Atlantic Corridor Medical Student Research Conference 2019

Brookfield Health Sciences Complex
University College Cork

November 7th

Atlantic Corridor Medical Student Research Conference 2019

Welcome Message from the Local Organising Committee

Welcome to the 2019 Atlantic Corridor Conference

On behalf of the local organising committee, we are delighted to welcome you all to the 6th Atlantic Corridor Medical Student Research Conference. This intervarsity undergraduate research showcase will provide an opportunity to enjoy presentations on a diverse range of clinical and translational medical research projects completed across two of the 'Atlantic Corridor' medical schools – UCC and NUIG. This year's varied and exciting programme consists of 12 short oral and 32 poster presentations, in addition to a plenary lecture by one of Ireland's most prominent experts in molecular virology.

We hope that all visiting students and staff enjoy the conference programme, as well as the hospitality of UCC staff during the event.

We would like to acknowledge the ongoing generous support of UCC School of Medicine's Research and Postgraduate Affairs Committee for providing support for this event. Thank you also to Ms Emma O'Reilly, Senior Executive Assistant at UCC School of Medicine, for providing administrative support.

Dr Eileen Duggan, Dr Colm O'Tuathaigh

Medical Education Unit, School of Medicine, UCC

Atlantic Corridor Medical Student Research Conference Schedule 2019

Schedule – At a Glance

Oral Presentations in Rm G02

09:30 – 09:50	Registration & Refreshments (*served in Jennings Gallery*)
09:50 – 10:00	Opening Address by Dr Deirdre Bennett, Head of Medical Education, UCC
10:00 – 11:15	Oral Presentations I **Session Chairs:** Dr Eileen Duggan (UCC), Dr Róisín Dwyer (NUIG)
11:15 – 11:30	Coffee, *Jennings Gallery*
11:30 – 12:30	Oral Presentations II **Session Chairs:** Dr Akke Vellinga (NUIG), Dr Colm O'Tuathaigh (UCC)
12:30 – 13:30	Lunch & Poster Session, *Rm 2.63*
13:30 – 14:15	Oral Presentations III **Session Chairs:** Dr Eileen Duggan (UCC), Dr Róisín Dwyer (NUIG)
14:15 – 15:00	**Plenary Lecture – Rm G02**

"Miles to Go Before we Sleep"

Dr Liam Fanning,
Director, Molecular Virology Diagnostic
and Research Laboratory, Cork University
Hospital

15:00 – 15:15	Prize-giving and Closing Address by Dr Liam Fanning, Chair of Research and Postgraduate Affairs Committee, School of Medicine, UCC

Oral Presentations I – Rm G02

10:00 **Presenter**: Marah Shaik Yousef (NUIG)

Title: Trends in Antimicrobial Prescribing Patterns for Acute Necrotizing Pancreatitis in a Non-specialist Centre; Which Guidelines to Follow?

10:15 **Presenter**: Sean Seltzer (UCC)

Title: The Clinicomolecular Landscape of De Novo versus Relapsed Stage IV Metastatic Breast Cancer: A Case-control Study

10:30 **Presenter**: Mona Benaissa (NUIG)

Title: The Demographic and Clinical Profile of Older Adults with T2DM and Dementia in the North West of Ireland: A Cross Sectional Study

10:45 **Presenter**: Meghan Bourque (UCC)

Title: Improving the Quality of Dementia Care in General Practice: A Qualitative Study

11:00 **Presenter:** Ailish Breathnach (NUIG)

Title: Infant feeding: How do Irish Parents Plan to Wean on Foot of Important Advances for Primary Prevention of Food Allergy?

Oral Presentations II – Rm G02

11:30 **Presenter**: Bailey Crowley (UCC)

Title: The Interaction of Presbycusis and SALADs on Medical Error

11:45 **Presenter**: Sinead Burke (NUIG)

Title: Evaluating the Levels of Cognitive Impairment in Pre-manifest and Manifest Huntington's Disease Patients Compared to Controls: A Comprehensive Analysis of the ENROLL-HD Database

12:00   **Presenter**: Mario Rotundo (UCC) & Darek Sokol-Randell (UCC)

                     Title: Characteristics and Assessment of Potential Concussive Events in Gaelic Athletic Association Players

12:15   **Presenter**: Pádraig Folan (NUIG)

                     Title: Evaluating Progesterone Receptor (PgR) Status as a Prognostic Indicator in Estrogen-receptor Positive Breast Cancer

Oral Presentations III – Rm G02

13:30   **Presenter**: Leah Falvey (UCC)

                     Title: What Does Your Pelvic Floor Do for You? Knowledge of the Pelvic Floor in Female University Students

13:45   **Presenter**: Alan Keane (NUIG)

                     Title: The Effect of Bone Marrow Mesenchymal Stromal Cell Conditioned Media on Myoblast Proliferation and Differentiation in vitro

14:00   **Presenter**: Jane Creech (UCC)

