Meeting abstracts from the 2021 UCD School of Medicine Summer Student Research Awards (SSRA 2021)

Wednesday, October 6th 2021

University College Dublin, Ireland
SSRA 2021 RESEARCH ABSTRACTS
COVID-19 has had a profound effect on our mental health services. In a short period of time, mental health services have had to re-configure to reduce the spread of SARS-CoV-2. This has resulted in the closure of day services, reduced in-person psychiatric support and social isolation, leaving some of society’s most vulnerable in crisis.

The purpose of this study is to identify any differences in the number and severity of emergency presentations to the Emergency Department (ED). The study is a retrospective review of the log of patients referred to the liaison psychiatry team at an Inner-City Dublin hospital from the ED or inpatients wards where self-harm was the reason for admission. Three timeframes were chosen between January and June 2020: a baseline group (T1), lockdown (T2) and re-opening of society (T3). Severity of presentation was measured using the Threshold Assessment Grid1. (TAG) and DUNDRUM readmission scales2. from the anonymised database (n=306). Data were analysed using the application SPSS.

Table 1: Comparison of patients referred for a psychiatry review in the Emergency Department during lockdown and following re-opening, with those prior to Covid-19

| T1 (n=210) | T2 (n=52) | T3 (n=42) | T1-T2 Mean difference | T1-T3 Mean difference |
|-----------|-----------|-----------|-----------------------|-----------------------|
| Age, mean (SD) | 35.9 (13.7) | 37.6 (13.0) | 43.2 (15.1) | -0.832* | -3.112* |
| Gender | | | | | |
| Female | 110 (52.4%) | 35 (64.8%) | 24 (57.1%) | 0.101 | 0.572 |
| Substance, n (%) | 113 (57.7%) | 35 (71.4%) | 32 (73.9%) | 3.110** | 7.003** |
| Self-harm | | | | | |
| N/A | 57 (26.9%) | 57 (26.9%) | 11 (25.6%) | 0.029 | 0.733 |
| Self-injury | 45 (108%) | 15 (60%) | 17 (40.5%) | 1.440 | 1.008 |
| Outcome - Admission, n (%) | 39 (19.9%) | 10 (26.8%) | 11 (26.8%) | 0.122 | 0.979 |
| TAG total score, mean (SD) | 8.81 (2.904) | 8.05 (2.915) | 8.32 (2.294) | 1.440 | 1.008 |
| T1 n=210, T2 n=52 | | | | | |
| T1-T3 Mean difference | | | | | |
| Outcome - Admission, n (%) | 39 (19.9%) | 10 (26.8%) | 11 (26.8%) | 0.122 | 0.979 |
| TAG total score, mean (SD) | 8.81 (2.904) | 8.05 (2.915) | 8.32 (2.294) | 1.440 | 1.008 |

There was a significant increase in self-harm presentations in T2 and T3 (T2 - 55.1% n=27 & T3 - 38.1% n=16) with the highest incidence during the first lockdown (T2). Psychiatric admissions rose during the pandemic, highest in T3 with an admission rate of 26.8% (n=11) compared to baseline (19.9%, n=39 T1, p value 0.733).

The results demonstrate the impact of the first few months of the COVID-19 pandemic on psychiatric services. Further research is required to fully understand the impact and the needs of this population.

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Over 425 million people are living with diabetes mellitus (DM) globally, Microvascular and macrovascular complications of DM include, but are not limited to, coronary artery disease (CAD), cerebrovascular disease (CVD), peripheral arterial disease (PAD), and kidney disease. We aimed to explore the incidence of these complications in adults with diabetes. Patients with DM(n=199) attending the Galway Diabetes Centre were enrolled between 2016-2017. Clinical data were collected from enrolment-July 2021 using electronic and paper medical records with average follow-up of 4.1±1.1years. Longitudinal laboratory data were collected from 2006-June 2021. Incident CAD, CVD, PAD, major adverse cardiovascular event (MACE), new requirement for renal replacement therapy (RRT), and mortality was recorded. Microsoft Excel was used for data collection and analysis. Estimated glomerular filtration rate (eGFR) slopes were calculated by linear mixed-effects models incorporating subject-specific random intercepts and slopes for time periods before and after enrolment.

Mean age was 61.1±16.5years and n=63(31.7%) were female. 45(22.6%) had type 1 DM, 146(73.4%) had type 2 DM and 8(4%)had another form of DM. Mean baseline eGFR was 71.7±32.3mL/min/1.73m² and median baseline uACR was 1.6[10.15]mg/mmol. 24(12.1%) developed CAD, 5(2.5%) developed CVD, 15(7.5%) developed PAD, and 20(10.1%) died during follow-up. 7(3.5%) patients started RRT. 40(20.1%) reached MACE endpoint. Annual decline in eGFR was -1.87mL/min/BSA/year pre-enrolment and -1.51mL/min/BSA/year post-enrolment. Incidence of cardiovascular disease and progressive renal functional decline is high in people with DM. Further analysis is planned to determine the predictive value of baseline concentrations of circulating biomarkers of inflammation for cardiovascular, renal, and mortality endpoints in this cohort.

Acknowledgement:
The author would like to acknowledge funding from a Health Research Board Summer Student Scholarship (SS-2021-086).
3. PROMOTING NURSE-LED BEHAVIOUR CHANGE TO PREVENT CARDIOVASCULAR DISEASE IN DISADVANTAGED COMMUNITIES: A SCOPING REVIEW

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Cardiovascular diseases (CVD) are the leading cause of death worldwide and they disproportionately affect people living in disadvantaged communities. Nurse-led behaviour change interventions have shown great promise in preventing CVD. However, knowledge regarding the nature and impact of such interventions in disadvantaged communities is limited. This review aimed to address this knowledge gap.

A six-stage scoping review framework developed by Arksey and O’Malley, with revisions by Levac et al., was used (1, 2). The search process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses - Extension for Scoping Reviews (PRISMA-ScR).

Thirty studies were included in the review. They investigated nurse-led behaviour change interventions to reduce overall CVD risk or to improve modifiable CVD risk factors (uncontrolled diabetes mellitus, hypertension, hypercholesterolemia, poor diet, lack of exercise, smoking and excessive alcohol consumption). The studies examined the efficacy and/or structure of these interventions and they also described barriers which nurses faced. Five key areas were identified in the promotion of nurse-led behaviour change. These are (i) tailoring interventions to specific populations (ii) overcoming access difficulties (iii) encouraging patient engagement (iv) providing adequate training for nurses and (v) addressing barriers faced by nurses.

Despite the considerable variety in these interventions, they collectively show great potential in disadvantaged communities. Specific barriers experienced by patients and nurses in these communities (e.g. lack of resources, poor health literacy) must be considered. Further research is needed to explore these barriers and to examine the role of nurses in leading brief opportunistic interventions.

Acknowledgement:
The author would like to acknowledge funding from the Health Research Board Summer Student Scholarship.

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1. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005;8(1):19-32.
2. Levac D, Colquhoun H, O’Brien KK. Scoping studies: advancing the methodology. Implementation science. 2010;5(1):1-9
5. AN INVESTIGATION INTO THE INFLUENCE OF EATING HABITS, SOCIAL DYNAMICS AND STRESS ON HELMINTH INFECTION STATUS IN HORSES

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Over the decades, misconceptions regarding the helminth infection status in horses has led to a widespread increase in anthelmintic resistance. The ‘80:20’ rule demonstrates that 80% of the parasitic worm burden in horses is maintained by only 20% of the equine population, yet many veterinarians continue to treat all horses systemically with a blanket approach to anthelmintics. Our objective was to evaluate the impact equine behaviour plays in determining which 20% of the equine population will shed 80% of parasites.

Ten retired horses from 'UCD herd' and twelve horses from 'Rescue herd' were analysed. Faecal egg counts were carried out over a period of four months to indicate the infection status of the horses. Stress was measured via faecal cortisol metabolite assay. Social dynamics and eating habits were measured by direct observation using random focal sampling and behavioural ethogram.

Amidst contrasting management conditions, both herds showed similar mean helminth infection status (429epgs per gram (epg) in 'Rescue herd' vs 427epg in 'UCD herd'). Dominant and subordinate horses in 'Rescue herd' exhibited a helminth infection status over double the 'middle of the herd' horses (629epg vs 229epg). Dominant animals showed decreased time grazing adjacent to faecal piles. 'Rescue herd' demonstrated decreased faecal cortisol levels compared to 'UCD herd' (Mean B%/BO of 66.39% vs mean B%/BO of 47.97% retrospectively).

These results indicate that hierarchy and feeding patterns may influence equine helminth infection status, and that cortisol levels are decreased in horses (66.39% vs mean B%/BO of 47.97% retrospectively).

6. ONLINE REFLECTIVE PRACTICE GROUPS FOR INTERDISCIPLINARY TRAINEES IN PAEDIATRIC HOSPITALS DURING COVID-19 PANDEMIC: WHAT’S THE EVIDENCE?

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In 2017, the report on the National Wellbeing of Doctors proposed that there are ever-increasing burnout rates. Reflective practice groups are used to explore a deep level of understanding of doctor-patient relationships, in order to combat burnout and increase satisfaction at work. This study aims to assess online reflective practice groups for interdisciplinary trainees in Paediatric hospitals during the Covid-19 pandemic.

The Balint group methodology was adapted for an online format. Trainees from psychiatry, emergency and paediatric specialties answered two online questionnaires before and after six sessions of Balint group meetings. There were nine responses to the pre-Balint questionnaire and eight responses to the post-Balint questionnaire. The data was analysed using Microsoft Excel.

75% of participants were from Crumlin Children’s Hospital. Most were women, aged 26-30 years and 3-11 years experience. Six participants preferred online groups while four preferred face to face groups after the sessions were completed. Trainees indicated that they thought about patient cases afterward and their teams were disrupted which may cause mild burnout due to the struggles faced. There was a positive relation between burnout reduction and Balint sessions. Additionally, the sessions were positively reviewed by the trainees and there were no sessions cancelled which may indicate the trainees appreciation for the group.

Reflective practice programs should be implemented for trainees in all institutions since there is a positive link between reducing the risk of burnout and reflective practice groups. It should be available for all specialties, not only psychiatry and general practice.

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2. Diskin C, Russell R, Barrett E. The introduction of reflective practice at Temple Street- an experience with a NCHD Balint Groups [PDF]. Irish Network of Healthcare Educators: Temple Street Children’s University Hospital; 2018.

Acknowledgement:
The author would like to acknowledge funding from the UCD squared programme with UC Davis from Zoetis.

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7. CHILD AND CARER PERSPECTIVES ON MENTAL HEALTH CARE IN A PAEDIATRIC HOSPITAL: YOUNG PERSON AND PARENTAL QUESTIONNAIRE COMPLETION

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Children are capable of reflecting critically upon the services they receive, making them competent consumers of mental health services. Examining children’s feedback gives direct insight into what is working well and where further improvement is needed in the way care is delivered. This pilot study aims to provide feedback to the mental health team about the experiences of patients at Children’s University Hospital, considering their impression of the environment and meeting the mental health team for the first time.
Ethical exemption was granted by the hospital ethical committee. After an initial literature review on child and carer feedback for paediatric consultation-liaison psychiatry services, a questionnaire with opt-in Likert scale and free text questions was given to 20 children/carers to be completed anonymously. Four questionnaire sets were returned to the mental health team over a four-week period. Questionnaire data were analyzed using Excel and qualitative analysis. Literature review findings reinforce the importance of child feedback for psychiatric services and support incorporating feedback in future practices. Participating patients were female adolescents (n=4) and their carers (n=4). Children were least satisfied with the physical environment of the hospital and most satisfied with the recreational activities offered and the extent to which the team listened to them. Children shared both positive and negative experiences and provided tangible feedback on the environment and care. Carers were satisfied with their own experience and their child’s experience. Child and carer feedback should continue to be collected to help improve the experience of patients at Children’s University Hospital.

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2. Hardavella G, Aamli-Gaagnat A, Saad N, Rousalova I, Srter KB. How to give and receive feedback effectively. Breathe (Sheff). 2017;13(4):327-33.

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8. IMPACT OF TOXOPLASMA GONDII SEROPOSITIVITY ON NATURAL BEHAVIOUR OF WILD FALLOW DEER (DAMA DAMA) IN PHOENIX PARK

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There is some evidence that Toxoplasma gondii which infects cats as final hosts, can modify the murine intermediate host’s behaviour by changing its innate fear to cat pheromone into a “fetal” attraction (“behavioural manipulation hypothesis” [1]). This is thought to increase the chance for the parasite to complete its life cycle. Other potential intermediate hosts might be affected similarly. This study aimed to investigate the effects this parasite could have on behaviour and physiology of wild fallow deer fawns.

A set of behavioural traits (anti-predator behaviour, temperament) and physiological data (heart rate) were systematically recorded from 80 fawns captured over the last fawning season (late May - early July 2021) in Phoenix Park. Blood samples for anti-T. gondii antibodies detection by ELISA were also collected. Considering that T. gondii transplacental transmission in deer has been reported to be high [2], we hypothesize that detected antibodies were mounted by fawns that were infected transplacentally, although we cannot exclude their derivation from colostrum of infected mothers (there is no transplacental transfer of antibody in deer).

Overall, 27 fawns were seropositive (33.75%). A comparison of seronegative and seropositive individuals (T-test) indicated interesting trends (though not statistically significant) of reduced aggression, bolder behaviour and lower heart rates when handled by humans, a greater latency to flee after release and a greater tendency to be recaptured. These preliminary results support the “behavioural manipulation hypothesis” in fallow deer and pave the way for a long-term study with a bigger population.

Acknowledgment:
The authors would like to acknowledge funding from the SSRA Summer student bursary provided by UCD School of Veterinary Medicine and all the other members in Dr. Ciuti’s research team for their friendly support.

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9. CHANGES IN PATTERNS OF EMERGENCY DEPARTMENT REFERRALS TO A LIAISON MENTAL HEALTH TEAM DURING COVID-19

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During the COVID-19 pandemic, research has shown a significant drop in mental health presentations, especially during the most restrictive phases, such as lockdown.1 However, as restrictions have begun to lessen, there has been a large uptick in the use of mental health services. Some researchers fear a “tsunami” of mental health needs which could potentially overload the healthcare system.2 The aim of this research project was to investigate mental health referrals of a pediatric cohort to the ED at CHI Temple Street from March 1 to April 29, 2021.

Data was audited and standardized via paper proformas. 22 variables were ultimately used, and upon completing data collection, the variables were exported to Microsoft Excel and then SPSS for analysis. Statistical methods such as frequencies, cross-tabs, and Chi-squares were used to generate data outputs. Results showed an 102% increase in total presentations to the ED from the previous year. Those that were admitted to the ED tended to generate data outputs. Statistical methods such as frequencies, cross-tabs, and Chi-squares were used to generate data outputs. Results showed an 102% increase in total presentations to the ED from the same time frame in 2020. There was a statistically significant relationship between suicidal ideation, certain methods of self-harm, and taking certain medications with acute ward admission. Out of 110 patients from which data was collected, only 28% were admitted to the acute ward.

The results show a significant rise in mental health presentations to the ED from the previous year. Those that were admitted to the ED tended to have more complex presentations than those who weren’t. There is a potential lack of alternative mental health services in the community that may be funneling patients to the ED, which could benefit from increased funding.
Acknowledgement:
The author would like to acknowledge CNS John Campbell and the rest of the team at CHI Temple Street, as well as Brigid Kemerer who conducted a similar study to this one last year. Without these individuals’ immense contributions, this project would not have been able to be completed.

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Presenting Author: Andrew Mahmood
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10. THE EXPERIENCES OF RADIOGRAPHERS IN THE REPUBLIC OF IRELAND DURING THE COVID-19 PANDEMIC
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Radiographic imaging procedures are necessary for the diagnosis and evaluation of many patients. During the Covid-19 pandemic, Diagnostic Radiographers as front-line workers have been in direct contact with infected patients. The aim of this study was to investigate and describe the experiences of radiographers working in the Republic of Ireland during the Covid-19 pandemic.

Clinical and academic radiographers across Ireland were invited to submit a reflection on their experiences during the pandemic in any form preferred to fully express themselves. All participants gave their explicit written consent to take part in this study and could optionally include their submissions in the UCD archives. The data was thematically analysed to identify and interpret the emerging themes. Three themes emerged following coding and organizing the data: 1) Importance of community and employer support: participants reflected they felt unsupported and unrecognised for their efforts. 2) Lifestyle and work changes: participants were personally and professionally affected facing changes in cultural practices, PPE issues, emotional strain, increased radiographic procedures, and online lectures. 3) Radiographer strength and motivation: in the data acquired it was evident that during the pandemic participants were resilient, and motivated.

The outcomes of this study are a useful resource revealing the deep insights of the experiences of radiographers working throughout Ireland during this unprecedented pandemic. These results will help determine and overcome the different challenges posed by the pandemic. In the longer term this study will preserve the accounts of radiographers for posterity.

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11. A STUDY INVESTIGATING EXPERIENCES OF RADIOGRAPHERS IN EUOPRE DURING THE COVID19 PANDEMIC
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Radiographers have been frontline health professionals throughout the COVID-19 pandemic. They are amongst the first line that may be dealing with infected persons and have gained invaluable experience in dealing with a pandemic.

Aims: To record and provide a contemporaneous account of the roles and experiences of radiographers during the pandemic for posterity.

Radiographers were contacted remotely and asked to submit their reflections of working as a radiographer during the COVID-19 pandemic. All members of the EFRS were invited to partake in our project both directly by our research team and via a memo that the EFRS sent to their member societies. Information relating to the project was widely circulated on twitter.

Reflections were welcome in any form. The information collected was deposited in the UCD archives. To date, two submissions have been received. Reflections were qualitatively analysed using the Braun & Clark six step method.

Themes generated from the reflections submitted included adaptability, pride and gratitude for the healthcare system, and togetherness. Clinical radiographers reported a sense of pride in their work as patients appreciated their presence. A sense of gratitude for being part of a “cherished” healthcare system was reported. Academic radiographers reported a sense of togetherness as students and professors alike adapted to the new challenges of online learning.

Although this research is still ongoing, preliminary indications are that the information obtained yielded an account of the experiences of the radiographer in Europe and the UK during the pandemic and will provide important material for students and future researchers.

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12. LONGITUDINAL STUDY OF MOOD DISORDER AND HEALTH-RELATED QUALITY OF LIFE IN CERVICAL DYSTONIA
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Dystonia is a movement disorder characterized by muscle contractions causing abnormal and repetitive movements and postures. Adult-onset idiopathic focal dystonia is the commonest form of dystonia. (1) The condition is treated with botulinum toxin injections. Mood related disorders, especially anxiety and depression, occur in 30-40% of patients. It is not fully understood whether the mood disorders are part of the primary condition, or whether they are secondary to having a visually obvious movement disorder. The aim of the study was to assess the prevalence of anxiety and depression in cervical dystonia patients and compare this with a similar assessment completed in 2019. (2)

50 cervical dystonia patients who had been previously assessed in 2018-2019 for mood disorders, pain and quality of life were revaluated. To assess dystonia severity and health-related quality of life (HRQoL) we used the revised Toronto Western Spasmodic Torticollis Rating Scale – 2 Pain (TWSTRS – 2 Pain) and the Cervical Dystonia Impact Profile – 58
(CDIP – 58) respectively. We used Beck’s Anxiety Inventory (BAI) and Beck’s Depression Inventory (BDI) as measures of anxiety and depression respectively. After assessing anxiety and depression in this patient cohort we will compare this with a similar assessment done 2 years ago. We expect that there will still be a significant percentage (30–40%) with anxiety and/or depression leading to marked reduction in HrQoL. We believe that mood disorder is a primary feature of this movement disorder and that a randomized control trial of antidepressant therapy could be considered to improve the HrQoL in this cohort.

Acknowledgement:
The author would like to acknowledge funding from the Health Research Board.

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13. CHARACTERISATION OF EXOSOMES FROM LYMPHANGIOLEIOMYOMATOSIS (LAM) PATIENTS

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Exosomes are a class of Extracellular Vesicles (EVs) released by fusion of Multivesicular Bodies (MVB) with the plasma membrane and defined by a diameter of 30-150nm. Their contents reflect the cell of origin and are involved in the transfer of information between cells. They have been shown to play key roles in disease progression and have diagnostic and disease monitoring potential. This study aims to characterise exosomes from the serum of patients with Lymphangioleiomyomatosis (LAM), a rare, low-grade, metastasizing neoplasm that occurs almost exclusively in females. Using serum samples from patients with LAM and healthy individuals as controls, exosomes were isolated via ultracentrifuge. The presence of exosomes was confirmed by western blot and Nanoparticle Tracking Analysis (NTA). The activity of metalloproteinases in exosomes was measured by zymography. A549 cells were treated with serum derived exosomes and the effects were analysed by western blot and zymography. LAM patients have significantly increased numbers of exosomes in their serum when compared to the controls (8.9x10^9 vs 13.8x10^9 particles/ml; p=0.024). Interestingly, these LAM-derived exosomes had significantly higher activity of Pro-MMP-9 (3-fold increase), but lower activity of MMP-9. Vimentin, a protein expressed in mesenchymal cells and a marker of epithelial-to-mesenchymal transition (EMT), showed higher expression in A549 cells treated with LAM-derived exosomes compared to control.

Findings indicate an exosome mediated EMT pathway in LAM. There is scarce information available on exosomes in LAM, and this exploration advances our knowledge of LAM and the role of exosomes in metastasising diseases.

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14. MISREPRESENTATION OF RACE IN THE PATHOLOGY CURRICULUM

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Hidden racism in medicine can have a serious effect on patient care due to its effect on research, teaching, etc. This hidden racism can be propagated through the teaching materials that are used in medical schools. These textbooks can incorrectly associate different racial groups with disease, citing socioeconomic factors as a reason rather than scientific evidence. The purpose of this study is to make a catalogue of false and true racial/ethnic disease associations from Robbins & Cotran: Pathologic Basis of Disease; and recommendations to present only valid race - disease associations, based on scientific evidence for their relevance to clinical decision-making and improved patient outcomes. The online version of Robbins & Cotran: Pathologic Basis of Disease (10th edition) was searched for racial terms. The statements that included racial terms were recorded and PubMed was searched to confirm whether there was a scientific basis to each of these statements. In Robbins & Cotran: Pathologic Basis of Disease, 131 statements were found to have racial terms with them. Of these 131 statements, 25 gave false racial/ethnic association, while 10 were partially based in false racial/ethnic association. There were other trends seen while searching through the textbook that were noted. From this study it can be concluded that work must be done to remove false racial/ethnic association from medical teaching texts. It also highlights the additional research that needs to be done for minority groups.

Reference:

1. Kumar, V., Abbas, A. K., Aster, J. C., & Perkins, J. A. (2018). Robbins basic pathology (Tenth edition.). Philadelphia: Elsevier.

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15. EVALUATION OF SPEECH AND MOTOR DEFICITS IN DUARTE-2 GALACTOSEMIA

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Duarte-2 galactosemia (DG) is a mild variant of classic galactosemia characterized by reduced galactose-1-phosphate uridylyltransferase (GALT) enzyme activity [1]. Despite not presenting with clinical symptoms, some patients are found to have a transient speech delay [1]. The purpose of this study is to examine the relationship between speech and motor abnormalities in Duarte galactosemia patients. This retrospective chart review focused on 26 DG patients whom were seen at the metabolic or genetic clinic at Boston Children’s Hospital.

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References:

1. Kumar, V., Abbas, A. K., Aster, J. C., & Perkins, J. A. (2018). Robbins basic pathology (Tenth edition.). Philadelphia: Elsevier.

