliary disease characterized by immune-mediated destruction of the intra- and extra- hepatic small-sized bile ducts. Bile duct damage leads to cholestatic liver disease and eventually to liver cirrhosis and hepatic failure, often requiring transplantation. Liver transplantation is a life-saving therapy in patients with PBC and decompensated liver disease. The purpose of this study is to determine whether liver transplantation for patients with PBC is an effective use of a scarce resource. To do this we compared the survival of patients transplanted for PBC to those transplanted for other disease aetiologies.
Methods: The liver transplant database in St. Vincent's University Hospital was retrospectively reviewed. Patients transplanted for chronic liver disease between January 2006 and December 2016 were eligible for inclusion. Patients transplanted for hepatocellular carcinoma and cholangiocarcinoma were excluded from this analysis. Patient demographics, date of transplantation and date of death or last follow up were recorded for each patient. A Kaplan-Meier survival curve comparing the post-liver transplant survival of patients with PBC to other disease aetiologies was generated using SPSS. Survival difference between the groups was estimated by Breslow test. Basic demographics were compared using a Fisher's Exact Test and t-test in SPSS.
Results: There is a statistically significant difference between the ratio of male to female patients with PBC requiring transplant versus that of patients requiring transplant for other aetiologies (p=0.0001). Patients transplanted for PBC had a better mean survival when compared to patients transplanted for other disease aetiologies (130 months vs 109, p=0.017).
Conclusion: Survival following liver transplant compares favourably to patients transplanted for other disease aetiologies. It can be concluded that liver transplantation for PBC patients is a life-saving treatment option and an effective use of a scarce resource.

70. The use of magnetically-controlled growth rods (MCGR) and traditional growth rods (TGR) in a paediatric population

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Introduction: We conducted a single-centre retrospective study comparing magnetically controlled growth rods (MCGR) and traditional growth rods (TGR) in a paediatric scoliosis population. The purpose was to evaluate patient experiences and clinical outcomes in both cohorts.
Methods: The MCGR sample comprised patients who had undergone Magnetic Expansion Control (MAGEC) rod insertion from 2014 to 2016. We only included patients with an initial rod insertion age of 10 years and below, complying with the licensed use of MAGEC for early-onset scoliosis. The TGR group comprised patients who had undergone insertion of Vertical Expandable Prosthetic Titanium Rib (VEPTR), Shilla or Legacy growth rods between 2012 and 2013. We compared the cohorts by length of hospital stay, number of surgeries, number of outpatient attendances and surgical complication rates. We also analysed patient radiographs to determine spinal curve correction, which is done via measurements of pre and postoperative Cobb angles in thoracic regions. Cervical and lumbar angles were left out as not all patients experienced scoliosis in this region. We reviewed 34 patients, of whom 14 (41.2%) had MAGEC rods inserted, 4 (11.8%) were converted from TGR to MAGEC rods and 16 (47.1%) had TGR inserted. 20 (58.8%) of subjects in the study were male and 14 (41.2%) were female. Of our study sample, a significant proportion (44.1%) comprised children with complex medical needs.
Results: The mean number of open surgical procedures for the MAGEC rod cohort was 1.7, compared with 5.8 for the TGR group and 6.3 for those who converted from TGR to MAGEC rods. The average number of days spent in hospital was 15.9 for patients in the MAGEC rod cohort, 21.9 days for TGR group and 22.8 for the conversion group, which may reflect the complexity of the patients in this cohort. The frequency of postoperative complications reported in each patient is categorised into systems as follows:

Complications	TGR	MCGR	Conversion
Wound Infection	3	3	1
Respiratory (distress, pneumonia)	3	3	1
Rod related (breakage, failure)	5	1	2

6 (17.6%) MCGR and 5 (14.7%) TGR patients did not show any postoperative complications. On analysis of the thoracic Cobb angle measurements, the percentage reduction of the mean and median values are 57.9% and 57.9% for MCGR, 50.4% and 45.3% for TGR, and 35.9% and 31.3% for the conversion group.
Conclusions: Our study demonstrates that the use of MCGR in paediatric scoliosis patients reduces hospital stay and number of open surgical procedures. MCGR patients were less likely to develop postoperative complications and less likely to experience rod failure, demonstrating its potential to be an efficacious and patient friendly treatment for scoliosis in a paediatric population.