                     Title: The Incidence of Concurrent Benzodiazepine Use in Methadone Patients

Poster Presentations

BHSC_263

P1	**Promoting Cultural Competence Among Health and Social Science Students in Postgraduate Education: An Integrated Systematic Review** Christopher Lie Ken Jie [1], Doris Y. Leung [2], Yvonne Finn [1] *[1] College of Medicine, National University of Galway, Galway, Ireland; [2] School of Nursing, The Hong Kong Polytechnic University, Hong Kong*
2	**Review of the National Perinatal Epidemiology Centre Perinatal Mortality Audit Reports (2009-2016)** Arlene Gutman [1], Änne Helps [2,3,4], Sara Leitao [3], Keelin O'Donoghue [2,4] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Pregnancy Loss Research Group, Department of Obstetrics and Gynaecology, University College Cork, Ireland; [3] National Perinatal Epidemiology Centre (NPEC), University College Cork, Ireland; [4] The Irish Centre for Fetal and Neonatal Translational Research (INFANT), University College Cork, Ireland*
P3	**Analysis of Serum Extracellular Vesicle (EV) Encapsulated MicroRNA-193b** Karin Ishak, Clodagh O'Neill, Katie Gilligan, Roisin Dwyer *School of Medicine, NUI Galway, Galway, Ireland*
P4	**Differences between Roux-En-Y Gastric Bypass Surgery and Laparoscopic Sleeve Gastrectomy on Postoperative Lipid Levels and BMI** Kah Jin Lee [1], Aaron Kwun Hang Ho [1], Colm O'Boyle [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Surgery, Bons Secours Hospital, Cork, Ireland*
P5	**Plasma Exchange in the Management of Paediatric Renal Conditions: Single Centre Experience over 17 years** Conor Devlin [1], Conor Hensey [2], Clodagh Sweeney [3], Tara Raftery [3], Atif Awan [3], C Costigan [3], G Stone [3], M Waldron [3], N Dolan [3], M Riordan [3], M Stack [3] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] General Paediatrics, Children's Health Ireland, Dublin, Ireland; [3] The Department for Paediatric Nephrology and Transplantation, Children's Health Ireland, Dublin, Ireland*
P6	**Exploring the Views of Irish General Practitioners to a Patient-held Checklist for Epilepsy Reviews: A Qualitative Feasibility Study** Andrew Namespetra [1], W. Henry Smithson [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of General Practice, University College Cork, Cork, Ireland*
P7	**An Exploratory Study of the Prevalence of Palmar and Plantar Warts in Patients with Inflammatory Bowel Disease** Therese Mc Carthy [1], Kate Finn [1], Aine Keogh [2], Gloria Avalos [1, 2], Laurence Egan [1, 2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Galway University Hospital, Galway, Ireland*

P8	**Knowledge, Attitudes and Beliefs of Pregnant Women regarding Epidural Analgesia** Catherine Henry [1], Daniel Mullane [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Anaesthetics, Cork University Hospital, Cork, Ireland*
P9	**An Audit of Paediatric Cases Referred to the Office of the State Pathologist from 2012-2017** Shane Eakins [1], Kathleen Han Suyin [2], Linda Mulligan [2] *[1] School of Medicine, National University of Ireland, Galway, Ireland; [2] The Office of the State Pathologist, Dublin, Ireland*
P10	**Correlation between Bhalla Score and Clinical Parameters in the Assessment of Disease Severity in Cystic Fibrosis Patients with Poor Lung Function on Treatment with Orkambi (ivacaftor/lumacaftor)** Dane Gunter [1], Michael M. Maher [2], Barry Plant [3], Owen J. O'Connor [2], Brian Carey [2], Richard Kavanaugh [2], Stella Joyce [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Cork University Hospital Radiology Department, Cork University Hospital, Cork, Ireland; [3] Cystic Fibrosis Treatment Centre, Cork University Hospital, Cork, Ireland*
P11	**Twinned Audit of Severe Pre-Eclampsia Management to Address Equity in Maternal and Fetal Health in Mayo & Londiani** Katie Moran [1], Collins Biwott [2], Nada Warreth [3], Catherine Taaffe [3], Aoife Sweeney [1], Maria Kidney [4], Anne Healy [4], Meabh Ni Bhuineain [1, 3] *[1] School of Medicine, National University of Ireland Galway, Galway, Ireland; [2] Londiani Sub-County Hospital, East Kericho, Kenya; [3] Mayo University Hospital, Castlebar, Ireland; [4] Brighter Communities Worldwide, Cork, Ireland*
P12	**Safety Issues in Paediatric Emergency Departments** Mairéad O'Donnell [1], Ronan O'Sullivan [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Medical Assessment Unit, Bon Secours Hospital, Cork, Ireland*
P13	**The Use of Wearable Devices to Monitor Motor Disability in Multiple Sclerosis - A Real World Pilot Study** Daniel Coyle [1], Teresa Leahy [2], Eithne Waldron [3], Timothy Counihan [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Department of Neurology, University Hospital Galway, Galway, Ireland; [3] Department of Physiotherapy, University Hospital Galway, Galway, Ireland*
P14	**Assessment of Differences in Lifestyle Factors and Biological Sex on Cognition and Inflammation in Healthy Older Aged Adults** Ciara O'Donoghue [1, 2], Caitriona Long-Smith [2], Stefanie Grabrucker [2], Gerard Clarke [3, 4], Suzanne Timmons [5], Yvonne M. Nolan [2, 4] *[1] School of Medicine, University College Cork, Ireland; [2] Department of Anatomy and Neuroscience, School of Medicine, University College Cork, Cork, Ireland; [3] Department of Psychiatry and Neurobehavioural Science, School of Medicine, University College Cork; [4] APC Microbiome Ireland, University College Cork, Cork, Ireland; [5] Centre for Gerontology and Rehabilitation, School of Medicine, University College Cork, Cork, Ireland*