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through July 2021. Chart data were analyzed for the presence of clinically defined speech and motor abnormalities. The relationship between these deficits were evaluated using McNemar’s Test. Additionally, GALT activities (micromol/hr/g Hb), erythrocyte galactose-1-phosphate levels (mg%), and galactitol levels (mmol/mol creatinine) were compared between those with and without a verbal delay using Mann-Whitney Tests. The patients had a median age of 13 years (6 - 48), 12 were females and 14 males. The proportion of patients with solely speech delays were 10/26, with solely motor abnormalities 4/26, and with both 5/26 (p NS McNemar’s Test). The laboratory values' median (range) of patients with and without the speech delay, respectively, were calculated: GALT activity 4.75 (2.55 – 6.32) and 4.47 (1.73 – 5.34) p NS; galactose-1-phosphate 3.74 (0.1 – 12.07) and 0.24 (0 – 0.64) p < 0.05; galactitol 83.5 (6 – 240) and 43.5 (0 – 167) p NS. The results show a significant increase in galactose-1-phosphate levels among DG patients with a speech anomaly. The relationship between these traits should be evaluated by a prospective study.

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Presenting Author: Margaret Hsiao
Supervisor: Dr Gerard T. Berry

16. ROBOTIC-ASSISTED LAPAROSCOPIC PYELOPLASTY: ST. MICHAEL’S HOSPITAL EXPERIENCE

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Ureteropelvic junction obstruction (UPIO) is a urologic condition that can cause flank pain, nephrolithiasis, recurrent urinary tract infections, and loss of ipsilateral renal function [1]. Robotic-assisted laparoscopic pyeloplasty (RAPyelo) has been demonstrated to have a 90-95% success rate in treating UPIO [2]. At present, there is no literature on the outcomes of RAPyelo in a Canadian context. Our objective was to perform a retrospective review of RAPyelo cases at a high-volume Canadian centre. We performed a retrospective chart review of all patients that underwent RAPyelo at St. Michael’s Hospital, between January 2012 and May 2019. Patients were excluded if inadequate follow-up data was available. Our primary outcome was treatment success defined as symptom improvement and one of the following: improvement in the degree of hydronephrosis on ultrasound or CT, improved/stable split renal function, and improved drainage time on renal Lasix scan. Secondary outcomes included post-operative complications, need for diagnostic re-investigation, and reintervention for recurrent UPJO. During our study timeframe, a total of 188 patients underwent RAPyelo and, after exclusions, our cohort consisted of 156 patients (66% female) with a median age of 42 (IQR 58-28). In terms of our primary outcome, 97% had improvement in symptoms and at least one other component of the primary outcome. Seventeen percent of cases required diagnostic investigation post-operatively, and 3% required reintervention for recurrent UPJO.

The results of our retrospective review compare favourably with currently reported outcomes in the literature [2] and demonstrate the safety and high level of success of RAPyelo at a high-volume Canadian centre.

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Presenting Author: Aren Mntazakian
Supervisor: Assoc Prof Michael Ordon
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Presenting Author: Charles Her Yi Ling
Supervisor: Dr Johanna Murray
Co-Supervisor: Prof Fiona Mc Nicholas

18. NEUROIMAGING FINDINGS IN INTERNET GAMING ADDICTION IN ADOLESCENCE: A SYSTEMATIC REVIEW
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Internet gaming addiction (IGA) is a growing concern among adolescents, exacerbated by recent COVID-19 restrictions. The World Health Organization has recently included IGA in the 11th International Classification of Diseases. However, the validity and reliability of the proposed criteria are subjects to controversy. Despite growing neurobiological evidence in IGA, most systematic reviews have focused on adults or mixed adult/adolescent populations. Therefore, this systematic review explored the neuroimaging literature in adolescents with IGA. Altogether, 2263 primary studies were identified from PubMed, CINAHL Plus, PsycINFO, and Web of Science. After applying inclusion and exclusion criteria (appropriate title, abstract, comparison group used within study, English-language, neuroimaging, and mean age under 18), 25 articles were included in this review.

Functional and structural brain alterations in IGA were noted across several imaging modalities, including electroencephalogram (EEG), functional magnetic resonance imaging (fMRI), and structural magnetic resonance imaging (MRI). Compared with healthy controls, adolescents with IGA demonstrated functional impairment in emotional regulation, reward-seeking, inattention and, inhibition control circuits, leading to increased risky decision making. Structural changes in gray and white matter were noted due to repetitive brain stimulation associated with visual, auditory, and spatial working memory. With regards to brain region processing self-concept, adolescents utilize the medial prefrontal region while having game character thoughts, compared to adults who utilize the left angular gyrus.

In conclusion, adolescents with IGA showed common neurological findings consistent with other behavioral addictions and psychiatric disorders. Future studies are needed for potential neuroimaging markers that apply to diagnosis and informing treatment.

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Presenting Author: Eu May Khor
Supervisor: Dr David Columb
Co-Supervisor: Prof Fiona Mc Nicholas

19. SPERM LOCALISED IN THE ISTMUS OF THE ALPACA FEMALE GENITAL TRACT DIRECTLY AFTER MATING
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The purpose of this study was to determine the location of deposition of sperm and their interactions within the genital tract of the female alpaca, as well as the identification of morphological and functional features to better understand their high fertility rates. For this purpose, samples of female alpacas (n=4, ethical approval: AREC-E-20-13-Koelle) 5 mins-24 hrs after mating were obtained from the whole genital tract (n=32) and stained with PAS, Alcian blue (pH 2.5), Masson’s Trichrome and H&E. Quantitative analysis was performed using ImageJ software.

Our results showed that the majority of sperm was found in the isthmus 5 mins after mating with 85% of the sperm being located in one oviduct. Most sperm were bound to the isthmic epithelium, with 10% found free in the lumens. 24 hrs after mating very few sperm were left. While there were high amounts of secretions in the whole genital tract before mating, secretory activity was strongly diminished after mating. Melanin was present in the uterine cells of all mated animals. Numerous lipid droplets were found in the epithelium of cervix and ampulla independently of mating. Our results imply that that during mating, sperm are directly deposited near the uterotubal junction and initiate rapid intercellular communication. Although mating is associated with lesions and bleeding in the female genital tract, alpacas are highly fertile. Thus, the investigation of the underlying mechanisms might contribute to novel concepts for treatment of infertility in both humans and animals.

Presenting Author: Lily Meikle
Supervisor: Prof Sabine Kölle

20. CAN PARENTAL FACTORS MODERATE THE OUTCOMES OF SEXUAL ABUSE PERPETRATED AGAINST PRE-SCHOOL CHILDREN? A SYSTEMATIC REVIEW
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References:
Approximately 10% of annual referrals to specialist Child Sexual Abuse (CSA) units in Ireland are for children aged 6 or under. Detection of abuse in this age range is difficult and a high level of under-reporting is likely. The deleterious effects of CSA are well documented in retrospective studies of adults. Difficulties with emotional regulation, internalising and externalising problems and sexualised behaviours are established outcomes of CSA in young children. However, the prevalence of these sequelae is highly variable. This review aims to assess whether the literature suggests that this variability may be accounted for by the security of child-care giver attachment or by other parental factors eg. maternal history of CSA (MCSA) or maternal mental health.

A search of six electronic databases (guided by PRISMA) generated 1287 citations. Six studies met inclusion criteria and consideration of their references and citations yielded a further three studies. Application of National Institutes of Health (2014) Quality Assessment Tool found most studies to be of moderate or high quality. Findings indicate that disorganised attachment is associated with CSA (particularly in boys), internalising problems, externalising problems and subsequent dissociation. MCSA was associated with internalising and externalising problems. Maternal distress was found to amplify internalising problems. Children whose parents felt supported and able to effectively support their children achieved higher levels of Social Competence which increased over time.

The need for interventions to promote security of attachment in high-risk dyads as well as the importance of supporting and empowering the main caregiver are underscored.

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Acknowledgement: The author would like to acknowledge the continued support from Dr Rachel Crowley and Assoc Prof Cormac McCarthy.

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1. Graf von der Schulenburg JM, Frank M. Rare is frequent and frequent is costly: rare diseases as a challenge for health care systems. The European Journal of Health Economics. 2015;16(2):113-8.

22. IS THERE VALUE IN PROVIDING A MUSIC THERAPY SERVICE TO CHILDREN AND ADOLESCENTS BEING TREATED FOR MENTAL HEALTH ILLNESS IN A PAEDIATRIC HOSPITAL SETTING: WHAT IS THE IMPACT FROM THE PATIENT OR FAMILY’S PERSPECTIVE?

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There are estimated to be 30 million people living with rare disease (RD) in Europe. In this study we assessed the visit and investigation burden for patients and the hospital, for those attending the rare lung and bone services at SVUH.

Data were extracted from electronic records. Summary statistics (Median with interquartile range) were analysed using GraphPad.

One hundred and one made 159 visits to the rare bone disease clinic between June 2020 and May 2021. The median distance travelled was 192 km (43-460) and cost of travel (AA estimates 2019) was €128.29 (€28.73-€307.37). Investigation visits were combined with clinic visits for 49.6%. The median number of visits to the rare lung disease clinic was 3 (2-4) by 79 patients between January 2019 and June 2021. The median distance travelled was 144 km (36-558) and cost of travel was €96.22 (€24.06-€372.86). Investigation visits were combined with clinic visits for 45.67% and 47 of the 79 (59.49%) had genetic testing sent abroad. The median number of visits to the interstitial lung disease clinics was 3 (2-4) by 514 patients between April 2019 and June 2021. The median distance travelled was 136 km (40-489) and median cost of travel was €90.88 (€26.73-€326.42).

The cost to the hospital and patient due to the complexity of care and time spent travelling and waiting at a busy hospital could lead to a loss of productivity, time, and resources for both patients and healthcare providers.

Presenting Author: Panikos Stelios Michaelides
Supervisor: Dr Rachel Crowley
Co-Supervisor: Assoc Prof Cormac McCarthy

Presenting Author: Alanna Macey
Supervisor: Dr Aoife Twohig
Clinicians have noticed a significant increase in cases of youth with an eating disorder (ED) presenting since the beginning of the COVID-19 lockdown, with younger cases attending and presenting with atypical features. The overall aim of the study is to explore the effect of COVID-19 on presentations to an eating disorder team in a child and adolescent mental health service (CAMHS) setting.

A retrospective chart review was completed of all initial multidisciplinary assessment notes of patients with ED referred to a CAMHS specialist ED service between 1st January 2018 and May 31st 2021. Data was compared over the study time periods pre-COVID and during-COVID.

When comparing the pre-COVID cohort to the during-COVID cohort, there was a greater proportion of autism spectrum disorder (ASD) and other ED diagnoses than anorexia nervosa (AN) in the during-COVID cohort. Mention was made of COVID having had a significant negative effect on the young person in 80% of cases presenting during COVID. The mean duration of weight loss was 7.4 months pre-COVID and 4.4 months during-COVID (P value: <.001).

The effects of lockdown restrictions during the pandemic have triggered EDs in some young people. Youth with EDs referred to specialist ED services during the COVID-19 pandemic exhibit a shorter duration of weight loss and are more likely to receive an ED diagnosis other than AN. Further research is required to better understand the effects of the COVID-19 pandemic on ED illness on a sample representative of youth with ED.

Presenting Author: Sally Campbell
Supervisor: Prof Fiona McNicholas

25. THEMATIC ANALYSIS OF THE IRISH PUBLIC’S OPINIONS ON ELECTRONIC HEALTH RECORDS AND DATA SECURITY

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This project drew on findings from the ‘National Public Engagement Survey on Health Information’[1] (NPES), conducted in 2020, which explored people’s views on the management of health information and use of digital technologies in Ireland. The aim of this project was to gain in-depth insight into the Irish public’s opinions on electronic health records (EHRs) and data security.

1,228 participants were interviewed by telephone for the NPES, which consisted of three scenarios exploring the collection, use and sharing of health information. Five open-ended questions were included, and 377 people provided responses to these questions that related to data security. A qualitative thematic analysis[2] was undertaken, focusing on EHRs and data security. Codes relating to points of interest were identified. Themes were developed based on relationships between these codes.

Four themes were identified from the qualitative analysis: ‘Attitudes towards a move to eHealth’; ‘Trust in relation to information security’; ‘Security measures to safeguard electronic health records’; and ‘Technical infrastructure to support electronic health records.’

The results show that people view EHRs as a positive advancement. However, reassurance surrounding security is essential. People perceive the need for a symbiotic relationship between security systems and the individuals that manage them; one is only as robust as the other. This survey was undertaken prior to the recent cyber-attack on our healthcare...
system, illustrating that data security is a key concern for the Irish public in relation to EHRs. These findings demonstrate that security, trust, and public engagement are integral to the adoption of EHRs.

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Presenting Author: Orla Barry
Supervisor: Dr Barbara Foley
Co-Supervisor: Dr Sarah-Jane Flaherty

26. VALIDATION OF A CASE DEFINITION TO IDENTIFY PATIENTS DIAGNOSED WITH CARDIOVASCULAR DISEASE IN CANADIAN PRIMARY CARE PRACTICES

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This study aims to create and validate an electronic medical record (EMR)-based case definition for cardiovascular disease (CVD). This will benefit research and disease surveillance.

Data from EMR of 255 primary care providers (PCP) participating in Manitoba Primary Care Research Network (MaPCReN) were extracted up to December 31, 2020. We created a reference standard using encounter notes and clinician diagnostic text fields from the EMR. This reference set was compared to a previously validated case definition that captured patients with an International Disease Classification (ICD) or Anatomical Therapeutic Chemical (ATC) codes that represents CVD and hypertension.

Within MaPCReN there were 142,427 adult patients that saw a primary care provider participating in MaPCReN between January 1, 2018 and December 31, 2020. When we tested the Manitoba Centre for Health Policy case definition against our reference standard, we obtained a sensitivity of 77.8%, specificity 96.2%, positive predictive value of 80.2%, negative predictive value of 95.7% and accuracy of 93.2%. When we applied the CVD/hypertension definition to MaPCReN, we obtained a lifetime prevalence rate of 30.2% (n=43,077). We found that patients with CVD were more likely to be male, have a BMI>=30 and have comorbid diagnosis of diabetes, chronic kidney disease, osteoarthritis.

With the developed validated case definition, we can determine the prevalence rate of CVD/hypertension. Next steps will be focused on creating and evaluating their performance computationally in simulated data sets of patients with mutations.

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Presenting Author: Aishling Kinsella
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27. COMBINATORIC METHOD FOR IDENTIFICATION OF GENETIC VARIANTS IN RARE DISEASE

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Next-generation sequencing provides rapid access to whole genome or exome DNA sequences of patients. However, these large quantities of data pose interpretive and analytical challenges. Namely, given that loci with rare and ultra-rare alleles are far more numerous than common alleles, it is unknown how much allele sharing should be expected to occur by chance and how much is suggestive of disease.

We present a model based on the famous statistical birthday problem to calculate the probability that sharing of rare variants among cases has occurred by chance, allowing variants to be prioritized for follow-up investigation. We derive single- and multi-gene versions of the model and evaluate their performance computationally in simulated data sets of patients with mutations.

A probability model was adapted to the rare variant problem, implemented in Python, and tested. On simulated data of 200 patients, irrespective of the variant frequency in the population, this model is able to identify variants enriched in only 2% of cases with power of 55%, and in 3% of cases with power of 92%, across 400 assayed loci. Given the assumptions of the model, it is shown to be useful for rare variants which are even modestly excessively shared by cases.

These models rapidly triage genetic data and improve on existing methods by operating without the need for control subjects or population allele frequencies, making them suitable for real-time, cumulative estimations of the evidence for causality of rare genetic variants in rare disease, including of newly detected de novo variants.

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1. Yohe S, Thyagarajan B. Review of Clinical Next-Generation Sequencing. Arch Pathol Lab Med. 2017;141(11):1544–1557.
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28. ANALYSIS OF INFLAMMASOME PROTEIN EXPRESSION IN HIDRADENITIS SUPPURATIVA PATIENT TISSUE

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Hidradenitis Suppurativa (HS) is a chronic inflammatory dermatological condition in which patients develop painful abscesses in intertriginous areas. It involves occlusion and rupture of the hair follicle, stimulating an immune response. Intracellular inflammasome proteins are thought to be part of this response and involve a two signal pathway with eventual Caspase-1 formation and subsequent IL-1β and IL-18 release. The aim of this research was to assess the expression of inflammasome proteins in HS tissue using immunostaining, including inflammasome receptors (NLRP3, NLRC4, AIM2, NLRP1), regulators (ASC, Nek-7) and effectors (Gasdermin-D, Caspase-1).

In order to optimise immunostaining, a THP-1 macrophage inflammasome assay was employed, including nigericin and monosodium urate crystals as positive controls. Activation was confirmed using IL-1β ELISA and LDH cytotoxicity assays. Subsequent trials for inflammasome proteins in healthy and HS blood were carried out using Western blot assays. 7 HS blood samples were obtained from St. Vincent’s University Hospital from which peripheral blood mononuclear cells were extracted, and compared to healthy volunteer cells.

Expression of AIM2, NLRP3, NLRC4, ASC, Caspase-1 and Gasdermin D inflammasome was detected in THP-1 macrophages. Expression of Caspase-1 and Gasdermin D was detected in both healthy and HS blood, with evidence of enhanced cleavage in some HS samples. This study highlights the potential link between HS pathogenesis and inflammasome activation. Further study of inflammasome protein expression in HS tissue is required to demonstrate their role in HS pathogenesis. In depth understanding of the pathogenesis can support research into targeted treatments for patients.

Acknowledgement:
The author would like to acknowledge funding from the Pathological Society of Great Britain and Ireland.

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2. Godfrey D, Koay H, McCluskey J, Gherardin N. The biology and functional importance of MAIT cells. Nature Immunology. 2019;20(9):1110-1128.

Presenting Author: Siobhán Boyle
Supervisor: Dr Cormac McCarthy
Co-Supervisor: Dr Andrew Hogan

30. INVESTIGATING MUCOSAL ASSOCIATED INVARIANT T (MAIT) CELLS IN LYMPHANGIOLEIOMYOMATOSIS (LAM) (MAIT) CELLS IN LYMPHANGIOLEIOMYOMATOSIS (LAM)

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Lymphangioleiomyomatosis (LAM) is a rare metastasising neoplasm that predominantly affects women of childbearing age. It involves abnormal proliferation of smooth muscle-like cells known as LAM cells, leading to cystic destruction of the lung parenchyma. Mucosal associated invariant T (MAIT) cells are a group of unconventional T lymphocytes which have been implicated in the pathogenesis of numerous diseases. The aim of this research was to investigate if MAIT cells are altered in LAM patients. Blood samples were obtained from a cohort of LAM patients (n = 10; 100% female) and healthy controls (n = 8; 100% female). The peripheral blood mononuclear cells (PBMC) were stained using monoclonal antibodies specific for CD3, CD161, CD8 and TCR Vα7.2. MAIT cell frequency and phenotype were examined using multi-colour intracellular flow cytometry. The Mann-Whitney test was used to compare the groups. There was no difference in the CD8+ lymphocyte population between the groups (p = 0.0065). There was also no difference in the CD8+ T cell population (p = 0.8112). MAIT cell frequency was reduced in the peripheral blood of LAM patients (p < 0.005). Additionally, the frequency of CD8+ MAIT cells was reduced in patients with LAM (p < 0.05).

MAIT cell frequency and the proportion of CD8+ positive MAIT cells are both reduced in the periphery of patients with LAM. Further studies are necessary to investigate the impact of LAM cells and the LAM tumour microenvironment on MAIT cell phenotypes, functional responses, and metabolism.

Acknowledgments:
The author would like to acknowledge funding from the Pathological Society of Great Britain and Ireland.

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1. O’Mahony A, Lynn E, Murphy D, Fabre A, McCarthy C. Lymphangioleiomyomatosis: a clinical review. Breathe. 2020;16(2):200007.
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Of 113 samples from the cross-sectional study, *Enterococcus* species were isolated from 31 (27.4%) and *E. coli* from 9 (7.9%). Four of 51 (7.8%) of hand samples were contaminated with these pathogens. Twenty-one isolates (28.8%) were multi-drug resistant. There was no change in cleanliness or microbial burden over 3 weeks. *Enterococci* and *E. coli* isolates with similar resistance patterns were recovered from the environment in the large and small animal hospitals and from a small number of patients. These results suggest that movement between the small and large animal hospital areas may be responsible for cross-contamination and possible hospital-acquired infections.

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Presenting Author: Ashokkumar Singaravelu
Supervisor: Assoc Prof Finola Leonard
Co-Supervisor: Bernadette Leggett

**31. MG53 HAS LIMITED EFFECT ON ACUTE LUNG INJURY IN PORCINE MODEL**

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MG53 is a TRIM-family protein associated with cell membrane repair. It has previously demonstrated efficacy in preservation and mitigation of cell death when administered intravenously after hemorrhagic shock[1]. Worldwide, Acute Lung Injury (ALI) is a frequent complication of trauma, occurring in about 30-50% of cases[2]. This study aimed to determine if IV administration of MG53 after trauma induced ALI would result in improved pulmonary function in an *in vivo* porcine model.

18 pigs were anesthetized and randomized to either control or 0.2 mg/kg IV MG53 treatment groups. Blunt percussion injury by captive bolt device simulated ALI. Hemorrhagic shock was induced through removing 35-50% of total blood volume. The pigs received limited resuscitation for 1 hour before a 20 hour full resuscitation. Averages ± SD and student’s t-test determined statistical significance.

There were no points of statistical significance in any of the pulmonary parameters recorded throughout the experiment. Both groups had a survival rate of 89% and there was no significant difference in fluid resuscitation needs. Wet/dry lung weight showed no significant difference in edema. While the experimental group’s secondary lung injury appeared smaller in gross histology, measured area didn’t achieve statistical significance.

This data suggests that MG53 does not improve pulmonary function when administered for ALI. With no difference in survival rate (89%), MG53 would likely not improve patient outcome after traumatic ALI. It should be noted that small sample size may have limited the statistical power and increased margin of error.

**Acknowledgement:**

*The author would like to acknowledge funding from the Hospital Saturday Fund*

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Presenting Author: Solveig Svendsen
Supervisor: Dr Gregory Beilman

**32. THE EFFECT OF TRANSVERSUS ABDOMINIS PLANE BLOCKS ON INTRAOPERATIVE OPIATE USE DURING PANCREATICODUODENECTOMY: AN EXPLORATORY REVIEW OF THE LITERATURE**

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The opioid abuse epidemic is one of the most consequential global public health issues. The leading cause of injury-related death in the United States is opioid overdose1. Prescription opioids are the primary impetus of opioid related deaths and hence a main contributor to the opioid epidemic1. A percentage of cancer resection surgery patients become opioid dependent following surgery such as pancreaticoduodenectomy. Major open abdominal surgery, complex laparoscopic and foregut surgical patients are some of the main consumers of opioids in the surgical patient2. TAP block analgesia has been found to be associated with reductions in opioid consumption and postoperative pain in these patients. This narrative review aims to outline current evidence surrounding preoperative TAP block and intraoperative opiate use during pancreaticoduodenectomy.

A widespread literature search strategy using relevant key words was developed based on Cochrane best practice recommendations. This strategy was applied to a comprehensive search of major electronic databases to identify relevant studies within certain specified criteria. Search results revealed that TAP block analgesia has been found to be effective in reducing opioid consumption in multiple abdominal procedures.

There is a paucity of evidence in relation to TAP block analgesia reducing opioid use in pancreaticoduodenectomy patients. This limited evidence found also did not include relevant techniques such as pancreaticoduodenectomy with a midline incision.

This exploratory review has outlined a gap in the literature regarding opioid consumption and other postoperative benefits following TAP block analgesia in pancreaticoduodenectomy patients. Given the potential advantages of TAP block analgesia, further research is warranted.

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Presenting Author: Carla Edgley
33. TRENDS IN BREAST CANCER INCIDENCE AMONG YOUNG WOMEN AGED 20-49 YEARS IN THE UNITED STATES BY RACE, STAGE AND HORMONE RECEPTOR STATUS
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Breast cancer is the most commonly diagnosed cancer among women in the United States. Young women are more likely to develop breast cancer with more aggressive biological features which contribute to poorer prognosis and survival rates compared with older women. Previously calculated age-adjusted breast cancer incidence rates have been corrected for the potential confounding effect of age. However, this type of estimate is still confounded by differences caused by period and cohort effects. We used data from the Surveillance, Epidemiology, and End Results Registries to evaluate the age and age-cohort adjusted incidence rates, incidence rate ratios, and annual percent changes (APC) among premenopausal stratified by race/ethnicity, hormone receptor status, tumour stage, and age at diagnosis.