71. Predicting outcomes in acute exacerbation of chronic obstructive pulmonary disease: A review of the literature
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Aims and Objectives: Noninvasive ventilation (NIV) is a well-established treatment of choice in severe acute exacerbation of chronic obstructive pulmonary disease (AECOPD). Between persons with AECOPD, there are variable physiological parameters and clinical evaluation scores that influence the risk of NIV complications and failure. The aim of this research is to gain comprehensive understanding of all significant factors influencing NIV outcomes in AECOPD. Our objective is to inform healthcare providers and to improve clinical decision making.
Methods: A literature search was conducted using PubMed databases to identify articles published between 2007 and 2017. Articles were included if they evaluated predictors of success or failure of NIV. Exclusion criteria included publication before 2007, articles not in English, and/or unable to access. Syntax ("Noninvasive Ventilation"[Mesh]) AND "Pulmonary Disease, Chronic Obstructive"[Mesh] was used in the search.
Results: The search identified 248 articles. 74 articles were used after further exclusion of irrelevant articles. These included articles that predicted success of domiciliary NIV or extracorporeal lung support. The articles examined a range of outcomes along the continuum of care, including mortality, readmission, failure to withdraw, and need for invasive ventilation.
Conclusion: The most salient articles showed that an APACHE II scores <29, GCS <11, respiratory rate <30 breaths per minute, Kelly score <3, PaO2/FiO2 <200, Ph <7.31, CRP, blood glucose >7 mmol/L, IL-8 levels, cough strength, total protein, use of dedicated NIV medical teams, consolidation on x-ray, weak cough reflex, agitation and previous NIV are all useful in predicting NIV outcomes in AECOPD.

72. The road to consultancy: What it takes to get to the top
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Aims and Objectives: Medical and surgical training pathways in Ireland are changing. This study set out to determine demographics, training duration and research activities of the current cohort of consultants at University Hospital Galway (UHG) to determine goal posts for which doctors in higher specialty training (HST) should aim.
Methods: A single-centre study conducted by prospectively distributing questionnaires in an interview format. Data was collected and analysed using Excel.
Results: 110 of 166 consultants at UHG completed the questionnaire (66%). 70.9% were male. Psychiatry, Pathology, and Dermatology were the only specialties with female consultants in the majority. 91.8% were Irish. The specialties with the youngest age at appointment were Geriatrics, Dermatology, Immunology, and Radiology (mean age=34), with Surgery, Oncology, and Cardiology having the (mean age=37). 85.7% trained via a formal HST scheme. All consultants in Geriatrics and Dermatology completed higher degrees; as well as 91.0% of surgeons and 86.0% of cardiologists. 85.4% of consultants did not take a break in training. Of those who did, 85.0% were female. Duration of training varied greatly with Surgery, Cardiol-

ogy and Paediatrics consultants having the longest HST (mean=7 years). In Anaesthesia, Radiology, Cardiology, and Oncology all consultants completed a fellowship prior to appointment. 83% of surgeons completed fellowships. Fellowships were less common in Psychiatry, Pathology, Microbiology, and Immunology.
Conclusion: Great variation exists in training pathways. As training changes, establishing a guideline for medical students and doctors working towards consultancy in Ireland is imperative.