P15	**Cancer Cachexia in Breast Cancer's Effect on Muscle Fibre Size and Mitochondrial and Atrophic RNA Expression in a Mouse Model** Jacob Lavieille-Curran [1], Roisin Dwyer [2, 3], Katarzyna Whysall [4, 5] *[1] School of Medicine, National University of Ireland, Galway, Ireland; [2] Department of Physiology, School of Medicine, National University of Ireland, Galway, Ireland; [3] Regenerative Medicine Institute (REMEDI®), National University of Ireland, Galway; [4] Department of Physiology, School of Medicine, National University of Ireland, Galway, Ireland; [5] Institute of Ageing and Chronic Disease, University of Liverpool, United Kingdom*
P16	**A Retrospective Review of the Perinatal Palliative Care (PPC) Programme at Cork University Maternity Hospital (CUMH)** Caoimhe Healy [1, 2], Anna-Maria Verling [2, 3], Ríóna Cotter [2], Keelin O'Donoghue [1, 2, 3] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Pregnancy Loss Research Group, [3] Cork University Maternity Hospital, Cork, Ireland*
P17	**Assessing the usefulness of three-dimensional imaging and virtual reality in surgical planning: A medical student led pilot study** Clodagh Ryan [1], Eoin O' Malley [2], Declan Sheppard [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Department of Radiology, University Hospital Galway (UHG), Galway, Ireland*
P18	**The added utility of the EMA panel to the clinical and pharmacological management of suspected inflammatory conditions** Siobhan Clifford [1], Grainne Murphy [2], John Ryan [2], Liam Chawke [3], Carol Higgins [4], Katherine Hooley [4], Caroline Joyce [4], Seán Costelloe [4] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Rheumatology, Cork University Hospital, Cork, Ireland; [3] Department of Respiratory Medicine, Cork University Hospital, Cork, Ireland; [4] CUH Immunology Laboratory, Cork University Hospital, Cork, Ireland*
P19	**Effects of Chemotherapy on Tumor Stromal Cells in Breast Cancer Patients** Carson McFeetors [1], Domhnall O'Connor [1], Gloria Avalos [2], Laura Barkely [1], Michael Kerin [1] *[1] Discipline of Surgery, Lambe Institute for Translational Research, NUI Galway, Galway, Ireland; [2] The Clinical Science Institute, The National University of Ireland, Galway, Ireland*
P20	**Brain Imaging at the Time of Diagnosis of Lung Cancer. A Large Retrospective Study of Compliance with National Guidelines.** EP Soh [1], MT Henry [2], D Power [3], MP Kennedy [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Respiratory Medicine, Cork University Hospital, Cork, Ireland; [3] Department of Oncology, Cork University Hospital, Cork, Ireland*
P21	**Knowledge of and Attitudes towards HPV and the HPV Vaccine among Inflammatory Bowel Disease Patients** Kate Finn [1], Laurence Egan [2], Therese McCarthy [1], Aine Keogh [3], Linda Duane [3]

	[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Department of Pharmacology & Therapeutics, University Hospital Galway, Galway, Ireland; [3] Clinical Research Facility, University Hospital Galway, Galway, Ireland
P22	**An Investigation into Potential Prognostic Indicators in a Large Cohort of Patients with Small Cell Lung Cancer (SCLC)** Thomas Talbot [1], Richard Bambury [2], Michael Henry [3], Marcus Kennedy [3] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Medical Oncology, Cork University Hospital, Cork, Ireland; [3] Department of Respiratory Medicine, Cork University Hospital, Cork, Ireland*
P23	**Men's Perceptions of Living with Osteoporosis: A Systematic Review of Qualitative Studies** Marie Compton [1], Ben W Mortenson [2], Joanna Sale [3, 4], Alex Crossman [5], Maureen C Ashe [6, 7] *[1] National University of Ireland, Galway, Ireland; [2] GF Strong Rehabilitation Research Program, The University of British Columbia, Vancouver, BC, Canada; [3] Li Ka Shing Knowledge Institute, St Michael's Hospital, Toronto, ON, Canada; [4] Institute of Health Policy, Management and Evaluation, Dalla Lana School of Public Health, University of Toronto, Toronto, ON, Canada; [5] Royal Melbourne Hospital, Melbourne, Vic, Australia; [6] Centre for Hip Health and Mobility, Vancouver, BC, Canada; [7] The University of Adelaide, Australia*
P24	**The Relationship of Athlete Factors and Patient Reported Outcomes on Return to Play 1-year post ACL Reconstruction** Liana Balaghi [1], Enda King [2], Lindsay Tetreault [1], Eanna Falvey [1, 2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Sports Surgery Clinic (SSC), Dublin, Ireland*
P25	**Using Fitbit to Track Sleep and Exercise in Older Adults with Dementia** Noof Al-Balushi [1], P Doyle [2], N Gallagher [2], A. Dorey [2], S Smyth [2], D Casey [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] School of Nursing and Midwifery, NUI Galway, Galway, Ireland*
P26	**Patients Referred for Arteriovenous Fistula Construction: A Retrospective Outcome Analysis** Andrew S. Kucey [1], Doireann P. Joyce [2], Teresa O'Neill [3], Gregory J Fulton [1, 2], William D. Plant [1, 3], Brian J. Manning [1, 2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Vascular Surgery, Cork University Hospital, Cork, Ireland; [3] Department of Renal Medicine, Cork University Hospital, Cork, Ireland*
P27	**hESC-Derived Cerebral Organoids Demonstrate Brain Regionalisation** Li Ying Tay [1], Lifeng Qiu [2], Wei Ling Jolene Lee [2], Li Zeng [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Neural Stem Cell Research Laboratory, National Neuroscience Institute, Singapore*