We identified 222,424 young women diagnosed with primary invasive breast cancer from 1993-2017. Incidence trends remained stable before increasing 0.67% annually after 2010. Non-Hispanic Black women aged 20-29 had 49% higher age-standardized rate compared to non-Hispanic White women. The incidence rate for ER+/PR+ tumours increased (APC=2.39%, 95%CI: 2.20 to 2.58), while rates for ER−/PR− tumours decreased (APC=−0.70%, 95%CI: −1.09 to −0.32). The incidence rates for stage I (APC=0.31, 95%CI: 0.07 to 0.55), II (APC=0.99, 95%CI: 0.82 to 1.16), and IV tumours (APC=2.88, 95%CI: 2.37 to 3.39) increased. Both cohort and period effects impacted incidence, with cohort effect almost 10 times larger than period effect.

The differences recorded in tumour characteristics by age and race/ethnicity present opportunities for further research into specific breast cancer risk factors among younger women and possible targeted intervention strategies for at-risk groups.

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34. FAMILY BASED THERAPY: A MODIFIED APPROACH TO TREATMENT FOR CHILDHOOD OBESITY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) SURVIVORS
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Acute Lymphoblastic Leukaemia (ALL) is the most common paediatric cancer. Survivors of (ALL) undergo highly efficacious therapies, which have led to an overall five-year survival rate of approximately 90%. These life-saving treatments can have devastating effects on the long-term health of the patient: bone loss, cardiovascular disease, metabolic syndrome, etc. Moreover, these conditions are exacerbated by excess weight, which is concerning given the rates of obesity among ALL survivors are higher than the general population.

The proposed intervention is an adaptation of Family Based Treatment (FBT), a multicomponent approach to target behaviour change for children and their parents. FBT employs behavioural techniques and a traffic light plan to help families identify healthier options and affect changes in their lifestyle to help reduce the relative weight of all family members. We will enrol 30 families in which the child is a survivor of ALL, the ages of 6-18, and has a BMI percentile ≥ 85th for age and sex. The pilot adaptation of FBT will consist of 32 sessions: 8 psychoeducation-focused group sessions (separate for parents and children), and 16weekly individual family sessions.

Assessments will take place at the beginning of and following the intervention. To determine acceptability of the adapted intervention both children and caregivers will complete several feedback measures. To assess relative weight change, they will have their height and weight measured. Participants will perform 24-hour dietary recalls to assess dietary intake, and complete self-reported measures of physical activity.

This will be the first study to pilot an evidence- and guideline-based intervention adapted for childhood cancer survivors. Although there have been similar studies in the past, they were not tailored specifically for ALL survivors.

Presenting Author: Sabir Khan
Supervisor: Dr Denise Wilfley

35. SYNTHETIC LIPOXIN-A4 MIMETICS (SLXMs) AS THERAPEUTICS IN DIABETES-ASSOCIATED ATHEROSCLEROSIS (DAA)
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Increasing evidence supports the role of deficiencies in the resolution of inflammation [Rol] during the development of chronic inflammatory diseases, including diabetic complications[1]. Rol is dynamically regulated by the production of specialized pro-resolving mediators (SPMs), such as LipoxinA4 (LXA4). However, LXA4 is not stable in vivo by the production of specialized pro-resolving mediators (SPMs), such as LipoxinA4 (LXA4). Moreover, these conditions are exacerbated by excess weight, which is concerning given the rates of obesity among ALL survivors are higher than the general population.

The proposed intervention is an adaptation of Family Based Treatment (FBT), a multicomponent approach to target behaviour change for children and their parents. FBT employs behavioural techniques and a traffic light plan to help families identify healthier options and affect changes in their lifestyle to help reduce the relative weight of all family members. We will enrol 30 families in which the child is a survivor of ALL, the ages of 6-18, and has a BMI percentile ≥ 85th for age and sex. The pilot adaptation of FBT will consist of 32 sessions: 8 psychoeducation-focused group sessions (separate for parents and children), and 16weekly individual family sessions.

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This will be the first study to pilot an evidence- and guideline-based intervention adapted for childhood cancer survivors. Although there have been similar studies in the past, they were not tailored specifically for ALL survivors.
Female Genital Mutilation (FGM) causes harm to Irish children. However, legislation and guidelines are poorly understood by medical professionals, whilst enforcement remains challenging. FGM involves excision, clitorectomy, infibulation or any other action that damages the female genitalia for non-medical purposes [1]. The ceremonial procedure is increasing in Ireland due to the migration of individuals from FGM practicing countries [2]. The aim of this research was to (a) undertake a literature review of FGM legislation and guidelines in Ireland, (b) complete a comparative analysis of FGM in international law and (c) provide recommendations for legislative change in Ireland.

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1. Brennan EP, Mohan M, McClelland A, et al. Lipoxins Protect Against Inflammation in Diabetes-Associated Atherosclerosis. Diabetes. 2018;67(12):2657-2667.
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Acknowledgement:
The author would like to acknowledge funding from the Health Research Board.

36. FEMALE GENITAL MUTILATION: MEDICAL AND LEGISLATIVE INTERVENTIONS

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Female Genital Mutilation (FGM) causes harm to Irish children. However, legislation and guidelines are poorly understood by medical professionals, whilst enforcement remains challenging. FGM involves excision, clitorectomy, infibulation or any other action that damages the female genitalia for non-medical purposes [1]. The ceremonial procedure is increasing in Ireland due to the migration of individuals from FGM practicing countries [2]. The aim of this research was to (a) undertake a literature review of FGM legislation and guidelines in Ireland, (b) complete a comparative analysis of FGM in international law and (c) provide recommendations for legislative change in Ireland.

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1. World Health Organization. Eliminating female genital mutilation: An Interagency Statement. Geneva: World Health Organization; 2008.

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Endometrial cancer (EC) is the 6th most common cancer in women in Ireland and overall, the 15th most common cancer globally. Obesity is the greatest risk factor for EC, with as much as 50% of all cases of EC in Europe and the US attributable to excess body mass. Liraglutide is a GLP-1 agonist which is used as a weight-loss treatment for obesity.

The aim of our study was to examine the effects of liraglutide therapy on the development of endometrial cancer in the BDII/Han rat, a spontaneous model of EC. Forty 12 month old weight-matched female BDII/Han rats (were randomised 1:1 to either a control arm or an active arm involving daily administration of liraglutide (1mg/kg s.c.). Body weight, food intake and mortality were tracked over 12 week follow-up. At necropsy, uterine horns were examined for tumour and samples taken for histological classification and CDS immunohistochemistry review. The tumour incidence in the control group was 9/19 (47%) and 4/21 (19%) in the liraglutide group (p<0.05). Within the control group, 8/9 (89%) of tumours were Type-1 Endometrioid and the remaining 1/9 (11%) was Serous, Non-Endometrioid. Within the liraglutide group, 4/4 tumours (100%) were Serous, Non-Endometrioid type. Mean weight difference in the control group was 0% (SD: 3.96). Mean weight loss in the liraglutide group was 15% (SD: 7.15).

Our results suggest that Liraglutide may have a protective effect against the spontaneous development of EC in a BDII/Han rat model which may have significant implications for work on fertility preserving treatments.

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Presenting Author: Anna Isayeva

Supervisor: Prof Carel le Roux

Co-Supervisor: Assoc Prof Neil G. Docherty

38. MONITORING PURKINJE CELL DEVELOPMENT WITH DIFFUSION-WEIGHTED MR SPECTROSCOPY

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References:

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37. LIRAGLUTIDE TREATMENT DECREASES THE DEVELOPMENT OF SPONTANEOUS ENDOMETRIAL CANCER IN BDII/HAN RATS

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*Joint first authorship

Endometrial cancer (EC) is the 6th most common cancer in women in Ireland and overall, the 15th most common cancer globally. Obesity is the greatest risk factor for EC, with as much as 50% of all cases of EC in Europe and the US attributable to excess body mass. Liraglutide is a GLP-1 agonist which is used as a weight-loss treatment for obesity. The aim of our study was to examine the effects of liraglutide therapy on the development of endometrial cancer in the BDII/Han rat, a spontaneous model of EC. Forty 12 month old weight-matched female BDII/Han rats (were randomised 1:1 to either a control arm or an active arm involving daily administration of liraglutide (1mg/kg s.c.). Body weight, food intake and mortality were tracked over 12 week follow-up. At necropsy, uterine horns were examined for tumour and samples taken for histological classification and CDS immunohistochemistry review. The tumour incidence in the control group was 9/19 (47%) and 4/21 (19%) in the liraglutide group (p<0.05). Within the control group, 8/9 (89%) of tumours were Type-1 Endometrioid and the remaining 1/9 (11%) was Serous, Non-Endometrioid. Within the liraglutide group, 4/4 tumours (100%) were Serous, Non-Endometrioid type. Mean weight difference in the control group was 0% (SD: 3.96). Mean weight loss in the liraglutide group was 15% (SD: 7.15). Our results suggest that Liraglutide may have a protective effect against the spontaneous development of EC in a BDII/Han rat model which may have significant implications for work on fertility preserving treatments.

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1. Wellcome Centre for Integrative Imaging, University of Oxford, Oxford, United Kingdom

Acknowledgement:
The author would like to acknowledge funding from the Health Research Board.
Purkinje cells are large cerebellar output neurons with complex dendritic trees. They undergo rapid structural change in the first two years of human life, and the first 21 days of rodent life. Purkinje cells are important in motor and social control and are implicated in developmental disorders such as autism spectrum disorders. Diffusion-weighted MR spectroscopy (DW-MRS) is a method that can probe the diffusion of cell-specific metabolites and how it is impacted by cellular morphology, thus yielding a way of investigating cell structure in vivo. We used DW-MRS to investigate how Purkinje cell structure changes across development, starting in early life, to better understand cerebellar development. Six Sprague Dawley rats (4 females, 2 males) were longitudinally imaged with DW-MRS across five postnatal day (P) timepoints: P5, P10, P15, P20, and P30. After completion of data collection, we intend on extracting several parameters from the diffusion data which will be exploited with biophysical models to create a "synthetic cell" whose morphology can be analysed with a 3D Sholl analysis. Preliminary results show that N-acetylaspartate (NAA) concentration, a major neuronal marker, increases in both the cerebellum and thalamus across five timepoints through development, indicating neuronal development.

Here, we used DW-MRS to investigate the presence of neuronal markers, such as NAA, in regions of interest in the cerebellum and thalamus. After analysis of diffusion data, we predict an increase in branch order and segment length of our cerebellar synthetic cells which will represent the complexification of the Purkinje cell dendritic tree across development.

Acknowledgement:
The author would like to acknowledge funding from the Hospital Saturday Fund.

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Presenting Author: Lily Qiu
Supervisor: Dr Jason Lerch

39. EVALUATING AN ONLINE HEALTH PROMOTION PROGRAM FOR CANADIAN VETERANS AND THEIR FAMILIES
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2McGill University School of Medicine, McGill University, Montreal, QC, Canada
3Mission VAV, Old Montreal, QC, Canada

In 2021, Mission VAV implemented a 6-week wellness program called Mission Zen, created to help better the mental and physical well-being of Canadian Forces Veterans and their families. During the pandemic, the program was also made available to the public. Each participant registered online on the Mission VAV web-based platform, where they were assigned a health coach and completed baseline and final health assessments in the following categories: depression (CES-D), emotional stress (PSS), resilience (OBI), sleep quality (ISI), mastery, fatigue (MFI), and loneliness (TLS). Throughout the program participants tracked their daily activity levels, had access to educational resources for each health assessment category, and engaged with their teammates on the Mission VAV web-based platform. The primary outcome was the impact of the program on the mental health assessments. We analyzed the pre-post comparisons using the data collected at both the baseline and final health assessments. The health metrics across all health assessment categories showed improvement by a mean percent change range of 5-14%, from baseline to finish, including depression (CES-D) (5%), emotional stress (PSS) (14%), sleep quality (ISI) (4%), resilience (OBI) (5%), mastery (11%), fatigue (MFI) (5%), and loneliness (TLS) (5%). Ongoing follow-up will be required to evaluate the sustainability of the promising improved mental health metrics.

The short-term results of this study are promising and have resulted in a participant base with improved mental health across the several health metrics, although no clear inter-health assessment dose-response was observed between step count days and the improved health metrics.

Presenting Author: Zachary Tremblay
Supervisor: Dr Steven Grover

40. A RETROSPECTIVE STUDY COMPARING REPORTS OF PAIN AND SYMPTOMS BETWEEN PATIENTS AND THEIR FAMILY CAREGIVER RECEIVING PALLIATIVE CARE AT HOSPICE AFRICA UGANDA
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The trajectory of life limiting illness is associated with patient deterioration that can impact their ability to attend clinical appointments and result in caregiver representation by proxy. Existing research suggests differences exist between patient-reported and caregiver-reported aspects of pain and symptoms, but no study has taken place in a low- or middle-income country. The aim of this study was to compare reports of patients’ pain and symptoms from patients and caregivers. The study was a retrospective cross-sectional inquiry. Purposive sampling was used to select 100 case notes- 50 from patients and 50 from patient’s caregivers. Data was mined from Hospice Africa Uganda’s patient’s case notes. Data points on pain and symptoms were recorded and coded. Descriptive statistics and thematic analysis were utilized. Data analysis showed patients are more likely to give a more comprehensive account of their pain with 52% providing a description, location, and frequency of pain compared with 2% of caregivers. Caregivers performed better at reporting physical symptoms such as weakness or loss of appetite compared to psychological distress. 42% of caregivers gave no report on psychological concerns for patients and the majority failed to recognise drivers of psychological distress outside physical symptoms. This study has implications for the interpretation of caregiver consultations with potential deficits in identifying patients’ psychological distress and accurately describing pain presentations. The results confirm previous research suggesting caregivers perform better at recognising physical symptoms compared to psychological distress of patients. Further studies are required to assess any potential implications for patient care.

Acknowledgment:
This project was supported financially by University College Dublin School of Medicine.

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- Lobchuk MM, Degner LF. Patients with cancer and next-of-kin response comparability on physical and psychological symptom well-
Palliative care is a holistic and patient-centered process, meaning addressing suffering must involve the whole spectrum of care, encompassing physical, emotional, social and spiritual needs. Due to the varying nature of needs, it is vital the patients’ distresses and goals of care are identified. This allows the palliative care team to direct their priorities and align the care provided with what is important to the patient.

No study of the main distresses and goals of care had previously been carried out at Hospice Africa Uganda (HAU)\(^1\). This study was a retrospective cross-sectional inquiry, focusing on the distresses and goals of care of palliative care patients. Purposive sampling was used to select 50 case records of HAU patients. Data was mined from these case records operatively and only 3 patients (1.10%) received blood transfusion intra-operatively and only 3 patients (1.10%) were converted to sternotomy. 41 patients (15.07%) received blood transfusion intra-operatively and only 3 patients (1.10%) had acute renal failure. Mean gradient across valve (2.10 ± 1.10mmHg) was obtained post-operatively. Transesophageal echocardiography revealed systolic anterior motion (SAM) in 5.51% of cases (15/272) post-operatively. At follow-up at least one year post-operatively, 5 patients (3.01%) had severe regurgitation and 10 patients (6.02%) had moderate-to-severe regurgitation.

Minimally-invasive surgery (MIS) is a major clinical advancement that offers distinct advantages over conventional sternotomy (CS). However, the rate of successful valve repair and long-term durability of repair remain controversial. This study reviews the entire 15-year experience with MIS at Vancouver General Hospital (VGH) to identify potential factors associated with improved patient outcomes.

This was a retrospective single-center chart review of 272 patients with valvular heart disease (VHD) who underwent MIS at VGH between March 2006 and April 2021. Operative reports, discharge summaries, and consultations were reviewed to analyze peri-operative and short-term outcomes. Echocardiogram laboratories, cardiologists, and general practitioners were contacted to collect follow-up echocardiogram reports. Outcomes were measured using descriptive statistics.

Overall, a 98.89% successful repair rate (269/272) was obtained, with 1 peri-operative mortality (0.37%), 1 major wound infection (0.37%), and 0 cerebrovascular accidents. Only 2.94% of cases (8/272) were converted to sternotomy. 41 patients (15.07%) received blood transfusion intra-operatively and only 3 patients (1.10%) had acute renal failure. Mean gradient across valve (2.10 ± 1.10mmHg) was obtained post-operatively. Transesophageal echocardiography revealed systolic anterior motion (SAM) in 5.51% of cases (15/272) post-operatively. At follow-up at least one year post-operatively, 5 patients (3.01%) had severe regurgitation and 10 patients (6.02%) had moderate-to-severe regurgitation.

MIS offers adequate safety, efficacy, and long-term durability for patients with VHD. Peri-operative outcomes are comparable to those of midline sternotomy approaches, with a >95% successful repair rate, <1% risk of major complications, and <1% risk of mortality.

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Presenting Author: Anna Dowley
Supervisor: Dr Eddie Mwebesa

Acknowledgment:
The author would like to acknowledge funding from University College Dublin School of Medicine

Presenting Author: Darragh Devlin
Supervisor: Dr Dorothy Olet Adong
Co-Supervisor: Assoc Prof Patrick Felle

41. A DESCRIPTIVE STUDY OF THE MAIN DISTRESSES AND GOALS OF CARE OF PALLIATIVE CARE PATIENTS AT HOSPICE AFRICA UGANDA

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Recognizing the multi-disciplinary team when faced with patients at end of life.

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42. OUTCOMES FOLLOWING MINIMALLY-INVASIVE VALVE SURGERY: A RETROSPECTIVE SINGLE-CENTER CHART REVIEW TO DETERMINE SAFETY AND DURABILITY

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Minimally-invasive surgery (MIS) is a major clinical advancement that offers distinct advantages over conventional sternotomy (CS). However, the rate of successful valve repair and long-term durability of repair remain controversial. This study reviews the entire 15-year experience with MIS at Vancouver General Hospital (VGH) to identify potential factors associated with improved patient outcomes.

This was a retrospective single-center chart review of 272 patients with valvular heart disease (VHD) who underwent MIS at VGH between March 2006 and April 2021. Operative reports, discharge summaries, and consultations were reviewed to analyze peri-operative and short-term outcomes. Echocardiogram laboratories, cardiologists, and general practitioners were contacted to collect follow-up echocardiogram reports. Outcomes were measured using descriptive statistics.

Overall, a 98.89% successful repair rate (269/272) was obtained, with 1 peri-operative mortality (0.37%), 1 major wound infection (0.37%), and 0 cerebrovascular accidents. Only 2.94% of cases (8/272) were converted to sternotomy. 41 patients (15.07%) received blood transfusion intra-operatively and only 3 patients (1.10%) had acute renal failure. Mean gradient across valve (2.10 ± 1.10mmHg) was obtained post-operatively. Transesophageal echocardiography revealed systolic anterior motion (SAM) in 5.51% of cases (15/272) post-operatively. At follow-up at least one year post-operatively, 5 patients (3.01%) had severe regurgitation and 10 patients (6.02%) had moderate-to-severe regurgitation.

MIS offers adequate safety, efficacy, and long-term durability for patients with VHD. Peri-operative outcomes are comparable to those of midline sternotomy approaches, with a >95% successful repair rate, <1% risk of major complications, and <1% risk of mortality.
43. TARGETING MUTANT P53 FOR THE TREATMENT OF TRIPLE NEGATIVE BREAST CANCER: A PRE-CLINICAL STUDY

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Triple negative breast cancer (TNBC) refers to an invasive subset of breast cancer, that lacks oestrogen receptors (ER), progesterone receptors (PR) and lacks amplification of HER2 (1). Thus, these patients cannot be treated with a targeted therapy and have poorer outcomes compared to patients with other subforms of breast cancer.

p53 is the most frequently mutated gene in human cancer. Approximately 80% of patients with TNBC carry a p53 mutation. Recently, arsenic trioxide (ATO) was found to reactive mutant p53 and convert it back to its normal wild-type form (2). The aim of this research was to test if ATO might be a new treatment for TNBC. The ability of ATO to inhibit cell proliferation was determined using MTT assays while induction of apoptosis was measured using flow cytometry.

IC50 values for growth inhibition across 10 breast cancer cell lines ranged from 0.297-2.99 μM. Inhibition of proliferation was found to be independent of the cell line molecular subtype. No significant differences were found between IC50 values for TN vs non-TN cell lines (p=0.397) or between contact vs structural p53 mutants (p=0.481). For all cell lines investigated, ATO induced significant levels of apoptosis at a concentration of 5μM.

Although our data are preliminary, we conclude that ATO is a potential new therapy for the treatment of p53 mutated cancer, including triple negative breast cancer. Since ATO is already approved for the treatment of acute promyelocytic leukaemia (APL), it should be straightforward to repurpose it for TNBC.

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Co-Supervisor: Dr Shane O’Grady and Dr Minhong Tang

44. THE DESIGN OF AN “IRISH VETERINARY BEHAVIOUR COMMUNITY” YOUTUBE CHANNEL TO COMMUNICATE BEST PRACTICE APPROACHES TO COMMON ANIMAL TRAINING AND BEHAVIOUR QUERIES

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Research has demonstrated that Irish veterinary professionals lack confidence and/or agree with inappropriate advice on animal training and behaviour problems. Unfortunately, inappropriate behaviour advice may negatively affect animal welfare and contribute to the development of more serious behavioural issues. However, online tools, such as YouTube, could be harnessed to showcase “best practice” animal training approaches and provide “information prescriptions” to clients. This research aimed to create an “Irish Veterinary Behaviour Community” YouTube channel to demonstrate ethical approaches to pet training and behaviour challenges. The literature was consulted to identify the animal training queries most encountered by Irish veterinary professionals. The “Irish Veterinary Behaviour Community” YouTube channel was established, and a YouTube search was performed to source videos advising on these issues. Videos were assessed against predetermined inclusion criteria, including the use of ethical training methods, presence of positive emotions in animal(s), conciseness and simplicity, and the reliability of the creator. Selected videos were organised into two channel playlists; “Basic behaviour/training issues in cats” and “Basic behaviour/training issues in dogs.” Forty-nine videos were sourced (32 on dogs and 17 on cats). Twenty-five percent of canine videos (8 videos) and 23.5% of feline videos (4 videos) were selected for inclusion in the channel. The canine videos featured toilet training, unruly behaviour, unwanted/excessive vocalisation, and recall. The feline videos featured destructive behaviour and house soiling/spraying.

The “Irish Veterinary Behaviour Community” YouTube channel will now support veterinary professionals in improving animal behaviour. It may be further developed over time using feedback from its subscribers.

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45. THE ROLE OF FERM DOMAIN PROTEINS IN DIABETIC KIDNEY DISEASE

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FRMD3 encodes a FERM domain-containing protein. While little is known about the biological function of FRMD3 in the context of the kidney, polymorphisms in this gene have been identified in genomewide association studies as being associated with the development of diabetic kidney disease. Additionally, the expression of FRMD3 in renal biopsy material from patients with kidney disease has been studied and we have found that loss of FRMD3 expression correlates with tubulointerstitial fibrosis and disease severity, suggesting that FRMD3 may play a protective role in the kidney. TGF-β1 is a key driver of fibrosis, an important feature of diabetic kidney disease and many other chronic, unresolved inflammatory conditions. We wanted to determine if loss of FRMD3 enhanced fibrosis in a cell culture model of TGF-β1 induced fibrosis.

Human renal tubular epithelial cells (HK-2 cells) were transfected with siRNA against FRMD3 or a scrambled control, then treated with TGFβ or a vehicle control. The cells were lysed and RNA and protein were extracted for analysis by qPCR and Western blot. Successful FRMD3
knock-down was confirmed by qPCR. The expression of epithelial (E-cadherin) and mesenchymal markers (N-cadherin, CTGf) was determined by Western blotting and quantified by densitometry. TGF-β1 induced the expression of mesenchymal markers and reduced the expression of epithelial markers. Loss of FRMD3 amplified TGF-β1-induced N-cadherin, suggesting that of FRMD3 renders HK-2 cells more vulnerable to epithelial to mesenchymal transition and fibrosis. These results suggest that FRMD3 may be a novel therapeutic target for the treatment of renal fibrosis.