73. Managing anxious patients undergoing magnetic resonance imaging: Evidence versus common practice in Ireland
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Aims: To compare the current practices of managing anxious patients undergoing magnetic resonance imaging (MRI) in a selection of Irish tertiary and general hospitals with a reviewed international evidence base. Furthermore, to suggest implementation of best practices based on the literature, should they not be currently utilized in Irish hospitals.
Methods: A comprehensive literature review was conducted across several databases and compared with a survey of nine tertiary hospitals regarding their current protocols. Ethical advice was sought prior to completion of the survey.
Results: The literature base demonstrates benefits in utilizing non-pharmacological, and pharmacological methods (oral or intravenous sedation) in anxious patients undergoing an MRI procedure. However, no universally approved protocols have yet been established. Only three of the nine surveyed Irish hospitals had a protocol in place, and these were vague and open-ended. The remainder of surveyed hospitals referred anxious patients to their general practitioner for review prior to repeat scans.
Conclusion: We believe a universal protocol can be cost and time-effective but that further research is necessary. Based on the most recent evidence base, it appears that a step-wise approach, starting with non-pharmacological interventions, and then escalating to oral sedation, intravenous sedation and finally general anaesthetic if necessary, would be most appropriate. However, the diffuse nature and individual physician preference make the study and implementation of a protocol difficult.

74. Introduction of methoxyflurane into tertiary Irish emergency medicine practice
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Aims and Objectives: Document the introduction of the inhalational analgesic methoxyflurane (MOF) into Emergency Medicine (EM) practice at Cork University Hospital.
Primary objectives:

- Document the indications for which MOF was prescribed
- Record analgesic agents used in combination with MOF
- Assess the efficacy of MOF in the context of the above
- Use this information to inform practice

Methods: A retrospective cohort study of patients administered MOF from 9/12/2016 to 9/9/2017 was conducted. Sampling relied on EM staff recording medical record numbers (MRNs) and patient and staff perception of the efficacy of the drug on visual analogue scales (VAS).
Results: 325 units of MOF were used during this study. MRNs were recorded for 88 patients (27%). Among these, the majority of uses were for pain secondary to fractures (43.2%) and dislocations (22.7%). 4 additional traumatic and 7 non-traumatic indications were recorded. Abscess drainage was notable among these, with the majority of patients requiring no additional analgesia. 46 patients had VAS completed. Staff recorded a mean satisfaction of 7.72 (median 8), where patients recorded 8.07 (median 9). Patients received between 0 and 5 additional analgesics (mean 1.38, median 1). In 34% of cases, MOF was used as monotherapy, with 19.3% of cases using one other agent.
Conclusion: MOF is a potent analgesic agent in the EM setting which is being used effectively in the majority of cases as either mono or dual therapy. Most frequently used in the context of trauma, it demonstrates efficacy in acute pain of non-traumatic aetiology. Patients are generally more satisfied with MOF than staff.

75. Can triage nurses accurately predict admissions and discharges?

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Aims and Objectives: Admitted patients often wait in the Emergency Department for a bed. If it were known earlier which patients will require admission a bed could be booked earlier and the patient's length of stay in the Emergency Department could be reduced with a reduction in overcrowding. Triage is the first point of clinical assessment. This study aims to determine whether triage nurses can accurately predict which patients will be admitted and which will be discharged at the point of triage.
Methods: Triage nurses triaged patients in the usual way when patients arrived at the Emergency Department. In addition, they were asked to predict whether each patient would be admitted or discharged and how confident they were in their prediction. This data was recorded by the triage nurses on a specially designed questionnaire, which was not available to the treating doctors and nurses.
Result: During the study period a total of 895 forms were filled by the triage nurses representing 25% of attendances at the Emergency Department. There was a statistically significant association between triage nurses' prediction of patients' disposition and patients' ultimate disposition, $p < 0.0001$. Accuracy of prediction of discharge was 90% and accuracy of prediction of admission was 59%.
Conclusion: Triage nurses have a high accuracy (90%) of predicting discharges. They can predict which patient will be admitted with an accuracy of 59%. Patient flow in ED could be improved by requesting beds at the time of triage based on the triage nurses assessment.