P28	**Three-dimensional Computed Tomographic Reconstruction of Superficial Femoral Artery: Anatomical Variation as a Risk Factor for Arterial Disease** Ahmad Kamaludin [1], Brian Manning [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Vascular Surgery, Cork University Hospital, Cork, Ireland*
P29	**The Grit Factor- Acquired or Inherent?** John Cosgrave [1], Sami Abd Elwahab [2], Aoife Lowery [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Discipline of Surgery, Lambe institute for Translational Research, NUI Galway, Galway, Ireland*
P30	**The Implication of BRAF Mutation in Advanced Colorectal Cancer** Emma O'Riordan [1], William Bennett [2], Derek Power [3] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Pathology, Cork University Hospital, Cork, Ireland; [3] Department Medical Oncology, Mercy University Hospital, Cork, Ireland*
P31	**Development of Bone Phantoms for Evaluation of a Novel Osteoporosis Monitoring Device** Daniel Kelly [1], Bilal Amin [2], Adnan Elahi [2] *[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Translational Medical Device Lab, NUI Galway, Galway, Ireland*
P32	**A Five-year Retrospective Review of Fatalities Involving Novel Psychoactive Substances in Southern Ireland** Andrew Mazurek [1], Margot Bolster [2] *[1] School of Medicine, University College Cork, Cork, Ireland; [2] Department of Pathology, University College Cork, Cork, Ireland*

Oral/Poster abstracts

O1

Trends in Antimicrobial Prescribing Patterns for Acute Necrotizing Pancreatitis in a Non-specialist Centre; Which Guidelines to Follow?

M. Shaikh Yousef [1], P. Kakodkar [1], V. Vikneswaramoorthy [2], R. Cafferkey [3], M. Ronan [1], W. Khan [4], I. Khan [4], R. Waldron [4], S. Sibartie [2], K.Barry [1, 4]

[1] Mayo Medical Academy, National University of Ireland Galway; [2] Department of Microbiology, Mayo University Hospital, Soalta Health Care Group, Castlebar, Ireland; [3] Department of Antimicrobial Pharmacy, Mayo University Hospital, Soalta Health Care Group, Castlebar, Ireland; [4] Department of Surgery, Mayo University Hospital, Soalta Health Care Group, Castlebar, Ireland

Introduction: Local antimicrobial guidelines recommend considering ceftriaxone and metronidazole, in patients with acute necrotizing pancreatitis, admitted to the ICU, whereas several international guidelines and surgeons from national hepato-biliary (HPB) referral centres recommend using Carbepenems, which increase the risk of acquiring Carbapenemase Producing Enterobacterales (CPE). We aim to review the antimicrobial management of patients admitted to the ICU with acute necrotizing pancreatitis and assess the antimicrobial recommendation from national HPB centres.

Methods: Treatment data of patients admitted to the ICU with query acute pancreatitis between September 2016 and February 2019 was extracted from a prospectively maintained microbiology electronic database for the following case series and consent was obtained.

Results: Seventeen patients admitted to the ICU with query pancreatitis were included. Out of the 17 patients, 71 % were male (n= 12) with a median age of 60 (36-80) years. Fifteen had radiologically confirmed acute pancreatitis; 8 of which had acute severe necrotizing pancreatitis (9 episodes). Meropenem was recommended in 37.5 % of the episodes (n=6), and 66.7 % of the time (n= 4), it was recommended by a national HPB centre. Leading on from that, the median duration of meropenem use was 5 days [range 3-14]. The most prescribed antibiotic for this cohort of patients was piperacillin/tazobactam, 81.8 % of the episodes. One patient acquired CPE.

Conclusion: Meropenem should be used cautiously in acute necrotizing pancreatitis due to the associated risk of CPE. Moreover, there is a need to standardize antimicrobial usage for acute necrotizing pancreatitis in the ICU environment.