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Presenting Author: Isabel Dwyer
Supervisor: Dr Darrell Andrews

46. FRMD3 AND ITS ROLE AS A REGULATOR OF TGF-B1-INDUCED RENAL FIBROSIS
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Diabetic kidney disease (DKD) is a major health problem and the leading cause of End-Stage Renal Disease (ESRD) worldwide. 1 However, much remains unknown about the underlying genes and gene networks which may drive the progression of the disease. Work from our lab and others indicates loss of expression of the gene FRMD3 correlates with tubulointerstitial fibrosis and disease severity in human kidney biopsy’s. 2 This suggests that FRMD3 may play a protective role in the kidney however little is known about this gene. TGF-β1 and its downstream signalling pathways are key drivers of renal fibrosis. We hypothesise that FRMD3 may exert its protective role by modifying responses to TGF-β1 signalling. This study aimed to investigate FRMD3 in a cell culture model of renal fibrosis. FRMD3 was knocked down by targeted transfection using siRNA in renal proximal tubule cells (HK-2). Control cells were transfected with scrambled siRNA. Additional controls included wild type un-transfected cells. The cells were subsequently treated with TGF-β1 or vehicle [control] for 10, 30, 60 min or 24hrs. FRMD3 knock down was confirmed by qPCR and TGF-β1 canonical (CS) and non-canonical signalling (NCS) pathway protein markers were analysed by Western blotting. FRMD3 did not affect canonical Smad2 signalling while preliminary data indicates that FRMD3 knockdown may affect non-canonical pathways (ERK, AKT and p38) however further investigation is warranted. Further research into FRMD3 and its effect on NCS pathways downstream of TGF-β1 may aid the development of new therapeutic strategies for DKD.

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Presenting Author: Kate Ryan
Supervisor: Prof Catherine Godson
Co-Supervisor: Dr Darrell Andrews

47. COMPARING INFECTION MORBIDITY BETWEEN ADMINISTRATION OF CEFAZOLIN BEFORE SKIN INCISION AND AFTER UMBILICAL CORD CLAMPING DURING ELECTIVE CAESAREAN SECTION
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Caesarean section is a common surgical procedure used to safely deliver a baby through incisions in the abdomen and uterus [1]. It is acknowledged and widely accepted that administering antibiotics to women undergoing caesarean section helps prevent infection [2]. Cefazolin is deemed as an effective antibiotic in several clinical studies, when given as a prophylactic it substantially reduce the risk of infection, and its full benefit can be achieved with a single dosage [2]. The aim of this study was to assess the differences in maternal infectious morbidity when cefazolin is administered prior to skin incision versus after clamping the umbilical cord. Infectious morbidity includes febrile morbidity, surgical site infection, endometritis and urinary tract infection. 92 women who visited Krathumbaen Hospital for antenatal care at 37 weeks of pregnancy were enrolled and a prospective double-blinded randomised controlled trial was undertaken. The participants were randomly divided into two equal groups and guided to operating rooms after their caesarean section appointment, where a nurse anaesthetist assigned a time to administered Cefazolin, either prior to skin incision or after cord clamping.

Findings revealed that 9 (19.57 percent) of the participants experienced febrile morbidity when cefazolin was injected prior to skin incision, while 10 (21.74 percent) of the participants suffered from febrile morbidity when cefazolin was administered after clamping the umbilical cord. Neither group had any postoperative surgical site infection, endometritis or urinary tract infection. Following analysis, no substantial variance was achieved with a single dosage [2]. The aim of this study was to assess the differences in maternal infectious morbidity when cefazolin is administered prior to skin incision versus after clamping the umbilical cord. Infectious morbidity includes febrile morbidity, surgical site infection, endometritis and urinary tract infection. 92 women who visited Krathumbaen Hospital for antenatal care at 37 weeks of pregnancy were enrolled and a prospective double-blinded randomised controlled trial was undertaken. The participants were randomly divided into two equal groups and guided to operating rooms after their caesarean section appointment, where a nurse anaesthetist assigned a time to administered Cefazolin, either prior to skin incision or after cord clamping.

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Central obesity is strongly associated with type 2 diabetes mellitus (T2DM) mediated by peripheral insulin resistance and a chronic inflammatory state. Bariatric surgery for weight loss improves glycemic control in obese T2DM patients; however long-term remission rates are low. Our aim was to analyze baseline serum biomarkers that predict hemoglobin A1c (HbA1c) response to bariatric surgery.

This single-center retrospective cohort study evaluated clinical data at yearly intervals for up to five years on 147 patients with T2DM undergoing bariatric surgery from 2010-2020. Linear mixed models were used to assess the evolution of HbA1c over time and the effects of various baseline clinical and inflammatory marker variables.

The median follow-up time was 2 years (IQR: 1–4 years). At one-year follow-up, 63.2% (43/68) of those with preoperative HbA1c ≥7% achieved HbA1c normalization. The rate of log_{10}HbA1c decline was significantly greater in patients with baseline HbA1c ≥7% than in patients with HbA1c <7% (p=0.009). Furthermore, prior insulin therapy and increased preoperative log_{10}–neutrophil-to-lymphocyte ratios (NLR) were significantly associated with higher log_{10}HbA1c levels over the five-year period. In contrast, patients with baseline alanine aminotransferase (ALT) levels ≥25 U/L were more likely to have lower log_{10}HbA1c levels during follow-up compared to those with ALT ≤25 U/L (b=-0.03 [-0.04 – 0.00], p=0.048). Significant correlation was observed between log_{10}ALT and log_{10}HbA1c over time (r=0.31 [0.17–0.43], p<0.001).

Obese T2DM patients with higher baseline HbA1c levels experience a more rapid decline in HbA1c with bariatric surgery. Insulin-requiring T2DM and baseline NLR and ALT may affect HbA1c levels post-bariatric surgery.

### Table 1. Results from linear mixed model.

| Variable | Estimate | CI        | p value |
|----------|----------|-----------|---------|
| (Intercept) | 0.76    | 0.74 – 0.78        | <0.001* |
| Time      | -0.01   | -0.02 – 0.00       | 0.071   |
| Baseline HbA1c group | Reference |          |         |
| HbA1c ≤7% |         | Reference         |         |
| HbA1c ≥7% | 0.10    | 0.08 – 0.12        | <0.001* |
| Baseline log NLR | 0.05    | 0.01 – 0.09       | 0.026*  |
| Baseline insulin |         |         |         |
| No       | Reference |          |         |
| Yes      | 0.04    | 0.02 – 0.06        | <0.001* |
| Time*HbA1c group |         |         |         |
| HbA1c ≤7% |         | Reference         |         |
| HbA1c ≥7% | -0.02   | -0.04 – -0.01      | 0.009   |

*Statistically significant at p < 0.05.

Acknowledgment:
The author would like to acknowledge funding from The Hospital Saturday Fund.

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**50. ASSESSING THE IMPACT OF DIGITAL HEALTH ON TRANSFORMING HEALTHCARE SERVICES DURING COVID-19**

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COVID-19 has changed how healthcare will deliver services. Faced with a shortage of medical staff and appropriate infrastructure, health services face an enormous challenge in managing COVID-19 patients while continuing to care for patients with other pathologies. The development of robust health information systems and digital health solutions is essential in the provision of healthcare services across Ireland now and in the future (1). The purpose of this report is to collate information from articles, government publications and grey literature in order to assess the impact of digital health on transforming healthcare services during COVID-19 internationally and to compare these interventions to the Irish digital health experience.

A comprehensive search was undertaken using PubMed and Google Scholar (2019-present). The review covers three countries; Ireland, Scotland and Denmark. These countries were chosen as they have a similar population and demographics to Ireland. Health services and government agencies implemented digital health solutions in order to allow both routine care to continue and COVID-19 testing, tracing and treatment to be optimised. Digital health solutions include: electronic prescribing, electronic referrals, electronic health records, individual health identifiers, telemedicine and mobile applications. These innovations strengthened the Irish, Danish and Scottish response to the COVID-19 pandemic.

This study highlights the importance of robust digital health systems during a time of emergency. The COVID-19 pandemic acted as a catalyst for the rapid introduction of digital health solutions in Ireland. The high uptake of these technologies shows the appetite for such digital technologies in health systems across the globe.

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Presenting Author: Teresa O’Neill
Supervisor: Dr Louise McQuaid

51. THE PREVALENCE OF BOWEL MORBIDITY IN PATIENTS RECEIVING OPIOID TREATMENT FOR CHRONIC PAIN AT HOSPICE AFRICA UGANDA
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Bowel morbidity among patients undergoing opioid treatment has been widely examined throughout the literature. Its prevalence is demonstrated in many and varied settings. Opioid induced bowel dysfunction is characterised by diverse gastrointestinal symptoms, with opioid induced constipation being the most common symptom(1). However, there is limited research on the prevalence of this issue among African cohorts, as well as its prevalence in palliative care settings, such as Hospice Africa Uganda. Therefore, the purpose of this study was to explore the prevalence of this issue in an African palliative care setting, in order to extend current knowledge into this area.

In this cross-sectional study, random sampling was used to select 60 patients’ case notes from Hospice Africa Uganda’s database, with 27 patients receiving treatment with oral liquid morphine, and 33 being treated with non-opioid analgesics or no analgesia. Patient reports of constipation, nausea and vomiting, and abdominal pain were recorded.

Patient reports of constipation, nausea and vomiting, and abdominal pain.

|                      | Constipation | Nausea and Vomiting | Abdominal Pain |
|----------------------|--------------|---------------------|----------------|
| Opioid (27)          | 81.48%       | 22.22%              | 29.63%         |
| Non-opioid (33)      | 30.30%       | 12.12%              | 18.18%         |

The results were as shown in the table above. Statistical analysis showed that the prevalence of constipation was significantly higher in patients receiving opioid treatment than those not, with a p-value of <0.0001. Data for nausea and vomiting and abdominal pain did not meet the conditions for inference for performing hypothesis tests due to the low number of cases, however both were more prevalent in those receiving opioids in this study.

In conclusion, levels of bowel morbidity are significantly higher in patients being treated with opioids in Hospice Africa Uganda. Rates of constipation are particularly high, which is consistent with findings of other studies on opioid induced bowel dysfunction.

Acknowledgment:
Funding of €1000 received from UCD School of Medicine Dean’s Scholarship

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Presenting Author: Karl Moloney
Supervisor: Dr Eddie Mwebesa

52. A STUDY DESCRIBING THE CIRCUMSTANCES AROUND END OF LIFE OF PATIENTS RECEIVING PALLIATIVE CARE AT HOSPICE AFRICA UGANDA
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Knowledge of the circumstances around end of life is important for the delivery of quality palliative care. However, these circumstances had not previously been analysed in respect of patients at Hospice Africa Uganda. The aim of this retrospective cross-sectional study was to describe the circumstances around end of life of patients who received palliative care at Hospice Africa Uganda.

Random sampling was used to select patient case sheets and notes from bereavement counselling relating to 50 patients who reached end of life between July 2018 and June 2019 and whose families received bereavement counselling relating to 50 patients who reached end of life. The data abstraction tool was used to extract data points. The data obtained was analysed using descriptive statistics.

We found that 66% of referrals were solely for pain and symptom control. 86% of patients described the contribution of religion and spirituality to their situation in a positive light. 88% of patients stated that prayer helps. Pain control at end of life was achieved for 66% of patients. 60% of patients died in peace.

Our findings emphasise that pain and symptom control is key to the quality of life of patients receiving palliative care and provide evidence for the benefits of the holistic approach to palliative care provided by Hospice Africa Uganda. Our findings also demonstrate how the work of Hospice Africa Uganda concurs with the goal of palliative care as...
defined by the World Health Organisation, which is to improve quality of life for patients with life-threatening illness.

Acknowledgement:
The author would like to acknowledge funding from the School of Medicine at University College Dublin awarded via the Dean’s SSRA International Research Scholarship scheme.

Presenting Author: Thérèse McCann
Supervisor: Dr Laura O’Connor
Co-Supervisor: Assoc Prof Patrick Felle

53. COCKLES, VACCINES, BIOTERRORISM - THE TURBULENT DEVELOPMENT OF TYPHOID CONTROL IN 20TH CENTURY IRELAND (1900-1939)
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Typhoid is a bacterial infection caused by the gram-negative pathogen Salmonella enterica serovar Typhi. Historically, Typhoid fever plagued populations indiscriminately for centuries, but with the implementation of public health and sanitation measures at the turn of the 20th century, it is now only pervasive in low-income developing countries. Typhoid in Ireland is associated with overseas travel, but disease surveillance is essential to avoid the emergence of drug-resistant S. Typhi strains.

This project, in conjunction with UCD’s School of History, comprises of a series of blog posts exploring Ireland’s ongoing relationship with typhoid and public health, amongst the imperial and revolutionary politics of 20th century Dublin. Research into historical disease data, medical literature, and newspaper articles of the period will examine implementation of British bacteriology and sanitary infrastructure, and chronicle typhoid outbreaks throughout the 20th century, amidst an Ireland in upheaval and strife.

Targeted areas of study include an analysis of the ethics and results of the domestic typhoid vaccine rollout in an Irish asylum by immunologist Sir Almroth Edward Wright (1861-1947) and the 1920 ‘typhoid plot’, an intercepted letter detailing a bioterrorist attack by Irish rebels, infecting the milk supply of British troops with typhoid. The blog post series will also educate audiences on equitable access to sanitation and vaccines, through the international typhoidland exhibition.

Acknowledgements:
The author would like to acknowledge the mentorship, time and guidance given by Dr Claas Kirchhelle, UCD School of History.

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Presenting Author: Elaine Joy
Supervisor: Dr Claas Kirchhelle
55. DEVELOPMENT OF THE ‘ON FEIRM GROUND’ TRAINING PROGRAMME THROUGH CO-PRODUCTION METHODS
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The incidence of cardiovascular disease, cancers and mental health illness is higher among farmers than any other occupational group in Ireland. Farmers have long been considered to be a ‘hard-to-reach’ group for healthcare practitioners. Following an extensive consultation process the “On Feirm Ground” Training programme has been developed to equip agricultural advisors with the competencies to understand the factors that contribute to farmers’ health, to recognise a farmer in distress and to signpost farmers to appropriate healthcare services. Agricultural advisors are in a unique position to support farmers’ health and direct them to healthcare professionals as required. The pilot delivery of the programme, in June 2021, was delivered by the Men’s Development Network and the Men’s Health Institute at IT Carlow to a group of 24 agricultural advisors and private agricultural consultants.

Following the initial delivery of the programme, the 24 participants provided feedback on the programme’s content. Key findings of the co-production element of the programme include the resistance of advisors to take on the suggested role title of ‘health connector’. It highlighted a lack of understanding among health care professionals of the unique challenges and pressures of farming. Participants suggested that more could be done to ‘mind the minder’ by developing supports for advisors and consultants that come across a farmer in distress.

The findings from the co-production element of the programme development will provide guidance for changes to be made to the programme prior to mainstream delivery to ensure that it is fit for purpose.

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1. Hammersley C., Richardson N., Carroll P., McNamara J., Meredith D. ‘On Feirm Ground’: Interim Report Executive Summary. 2020.

Presenting Author: Laura McAteer

Supervisor: Dr Noel Richardson

56. INVESTIGATION OF THE EDUCATIONAL NEEDS OF PEOPLE WITH A NEW DIAGNOSIS OF CFTR-RELATED DISEASE
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The CFTR gene encodes the cystic fibrosis transmembrane conductance regulator (CFTR) protein. Malformation and/or dysregulation of this protein as a result of CFTR gene mutations can lead to a broad range of clinical consequences. Individuals who present with clinical concerns associated with CFTR dysfunction, but do not fulfill the diagnostic criteria for Cystic Fibrosis are identified as having CFTR-Related Disease. This condition is poorly understood by the general population due to its variable clinical presentation, late age of onset and quality of educational resources – limited in their number, content and readability. In an effort to address this knowledge gap this study investigated the educational needs of people with a new diagnosis of CFTR-Related Disease to develop patient-centered health educational material.

Semi-structured interviews were conducted with consenting CFTR-Related Disease patients referred to the Adult Query Cystic Fibrosis clinic at St. Michael’s Hospital in Toronto, Canada in the last 5 years. Quantitative analysis revealed four common themes at the time of diagnosis. These included an understanding of the implications for family members, normality of presentation in adulthood, risk of developing Cystic Fibrosis and expected quality of life. A proportion of patients also addressed concerns regarding the length of time it took to receive a referral to the Cystic Fibrosis clinic.

These findings substantially improved our ability to develop meaningful and accessible web-based and printed educational materials. It also reinforced the need to educate and strengthen communication with related specialties.

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Presenting Author: Olivia Goltsis

Supervisor: Dr Elizabeth Tullis

57. DETECTION AND QUANTIFICATION OF ALPHA GALATOSYLATED N-GLYCANS IN PORCINE NOTOCHORDAL CELL MATRIX AND IMPLANTABLE XENOGENIC COMMERCIAL PRODUCTS
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3CÚRAM, SFI Research Centre for Medical Devices, National University of Ireland, Galway, Ireland
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Porcine notochordal cell-rich nucleus poplosus matrix (NCM) is being developed as a regenerative biomaterial-based treatment for intervertebral disc (IVD) degeneration, a cause of low back pain [1]. Alpha galactose (α-Gal), a glycosylated epitope present in porcine tissue, is immunogenic for humans because they fail to express it due to the inactivation of enzyme α-1,3galactosyltransferase which is essential for the synthesis of α-Gal [2]. Biopharmaceuticals may need to minimise α-Gal content as severe allergic reactions/anaphylactic shocks have been reported in response to the epitope. This project aims to determine α-Gal content in porcine NCM, a component of prospective IVD regeneration devices.

N-glycans on glycoproteins from NCM and decellularised NCM (DGAL) were captured in gel-block, reduced and alkylated, digested by Peptide-N-Glycosidase F, labelled with 2-aminobenzamide, and analysed by hydrophilic interaction ultra-performance liquid chromatography (HILIC-UPLC) and liquid chromatography-mass spectrometry (LC-MS). Exoglycosidase coffee bean α-galactosidase (CBG) was used to identify N-glycans carrying α-gal epitope. Twenty-four replicates split between undigested and CBG-digested, NCM and DGAL were run on HILIC-UPLC and compared using multivariate statistical analyses with univariate post-hoc analysis. Chromatographic peaks digested with CBG were labelled. Digestion patterns of previously identified α-Gal glycans in these peaks were elucidated and consistently digested glycans were selected. These glycans were cross-compared with LC-MS data. The final list of α-Gal glycans confirmed by CBG-digest and LC-MS was created.
Due to the lack of standardised methodology within the field there is no current α-gal quantification performed on xenografts. HILIC-UPLC/MS method could potentially be used for this purpose.

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Presenting Author: Alizé Gourrege
Supervisor: Dr Radka Fahey Saldova

58. RECONSTRUCTION OF A LARGE-SCALE RAS-EFFECTOR SIGNALLING PATHWAY FOR APPLICATION TO COLON CANCER WITH A FOCUS ON CLASS-SPECIFIC PROTEINS

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RAS-proteins are a family of small GTP-binding proteins that regulate cytoplasmic signaling networks including cell growth, proliferation and differentiation. There are 4 human RAS proteins (KRAS4A, KRAS4B, NRAS and HRAS) encoded by 3 genes (KRAS, NRAS and HRAS). The RAS genes are amongst the most commonly mutated in human cancers, with KRAS and NRAS mutations bearing significant clinical implications in the development of colorectal carcinomas. However, despite decades of research, the underlying mechanisms of RAS-driven oncogenesis are still poorly understood. This research aimed at creating a virtual cell environment of RAS protein-protein interactions (PPIs) network using the software CellDesigner. The PPIs downstream of 43 RAS effectors (grouped into 12 classes) were collected from SignaLink and the subcellular localisation was obtained from the SysGo database. From these data, a compartmentalised model of a subnetwork of RAS protein interactions was created using Celldesigner. The final pathway displayed a significant portion of the proteins located in the cytoplasm and in the nucleus. The three hub proteins SNX27 (Golgi Apparatus), PKL3C2A (Nucleus) and MYO9B (Microfilaments of Actin), showed significantly more interactions than the rest of the dataset and were mainly involved in the regulation of extracellular and cell membrane proteins as well as proteins found within the microtubules, cilia and cell junctions. The modelling and understanding of the RAS signaling pathways remains the first step to undertake the development of targeted oncogenic therapy.

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59. IMPACT OF PATIENT AND FAMILY INVOLVEMENT IN CHILD HEALTH RESEARCH: A SCOPING REVIEW

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There is evidence in the adult health research context that patient involvement in health research - as authentic research partners - increases research quality, relevance, and applicability [1]. The objective of this study was to evaluate the impact of patient and family involvement in child health research on the research project, the research team, and patients and families. A Scoping Review study design was used. The search strategy and reporting of results followed the Arksey and O’Malley framework [2]. A research librarian assisted with the search strategy and the following databases were searched: MEDLINE, Embase, PsychINFO, CINAHL, and Web of Science. Inclusion and exclusion criteria were determined and a standardized data extraction form was developed. Of the 13,634 studies identified, 23 studies met the eligibility criteria. Patient engagement occurred through qualitative strategies employing focus groups, interviews, advisory meetings, and written feedback. These strategies were used to facilitate collaboration of young respondents and their families at various levels and at different stages of the research process. Meaningful involvement assisted in the development of study materials, recruitment strategies, data collection measures, and endowed the study with greater relevance. Involvement was demonstrated to improve relationships between researchers and respondents by enriching knowledge of the lived condition, cultivating important networks, facilitating communication, and optimizing the care experience. Patient and family involvement in child health research appears to enhance the quality and relevance of research. Empirical studies exploring the impact of patient and family involvement, however, are few in number and predominantly qualitative in design.

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Presenting Author: Manav Bhalla
Supervisor: Dr Colin Macarthur

60. RETROSPECTIVE ANALYSES OF TRANSCRANIAL MAGNETIC STIMULATION (TMS) OUTCOMES FOR REPETITIVE TMS (rTMS) VERSUS INTERMITTENT THETA BURST STIMULATION (iTBS)

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rTMS is a noninvasive form of brain stimulation to treat major depressive disorder (MDD) [1]. iTBS, delivered in a fraction of the time, has evidence as a non-inferior alternative for MDD treatment [2]. A recent study found that depressed veterans with trauma comorbidity had differential outcomes with iTBS compared to rTMS [1]. Our study examined iTBS versus rTMS outcomes in a community sample to help inform the placement of patients into the appropriate protocol.
Retrospective analyses of an outcomes database of adult TMS patients from 2017–2020 was done at the University of Minnesota’s Treatment Resistant Depression Clinic. Outcomes, defined as response and remission rates, were assessed using weekly administered patient self-reported Patient Health Questionnaires (PHQ-9). Chi-square tests were performed. A future study protocol is proposed to further clarify iTBS versus rTMS neurophysiologic differences.

There were no statistically significant differences in response rates (X² (1, N=91) = 0.004, p=0.952) or remission rates (X² (1, N=91) = 0.402, p=0.526) for MDD patients treated with rTMS versus iTBS. 42.9% of MDD + post-traumatic stress disorder (PTSD) (n=7) patients responded and 14.3% remitted. Among MDD patients (n=84), 39.3% responded and 16.7% remitted. Due to the small sample size, further analyses comparing protocols were not sufficiently powered.

In this community sample, iTBS versus rTMS non-inferiority was supported. This sample was insufficiently powered to replicate the differential findings in iTBS versus rTMS outcomes seen in veterans with trauma comorbidity [1].

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61. ARE PLASTIC SURGERY TRAINEES ACCURATE ASSESSORS OF THEIR OWN MICROSURGICAL SKILL?
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Microsurgery is a highly skillful component of Plastic and Reconstructive surgery with a steep learning curve. Due to COVID-19, reduced access to technical courses and hands-on theatre time has created significant challenges in microsurgical education. Trainees must therefore engage in self-education and be adept at accurate self-assessment to overcome this. The aim of this study was to assess the ability of trainees to self-assess technical performance while performing a simulated microvascular anastomosis.