76. An evaluation of the 4AT delirium screen tool use by emergency department (ED) staff in routine clinical practice

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Aims and Objectives: To evaluate the 4AT delirium screening tool in routine clinical practice as a screen for all Emergency Department (ED) attendees ≥70 years in Mercy University Hospital (MUH) ED. The objectives were to assess compliance with, and fidelity of the screening program, as well as the acceptability of 4AT screening to ED staff.
Methods: A prospective chart review of ED attendees ≥70 years in MUH ED yielded 130 patients meeting inclusion criteria. Data collected included: 4AT performance, 4AT result, gender, age, history of dementia or delirium, presenting complaint, and presence of accompanying relatives. Staff surveys were also conducted. An additional high-risk in-patient cohort (with dementia) was retrospectively analysed.
Results: In the prospective cohort, only 12.31%(±8.3% 95% CI) were screened with the 4AT; only half of these were fully completed. 37.7% were accompanied and 38.5% unaccompanied, with the remainder unspecified. Using logistic regression, patient variables did not influence screening performance. The ED staff survey (n=18) revealed 50% were happy with the screening process; 44% found ≥1 element of the screen difficult to score. ED staff were equivocal as to whether the screen was feasible in clinical practice. The retrospective high-risk in-patient cohort (n=16) had a better screen compliance, at 25%, however screen fidelity was comparable to the general cohort.
Conclusion: Overall, the 4AT screen had poor compliance, and fidelity was moderate in the attempted screens, only partly explained by some patients being unaccompanied. Staff attitudes towards 4AT screening were varied, underlining the need for local champions, training and support for any new clinical practice.

77. Dublin-wide paediatric emergency psychiatry: Paediatric consultation-liaison psychiatry presentations

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Aims and Objectives: Paediatric Consultation-Liaison Psychiatry (PCLP) provides care for patients with comorbid physical and mental health (MH) problems, psychosomatic illnesses and psychiatric presentations to the emergency department (ED). The project aimed to compare the type of ED presentations and interventions by PCLP between Temple Street Children's University Hospital (TSCUH), Our Lady's Children's Hospital, Crumlin (OLCHC) and The National Children's Hospital, Tallagh (NCHT) over a one-month period (November 2016).
Methods: Clinical data was retrieved from all case notes using a study specific questionnaire.
Results: There were 42 presentations, one patient presented twice. 12 of the 15 in NCHT presented with deliberate self-harm compared to 17 of the 32 presentations to TSCUH and 3 from OLCHC. Suicidal ideation was present in 16 of TSCUH presentations, 8 in OLCHC and 4 in NCHT. In all 3 hospitals, mood disorders were the most common Axis I diagnosis, 73% in TSCUH, 71% OLCHC and 100% in NCHT. Higher number of patients were admitted in NCHT (14) and OLCHC (9) compared to TSCUH (13), due to differences in teams and protocols.
Conclusion: Whether these operational differences are due to differences in resources, staffing or different cohorts of patients presenting warrants further research. Whether the higher numbers seen at TSCUH relate to awareness amongst local referrers regarding out of hours availability also merits further exploration.
Understanding the key factors that support children and families from a multidisciplinary perspective is crucial in planning provision for the new Paediatric Hospital, where these teams will merge and will require a standardized approach.

Conflicts of Interest
The authors declare that they have no conflict of interests.

Authors' Contributions
KB: Founded the 1st annual Student Medical Summit, served as a planning committee for the conference, negotiated sponsorship deals for the conference, invited speakers for the conference, assisted authors with their abstract submissions, drafted the conference abstract booklet, and gave final approval of the version to be published.
JH: Founded the 1st annual Student Medical Summit, served as a planning committee for the conference, organised the judging panel for the conference, invited speakers for the conference, assisted authors with their abstract submissions, drafted the conference abstract booklet, and gave final approval of the version to be published.
SK: Founded the 1st annual Student Medical Summit, served as a planning committee for the conference, negotiated sponsorship deals for the conference, invited speakers for the conference, organised the judging panel for the conference, and gave final approval of the version to be published.

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