O2

The Clinicomolecular Landscape of De Novo versus Relapsed Stage IV Metastatic Breast Cancer: A Case-control Study

Sean Seltzer [1], Seamus O'Reilly [2], Mark Corrigan [3]

[1] School of Medicine, University College Cork, Cork; [2] Mercy University Hospital, Cork; [3] Department of Surgery, Cork University Hospital, Cork

Background: de novo metastatic breast cancer (dnMBC) has remained resistant to detection by mammography screening and is steadily increasing. Recent publications suggest dnMBC may be due to their unfavourable biology. Here we investigated the tumour biology of dnMBC in the form of genomic alterations and differential gene expression to create a comparative landscape of de novo vs. relapsed metastatic breast cancer (rMBC).

Methods: Using TCGA tumour data we conducted differential gene expression analysis between 17 dnMBC and 49 rMBC primary tumours. We compared their clinicopathology, genomes and functional enrichment of their differentially expressed gene clusters. dnMBC-specific biomarkers were detected by comparing dnMBC samples to 113 normal breast tissue controls.

Results: dnMBCs showed improved median survival vs rMBC (36 vs. 12 months). dnMBCs were more likely to be hormone receptor positive, less likely to be triple negative with lower histological lymphocytic infiltrate. In terms of genome alterations, dnMBCs had 4-fold increased PTEN mutations and poor survival with ABL2 and GATA3 alterations. Expression-wise, dnMBCs downregulated TNFa, IL-17 signalling, and chemotaxis, while upregulating steroid biosynthesis, cell migration, and cell-adhesion. Biomarker analysis detected pre-existing and novel breast cancer biomarkers.

Conclusion: The comparative tumour landscape revealed significant clinical, pathological and molecular differences between dnMBC and rMBC, indicating that dnMBC may be a phenomenon of its own with differing paths to metastasis from that of rMBC. Additionally, we provided a list of preliminary serum biomarkers that may be useful in detecting dnMBC in between mammograms in its pre-metastatic window if such a window exists.

O3

The Demographic and Clinical Profile of Older Adults with T2DM and Dementia in the North West of Ireland: A Cross Sectional Study

Mona Benaissa [1], Sonn Patel [2], Aislinn Gannon [2], Catherine Dolan [1], Geraldine McCarthy [1], Marguerite O'Donnell [3], Grainne O'Malley [3], Chee Lin Piong [1]

[1] National University of Galway, Galway, Ireland; [2] Sligo-Leitrim Mental Health Services, Sligo, Ireland; [3] Sligo University Hospital, The Mall, Sligo, Ireland

Background: Type II diabetes mellitus (T2DM) is a prevalent disorder which has been associated with comorbidities including changes in cognition. As the rates of diabetes and dementia are predicted to rise, it has become important to identify the factors that contribute to the progression of dementia in individuals with T2DM. The objectives were to establish the demographic and clinical profile of patients with dementia and co-morbid T2DM in an active patient caseload in a community and hospital setting.

Methods: A case register of patients with dementia attending psychiatry of old age and geriatric services in northwest Ireland between Jan 2018-July 2019 was developed and analysed as part of a National Pilot for integrated care.

Results: Out of 497 patients with dementia, 68 patients (13.7%) had a diagnosis of T2DM. In the subpopulation of patients with dementia and T2DM, the most common subtype of dementia was mixed dementia (13.2%). There was a high prevalence of depression in this population at 19.1%. Additonally, 42.6% of the patients were prescribed an antidepressant. In relation to cardiovascular co-morbidities, hypertension was the most common at 54.4%. High rate of polypharmacy were found with 69.1 % of patients on greater than five total medications. Additionally, 19.1 % of patients had evidence of microvessel ischemia.

Conclusion: Our results suggest that there is a high prevalence of comorbid cardiovascular, cerebrovascular, depressive disorders and polypharmacy in this cohort. This highlights the heterogenous nature of the factors affecting brain health and the need for further research into identifying targeted dementia prevention strategies.

O4

Improving the Quality of Dementia Care in General Practice: A Qualitative Study

Meghan Bourque [1], Tony Foley [2]

[1] *School of Medicine, University College Cork, Cork, Ireland;* [2] *Department of General Practice, University College Cork, Cork, Ireland*

Background: The prevalence of dementia in Ireland is rising. General Practitioners (GPs) play a central role in caring for people with dementia. There is a growing demand for community-based care, emphasized by the Irish National Dementia Strategy (INDS). However, there is a paucity of research exploring GPs' views on dementia care since publication of the INDS. The aim of the study is to develop a deeper understanding of how to improve the quality of dementia care in General Practice from the perspective of Irish GPs.

Methods: Semi-structured interviews were conducted with GPs. GPs who completed the 'Dementia in Primary Care' CPD module at UCC were purposively recruited. Interviews were audio-recorded, transcribed, and analyzed by thematic analysis.

Results: 12 (34.3%) GPs agreed to participate. 10 interviews have been conducted to-date. Interview findings fell into three major categories: facilitating factors; barriers to care; and recommendations to enhance care. Quality care was facilitated by continuity of care, early disease recognition, coding, audit, and coordinated care teams. Time, funding, access to secondary care, and inadequate community resources hindered care. GPs emphasized the need for coordinated community services, GP education, review of the chronic disease management scheme for GPs, and service standardization to improve care.

Conclusion: GPs find dementia care to be a complex and challenging aspect of primary care. While education and training is advocated by GPs, service delivery also needs to be reconfigured. Dementia needs to be included under chronic disease management in Ireland and services must become standardized.