Novice and intermediate Plastic surgery trainees were recruited. All participants performed a simulated microvascular anastomosis using a high fidelity chicken femoral vessel model. Each participant objectively rated their anastomosis using the Anastomosis Lapse Index (ALI) [1]. Each anastomosis was then blindly rated by two expert microsurgeons. Self-scores and expert scores were compared using a Wilcoxon-Signed Rank Test.

Thirteen surgical trainees completed the simulated procedure. Mean time to completion (TTC) was 22.2 minutes (range 14.2–31.9 minutes). Mean ALI self-score was 3.8 (range 3.5–5) while mean ALI expert score was 5.27 (range 4.5–6). There was a significant difference between ALI self-score and expert score (p=0.001) with expert assessors consistently assigning a higher ALI score to the same anastomosis. There was no significant difference between male and female trainees or between novice and intermediate trainees in relation to TTC or ALI self-score.

These findings suggest that while the ALI is an excellent training tool, surgical trainees tend to overestimate their technical performance. This emphasizes the importance of expert feedback to accurately self-assess progress in the early stages of training.

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Presenting Author: David Carolan
Supervisor: Assoc Prof Shirley Potter
63. ATTITUDES OF HEALTHCARE PROFESSIONALS TO DRAFT NATIONAL LEGISLATION ON ASSISTED HUMAN REPRODUCTION (AHR)

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Assisted human reproduction (AHR) is one of the most rapidly evolving specialties in medicine(1). AHR legislation is essential to protect the rights of those accessing and providing AHR services. Ireland is one of the only countries in the EU which lacks specific AHR legislation. The General Scheme of an AHR Bill was published in 2017 and reviewed by the Oireachtas Joint Committee on Health in 2018/2019(2). It awaits review by the Houses of the Oireachtas.

The aim of this study is to investigate the attitudes of relevant healthcare professionals (HCPs) towards the draft AHR Bill. A detailed questionnaire was developed based on all clinically relevant aspects of the draft Bill. This was distributed electronically. Ethics approval was obtained. To date 206 responses have been received and analysed. Over 90% of respondents feel that Ireland should establish a regulatory authority for AHR. More than 90% also support a wide range of AHR treatments including IVF, egg, sperm and embryo freezing, egg and sperm donation and pre-implantation genetic testing. A majority also support surrogacy, embryo research and new technologies. The majority support access to treatment for all, regardless of relationship status or chosen gender. Interestingly, a significant majority disagreed with some of the Bill’s proposals e.g. around surrogacy, age limits and posthumous conception. These findings support the argument that national legislation on AHR is both needed and desired by HCPs working in Ireland. It is hoped that the results of this study will help inform the proposed national AHR legislation as it nears completion.

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2. World Health Organization. Critically important antimicrobials for human medicine, 6th revision. Geneva: World Health Organization; 2019.

Presenting Author: Amy Giblin
Supervisor: Dr Ana Pereira do Vale

64. VALIDATING THE EFFICACY OF THE EX VIVO HUMAN PLACENTA PERFUSION MODEL IN PREDICTING THE PLACENTAL TRANSFER OF THERAPEUTIC DRUGS IN VIVO: A SYSTEMATIC REVIEW

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The degree of foetal exposure to maternally administered drugs remains an area of concern due to the potential effects on prenatal health and development. As such, the implementation of a pharmacokinetic tool in preclinical safety assessments of therapeutic drug administration is essential. Currently, ex vivo perfusion of a human placental lobule is the only experimental model that can accurately predict placental transfer of pharmacological agents. In this study, we aimed to further validate the efficacy of the perfusion model, thereby demonstrating its clinical utility. A search of databases MEDLINE, Embase and Embase Classic was performed to identify human placental perfusion studies from 2010 until May 2021. Citations were systematically reviewed for eligibility using Covidence, then relevant in vivo literature was searched for subsequent quantitative comparison. Linear regression was performed using GraphPad to determine the correlation between ex vivo and in vivo placental transfer data.

The database search returned 5066 citations, 47 of which were considered eligible for subsequent data extraction. Of the 47, four perfusion studies (investigating the transfer of three drugs – bupropion, elvitegravir, and dolutegravir) were included in the quantitative analysis. Following adjustment of perfusion transfer data using a pharmacokinetic model to consider maternal/foetal differences in plasma protein binding and pH, a strong correlation between ex vivo and in vivo data was observed (R²=0.7786, P<0.005). These findings demonstrate the high efficacy of the perfusion model in predicting the placental transfer of pharmacological agents and should be considered a valuable tool in preclinical assessment of pharmacological treatment in pregnancy.

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Presenting Author: Al-Elad Privorozky
Supervisor: Dr Janine Hutson

65. EARLY PREGNANCY LOSS IN IRELAND: A SCOPING REVIEW

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Early miscarriage, including ectopic pregnancy, molar pregnancy and first trimester miscarriage, is one of the most common complications of early pregnancy. Little research on early pregnancy loss has been
conducted in Ireland. This study aimed to summarise Irish research published since 2010, focusing on incidence or prevalence of early pregnancy loss, women’s experiences, and public awareness.

A scoping review was conducted. Of 1,042 records identified from database searches, 1,033 were excluded following title, abstract or full text screening, with nine studies included in a narrative synthesis. Administrative data on early pregnancy loss are not routinely collected or reported in Ireland. Rates for first trimester miscarriage hospitalisations (49.7 per 1,000 deliveries in 2016) and ectopic pregnancy hospitalisations (17.7 per 1,000 deliveries in 2016) do not capture women treated in outpatient or community settings, leading to an underestimate of the true incidence of these losses. Early pregnancy loss is a complex, emotionally distressing event, often compounded by a lack of appropriate hospital facilities and support services, along with disenfranchised grief and fertility concerns. Studies identified limited awareness and knowledge of early pregnancy loss among the general public in Ireland.

This review demonstrates the importance of capturing complete and accurate data on all types of pregnancy loss in Ireland, along with a need to raise public awareness on the incidence, causes and risk factors of early pregnancy loss. To identify, support and understand the care needs of women and couples who experience early pregnancy loss, they must be included in research as experts through their personal experiences.

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Presenting Author: Laura Murray
Supervisor: Dr Daniela Rohde

66. PROFILE OF A SAMPLE OF IRISH GENERAL PRACTICES: A BASELINE FOR CHRONIC DISEASE MANAGEMENT PROGRAMMES

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Structured Chronic Disease Management (CDM) in general practice is a cornerstone of the government’s Sláintecare programme (1). However, little is known about general practice preparedness to deliver such programmes.

200 general practices linked to UCD Academic General Practice were surveyed to evaluate CDM staffing, training, IT systems and access to CDM equipment and specialist services. Barriers to CDM implementation and future expansion of the programme were also explored. The data from the initial 50 responses was extracted using Google Forms and Excel. Statistical analysis was performed using SPSS v27. 49/50 practices joined the HSE CDM programme in 2020. Respondents included urban (n=18), rural (n=8) and mixed (n=23) practices from 19/26 counties. 32% are single-GP practices and 22% have >4 GPs. 96% have a practice nurse (42% part-time only). All use electronic patient records, but disease coding is variable. Practice nursing is central to the programme but both doctor and nurse recruitment (68%) and staffing costs (64%) are seen as barriers to implementation. Although many reported adequate facilities and equipment, infrastructure was seen as a potential future barrier to implementation. Access to specialist services were deemed inadequate across most services, except for retinal screening. Future programme expansion was supported to include obesity (87.8%), osteoporosis (80.8%) and mental health issues (68.7%).

Our study reports high levels of engagement with the CDM programme but identifies staffing, funding and access to specialist supports as key perceived barriers to the programme’s success. Future expansion include to other chronic illnesses is deemed important.

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Presenting Author: Bebhinn Twomey
Supervisor: Prof Gerard Bury

67. INVESTIGATING THE INVOLVEMENT OF ENDOPLASMIC RETICULUM (ER) STRESS IN THE COLLAPSE OF HAIR FOLLICLE IMMUNE PRIVILEGE

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Alopecia Areata (AA) is a non-scarring hair loss disorder characterized by immune privilege (IP) collapse in hair follicles (HF). Endoplasmic reticulum (ER) stress is an accumulation of misfolded proteins in the ER, which is resolved through the unfolded protein response (UPR). UPR is a feature of both normal cell physiology and, when altered, pathological responses. Abnormal ER stress levels have been implicated in several immune-mediated disorders; however, its role is unclear in the collapse of hair follicle IP in AA.

In this preliminary study, we established an ex vivo model of AA using interferon (IFN)-γ treatment of HFs isolated from healthy human scalp. The HFs were cultured with and without IFN-γ for up to 72 hours, sectioned using a cryostat, and major histocompatibility complex class-I (MHC-I) expression (a proxy for IP collapse) assessed by immunohistochemistry (IHC). Expression of ER stress markers, incl. 78 kDa glucose-regulated protein (GRP78) & C/EBP homologous protein (CHOP) were examined in the HF.

Incubation of HFs with 5U IFN-γ-induced MHC-I expression (i.e., IP collapse), thereby establishing the model. In the IP collapsed HFs GRP78 expression was decreased in the HF bulb region of IFN-γ-treated HFs (site of maximal cell proliferation and differentiation), whereas no significant difference was detected for CHOP expression.

In summary, this preliminary study suggests a possible role for ER stress-induced UPR in the maintenance of HF IP (and so optimal hair growth). While disruption of the UPR may contribute to IP collapse in AA, this will require a more detailed analysis.

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68. PREVALENCE OF MENTAL ILLNESS IN CHILDREN AND ADOLESCENTS IN THE REPUBLIC OF IRELAND

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Mental illness in young people is a growing concern, with an estimated 10-20% of adolescents suffering from mental illness worldwide. In Ireland, referrals to CAMHS (Child and Adolescent Mental Health Services) have increased by 26% in recent years. These services are already under-resourced leading to long waiting lists. The adverse psychological impact of Covid-19 has disproportionately affected youth and is likely to result in increased demand for CAMHS. Given these circumstances, an understanding of pre-Covid-19 prevalence of mental illness among youth in Ireland is imperative to help inform & plan services.

The aim of this research is to report on prevalence of mental illness in youth (aged 0-18) in Ireland.

A systematic review using pre-defined search terms in PubMed, PsycInfo, Embase and CINAHL was conducted. Studies included youth population health empirical studies conducted in Ireland, focusing on mental illness.

From a total of 624 papers identified, 43 papers were selected by Title/Abstract selection, and 38 following full paper review. 2 nationally representative studies (Growing Up in Ireland & My World Survey) identified 10-15% to be representative studies (Growing Up in Ireland & My World Survey) identified 10-15% to be ‘at risk’ by one-stage screening. A two-stage study (Challenging Times) reported rates of ‘any’ mental health disorder in 15% of adolescents, with other studies reporting on specific disorders. Although data on mental illness among Irish youth is limited, available data of illness and risk suggest rates similar to international levels. Attention needs to be given post Covid-19 to regular reliable data collection, and dedicated CAMHS funding to allow best use of a scarce resource.

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Supervisor: Dr Daniel Leahy
Co-Supervisor: Prof Fiona McNicholas
Additional Author: Dr Therese McDonnell
Additional Author: Dr Blanaid Gavin

69. AN EVALUATION OF THE PEERS TREATMENT PROGRAMME IN A GROUP OF YOUNG ADULT WOMEN WITH 22Q11.2DS

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PEERS© is a social skills intervention programme for neurodiverse young adults[1]. This pilot study aims to evaluate the effectiveness of PEERS in a group of young adults with 22q11.2 Deletion Syndrome (22q11.2ds). 22q11.2ds has a complex, varied phenotype, with a prevalence of 1/2,500. Individuals with 22q11.2ds tend to have difficulties with social skills which may result in peer rejection, social isolation and social anxiety, potentially exacerbating mental health difficulties[2].

6 young adult women aged 18-35 with 22q11.2ds and their mothers participated. Outcome was measured by comparing pre and post psychometric questionnaires assessing social skills, loneliness, and social anxiety. Focus groups were run at the end of the programme to gain qualitative feedback.

The programme was generally well received with self- and parental-reported benefits of increased social skills, empathy, social gatherings and decreased social anxiety, loneliness. All participants would recommend the programme to others. All participants improved in at least one protective factor (social skills and social get-togethers) with a resultant improvement in at least one of loneliness, social anxiety, and empathy. Limitations such as sample size and logistical difficulties including the stress of travelling and condensed programme delivery limits the generalisability of potential benefits. Participants’ perception was that PEERS may be more relevant to a younger age-group, however, the data demonstrates that older, higher-functioning participants benefitted more.

This pilot shows the PEERS programme may be beneficial in reducing social anxiety, loneliness and improving social skills and functioning in young adults with 22q11.2ds, however further study is needed in this area.

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Co-Supervisor: Prof Fiona McNicholas

70. A STUDY OF THE GENETIC RESPONSE TO METHOTREXATE TREATMENT IN RHEUMATOID ARTHRITIS

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This study aimed to investigate the genetic response to methotrexate treatment in rheumatoid arthritis (RA) patients. The study included 60 RA patients who were treated with methotrexate for at least 6 months.

The results showed that the genetic response to methotrexate treatment varied significantly among patients. The polymorphisms in the tumour necrosis factor-alpha (TNF-α) and interleukin-6 (IL-6) genes were found to be associated with the response to methotrexate treatment.

These findings may help in the identification of patients who are likely to respond well to methotrexate treatment, thus improving the management of RA.

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Rheumatoid arthritis synovial fibroblasts (RASFs) drive and perpetuate inflammation and destruction within synovial joints of patients with rheumatoid arthritis. Methotrexate is the treatment of choice for rheumatoid arthritis, however, methotrexate elicits no response in 30–40% of patients. Research by Sheridan, K. et al. analysed the genetic changes in RASFs that responded strongly/poorly to methotrexate and highlighted genes that may influence the response of RASFs to methotrexate. Our study investigated the impact of SDC1 and MKNK2 knockdown on the phenotypic nature of RASFs. Using siRNA technology, SDC1 and MKNK2 were knocked down separately in three different cell lines of RASFs. Optimal knockdown conditions were identified, and knockdown was confirmed with Western blot. The phenotypic influence of the knockdown in RASFs was investigated using Transwell invasion assays, BrdU proliferation assays and Caspase 3/7 apoptosis assays. Knockdown of MKNK2 resulted in a statistically significant increase in the invasiveness of RASFs. Knockdown of SDC1 resulted in an increase in invasion, however, the significance of this is undefined. No significant change was found in proliferation or apoptosis in siSDC1/siMKNK2-treated RASFs, indicating that the increase in invasion is due to mechanisms other than these. Our results indicate that MKNK2 offers a protective role against invasion of RASFs. Alongside unpublished data from Sheridan, K. et al. this suggests that methotrexate may be more effective on RASFs that are predisposed to invade more aggressively due to lower basal levels of MKNK2. Further research is needed to conclude the influence of SDC1 on the phenotypic nature of RASFs.

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Presenting Author: Lynne Pomeroy
Supervisor: Dr Kevin Sheridan

71. OCCUPATIONAL STRESS AMONG TEACHERS DURING THE COVID-19 PANDEMIC IN IRELAND

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The COVID-19 pandemic has changed education delivery methods, initially changing to online and then to in-person with COVID-19 safety precautions introduced. Teacher occupational stress is related to effects of work conditions on an individual’s emotions [1]. Teachers are found to be more stressed in changing work environments [1]. The purpose of this research was to identify themes present in free-text data collected through an online survey of primary, special primary and secondary level teachers through thematic analysis. The survey investigated teachers’ experiences of occupational stress and working during the COVID-19 pandemic. The codes and themes were developed to summarise and interpret results of the occupational stress survey. A semantic approach was used to interpret data from three free-text questions of the survey. Codes were determined from the data by the researchers and interpreted to develop themes that encompassed the responses. Codes and themes were individually formulated and then compared. After comparison, final codes and themes were determined. Approximately five themes were identified for each question. Most themes revealed pertained to intensity of work, factors affecting mental wellbeing, and COVID management. The themes described teachers’ opinions regarding burnout reduction in their occupation, how to better support teachers to reduce burnout and general experiences working during the COVID-19 pandemic. The themes were largely negative and critical of the teachers’ governing body. There were some positive responses regarding remote working. This indicates to the majority of teachers feeling undervalued and stressed, potentially loosing professionals in the education sector with a future educator shortage.

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Presenting Author: Aoife Begley
Supervisor: Dr Elisha Minihan

72. MENTAL HEALTH PROMOTION FOR ADOLESCENTS AND YOUNG ADULTS IN THE COMMUNITY: A SCOPING REVIEW ON THE ROLE OF SPORTING ORGANISATIONS

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Mental health is a topic that has gained increasing attention in recent years, particularly in the world of sport. Adolescents and young adults form a large proportion of those who participate in sport, and they also represent the age range within which many mental health problems tend to present. However, knowledge regarding the role that sporting organisations can play in terms of promoting these populations’ mental health is lacking. Thus, this study aimed to establish the role that sporting organisations can play in encouraging mental health and wellbeing in adolescents and young adults.

A scoping review was conducted using Arksey and O’Malley’s five-step framework [1] with revisions by Levac et al [2] to assess current literature on the topic. Major databases (PUBMED/MEDLINE, PsycINFO, SPORTDiscus, and the Cochrane Library) were searched using variations of the terms ‘mental health’, ‘promotion’, ‘sport’, ‘adolescent’, and ‘young adult’. Results revealed numerous common findings across the selected papers. Sports participation was linked to better mental wellbeing, while mental health literacy education and training for sports organisation members (parents, coaches, and peers) was shown to aid the promotion of youth mental health. The findings also highlight calls for further policy and guidelines for sports organisations in relation to mental health promotion. This study’s findings suggest that sporting organisations can play a vital role in supporting the mental health of young adults and adolescents. More in-depth and rigorous research is required in this area in future.
References:

1. Arksey H, O’Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005;8(1):19-32.
2. Levac D, Colquhoun H, O’Brien KK. Scoping studies: advancing the methodology. Implementation science. 2010;5(1):1-9.

Presenting Author: Lauren McCormack
Supervisor: John Broughan
Co-Supervisor: Prof Walter Cullen

73. USE OF TELEMEDICINE IN GENERAL PRACTICE IN EUROPE SINCE THE COVID-19 PANDEMIC: A SCOPING REVIEW OF PATIENT AND PRACTITIONER PERSPECTIVES

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Presenting Author: David Walley
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Co-Supervisor: Professor Walter Cullen

74. PREVALENCE OF LIMB GIRDLE MUSCULAR DYSTROPHY IN THE IRISH POPULATION

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Limbgirdle muscular dystrophies (LGMD) are a heterogeneous group of inherited, rare muscular disorders that affect skeletal muscle and present with progressive proximal muscle weakness due to loss of muscle fibers. LGMD can present at multiple stages throughout life and significantly overlap with congenital muscular dystrophies (CMD). Some subtypes of CMD are hypothesized to be over-represented in the Irish population, specifically merosin negative CMD. Despite this, there is no data on the prevalence of CMD in the Irish people. Furthermore, there have been rapid improvements in the genetic identification of multiple gene variants, leading to new molecular therapeutic strategies. The purpose of this research was to (a) describe the prevalence of LGMD in the Irish population and (b) describe the cohort of patients and the phenotypic changes observed. A retrospective chart audit of patients at the Central Remedial Clinic in Clontarf was completed. Sixteen charts were retrospectively analyzed, focusing on genetic mutations, diagnostic features, clinical observations, and organ systems.

Four different subtypes of CMD were subdivided based on the most recent LGMD classification system. [1] Genetic mutations were identified in 62% of patients (10 cases). The most frequent type of CMD was LGMD R23 LAMA2 (43.75%), followed by LMNA A/C (25%) and LGMD R22 COL6 (25%). Finally, one case (6.25%) of LGMD R4 B-sarcoglycan was present. 42% of LAMA2 cases were from consanguineous relationships in the Irish Traveller Community. This study aimed to provide current data on CMD observed in the Irish population focusing on genetic variations and phenotypic presentation.

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1. Straub V, Murphy A, Udd B; LGMD workshop study group. 229th ENMC international workshop: Limb girdle muscular dystrophies - Nomenclature and reformed classification Naarden, the Netherlands, 17-19 March 2017. Neuromuscul Disord. 2018 Aug;28(8):702-710. doi: 10.1016/j.nmd.2018.05.007. Epub 2018 May 24. PMID: 30055862

Presenting Author: Meredith Norton
Supervisor: Dr Declan O’Rourke

75. THE RELATIONSHIP BETWEEN MATERNAL BODY COMPOSITION IN EARLY PREGNANCY AND INFANT BODY COMPOSITION

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2Department of Nutrition and Dietetics, The Mater Misericordiae University Hospital, Dublin, Ireland

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1. Brant H, Atherton H, Ziebland S, McKinstry B, Campbell JL, Salisbury C. Using alternatives to face-to-face consultations: a survey of prevalence and attitudes in general practice. British Journal of General Practice. 2016;66(648):e460-e6.
2. Arksey H, O’Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005;8(1):19-32.
This study examined the relationship between maternal body composition in early pregnancy and infant body composition at birth and at four months. Women were recruited in their first trimester. Weight and body composition were measured using advanced bio-electrical impedance analysis. Routine clinical details were recorded. Infant body composition was measured within three days of delivery and again at 4 months post-partum using a PEA POD® analyser.

Of the women in this study (n=113), the mean age was 30.3±5.4 years, mean BMI was 26.8±5.9 kg/m² and 44.6% of women were nulliparous (n=50/112). Mean birthweight was 3.4±0.6kg. Maternal BMI was associated with neonatal body fat percentage and absolute fat mass at birth (Beta 0.19, SE 0.07, P = 0.007; Beta 0.007, SE 0.003, P = 0.01). Similarly, maternal body fat percentage was associated with neonatal body fat percentage and absolute fat mass at birth (Beta 0.005, SE 0.002, P = 0.03). These relationships did not persist when repeated with infant body fat percentage and absolute fat mass measurements at four months (P>0.05).

This study found that while there was a relationship between maternal body composition in early pregnancy and infant body composition at birth, this relationship did not persist in the early stages of infancy. Future studies are needed to investigate what lasting influence, if any, maternal body composition has on infant body composition.

Presenting Author: Victoria Grafin von Matuschka
Supervisor: Dr Rachel Kennedy

76. SYSTEMATIC ASSESSMENT OF THE EVIDENCE FOR MEDICAL CANNABIS PRESCRIPTION
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1UCD School of Medicine, University College Dublin, Belfield, Dublin 4, Ireland
2Department of Family and Community Medicine, University of Toronto, Toronto, Canada
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7DFCM, St. Michael’s Hospital, Toronto, Canada

Medical cannabis became legal in Canada in April 2014, through the ‘Marijuana for Medical Purposes’ regulations, and later recreationally in 2018. Since then, there has been a proliferation of physicians prescribing cannabis and public consumption to derive health benefits. Providers are advertising the effectiveness of cannabis that, to our knowledge, is not supported by high-quality evidence.

Internet searches were completed to establish a comprehensive list of all Ontario cannabis clinics. These websites were analyzed to see whether they met the inclusion criteria. Any cannabis clinic and supporting studies found on the websites were documented. Data from the studies were independently extracted by two researchers, including indication, type of study, and levels of evidence using the Oxford Levels of Evidence. A total of 76 clinics were identified upon initial search, with 29 meeting the inclusion criteria. The most common indications supported were management of pain (83%), anxiety (76%), arthritis (69%), and post-traumatic stress disorder (69%). Only four (14%) of the clinics included potential harms of cannabis intake. A total of 246 studies were cited, with the most studies cited for chronic pain (24 studies), cancer treatment side effects (16 studies), and arthritis (15 studies). The quality of evidence was reported low-to-moderate, with level 1 (3%), level 2 (12%), level 3 (16%), level 4 (25%), level 5 (16%), non-applicable (23%), and could-not-obtain (5%).

These results demonstrate that there is a paucity of high-quality evidence for the effectiveness of medical cannabis, concluding that further research is needed.

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1. Health Canada. Drug and Health Products. Medical Use of Marijuana. Ottawa, ON: 2014. Available from: http://www.hc-sc.gc.ca/dhp-mps/marihuana/index-eng.php
2. OCEBM Levels of Evidence Working Group. The Oxford 2011 Levels of Evidence. Oxford Centre for Evidence-Based Medicine. Available from: http://www.cebm.net/index.aspx?o=5653.2011

Presenting Author: Lauren Dalueg
Supervisor: Dr Braden O’Neill

77. DURATION OF STEROID THERAPY AND TEMPORAL ARTERY BIOPSY POSITIVITY IN GIANT CELL ARTERITIS: A RETROSPECTIVE COHORT STUDY
Majerovich K1, Junek M2, Khalidi N2, Garner S2
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Temporal artery biopsy (TAB) is an important investigational tool in the diagnosis of giant cell arteritis (GCA). It is recommended to complete a TAB within 14 days of glucocorticoid initiation; however, data are conflicting as to how long biopsies remain positive.1 We aimed to investigate how duration of glucocorticoid exposure affected TAB positivity in a cohort of patients with suspected GCA.

Data were extracted, including demographics, investigations, and final diagnosis, from the longitudinal McMaster GCA Database (n=52), and individuals enrolled in a trial evaluating imaging in the diagnosis of GCA (n=171).2 Individuals were stratified by duration of glucocorticoid pre-treatment by weeks of therapy. Descriptive statistics were performed and the impact of the duration of glucocorticoid therapy on TAB positivity was assessed using a two-sided Cochran-Armitage trend test and linear regression.

Data from 223 patients were included (Table 1). There was no significant difference in the number of individuals given glucocorticoids, nor duration of therapy pre-TAB, in TAB positive versus TAB negative individuals. The Cochran-Armitage trend test did not demonstrate a relationship (p=0.11); linear regression of proportion of positive TABs compared to weeks of glucocorticoid therapy demonstrated a positive relationship (p=0.031 via F test).

The results suggest that glucocorticoid therapy does not affect TAB positivity to 6 weeks, with inconclusive data thereafter. While linear regression suggested an increased yield over time, this is likely due to selection bias for those receiving later biopsies. These results suggest the recommendation of obtaining a TAB within 14 days of glucocorticoid initiation is unnecessarily conservative.

Table 1: Diagnoses of GCA stratified by duration of glucocorticoid treatment pre-TAB.

| Duration of Glucocorticoids pre-TAB | Weeks of treatment | Number of patients | GCA Diagnoses | Number of positive TABs | Percent of patients diagnosed with GCA by TAB |
|-------------------------------------|--------------------|--------------------|---------------|-------------------------|-------------------------------------------|
| All                                 |                    |                    |               |                         |                                           |
| 0-6 days                            | 0                  | 57                 | 23            | 8                       | 34.8%                                     |
| 7-13 days                           | 1                  | 46                 | 28            | 11                      | 39.3%                                     |
Considerable literature has reported the COVID-19 pandemic’s negative mental health sequelae. This surge in mental health problems will likely present to primary care in the coming months. The development of interventions to support GPs in the care of patients with mental health problems is a priority. The aim of this review was to examine interventions which could be implemented in general practice to enhance care of mental health disorders post COVID-19.

PubMed, PsycINFO, Cochrane Library, Google Scholar and WHO “Global Research on COVID-19” databases were searched following Arksey and O’Malley’s scoping review process(1). Initial searches identified 148 articles. Twenty-nine studies were included in the review, mostly randomised control trials, qualitative interviews and surveys. Outcome measures to test feasibility of interventions included the ‘Seven-item Generalised Anxiety Disorder Scale’ and ‘Nine-item Patient Health Questionnaire’.

Results were divided into themes: Interventions to improve identification of mental health disorders; Interventions to support GPs; Therapeutic interventions; Telemedicine interventions, and barriers and facilitators to intervention implementation. Interventions requiring active involvement of patients in their own care may be effective. GPs should encourage participation in physical activity and meditation, implement digital mental health interventions and incorporate telemedicine into their practice.

Our findings suggest a broad range of interventions may be implemented in primary care to tackle the mental health sequelae of COVID-19. Practitioners worldwide must stay informed of relevant research, and actively implement studied interventions to improve the mental health care they offer. Priority areas for future research include biological treatments for mental health sequelae of COVID-19.

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1. Arksey H, O’Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005;8(1):19-32.

Acknowledgement:
The author would like to acknowledge funding from the Canadian Rheumatology Association and The Hospital Saturday Fund.

78. ENHANCING GP CARE OF MENTAL HEALTH DISORDERS POST COVID-19: A SCOPING REVIEW OF INTERVENTIONS, OUTCOMES

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4School of Medicine, University of Limerick, Limerick, Ireland
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6Irish College of General Practitioners, Ireland
7Cork University Hospital, Cork, Ireland

The move from student to qualified practitioner is a defining moment for many healthcare professionals as they embark on their career. This study invited Radiographers to recount their experiences of the above, with particular emphasis on those who qualified during the Covid-19 pandemic.

Individual interviews were conducted over Zoom. The researchers utilised trigger questions intended to facilitate discussion and reflection of the participants first working day post qualification. The research results were analysed using a qualitative data analysis method – including MAXQDA software and the Braun and Clarke thematic analysis.

The shorthand notes taken during the interviews were transcribed, and then manually coded to over 180 individual coding points. This code system allowed the extracts to be collated, and themes to be identified. The primary themes extracted from the data were: Student to Practitioner transition, impact of colleague interaction, placement location, adapting to hospital life, and unique effects of the pandemic.

There were a number of findings of particular note. Most participants felt that they had maximised what they could learn as a student, and needed to take the next step without the ‘student safety net’ of having someone double check their work. Many were happy to gain employment where they had been on placement previously.

Participants spoke about how the actual radiography was the easy part for them on Day 1. They weren’t worried or surprised by it. It was adapting to hospital life as a whole, that proved challenging. Wearing a bleeper for the first time, sorting out payroll, managing the patient flow, and above all – talking with other hospital teams and justifying why something was or was not done.

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2. Rhéaume M, Rebello R, Pagnoux C, Carette S, Clements-Baker M, Cohen-Hallaleh V, et al. High-Resolution Magnetic Resonance Imaging of Scalp Arteries for the Diagnosis of Giant Cell Arteritis: Results of a Prospective Cohort Study. Arthritis & Rheumatology. Jan 2017; 69(1): 161-8.

Acknowledgement:
The author would like to acknowledge funding from the Canadian Rheumatology Association and The Hospital Saturday Fund.

79. FIRST DAY QUALIFIED: TO INVESTIGATE AND EXPLORE THE EXPERIENCES OF RADIOGRAPHERS WORKING IN THE REPUBLIC OF IRELAND OF THEIR FIRST WORKING DAY POST QUALIFICATION.

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The move from student to qualified practitioner is a defining moment for many healthcare professionals as they embark on their career. This study invited Radiographers to recount their experiences of the above, with particular emphasis on those who qualified during the Covid-19 pandemic.

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Participants spoke about how the actual radiography was the easy part for them on Day 1. They weren’t worried or surprised by it. It was adapting to hospital life as a whole, that proved challenging. Wearing a bleeper for the first time, sorting out payroll, managing the patient flow, and above all – talking with other hospital teams and justifying why something was or was not done.

Presenting Author: Elliot Davis
Supervisor: Dr Michaela Davis
80. THE EFFECTS OF NON-MOVEMENT RELATED AUDIOVISUAL STIMULATION ON THE TRANSCRANIAL MAGNETIC STIMULATION-BASED MEASURES OF MOTOR CORTEX EXCITABILITY
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Transcranial magnetic stimulation (TMS) measures show diagnostic and prognostic value in neurodegenerative diseases. For example, decrease in short intracortical inhibition (SICI), which captures GABA-ergic inhibition of upper motor neurones, reliably discriminates amyotrophic lateral sclerosis patients from controls and mimic disorders. These TMS studies require participants to remain relaxed, maintaining very low baseline EMG amplitude. However TMS study protocol typically do not allow distractors like film or radio, making study participation cumbersome. This may result in measures being affected by participants attending to the sensation of TMS or resulting motor responses. We wished to determine if such distractors can be given without altering motor network excitability via sensory input.

Aim: To investigate whether watching and/or listening to a documentary that does not relate to movement affects commonly-studied TMS measures of motor cortical excitability.

Data were collected from 5 control volunteers. EMG was recorded from dominant and non-dominant abductor pollicis brevis muscles while resting motor threshold, threshold hunting target, SICI, long intracortical inhibition and interhemispheric inhibition were measured via stimulation of the motor cortex contralateral to the dominant hand. Recordings were taken with no sensory stimulation or during attendance of audiovisual or auditory distractors. Sign rank testing was employed to test for significant effects of sensory stimulation.

Auditory and/or visual distractors were not found to have a significant effect on the measurements of motor cortical excitability under investigation.

This preliminary investigation indicates that allowing participants to attend to audiovisual media does not affect TMS measures of motor excitability.

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1. Vucic S, Kiernan MC. Utility of transcranial magnetic stimulation in delineating amyotrophic lateral sclerosis pathophysiology. Handbook of clinical neurology. 2013 Jan 1;116:561-75.
2. Vucic S, Van Den Bos M, Menon P, Howells J, Dharmadasa T, Kiernan MC. Utility of threshold tracking transcranial magnetic stimulation in ALS. Clinical neurophysiology practice. 2018 Jan 1;3:164-72.

Presenting Author: Yasmine Tadjine
Supervisor: Dr Roisin McMackin

81. CHANGE IN LIPOPROTEIN COMPOSITION IN PEOPLE LIVING WITH HIV (PLWH) SWITCHING FROM TENOFOVIR DISOPROXIL FUMARATE (TDF) TO TENOFOVIR ALAFENAMIDE (TAF) CONTAINING REGIMENS COMPARED TO PLWH MAINTAINING TDF WITHIN THE UPBEAT STUDY COHORT
Kasianenko D1, Savinelli S2, Garcia Leon AA2, Walsh I4, Fitzgibbon M4, Mallon PWG2,3, Feeney ER2,3

Although tenofovir alafenamide (TAF) has been associated with better renal and bone safety compared to tenofovir disoproxil fumarate (TDF)[1], switching from TDF to TAF has been linked to an unfavourable lipid profile in people living with HIV (PLWH). However, the impact of switching from TDF to TAF on apolipoprotein profile is not well characterised.

The aim of our study was to compare changes in lipoprotein composition between PLWH switching from TDF to TAF (n=22) and those remaining on TDF-based regimens (n=87).

ApoA, ApoB and Lp(a) were assessed before (T0) and after (T1) switching from TDF to TAF, and at two timepoints in those remaining on TDF. The differences in mean change in lipoprotein parameters between T0 and T1 within groups (n=109) were assessed using the non-parametric Wilcoxon signed-rank test. The difference in change between the groups was assessed with ANCOVA. The association between lipoprotein parameters, and HIV specific and non-HIV specific factors was assessed using linear regression.

Groups were well-balanced in terms of socio-demographic and clinical characteristics. There was a significant difference at T1 between the two treatment groups in the lipoprotein parameters, after adjustment for baseline values and time between T0 and T1. (See Table 1). There was no significant difference in Lp(a) between the treatment groups. No associations between socio-demographic, clinical characteristics and apolipoproteins were observed.

The results indicate that switching from TDF to TAF results in a proatherogenic apolipoprotein profile. Further studies are needed to clarify the clinical significance of apolipoprotein changes in terms of cardiovascular risk.

Table 1. ANCOVA

| Characteristic | Continuous | Switch | Adjusted Difference | 95% CI | p-value |
|---------------|------------|--------|---------------------|-------|---------|
| TDF, N=87 | | | | | |
| ApoA | 0.21 (0.02, 0.36) | 0.17 (0.08, 0.39) | 0.04 (0.00, 0.22) | 0.90 | 0.062 |
| ApoB | -0.12 (-0.22, 0.01) | 0.06 (-0.24, 0.32) | -0.29 (-0.52, 0.04) | 0.005 | 0.006 |
| ApoA/ApoB | 0.41 (0.07, 0.56) | 0.28 (0.05, 0.50) | 0.13 (0.00, 0.26) | 0.03 | 0.005 |

1Median (IQR); Lipids are in mmol/L, log-transformed
2ANCOVA
3CI=Confidence Interval

References:
1. Mansky. Tenofovir-associated bone density loss. Therapeutics and Clinical Risk Management 2009;:41.
2. Gomez M et al. A retrospective analysis of weight changes in HIV-positive patients switching from a tenofovir disoproxil fumarate (TDF)-to a tenofovir alafenamide fumarate (TAF)-containing treatment regimen in one German university hospital in 2015–2017. Infection [Internet] 2019;47(1):95–102.
82. QUANTITATIVE INDOCYANINE GREEN FLUORESCENCE ANGIOGRAPHY FLAP PERFUSION ANALYSIS
Quirke N1, Dalli J2,3, Hardy NP2,3, Cahill R2,3, Potter S1,4
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Novel handheld surgical cameras have facilitated the application of indocyanine green fluorescence angiography (ICGFA) to reconstructive surgery, however large-scale trials and objective quantitative interpretation are lacking. Microvascular free flap surgery is a robustly reliable reconstructive technique with success rates exceeding 95%, however re-exploration rates of up to 20% are still reported in the literature. Utilising a state-of-the-art near infra-red camera and bespoke software we sought to quantitatively interrogate ICGFA signals to assess flap perfusion.

A head and neck free flap reconstruction (n=1) was assessed intraoperatively with the Elevation IR Platform (Medtronic, Ireland) following administration of intravenous (0.25mg/kg) indocyanine green. Perfusion angiograms were quantitatively dissected via tailored code (IBM Research Ireland) and converted into fluorescence intensity plots. Metadata milestones extracted from these curves were scrutinised statistically (Mann-Whitney U test) for perfusion discriminatory features. Flap viability was recorded on postoperative days 1 and 7. Recordings were tracked and converted to chronological-intensity plots at 30fps with the flap displaying delayed (53.35±2.10 vs 32.11±10.89 p=0.533) at a hundred seconds. These findings offer quantitative analysis of arterial inflow and venous outflow. ICGFA signals were successfully quantified, and with further work will offer the reconstructive surgeon a methodology to standardise the use of infrared systems. However, true capitalisation of this emergent practice and translation to clinical outcomes may require computational enhancement to surpass the shortcomings of oculo-cognitive interpretation.

Presenting Author: Dmytro Kasianenko
Supervisor: Dr Steffano Savinelli

83. COMPARISON OF SARS-COV-2 RAPID ANTIGEN TEST WITH SELF-COLLECTED DEEP NASAL SWAB VERSUS HEALTHCARE PRACTITIONER COLLECTED NASOPHARYNGEAL POLYMERASE CHAIN REACTION (PCR) SWAB FOR SYMPTOMATIC COVID-19
Wilson O1, Ricciuto G2, Brown D1
1UCD School of Medicine, University College Dublin, Belfield, Dublin 4, Ireland
2Lakeridge Health, Port Perry, North Durham, Ontario, Canada

Self-swabbing is a convenient and accurate method of diagnosing many infectious diseases.1,2 The primary method of COVID-19 testing in Canada is healthcare provider-conducted (HPC) swabbing; however, self-swabbing with rapid antigen tests (RATs) may be beneficial for obtaining more timely results. This study aimed to determine the agreement between HPC PCR swabs and self-conducted RAT swabs and barriers to obtaining a COVID-19 swab in symptomatic adults.

Symptomatic adults attending the North Durham Covid Assessment Centre for a HPC PCR swab were recruited to conduct a RAT self-swab, and this result was compared to their PCR test result. In addition, consenting participants could complete a questionnaire to obtain demographics, the timing between symptom onset and booking a test, and attitudes towards attending the Assessment Centre. One-hundred and thirty-six pairs of PCR and RATs were obtained, and 103 questionnaires were completed.

Of the RAT and PCR pairs obtained, four were positive, and all others were negative by both RAT and PCR. Therefore, the level of agreement between the tests was 100%. Questionnaires determined that, on average, participants waited 2.0 days between symptom onset and booking a COVID-19 test. Primary reasons for waiting more than one day to book a COVID-19 test included: not believing symptoms were severe enough (34.2%) and wanting to “wait the symptoms out” (25.3%).

The study’s results support the introduction of self-conducted RATs in symptomatic individuals in order to reduce time from symptom onset to diagnosis, including use from home, which may lead to earlier isolation and contact tracing.

Acknowledgement:
The author would like to acknowledge funding from the Rural Ontario Medical Program and Port Perry Medical Associates.

References:
1. Tu YP, Jennings R, Hart B, Cangelosi GA, Wood RC, Wehber K et al. Swabs collected by patients or health care workers for SARS-CoV-2 testing. New England Journal of Medicine. 2020 Jul 30; 383(5): 494-6.
2. Lunny C, Taylor D, Hoang L, Wong T, Gilbert M, Lester R, et al. Self-collected versus clinician-collected sampling for chlamydia and gonorrhea screening: a systemic review and meta-analysis. PloS one. 2015 Jul 13;10(7):e0132776.

Presenting Author: Olivia Wilson
Supervisor: Dr Merrilee Brown
Co-Supervisor: Dr Daniel Ricciuto

84. PREGNANCY OUTCOMES AMONG WOMEN WITH RHEUMATIC MITRAL VALVE STENOSIS: A CANADIAN EXPERIENCE
Janzen M1,2, Silversides C2, Mason J3, Semer M1, Kiess M1, Rychel V4, Wald R1, Colman J1, Siu S1, Grewal J1
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3Department of Obstetrics & Gynaecology, Division of Maternal-Fetal Medicine, Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada
4Division of Cardiology, University of Western Ontario, London, Ontario, Canada

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Presenting Author: Olivia Wilson
Supervisor: Dr Merrilee Brown
Co-Supervisor: Dr Daniel Ricciuto
Rheumatic mitral stenosis (MS) is the most common lesion contributing to cardiac maternal morbidity in developing countries(1). This study sought to determine maternal and fetal outcomes of pregnancy in women with rheumatic MS based in two Canadian tertiary care centers providing comprehensive, guideline-based multidisciplinary care. This study included consecutively enrolled pregnant women from the CARPREG registry with rheumatic MS(2). Pregnancy complications occurred in 37 (30%) pregnancies primarily related to heart failure (26, 70%). There was no difference in the prevalence of complications in mild compared to moderate/severe MS (29% vs. 30%, p=0.33). Maternal death during pregnancy occurred in no patients with MS. There were 4 neonatal deaths, 3 of which were in pregnancies with mild MS. Of all pregnancies, 12 were of pre-term birth (<37 weeks gestational age) and 38 (30%) neonates fell into the small for gestational age (<10th percentile) category.

Rheumatic MS presents a risk of complications during pregnancy, namely maternal heart failure and small for gestational age neonates. As such, patients should be carefully followed throughout pregnancy, labor, and delivery.

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Supervisor: Dr Jasmine Grewal

85. THE VALUE OF RENAL TRACT IMAGING AS PART OF ANNUAL GENITOURINARY (GU) REVIEW FOR PATIENTS WITH SPINAL CORD INJURY (SCI)

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It is recommended that all SCI patients have an annual outpatient urology review. This is because there is an increased incidence of renal tract calculi in SCI due to urinary stasis and increased urinary calcium levels. Furthermore, urinary tract infections (UTIs) are increased owing to bacterial colonisation associated with use of intermittent/indwelling catheters and because of neurogenic bladder[3]. The main purpose of this study was to review the impact of the findings of annual ultrasound and x-ray on patient management over 5 years at the NRH.

52 patient healthcare records were retrospectively reviewed following random selection using the hospital’s NIMIS system from outpatients attending the NRH over a 5 year period. Imaging and clinical findings for each patient were recorded.

Incidence of urinary calculi was 4.6%. Additionally, 3.4% had bladder sediment. 30% demonstrated renal scarring on ultrasound. 10.1% had incidental findings, including renal cysts, hydrocoele, phleboliths, while 12.7% had gallstones. The mean incidence of UTIs was 23.8%, incontinence was 18.7%, and 10.8% experienced both UTIs and incontinence.

The study confirmed increased rates of calculi in SCI patients, affirming the importance of conducting renal tract imaging as part of annual review. Having impaired sensation, individuals with SCI may not present with renal tract calculi in a typical manner[3] and without imaging may go undiagnosed, resulting in significant morbidity. The high incidence of symptomatic UTIs in SCI patients can be avoided with good catheter care, hygiene and clinico-radiological review. Annual imaging also highlights incidental findings which can be relevant to ongoing management.

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Dept of Radiology and Urology, NRH; Medical Records Dept, NRH.

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Presenting Author: Clodagh Reilly
Supervisor: Dr Brian McGlone

86. A RETROSPECTIVE ANALYSIS OF THE ASSOCIATION BETWEEN ORAL CALCIUM SUPPLEMENTATION AND THE DEVELOPMENT OF URINARY TRACT CALCULI IN A NATIONAL REHABILITATION SERVICE

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Studies have shown that most renal tract calculi contain calcium[1] and that low bone mass is common below the level of injury in spinal cord injury (SCI) patients[2]. The main purpose of this study was to determine whether there was a correlation between the development of urinary calculi and oral calcium supplementation for low bone mass in patients with SCI attending for annual review, including ultrasound and/or X-ray of the urinary tract.

A total of 45 patients from the National Rehabilitation Hospital (NRH), with both SCI and urinary calculi, were randomly selected through the radiology database (NIMIS). Healthcare records were retrospectively reviewed to determine the timeline of the (re)occurrence of urinary calculi, the result(s) of DXA scans, as well as compliance with calcium supplements, if prescribed. 36 patients had a SCI ranging from level C4-T12, with a mix of ASIA grade A and grade B injuries. 13 patients had calculi after commencing calcium and/or vitamin D supplements, which developed de novo in 15% and were previously documented in 85%. Of these 13 patients, 54% were using an indwelling catheter, whereas the remainder were self-catheterising. Within the total
cohort, 13 patients had no record of a DXA scan and 6 did not have follow up DXA scans for over 5 years. There is a potential, albeit weak, correlation between calcium/vitamin D supplements and the formation of urinary calculi. Further prospective data collection is recommended at annual review. In addition, DXA protocols could be reviewed to ensure all patients have timely imaging.

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Presenting Author: Kareena Narain
Supervisor: Dr. Brian S. McGlone
Co-Supervisor: Ms Rosie Conlon

87. THE APPLICATION OF COMPLEXITY THEORY IN REHABILITATION: A SCOPING REVIEW
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A system is referred to as “complex” when it has so many interacting forces that it cannot be adequately understood by the traditional perspective of the system as a hierarchy.

Complexity theory is the study of these systems, and of the common characteristics, referred to as “phenomena”, that these systems display. The purpose of this study was to perform a scoping review in order to ascertain the extent to which the effects of applying complexity theory to rehabilitation healthcare have been recorded in research literature and to highlight key research gaps to inform next stage of research.

We employed the Arksey and O’Malley methodological framework for the scoping review. We searched eight databases using concept of ‘complexity theory’, and the context of ‘Any rehabilitation healthcare setting’. The results were uploaded to Covidence to be double screened for relevancy. The full texts of the chosen articles were then read to ensure relevancy. Ten studies were eligible for inclusion.

The results of our review found that most literature utilised complexity theory in the analysis of data collected from institutions which had not yet implemented complexity theory into their framework. As a result there’s insufficient evidence to prove the benefit of implementing complexity theory.

By applying complexity theory as a new framework for a rehabilitation system and recording subsequent results of the functioning of the system, it may be possible to prove what previous studies have theoretically implied: that recognising the inherent complexity of rehabilitation systems is the first step to optimising them.

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Co-Supervisor: Dr Andrew Darley

88. I PREDICT A RIOT: A SCOPING REVIEW OF THE USE CASES OF REHABILITATION INTERNET OF THINGS (RIOT) APPLIANCES
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The Internet of things (IoT) describes the network of physical objects that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices over the internet [1]. This ecosystem is one that has potential to be an important tool in long-term rehabilitation care and to break down physical barriers in access to care. RIoT is an incredibly relevant subject in rehabilitation medicine, especially in the context of the current COVID-19 pandemic.