O5

Infant Feeding: How do Irish Parents Plan to Wean on Foot of Important Advances for Primary Prevention of Food Allergy?

Ailish Breathnach [1], Edina Moylett [2], Rosemary Geoghegan [2]

[1] School of Medicine, NUI Galway, Galway, Ireland; [2] Academic Department of Paediatrics, NUI Galway, Galway, Ireland

Background: Current evidence (LEAP study)1 supports early introduction (c.4-6 months) of allergy associated foods (e.g., peanut), which may protect against food allergy development. Traditionally, Irish weaning habits exclude allergenic foods up to one year and beyond. Aim: To investigate parental intentions concerning infant introduction of allergy associated foods and possible influencing factors.

Methods: Prospective, cross-sectional study, post-natal unit, University Hospital Galway; 260 parents invited to complete a modified, validated questionnaire2. Pearson's Chi-Square and Fischer Exact (SPSS v25) explored associations between weaning practice and influencing factors. Clinical Research Ethics Committee (GUH) approved the study.

Results: In total, 200 parents completed the study, 156(78.4%) female, 180(90.9%) Caucasian, 90(45.3%) first-time parents, 169(84.9%) third-level education. Mean knowledge score concerning food allergy was 39.37% (SD, 14.2%).   Most parents intend on introducing egg (135, 69.2%), fish (127, 65.5%) and wheat (147, 76.6%) into their infant's diet at 6-12 months and over 70% will include these foods regularly. However, 141(75.4%), 143(76.2%), 154(81.5%) parents intend to wait until the infant is over 12 months to introduce peanuts, tree-nuts and shellfish respectively and over 80% will not include them regularly.   Influences on weaning practice included, infant development and information from healthcare professionals. Some significant associations (p<0.05) between 'likeliness' to follow recommendations and allergy risk, parental education, knowledge, and experience were found but inconsistent.

Conclusion: Parents are 'likely' to introduce egg, fish and wheat before 12 months and regularly, but remain very hesitant to introduce peanut, tree-nut and seafood despite current recommendations. Appropriate education concerning these allergenic foods needs prioritisation.

O6

The Interaction of Presbycusis and SALADs on Medical Error

Bailey Crowley [1], Colm O'Tuathaigh [2], Patrick Henn [2], Simon Smith [2]

[1] *School of Medicine, University College Cork, Cork, Ireland;* [2] *Medical Education Unit, School of Medicine, University College Cork, Cork, Ireland*

Background: Our ageing society and advancing medical breakthroughs has brought with it new challenges for our health care system. This study, in particular, hopes to highlight presbycusis, the most common cause of sensorineural hearing loss, and sound-alike, look-alike drugs (SALADs), a group of medications whose names either look or sound similar. Both SALADs and presbycusis, as individual variables, have been associated with medical error. However, few studies exist on interaction of these variables on patients' ability to correctly identify medication.

Methods: A single-blind randomised control trial was carried out with 41 university students. This group was chosen to limit confounding variables such as presbycusis and age related-cognitive decline. The group was divided into the control and presbycusis groups. Both groups saw identical videos of a person saying 15 SALADs. However, the presbycusis group video had the sound distorted by 30dBs to simulate presbycusis.

Results: Overall correct SALADs identification was decreased by 7.7% in the presbycusis group compared to the control ($p<0.05$). Despite decreases of up to 14.3% between individual SALAD identification, no result showed any statistical significance between the groups. The control group subjects perceived that they scored 7.1% lower than their actual result ($p<0.001$), while the presbycusis group perceived that they scored 5.1% lower ($p<0.05$).

Conclusion: In a controlled environment the interaction of presbycusis and SALADs negatively affected health care communication. This study illustrates how the potential for medical error can be attributed to an often-overlooked aspect of patient interaction in a healthcare environment.

Evaluating the Levels of Cognitive Impairment in Pre-manifest and Manifest Huntington's Disease Patients Compared to Controls. A Comprehensive Analysis of the ENROLL-HD Database

Sinead Burke [1], Donal Campbell [2], Brendan Dineen [1], Tom Burke [2], Niall Pender [3]

[1] School of Medicine, National University of Ireland Galway, Ireland; [2] Department of Psychology, Beaumont Hospital, Beaumont Road, Dublin 9, Ireland; [3] Academic Unit of Neurology, Trinity Biomedical Sciences Institute, Pearse Street, Dublin, Ireland

Background: Huntington's disease (HD), an autosomal dominant neurodegenerative disease consists of pre-manifest and manifest phases. The aims of this study was to investigate cognitive outcomes in the pre-manifest and manifest HD patients compared to controls.

Methods: The Enroll-HD database of 15,301 participants was analysed by stratifying participants into groups: manifest HD (M), pre-manifest HD (P-M), genotype negative (GN) and family controls (FC). Cognitive tests on executive functioning, processing speed, and working memory were conducted, e.g. MMSE and symbol digit modality test (SDMT). Differences across sub-groups in cognitive scores were analysed using ANOVA and binary logistic regression (BLR) models.