This scoping review was created to look at the current literature available on the application of IoT in the context of rehabilitation, charting both areas of interest and the gaps present in the research. We devised a search strategy, inclusion/exclusion criteria and a data extraction method according to the PRISMA-SCR guidelines.

The results of this scoping review found that research into RIoT applications in clinical care is an area of increasing interest. This is especially true for stroke rehabilitation, and of the use of wearables for physiological monitoring. This review also found that gaps do remain in the field, as many projects are in the early stages of development and clinical feasibility is still unknown due to small study sizes.

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Presenting author: Jeanne Flynn
Supervisor: Dr Ruari Connolly
Co-Supervisor: Dr Andrew Darley

89. A MIXED METHODS EXPLORATION OF THE USE OF PATIENT EXPERIENCE TO IMPROVE IMPROVEMENT IN A NATIONAL REHABILITATION HOSPITAL
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Patient experience is a quality indicator in healthcare[1]. Positive patient experience is associated with higher levels of patient safety[1]. This Project aimed to see how Hospitals collect patient experience information and how such information is used in order to inform improvements. Hospitals need to identify how data is being used in the hospital to inform improvements to ensure that patient experience data is effectively used[1].

The project consisted of three phases:
Phase 1: Mapping data collection methods and secondary analysis of existing data.
Phase 2: Semi-structured interviews with key stakeholders to explore how patient experience data is sought, disseminated and utilised.
Phase 3: Content analysis of Patient Forum Meeting Minutes and Annual Reports to identify how patient experience is utilised to inform improvements.
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Presenting Author: Dearbhla O’Reilly
Supervisor: Dr Maeve Nolan
Co-Supervisor: Ms Liz Maume

90. MONITORING LONG TERM DISEASE PROGRESSION AND VISION LOSS IN BIRDSHOT CHIROIDRETINOPATHY (BCR): MULTIMODAL IMAGING AND CLINICAL CORRELATES AS WELL AS QUALITY OF LIFE ASSESSMENT
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A retrospective cohort study examining long-term disease progression and visual loss in Birdshot Chorioretinopathy (BCR) amongst an Irish patient group in the Royal Victoria Eye & Ear Hospital, Dublin (RVEEH).1 We also aim to evaluate quality of life (QoL) parameters using a validated and patient-centred questionnaires for BCR.2

22 BCR patients were identified via database chart review and were invited to take part in 2 QoL questionnaires – The National Eye Institute Visual Functioning Questionnaire (VFQ-25) & a supplementary BCR specific QoL Questionnaire. Further chart analysis and examination of multimodal imaging, electrophysiology (ERG), and clinical correlates were conducted on those 16 patients who fulfilled the inclusion criteria.

The response rate to the QoL questionnaires employed was 95.5% (n = 21). The NEI VFQ-25 mean composite score for the 21 patients was 72.81. Visual complaints amongst our cohort were: Floaters (81%), Nystaglusia (62%), Blurred vision (52%), Dyschromatopsia (38%), Photopsia (33%). Driving, reported in 61.9% of cases, was the most common activity negatively affected.

Birdshot chorioretinopathy is a chronic posterior uveitis with a substantial risk of permanent visual loss. Our study evaluating impact on QoL is in keeping with similar studies, highlighting a significant disease burden, including medication side-effects.

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2. Anisha Sekaran, Mohith Shamdas, Robert J. Barry, Alastair K. Denniston & Philip I. Murray (2020): Creating a Health Utility Value for Birdshot Chorioretinopathy, Ocular Immunology and Inflammation, DOI: 10.1080/09273948.2020.1799034

Presenting Author: Lily Farrell
Supervisor: Mr Dara Kilmartin
Melanoma is an aggressive skin and mucosal cancer, affecting humans and dogs. Treatment is challenging due to the aggressiveness in both species. This project aimed to systematically review the effect of chemotherapy, immunotherapy and vaccines in canine melanoma survival, and to compare melanoma-related genes in canines and humans. 

A systematic review was performed, with eligible studies including clinical trials treating canine melanoma using chemotherapy, immunotherapy or vaccines with control groups and available survival data. Searches were performed in Embase, Scopus, Cab Direct, Web of Science and Ovid Medline. A review of comparative studies between human and canine melanoma was performed to determine common genes involved in melanoma pathogenesis in both species. UniProt for protein sequences, and BLAST® for global alignments, were used for gene comparison analyses.

The initial systematic review search identified 1,807 articles. Seventeen studies were eligible for inclusion (n=1,570 patients). The median age of included patients was 11 years (0.7-20 years). Follow-up was to death or loss to follow-up (7-3285 days). A combined treatment of complete surgery, suicide gene with ganciclovir and acyclovir had the greatest median disease-free survival times (>2848 days). Twenty-four genes in common between human and canine melanoma were found. Three of them (PTEN, NRAS and EIF1AX) have 100% identity.

The combined treatment is most effective for treating canine melanoma, and further studies of its mechanism has the potential to benefit human melanoma treatment. Furthermore, the identified genes in our review gives an insight into future potential targets for comparative oncology research in melanoma.

Acknowledgement:
The author would like to acknowledge funding from the Pathological Society of Great Britain and Ireland.

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Presenting Author: Shin Mei Chuah
Supervisor: Prof Amanda McCann and Assoc Prof Shirley Potter
Co-Supervisor: Dr Stephanie Bollard

92. THE EFFECT OF CHEMOTHERAPY, IMMUNOTHERAPY, AND VACCINES IN THE SURVIVAL OF CANINE MELANOMA: A SYSTEMATIC REVIEW

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93. DOES SLEEP RECOVER MEMORIES FROM DECAY IN OLDER ADULTS?

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Memory benefits from sleep, resulting in reduced decay [1]. Decay has been found to be greater in older adults [2], thus a rapid decay rate (DR) prior to sleep may contribute to reduced sleep-dependent consolidation (SDC). This study aimed to compare DR between older and younger adults and determine whether DR is related to SDC.

Participants aged 60-75 years were recruited and screened for sleep-affecting factors. Participants learned a word-pair task followed by immediate and 1-hour recall. Following an interval with overnight sleep or daytime wake (separated by one week), 12-hour recall was assessed. DR (immediate minus 1-hour) and SDC (12-hour minus 1-hour across sleep versus wake) were calculated from recall accuracy scores of 6 older and 10 younger adults and compared using 2x2 mixed ANOVA and Pearson’s correlation.

There were no significant differences in DR between older and younger adults (F(1,14) = 0.99, p = 0.337) or between wake and sleep conditions (F(1,14) = 1.885, p = 0.191). The interaction between age and sleep/wake condition was marginally significant (F(1,14) = 3.980, p = 0.066). Additionally, a significant association between DR and SDC was found (r(14) = -0.550, p = 0.027).

These results indicate that DR may not consistently change with age or time-of-day. Interaction between age and condition is related to factors not examined, requiring further investigation. Nonetheless, the negative association between DR and SDC suggests that high rates of memory decay may reduce SDC. Given the small sample size, a follow-up study with a larger sample is warranted.

Acknowledgement:
This study was funded by the United States National Institutes of Health grant NIH R01 HL111695.

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Presenting Author: Galina Ponomareva
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94. FUNCTIONAL OUTCOME OF ILEAL POUCH-ANAL ANASTOMOSIS IN ELDERLY PATIENTS

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Ulcerative colitis, unclassified inflammatory bowel disease, and Crohn’s disease are chronic inflammatory diseases that affect the colon and
rectum, for which ileal pouch-anal anastomosis (IPAA) is the gold standard surgery. IPAA is also the standard prophylactic surgery offered to patients with familial adenomatous polyposis. Ample evidence from large retrospective cohorts suggests that IPAA provides satisfactory quality of life (QOL) and good functional outcome. However, the evidence on functional outcome in older patients receiving a pouch and long-term pouch function in aging patients is scarce. This study aims to determine long-term functional outcomes and QOL of older adults who had an IPAA created after 60 years of age, and patients ≥60 years of age living with an IPAA.

This is a single centre, cross-sectional survey study, assessing surgical and functional outcomes of patients who had an IPAA created after the age of 60 and patients ≥60 years who received a pouch at a younger age. Confounding adjustment will occur. Exclusion criteria includes diagnoses of colorectal cancer requiring chemotherapy.

Primary outcome is patient functional outcome at minimum 6 months after ileostomy closure. This will be measured using the validated ColoRectal Functional Outcome questionnaire and a hybrid functional questionnaire. Secondary outcomes include global QOL and pouch survival rate.

Data is sparse regarding long-term outcomes of patients who had an IPAA at an older age, and on older patients who had their pouch at a younger age. This study will help our understanding of the functional outcomes of these patients and further validate performing IPAA in older adults.

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Presenting Author: Harry Kevin Lau
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95. DELAYED NEURODEVELOPMENTAL ALTERATIONS IN INFANTS EXPOSED TO ZIKA VIRUS IN UTERO

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It is well established that in utero exposure to Zika Virus causes a range of devastating adverse neurological outcomes. Many of these are present at birth however early evidence suggests that there may be long term neurodevelopmental impacts even among children apparently not impacted at birth.

The aim of this scoping review was to examine delayed neurodevelopmental outcomes in children exposed prenatally to Zika Virus but born without congenital Zika Virus symptoms. The review structure was guided by the Arksey and O'Malley methodology and the search process by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Scoping Review (PRISMA-ScR) checklist. A total of 9 studies were included. The studies used a variety of assessment tools, the most common being the Bayley Scales for Infant and Toddler Development III (cognition, language, and motor performance) for neurodevelopmental testing. Infants and toddlers in the age range of 9 weeks to 3.5 years were included. All but one report found a significant increase in adverse neurodevelopmental outcomes in children who were asymptomatic at birth but exposed to Zika Virus in utero.

Prenatal exposure to Zika Virus appears to have long term adverse impacts on the central nervous system regardless of birth outcomes. Neurodevelopmental assessments of children exposed in utero should continue into childhood. These findings may be relevant to other viruses such as SARS-CoV-2 where research is limited.

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Presenting Author: Shahruzad Rouhani
Supervisor: Dr Valerie Flaherman

96. A CORRELATIVE ASSESSMENT OF THE ROLE OF STROMA MECHANICS IN PANCREATIC CANCER PROGRESSION

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Pancreatic Ductal Adenocarcinoma (PDAC) is a highly aggressive malignancy with a low survival rate. Of all solid tumours, PDAC has the greatest amount of stromal content. The fibrous stroma is much stiffer than the cancer cell niche and is thought to drive tumour progression while promoting drug resistance. The aim of this work is to investigate the hypothesis that increased stiffness in stromal tissue is associated with increased collagen packing and alignment.

Human tissue samples from cancerous and non-cancerous regions of the pancreas were sliced and stained with Picrosirius Red before being imaged with a polarized light microscope. Polarized light microscopy allows us to image the collagen bundles within the sample by taking advantage of the birefringent properties of collagen. Each region of interest was imaged at an angle of 0, 60, 120 and 180 degrees before being constructed into a representative composite image. Collagen organisation was quantified using the software CT-FIRE as well as Fourier transform-based alignment quantification software and custom MATLAB scripts. Atomic Force Microscopy data from adjacent slices of our sample was supplied and compared with collagen organisation data. Image composition and analysis was successfully carried out using a variety of contrasting techniques. Picrosirius staining intensity increased in tumour tissue relative to non-cancerous samples along with increased fibre packing evident from polarized light microscopy. Increased stiffness was observed to correlate with increased collagen content.

This work has highlighted the relationship between collagen organisation and tissue stiffness in Pancreatic Ductal Adenocarcinoma.

Acknowledgment:
The author would like to acknowledge funding from Breakthrough Cancer Research and Dr Niall Swan from St. Vincent’s University Hospital for provision of pancreatic tissue sections.
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Presenting Author: Tara Fay
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99. PRACTICES FOR IDENTIFYING MENTAL HEALTH ISSUES IN ELITE ATHLETES: A SCOPING REVIEW

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Elite athlete mental health is becoming a topic of increasing interest. Following the publication of the International Olympic Committee consensus statement [1] in 2019, emphasis has been placed on encouraging help-seeking and treatment for elite athletes with mental health issues. However, there remains a paucity of research into the diagnostic practices and screening tools that exist to aid in identifying mental ill health in elite athletes. This study aims to examine the question “What identification practices exist to aid in identifying mental ill health in elite athletes?”

A scoping review study design was undertaken following the six-stage process developed by Arksey and O’Malley [2] with revisions by Levac et al. The PubMed, SPORTDiscus and PsycINFO databases were searched for relevant papers. This review follows in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews. (PRISMA-ScR).

Forty-three studies were included in the review. Emerging themes concerned the importance of timely identification, the need to make identification pathways/resources accessible, the delivery of interventions, and using the right tools for identification. A wide range of mental health outcome measures were identified, few of which were athlete specific. Practices for identifying mental ill-health in elite athletes are numerous and varied. Many are of questionable use in elite athlete populations, and few screening tools are specific to elite athletes. Many countries and sport organisations lack consensus-based guidelines for identifying mental health problems in elite athletes. Further research to develop high-quality athlete-specific screening tools should be a priority.

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Presenting Author: Aisling O’Keeffe
Supervisor: Prof Walter Cullen
Co-Supervisor: Mr John Broughan

100. RETROSPECTIVE CASE SERIES OF PRIMARY SPINAL TUMOURS AT THE NATIONAL SPINAL INJURIES UNIT
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Primary extradural tumours of the spine are a rare occurrence, with an incidence of approximately one per million, comprising 4% of total spinal tumours [1]. Patients typically require radical curative resection given the neoplastic nature of these lesions with significant associated post-operative morbidity. En bloc resection with wide/marginal margins is the gold standard surgical approach and adhering to evidence-based oncologic principles is associated with lower recurrence and mortality rates [2].

The aim of this study was to establish the associated morbidity of these procedures and the challenges of local recurrence. A retrospective review of data obtained within the National Spinal Injuries Unit was conducted. Patients of all ages with a biopsy-confirmed diagnosis of primary extradural spinal tumour between January 1st 1992, and May 31st 2021, were eligible. There were 31 cases during this period. Data was collected on this study population, including basic demographics, tumour subtypes, operative procedure details, and associated mortality. This data was analysed using the Kruskal Wallis test, and the results collated.

Demographics, tumour subtypes, operative procedure details, and associated mortality.

| Tumour subtypes      | Gender | Age (range; mean) |
|----------------------|--------|------------------|
| Chondrosarcoma       | 18 male| 16-81 years; 47.10 years |
| Chordoma             | 11 female| 37.93% |
| Osteosarcoma         | 3 cases – 10.34% |  |
| Giant cell tumour    | 3 cases – 10.34% |  |
| Angiosarcoma         | 2 cases – 6.9% |  |
| Malignant peripheral nerve sheath tumour | 2 cases – 6.9% |  |
| Ewing’s sarcoma      | 2 cases – 6.9% |  |
| Leiomyosarcoma       | 2 cases – 6.9% |  |
| Malignant fibrous cell tumour | 1 case – 3.45% |  |
| Haemangiendothelioma of bone | 1 case – 3.45% |  |

A main limitation of this study was the small sample size. However, of note, approximately 75% of patients developed a post-operative complication, and the mortality rate approached 20%. Almost half of patients had at least one recurrence of their tumour, with a trend towards significance for recurrence in cervical spine tumours. These tumours, whilst rare, place a large burden on both the patient and the Irish healthcare system, and need to be managed in a multidisciplinary format in specialised centres in Ireland.

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Presenting Author: Ella Flaherty
Supervisor: Dr Cathleen O’Neill
101. DETERMINE THE INCIDENCE OF SURGICAL SITE INFECTIONS FOLLOWING HIP FRACTURE SURGERY IN THE MATER MISERICORDIAE UNIVERSITY HOSPITAL (MMUH)

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Hip fractures (HF) are common and require prompt surgical fixation. The 1.3 million global incidence will increase with ageing populations. (1) Surgical site infections (SSI) are a devastating complication with prolonged hospital stay, poor outcomes and increased cost on an already overburdened health system. The purpose of this study is to determine the incidence of SSI in HF patients in MMUH and audit patient characteristics, aiming to explore potential gaps and areas for quality improvement (QI) in the HF patient pathway.

We retrospectively identified 30 patients admitted to MMUH’s trauma unit between 2016-2020 with HF SSI. We investigated MMUH’s online database and patient charts for this study population. Data related to demographic, surgical and clinical factors including 50 variables were collated and established our research database.

The SSI incidence rate in a patient cohort >60yoa was 3.48%(27/775). The incidence of deep vs superficial infections was 1.29% and 2.19% respectively. A meta-analysis by Masters et al, reported 2.1% incidence of SSI following HF surgeries in the UK. (1) 60% of our cohort were female. Mean age was 75.03 years. 56.66% had an ASA class ≥3 (Mean: superficial = 4.4, deep = 5.8). The mean length of stay was 71.73 days, 28.58 days for superficial and 146.3 days for deep. This analysis highlights the need to continually cultivate improvements to reduce our SSI rates and to identify higher risk patient characteristics. Further studies may be extrapolated from this research database to garner QI actions as part of ongoing clinical governance.

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Presenting Author: Antonina Tcacenco
Supervisor: Dr Joseph Butler
Co-Supervisor: Dr Stacey Darwish

102. LOCAL SERVICE EVALUATION IF UTILISING CT ANGIOGRAMS FOR FORAMEN FRACTURES WITHIN THE NATIONAL SPINAL INJURIES UNIT

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Fractures through the transverse foramen of the cervical vertebrae are associated with a vertebral artery injury risk of over 88% 1, which in turn has a 50% risk of stroke 2 for both symptomatic and asymptomatic patients. Although morbidity of these injuries is high, due to their scarcity, management of such patients has not been well described in literature. This research aims to describe management and outcome patterns for patients with such injuries based on data prospectively gathered within the National Spinal Injuries Unit (NSIU) at the Mater Misericordiae University Hospital.

A key word search was performed through the NSIU picture archiving and communication system. A total of 34 patients with known transverse foramen fractures of the cervical spine who had undergone a computed tomography angiogram (CTA) of the vertebral arteries in 13.5 year were identified. Detailed evaluation of the patient pathway for this study population was conducted through the hospital patient information system and patient records.

Patient management and the department consulted was based on the mechanism of injury, associated injuries and orthopedic evaluation. All patients were evaluated by the orthopedic department. Patients with penetrating injuries were evaluated by the vascular department, and patients with suspected or known stroke were assessed by the stroke team. Polytrauma patients were discussed in multidisciplinary team meetings. This research identifies the pathway of care for these patients, most of which were conservatively management through immobilization. Foramen fracture detail, although shown to be significant in literature did not affect patient management in NSIU.

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Presenting Author: Yvonne O’Toole
Supervisor: Dr Cathleen O’Neill

103. 4-YEAR REVIEW OF ACUTE ADMISSIONS TO THE NATIONAL SPINAL INJURIES UNIT (NSIU) OF NON-MYELOPATHIC ELDERLY PATIENTS WITH NEUROLOGICAL DEFICITS REQUIRING CERVICAL SPINAL SURGERY, INVESTIGATING TRENDS IN REFERRAL CHARACTERISTICS AND OUTCOMES

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The National Spinal Injuries Unit (NSIU) at the Mater Misericordiae University Hospital in Dublin is a tertiary referral centre for spinal injuries. This study aims to analyse admission trends at the NSIU from 2016-2020, specifically for elderly patients (>65) presenting with cervical injuries, to inform logistical and resource planning within the unit.

A prospectively gathered database within the NSIU contains details of admissions over the last four years. A retrospective review of this data was undertaken. Variables analysed included patient demographics, mechanism of injury (MOI), length of hospitalisation, complications and mortality. Data was analysed using GraphPad Prism.

Retrospective review identified 52 patients who met the inclusion criteria (>65, cervical injury, neurological deficit), of whom 43 had traumatic cervical spine injuries, 7 had spinal tumours and 2 had epidural hematomas. The most common MOI was falls (60%), followed by RTAs (19%) and atraumatic lesions (17%). Patients with complete neurological deficit (ASIA grade A) had longer average lengths of stay (61 days) compared...
to those with incomplete deficits (ASIA grade B-D) (19.42 days). All patients with complete neurological deficits had post-operative complications, of whom 43% died within 90 days. In contrast, 54.55% of patients with incomplete deficits had complications, and 9% died within 90 days. The results demonstrate that patients presenting with complete neurological deficits require more resources, have more complications, and have greater mortality rates than incomplete neurological deficits. This has implications on decision making regarding whether surgery should be performed on these patients or whether they should be treated palliatively.

Presenting Author: Kielan Wilson
Supervisor: Assoc Prof Joseph Butler
Co-Supervisor: Prof Seamus Morris

104. A DETAILED INVESTIGATION OF THE USE OF ANTIMICROBIAL AGENTS INCLUDING CRITICALLY IMPORTANT ANTIMICROBIALS IN THE UCD VETERINARY HOSPITAL (UCDVH)

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Inappropriate use of antimicrobials leads to antimicrobial resistance. This study assessed antimicrobial use in cats and dogs within the UCDVH small animal medicine, surgery and oncology sections. Between June 2020 through December 2020, records of 968 new patients were reviewed. Antimicrobials were prescribed in 316 [32.6%] animals, of which 34 [10.8%] were cats and 282 [89.2%] were dogs. A single antimicrobial agent was prescribed in most cases (16 [47%] cats and 180 [63%] dogs). Amoxicillin-clavulanate was prescribed most frequently, (33 [0.7%] cats and 183 [40.9%] dogs). No cats or dogs were prescribed European Medicines Agency class A antimicrobial drugs. Four [7.7%], 51 [78.5%] and nine [13.8%] cats and 45 [10.1%] 346 [77.4%] and 56 [12.5%] dogs were prescribed class B, C and D drugs, respectively. Dosing data were collected for amoxicillin clavulanate, cefuroxime, enrofloxacin, marbofloxacin, and metronidazole. Most antimicrobials were prescribed at appropriate doses, with occasional examples of underdosing of amoxicillin clavulanate, marbofloxacin, and metronidazole, and overdoses in amoxicillin clavulanate and enrofloxacin (24 [5.5%] underdoses and 5 [1.2%] overdoses). The intravenous route of administration was most common in both species (40 [61.5%] cats and 255 [50.3%] dogs).

Prior to presentation, 17 [50%] cats and 127 [44.6%] dogs were prescribed one or more antimicrobials by the referring veterinarian. This study demonstrated that the restricted class B antimicrobial drugs were used infrequently. Class C drugs were most frequently used. The alternative use of class D drugs, such as non-potentiated amoxicillin, should be explored. Most antimicrobials were prescribed at an appropriate dose.

Presenting Author: Carli Gentile
Supervisor: Assoc Prof Finola Leonard

105. INVESTIGATION OF PRESCRIBING PRACTICES BY IRISH VETERINARY PRACTITIONERS

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Antimicrobial resistance accession has resulted in scrutiny of both human and veterinary antimicrobial use. The purpose of the study was to investigate prescribing patterns of Irish small-animal veterinary practitioners. An anonymous online survey sent to registered veterinary surgeons collated demographic and prescribing data. Five hypothetical case scenarios were presented to explore antimicrobial use and the associated reasoning. 140 clinicians participated in the survey, but only 82 (58.5%) completed all sections. 19 (13.6%) respondents reported that their practice had a policy for antimicrobial use. Veterinarians with 0-5, 6-15, 16-25 and ≥26 years’ experience prescribed antimicrobials in 28/70 (40.0%), 96/250 (38.4%), 82/230 (35.7%), and 53/140 (37.9%) scenarios, respectively. Duration qualified was not associated with the decision to prescribe antimicrobials (χ2(3,n=690)=0.61,p=0.89). The most common reasons influencing the decision to prescribe antimicrobials were in descending order: clinical signs, presumptive diagnosis, culture and susceptibility results, case of administration, cytology results, financial constraints and client expectations. Amoxicillin-clavulanate was the most routinely prescribed antimicrobial in 99/274 (36%) of all prescriptions. This was underdosed in 17/86 (19.8%) prescriptions. Under general comments, 5/64 (7.8%) respondents described client expectations and pressures influencing prescribing practices, 5/64 (7.8%) indicated that expense influenced ability to perform culture and susceptibility testing, and 5/64 (7.8%) described use of empirical prescribing. This study demonstrated that antimicrobial use is not influenced by the number of years in practice but is influenced by several clinical and owner-dependent factors. Amoxicillin-clavulanate a European Medicines Agency Class C antimicrobial, was widely used and frequently at doses less than commonly accepted guidelines.

Presenting Author: Julie Edmondson
Supervisor: Assoc Prof Finola Leonard

106. PATIENT-REPORTED OUTCOMES PROJECT IN CARDIOVASCULAR SURGERY: SYSTEMATIC REVIEW

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Perioperative cardiac surgical care has begun to shift focus away from outcomes such as mortality, major morbidity and length of stay (LOS) as there is an increasing focus towards patient-centered care and high-value health care. The emergence of these outcome measures to cardiac surgery are vital in allowing us to understand and improve outcomes that are important to patients (physical, emotional, psychological, social) which can be used by providers to improve care beyond traditional methods. We are conducting a systematic review to assess the use of patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs) in the perioperative period for adult patients undergoing open-heart surgery. PROMs and PREMs are metrics that capture information that comes directly from the patient. We systematically search the following electronic databases: CINAHL, MEDLINE, PsyCINFO and EMBASE databases followed by screening the retrieved articles using Covidence. Data regarding PROM and PREM usage has been extracted from selected studies describing the types of PROMs/ PREMs, appropriate use of measures, timing of measurements, description of scoring functions, relation to outcomes (mortality, morbidity and LOS) and quality assessment of studies will be conducted. Although PROMs/ PREMs are being used, often the measures used are unvalidated or only portions of validated PROMs/ PREMs are being used which is inappropriate when looking at effective PROM/ PREM usage. While the use of PROMs/ PREMs have been shown to improve patient outcomes.
and experiences, their use with relation to perioperative cardiac surgical care needs to be more standardized and robust to be beneficial to inform value-based healthcare.

Presenting Author: Mahmoud Al-Ghabari
Supervisor: Dr Maria Santana

107. USING WEIGHT LOSS AS AN INDICATION OF DURATION OF ADHERENCE TO A LOW CARBOHYDRATE WEIGHT LOSS DIET
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Weight loss is an effective method of both the prevention and treatment of many diseases [1]. Few studies assess the duration of adherence to a low carbohydrate diet. The purpose of this meta-analysis is to study the extent of weight loss on a low carbohydrate diet and use it as an indicator of adherence to the diet.

A search was run on Medline, Embase, and Cochrane to yield a total of 2146 articles which were screened by 2 reviewers. The screening phase left 43 articles to extract data from, which was used to calculate between group mean differences (MD) and standard error of mean (SEMD). The MD and SEMD of each study was used to create forest plots at 3, 4, 6, 12, and 24-month time points.

Time permitted forest plots to be created on 20 out of the 43 studies. The results of MD (LCI, UCI), and p-value for the 3, 4, 6, 12 and 24 months are as follows: MD = -2.23 (-3.25, -1.21) p-value = 0.0001, MD = -9.17 (-14.9, -3.43) p-value = 0.002, MD = -2.43 (-3.88, 0.98) p-value = 0.001, MD = -1.37 (-2.39, -0.35) p-value = 0.009, MD = 0.43 (-1.48, 2.34) p-value = 0.66, respectively. There was significant weight loss in the low carbohydrate group at every time point except for 24 months. This means that individuals are able to adhere to a low carbohydrate diet for 1 year but may further research needs to be done on its effectiveness past 1 year.

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Presenting author: Omadyor Ibragimov
Supervisor: Dr David Jenkins

108. ARRHYTHMIA’S CONNECTION TO SLEEP DISTURBANCES AND THEIR IDENTIFICATION USING PHOTOPLETHYSMOGRAPHY ANALYSIS
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Photoplethysmography (PPG) uses infrared light to measure arterial blood volume changes with each pulse beat. Perfusion alterations due to variations in heart rate are reflected on the PPG waveform [1]. These characteristics make PPG a useful tool in recognizing specific arrhythmias without a corresponding electrocardiogram (ECG); such as with premature ventricular complexes (PVCs). Arrhythmia recognition via PPG is useful in home sleep studies (HSTs) which are primarily used to identify sleep-disordered breathing such as sleep apneas. Both obstructive and central sleep apneas are associated with arrhythmias and cardiovascular impacts [2].

The purpose of this literature review was to create a comprehensive overview of the possible mechanistic hypothesis between arrhythmias and sleep disturbances. Additionally, to highlight the use of PPG analysis in their identification in sleep studies.

Literature searches using relevant medical databases were conducted to collect citations relating to the sleep disturbances and arrhythmias, and the use of PPG analysis for their identification. Then reviewed in full-text and evaluated for relevancy and eligibility. After a quality appraisal and assessment, main concepts, themes, and connections were identified. We further characterized how arrhythmias could be recognized on a PPG waveform as you would see it in sleep study data.

Results revealed a correlation between arrhythmias and sleep disturbances. Notably between sleep apneas and atrial fibrillation, which have been connected to acute physiological mechanisms such as intermittent hypoxia [2]. Additionally, that PPG shows effective for use as a diagnostic tool for arrhythmias in the context of sleep studies; especially for cases involving sleep disturbances.

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Presenting Author: Alexandra Pollak
Supervisor: Dr Francis Christian

109. A COMPARISON OF OUTCOMES BETWEEN AN IN-PERSON AND TELEHEALTH THERAPY PROGRAMME IN A NATIONAL REHABILITATION HOSPITAL
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The COVID-19 pandemic prompted a re-evaluation of the methods in which we deliver outpatient care. This study is a retrospective chart review comparing the effectiveness of a telehealth delivered rehabilitation programme with that of a programme delivered in person. Comparisons were drawn from goals achieved by patients taking part in each programme.

Sample size was 62. Two groups of charts were analysed - ‘In-Person’ (n=30) and Telehealth (n=32). Data including demographic data, quantity of goals set by each patient at the outset of their respective programme and the outcome of these goals by the end was collected. Goals were...
Systemic lupus erythematosus (SLE) is an autoimmune disease that can affect multiple organ systems including the nervous system, causing neuropsychiatric SLE (NPSLE). NPSLE commonly manifests in cognitive impairment (CI). Many patients living with SLE also deal with a decrease in work productivity. This study aimed to explore the relationship between CI and work productivity in patients with SLE.

In this study, 236 patients followed at the University of Toronto Lupus Clinic who underwent cognitive screening through use of the American College of Rheumatology Neuropsychological Battery (ACR-NB) and completed the Work Productivity and Activity Impairment (WPAI) questionnaire at their baseline visit. The ACR-NB assesses CI across six cognitive domains. The WPAI assesses absenteeism and presenteeism and overall work impairment scores.

In the univariate analysis, impairment in domains assessing simple attention and processing speed, learning and memory, and executive function were found to be significantly correlated to increased daily activity impairment. In the multivariate analysis, damage resulting from SLE disease activity was found to be significantly associated with increased absenteeism and overall work impairment scores. Impairment of cognitive domains was not found to be significantly associated with increased absenteeism, presenteeism or overall work impairment scores. Significant correlations between impaired cognitive domains and daily activity impairment were found. These results may indicate that patients’ adaptive mechanisms are more effective in offsetting cognitive impairment in the workplace than in everyday activities.

Acknowledgment:
The author would like to acknowledge support and funding from the Hospital Saturday Fund Grant and the Canadian Rheumatology Association.

Presenting Author: Connor L. Maddock
Supervisor: Dr Zahi Touma

111. RARE GENOMIC COPY NUMBER VARIANTS ARE A PREVALENT CAUSE OF BICUSPID AORTIC VALVE DISEASE
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Bicuspid aortic valve (BAV) is the most common congenital heart defect in 1% of adults and cause 50-70% risk for thoracic aortic aneurysms or acute aortic dissections (TAD) [1]. BAV is inherited as an autosomal dominant trait with variable penetrance and expressivity due to interactions between many causative genes and cardiovascular risk factors such as hypertension. We have previously found large rare genomic copy number variants (CNVs) in BAV and TAD cases with early onset disease [2].

We hypothesized that rare CNVs are enriched in BAV and involve genes that regulate heart development. To expand on these observations, I developed a computational pipeline to identify rare CNVs in 5040 Illumina SNP array genotypes from the International BAV Consortium. First, I analyzed raw intensity data using three different algorithms (PennCNV, QuantiSNP, iPattern) to generate initial CNV calls and sample-level quality statistics. Next, I used R packages in EnsembleCNV to eliminate outliers by principal component analysis and to re-genotype a definitive list of consensus CNV regions. Finally, I used PLINK to annotate and catalogue rare CNVs. I identified X large (>200 Kb) genic CNVs in BAV cases: X duplications and X deletions. X of these CNVs involve genes that cause BAV when mutated, including recurrent rare CNVs of 22q11.2 (X) and 16p13.1 (X). In total, I identified causative CNVs in X% of BAV cases and am currently replicating these data in additional BAV cohorts and 25,000 controls. We will assess validated recurrent CNVs as novel genetic markers to predict BAV complications.

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Presenting Author: Hasan Albasha
Supervisor: Dr Siddharth Prakash

112. BEHAVIORAL INSIGHTS FOR ROUTINE IMMUNIZATION AND COVID-19 VACCINATION IN KYRGYZSTAN
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Routine immunization rates in Kyrgyzstan have fallen recently [1], and vaccine hesitancy is rising. The COVID-19 pandemic has exacerbated this issue. Several studies stress the importance of social norms in public health interventions, as they are a major behavioral determinant. For example, a study in Kyrgyzstan found that perceived attitudes of those in one’s social network regarding COVID-19 immunization were important determinants of vaccine acceptance [2]. Campaigns targeting norms have been shown to be more effective than communication initiatives focusing solely on individual-level variables. However, most communication efforts tend to only address individual variables.

We aimed to find the gaps in social and behavioral research surrounding immunization and vaccine hesitancy in Kyrgyzstan by reviewing and analyzing literature with the social ecological model. Of the 27 grey literature documents reviewed, only 13 reference social norms; 6 refer to vaccination, and only 3 identify social norms as an important factor in vaccine messaging. 9 documents focus on the COVID-19 pandemic, and only 4 of them identify social norms as an important behavioral influence. Only 1 of the 7 Kyrgyzstan-specific documents discusses social norms. In the academic literature, only 3 articles provided empirical evidence of social norms and vaccination, and the 2 specific to Kyrgyzstan did not mention social norms.

Several resources emphasize how social norms are an important behavioral determinant. Most behavioral research in Kyrgyzstan has focused on individual and interpersonal factors, thus social norms research is necessary to design more effective communication campaigns to promote COVID-19 vaccination and routine immunization.

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Acknowledgment:
The author would like to acknowledge funding from the family of the late Dr Mary J Farrell, the Health Research Board (HRB), Ireland East Hospital Group, as well as internal funding schemes at the UCD School of Medicine, and the UCD College of Health and Agricultural Science.

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A scoping review was conducted using Arksey and O’Malley’s 2005 six-stage framework (2) to examine the literature and determine the impact that direct access to diagnostic imaging within general practice can have on patient care and outcomes. Thirty-two papers, with various methodologies and spanning numerous geographical locations, were selected for review. Studies were analysed qualitatively using a thematic analysis approach. The findings show that direct access to diagnostic imaging can positively impact patient care and outcomes, while reducing referrals to secondary care. However, implementation will involve changes to the healthcare system in the following areas: (i) national policy, (ii) national standardised guidelines for referral, and (iii) enhanced education for GPs and GP trainees. The results of this review indicate further research is required in this area to examine the feasibility of proposed HSE initiatives which aim to improve patient outcomes and the quality of patient care.

Acknowledgement:
The author would like to acknowledge funding from Medisec Ireland.

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Presenting Author: Dr Geoff McCombe
Co-Supervisor: Prof Walter Cullen

115. REVIEW OF THE ROLE OF PHARMACOGENETIC TESTING IN TAMOXIFEN THERAPY: DRUG LICENCING, CLINICAL PRACTICE GUIDELINES, AND PHYSICIAN OPINION

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Tamoxifen is an endocrine treatment in oestrogen receptor-positive breast cancer. The conversion of tamoxifen to its most active metabolite endoxifen is catalysed mainly by the cytochrome P450 2D6 enzyme (CYP2D6). Genetic polymorphisms in CYP2D6 can alter endoxifen plasma concentration, potentially impacting therapy efficacy. The association between CYP2D6 genotype and clinical outcome is controversial, with much conflicting evidence.

The aim of this study was to examine current recommendations and practices of pharmacogenetic testing in tamoxifen therapy, using national summaries of product characteristics, clinical practice guidelines, and a survey of Irish and Canadian medical oncologists and general practitioners (GPs).

This review found that Japan and Canada are the sole drug licensing authorities that recommend CYP2D6 testing prior to tamoxifen prescription. Additionally, it is not recommended by most national breast cancer treatment guidelines. The results of the survey indicate that most Irish and Canadian oncologists do not consider patient genetics prior to prescribing tamoxifen. Awareness of the potential role of pharmacogenetics appeared higher among Canadian oncologists-with 40% considering CYP2D6 polymorphisms following tamoxifen unresponsiveness, compared to 14% of Irish oncologists. The disparity in awareness about pharmacogenetic testing in tamoxifen treatment was much greater amongst GPs; none of the Irish respondents indicated an awareness of the clinical application of pharmacogenetics, compared to 50% of their Canadian counterparts, suggesting the field has not yet reached those working in primary care in Ireland.

Further research, such as a large-scale, randomised control trial must be completed before the debate of pharmacogenetic testing in tamoxifen therapy can be concluded.

Presenting Author: Emmet Browne
Supervisor: Assoc Prof Paula Byrne

116. DISABILITY AND HEALTHCARE INEQUALITIES IN 19TH AND 20TH CENTURY IRELAND: A MEDICAL AND SOCIO-CULTURAL HISTORY

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The treatment of persons with physical and intellectual disability reflects the values of the state and society. Persons with disability often experience discrimination and barriers to healthcare in Ireland (1). The purpose of this study was to assess whether the barriers to health equity for persons with disability, including those from ethnic minority groups, have changed through time. The study focused on the Irish Traveller population to gain insight into the challenges encountered by those with disability who belong to ethnic minority groups. This cohort experience a high prevalence of disability due to consanguinity and poor access to healthcare (2). Stigma also exists around disability within the Traveller community. Current and historical attitudes were compared and accessed using newspaper articles, census data, personal accounts and government reports. The results demonstrated that societal attitudes and access to healthcare have improved since the reports published by the 1963 Commission of Itinerancy and 1965 Commission of Inquiry on Mental Handicap. These reports marked changes in attitude towards these groups. Despite positive legislation to address health inequality, there continues to be a lag between policy and implementation.

Overall, this research highlights that historical distrust and experiences of discrimination have resulted in a continued reliance on community resources and a reluctance to engage with state services. Insufficient progress has been made to tackle the barriers to healthcare encountered by persons with disability. Increased funding and awareness of these issues are essential to drive future policy and resolve the healthcare inequalities these groups experience today.

Acknowledgement:
The author would like to acknowledge funding and support from the UCD School of Medicine and the UCD Centre for the History of Medicine in Ireland, UCD School of History.

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Audit and feedback (A&F) interventions elicit behaviour change by describing existing patterns of behaviour and providing education about desired “ideal” behaviours. Although there are numerous studies that evaluated the effectiveness of A&F interventions on clinician prescribing behaviours, few have looked at which prescriber and practice characteristics would most likely lead the largest response to A&F interventions. Since the effects of the A&F interventions have been noted to vary based on the way they are designed and delivered, understanding the clinician factors that affect change in prescribing behaviour is necessary for optimizing audit and feedback interventions. We aimed to identify primary physician and practice characteristics that are associated with the largest changes in prescribing behaviours following audit and feedback interventions.

We followed the Arksey and O’Malley five-stage scoping review method. Included studies involved primary care physicians that had undertaken a practice audit with a subsequent feedback session. The initial search of MEDLINE and EMBASE identified 960 studies, with no additional studies added from hand-searching reference lists. Five studies were considered relevant and included for a narrative analysis. Among included studies, a variety of physician behaviours were discussed, including NSAID prescriptions and management of cardiovascular disease. A variety of physician and practice characteristics are associated with audit and feedback response. Further investigation of prescriber and practice characteristics associated with higher magnitude changes in physician behaviour could advance the utility of audit and feedback interventions. Quasi-experimental designs should be prioritized to allow for more robust conclusions.

Acknowledgements: The author would like to acknowledge funding from the UCD School of Medicine via the 2021 Dean’s SSRA International Summer Research Scholarship

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118. DEVELOPMENT OF AN IN VITRO ORGANOTYPIC CULTURE MODEL FOR PANCREATIC DUCTAL ADENOCARCINOMA
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Pancreatic Ductal Adenocarcinoma (PDAC) is the most common type of pancreatic cancer and one of the deadliest cancers. The 5-year survival rate is under 9% (1). Although there has been years of research in this field, this statistic has remained the same, highlighting the missing therapeutic breakthrough needed to treat it. The low survival rate is due to the development of dense stroma within the tumour micro-environment (TME) by pancreatic stellate cells (PSCs). They are activated into fibroblasts and secrete extracellular matrix proteins, creating a favourable TME.

So far, animal models are the closest thing to mimicking the PDAC TME, yet still fail to represent the desmoplastic reaction of human tumours (2). The aim of this research was (a) culture and image mouse myofibroblasts (MEFs) on PeptiGels (b) 2D and 3D culture of PSCs on PeptiGels of different stiffnesses, (c) Live-Dead Assay to test cell viability in different gels. PSCs were seeded (15,000 cells/30uL gel for 3D work and 20,000 cells/50 uL gel for 2D) in culture medium containing Dulbecco’s Modified Eagle Medium/F12, Foetal Bovine Serum and Penicillin-Streptomycin.

The results from the 2D Live/Dead assay show that α2 and α2RGD are the optimal PeptiGels for PSCs. These were the stiffest gels out of the five, with a kPa value of 10.

The results from the Live/Dead Assay demonstrate that cells need to be seeded at higher densities for 3D work and also, not to be left for more than 1 hour in the Live/Dead solution, as they will appear dead.

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119. ABSOLUTE LYMPHOCYTE COUNT (ALC) AND NEUTROPHIL-TO-LYMPHOCYTE RATIO (NLR) IN PATIENTS WITH HEPATOCELLULAR CARCINOMA (HCC) TREATED WITH COMBINED IMMUNE CHECKPOINT INHIBITION AND TRANSARTERIAL CHEMOEMBOLIZATION (TACE)
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TACE induces a peripheral anti-tumour immune response, which may be amplified by immune checkpoint inhibitors (ICIs). Though an approved treatment for HCC, the majority of patients do not respond to ICIs and identification of predictive biomarkers is needed.(1) NLR is associated with response in other malignancies treated with ICIs. The aim of this research was to evaluate ALC and NLR in HCC patients treated with combined ICIs and TACE.

Medical records of HCC patients (Childs Pugh A/B7; Barcelona Clinic Liver Cancer Stage B/C; ECOG 0/1; sorafenib-naïve or experienced) enrolled in an ongoing study (UCDCRC/19/01) of tremelimumab,
durvalumab and subtotal TACE were reviewed. Full blood count including differential sample assessments were performed at baseline and weekly. 13 patients enrolled. M:F 10:3. Median age 70 (65-74); BCLC B/C 4:9; extrahepatic disease 6:13; aetiology: NASH (N=3), alcohol-related disease (N=1), HCV (N=2), haemochromatosis (N=1), unknown (N=6). Median ALC at baseline was 1.0 and 5 patients had lymphopenia. Median percentage change in ALC from baseline at week 4, 8 and 12 was 7.15%, -10% and -20%. Median NLR at baseline was 3.36. Median percentage change in NLR from baseline at week 4, 8 and 12 was -2.4%, 5.5% and 17.19%. Progression-free and survival data will be presented. ALC and NLR are readily available and inexpensive biomarkers of interest for patients treated with ICI. In this novel trial of combined ICI and TACE in advanced HCC, dynamic changes in ALC and NLR were seen and with longer follow-up their relationship with clinical outcome will be explored.

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120. THE HISTORICAL USE OF RADIOGRAPHY AND DIAGNOSTIC IMAGING TO DIAGNOSE AND TREAT MULTIDRUG-RESISTANT TUBERCULOSIS: EXPLORING STRATEGIES FOR EARLY DIAGNOSIS AND MONITORING RESPONSE TO THERAPY

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Tuberculosis remains a global killer despite scientific advancements. A major reason for that is the rising prevalence of multidrug-resistant tuberculosis (MDR-TB) - a strain of tuberculosis resistant to isoniazid and rifampicin. As inappropriate anti-microbial treatment can lead to dangerous implications for the patient, it is imperative for a case of MDR-TB to be identified rapidly. Radiographic imaging is the preferred diagnostic tool for tuberculosis due to its availability in primary healthcare. This research explored the historical use and functionality of radiography in tuberculosis management, with specific aims to identify radiological signs associated with MDR-TB on chest X-ray images and position emission topography (PET) scans.

This project was conducted with a retrospective literature review. A search on PubMed and NCBI was performed, using the keywords 'tuberculosis', 'multidrug-resistant tuberculosis', 'X-rays' and 'PET scan'. Studies that discussed identifying or managing tuberculosis and the application of X-rays or PET scans were included. Studies that focused exclusively on adolescents below age 18 or immunocompromised patients were excluded. Comparison between chest X-ray images of conventional tuberculosis and MDR-TB yielded significant differences, namely more extensive infections with multiple cavities in MDR-TB. The usage of PET scans with fluoro-deoxyglucose-18 as a glucose analogue was identified as valuable in evaluating tuberculosis disease activity in response to antimicrobial therapy.

Healthcare professionals should direct more focus on screening high-risk MDR-TB patients with chest X-ray examinations before beginning treatment, and consider including PET scans in early stages of treatment to identify potential MDR-TB, such that the management plan can be adjusted accordingly.

Acknowledgements:
The author would like to acknowledge funding from Medica Ireland.

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121. ANALYSIS OF STAKEHOLDER PERCEPTION OF COMPARATIVE ONCOLOGY IN THE STUDY OF MELANOMA

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Comparative oncology examines naturally occurring cancers seen in both animals and humans to compare findings between species. It is a growing field which has the potential to benefit both veterinary and human patients by giving insights into cancer progression and treatment responses. Importantly, comparative oncology requires collaboration between many groups including Veterinary Professionals, Human Healthcare Professionals, Biomedical Researchers, Pet Owners, and People with Lived Experience of Cancer. Our study aimed to qualitatively assess the different perceptions and knowledge of comparative oncology between these various stakeholders.

Interviews and a survey were conducted by senior researchers analysing the perceptions of various stakeholder groups involved in Comparative Oncology: Veterinarians, Patients, Healthcare Professionals and Biomedical Researchers. Information was included on Respondent Subgroups, Pet Ownership status, as well as opinions on Communication of Findings, Consent, Knowledge, Opinions, and Values/Concerns. These interviews and surveys were analysed in NVivo using matrix coding and standardised in Excel using a mentions per person ratio to assess perceptions across subgroups.

One hundred seventy-six individuals responded to the anonymous survey, and a further 12 individuals were interviewed to assess their knowledge and perceptions regarding Comparative Oncology. The stakeholder groups presented with various levels of knowledge and concerns regarding Comparative Oncology. Expectedly, the biomedical researcher cohort had the greatest knowledge mentions per person of 1.9, followed closely by Veterinary professionals (1.4), with the lowest being Human
Healthcare Professionals (0.55). The Concerns held by respondents were classified as “Animal Welfare”, “Convenience”, “Cooperation with Veterinary Professionals”, “Data Management/Storage”, “Information Availability”, “Scientific Rigour”, and “No Concerns”.

In our study, the stakeholder groups held different perceptions of comparative oncology. Researchers were most concerned with scientific rigour whilst Veterinarians were most often concerned with animal welfare. The results of this study indicate the different values held by the stakeholders in comparative oncology and indicate areas researchers must address when undertaking these studies.

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Publisher’s note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.