Results: Participants by sub-stratification: M (n=8043, 52.6%), P-M (n=3539, 23.1%), GN (n=1926, 12.6%), FC (n=1793, 11.7%). ANOVA analyses for cognitive measures indicated that M and P-M subjects showed significantly more impairment compared to FC and GNs for executive function and processing speed. BLR analysis on the MMSE identified greater cognitive impairment in M (OR=30.43, 95% CI [20.26-45.70]) and P-M (OR=1.945, 95% CI [1.211-3.125]). Verbal fluency test showed increased risk of impairment in the M (OR=45.246, 95% CI [28.635-71.492]) and the P-M group (OR=1.807, 95% CI [1.060-3.082]) compared to controls. SDMT BLR analysis showed M group at risk of impairment (OR=53.475, 95% CI [39.71-72.006]). Age, education, and race were statistically significantly associated for outcomes on the MMSE, SDMT and verbal fluency within the BLR models.

Conclusion: M and P-M subjects showed higher levels of cognitive impairment compared to controls. Pre-manifest patients are currently considered to be asymptomatic when, in fact, there may be a prodromal cognitive/psychiatric phase prior to motor onset.

O8

Characteristics and Assessment of Potential Concussive Events in Gaelic Athletic Association Players

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Background: Athletes involved in high-impact sports such as Gaelic Football are at a high risk of sustaining Sport-Related Concussions (SRC). The acute and chronic effects of concussive and sub-concussive impacts to the head are potentially detrimental to both athletes and healthcare systems worldwide. Our research objective is two-fold. First, we intend to evaluate the specific characteristics of Potential Concussive Events (PCEs) that occur in elite Gaelic Football. Secondly, to determine if PCEs in elite Gaelic Football are assessed in accordance with GAA concussion protocol.

Methods: Two reviewers viewed 59 games of the 2018 Division 1A Gaelic Football season identifying all PCEs. Characteristics of each injury and the subsequent assessment were measured using the previously validated Observational Review and Analysis of Concussion form.

Results: Eighty PCEs were identified over 59 matches (1.36 per match, 1.08 per hour of exposure). The most common mechanism of injury was hand/fist-to-head (n=24, 32.5%) and the impact location most frequently affected was the mandibular region (n=28, 35.0%). Two (2.5%) PCEs showed one sign of SRC, 38 (47.5%) showed two signs, 33 (41.3%) showed three signs, and seven (8.8%) showed greater than four signs. Seventy-two (90.0%) PCEs were assessed by medical personnel, resulting in the removal of three players (3.8%) from play. Sixty-three (79%) assessments occurred on pitch, and the majority (n=57, 72.5%) took 0-1 minutes to complete.

Conclusion: Understanding the characteristics of PCEs in Gaelic Football may provide a framework for the implementation of new rules and strategies to better protect the brain health of athletes. The assessment findings demonstrate a need for improved adherence to concussion protocol.

O9

Evaluating Progesterone Receptor (PgR) Status as a Prognostic Indicator in Estrogen-receptor Positive Breast Cancer

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Background: Breast cancer is the most common cancer in women worldwide. Most of these cancers demonstrate over-expression of estrogen (ER) and progesterone (PgR) receptors, with therapies targeting these receptors significantly improving survival rates. Hormone receptor status is the most significant predictive prognostic biomarker and should be measured in assessing likely therapeutic response. We seek to demonstrate that single PR negativity is an independent prognostic indicator in ER positive breast cancers.

Methods: Consecutive patients with ER+ve breast cancers treated from 2005-2015 were studied, with patient outcomes measured between PgR+ve and PR-ve groups. Initial data was obtained from a prospectively maintained database with ethical approval. Patient outcome data was updated to last clinical review. Clinicopathologic correlates of PR status were determined. Independent predictors of disease-free (DFS) and overall survival (OS) between PgR groups were assessed using Kaplan-Meier and Cox Proportional Hazards tests.

Results: 2655 patients with ER positive breast cancer and known PgR status were studied (2206 PR+ve [83.0%], 449 PR-ve [17.0%]). There was no difference in tumour size between PgR+ve and PgR-ve tumours. Age, menopausal status, tumour grade and Her2 status were significantly associated with PgR status, with age and lymphovascular invasion predicting advanced disease. PgR-ve status was independently associated with reduced mean DFS (PgR+ve: 135.4 [132.6-138.3], PgR-ve: 117.0 [110.4-123.7], p=0.001) and OS (PgR+ve: 151.4 [149.0-153.8], PgR-ve: 136.0 [130.2-141.4], p=0.004) in months.

Conclusion: PgR negativity is associated with significant reductions in DFS and OS in ER+ breast cancer. Treatment and surveillance strategies in these patients should be tailored accordingly.

O10

What Does Your Pelvic Floor Do For You? Knowledge of the Pelvic Floor in Female University Students

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Background: Pelvic floor dysfunction (PFD) is a known healthcare and economic burden. Pelvic floor muscle exercises (PFMEs) can both prevent and treat PFD. Low levels of knowledge of the pelvic floor have been associated with higher levels of PFD. Assessing the current level of knowledge in young women will inform healthcare strategies for effective management and prevention of pelvic floor dysfunction. The aim was to assess the knowledge of the pelvic floor in female university students, including knowledge of pelvic floor structure and function, PFD and PFMEs.

Methods: An online questionnaire was distributed to students at their registered email address. Knowledge was assessed through 15 questions, allocating a score of 1 to each correct question.

Results: 938 responses were received. 72.6% (n=640) of students had never received information on the pelvic floor. 66.6% of students (n=541) said they understood what was meant by PFMEs, however 72.4% (n=598) incorrectly identified how to perform PFMEs. Of the 42.1% (n=350) who reported exercising their pelvic floor, 61% (n=214) incorrectly identified how to perform PFMEs. There was statistically significant difference ($p<0.001$) in the overall knowledge between students in the School of Medicine and Health (n=307, Mean=11.8, SD=2.35) and Other Schools (n=529, Mean=9.39, SD 2.88).

Conclusion: Further studies are required to improve knowledge of the pelvic floor and encourage PFMEs in young women. Low levels of knowledge of the pelvic floor levels are associated with a high prevalence of PFD. By increasing awareness of the pelvic floor and PFMEs, we can reduce symptoms of PFD and thus improve quality of life.

O11

The Effect of Bone Marrow Mesenchymal Stromal Cell Conditioned Media on Myoblast Proliferation and Differentiation in vitro.

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Background: Critical Limb Ischaemia (CLI) is characterized by pathophysiological changes in calf skeletal muscle, ischaemic rest pain, and non-healing ulcers. Approximately 30% of patients will require an amputation within one year of onset. Bone Marrow Mesenchymal Stromal Cell (BM-MSC) therapy represents a promising therapeutic strategy to reduce amputation. The aim of this study was to assess the efficacy of BM-MSCs in promoting myoblast proliferation and differentiation in vitro.

Methods: Conditioned Media (CM) was obtained from BM-MSCs from three donors cultured in myoblast growth media (GM) and differentiation media (DM). Primary human myoblasts were treated with GM, GM-CM, DM, and DM-CM. The following assays were subsequently used: MTT assay to quantify metabolic activity, DAPI staining to quantify total cell number, and Ki67 staining to quantify the proportion of actively proliferating cells. A mouse myoblast cell line (C2C12) was treated similarly and stained with MF20 to quantify myotube diameter and area.

Results: There was no change in myoblast metabolic activity. Treatment with DM-CM significantly increased total number of cells at day 5 (114.99% [p=0.0015]) however, the proportion of actively proliferating cells was decreased (67.7% [p=0.0028]), versus controls. Treatment with DM-CM resulted in a 41.85% (p<0.0001) decrease in myotube diameter with a concurrent non-significant 41.03% increase in myotube area.

Conclusion These preliminary data suggest that MSC-CM may influence muscle regeneration through increasing proliferation of myoblasts and subsequent exit from the cell cycle to form myotubes without the effect of hypertrophy. Refinement of our protocols and further investigation may elucidate the potential therapeutic role of BM-MSCs in CLI.

O12

The Incidence of Concurrent Benzodiazepine Use in Methadone Patients

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Background: Methadone is commonly prescribed as part of opiate maintenance therapy (OMT) to aid the rehabilitation of opiate-addicted patients. An increasing percentage of these patients are also being prescribed benzodiazepines. Methadone was implicated in 29% of all poisoning deaths in 2016, and diazepam was involved in 27% of poisoning deaths in Ireland in the same year. Benzodiazepines continue to be the most commonly abused drug by polydrug users in Ireland. The aim of this study was to identify how many methadone patients were being prescribed benzodiazepines during the course of their OMT, and their duration of use.

Methods: Using Pharmacy Dispensing Software in a Cork pharmacy, 72 patients were identified as having received methadone and any dispensing of benzodiazepines within the date range of their OMT was documented.

Results: The results showed 26 of the 72 methadone patients (36.11%) used a benzodiazepine during the course of their OMT. Only 4 of these patients (15.38%) were prescribed a benzodiazepine for an acceptable duration (<4 weeks). The remaining patients exceeded this duration, with the mean duration for benzodiazepine use being 2.54 years. Diazepam was the most commonly prescribed benzodiazepine.

Conclusion: In conclusion, although the sample size is small, preliminary analysis shows that an alarming number of methadone patients are being prescribed benzodiazepines despite the known risks associated with concurrent use. Additionally, the duration of use of benzodiazepines is highly inappropriate in the context of Irish clinical practice guidelines as the mean duration of use in these patients was over 30 times longer than the maximum recommended duration of 4 weeks.

Promoting Cultural Competence Among Health and Social Science Students in Postgraduate Education: An Integrated Systematic Review

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Background: Cultural competence (CC) is essential to develop the capacity to provide care that is sensitive and acceptable to clients with diverse backgrounds. However, its perception varies among postgraduate health and social science disciplines. For postgraduate students to ask provoking questions and challenge traditional thought, they require education that purposefully features knowledge and skills from multiple cultural perspectives, yet it is unclear if and how they are educated to do this. The purpose of this study is to enhance knowledge about CC among health and social science students in postgraduate education.

Methods: We conducted an integrated systematic review about the features of CC in health and social science postgraduate education programs. This approach follows interpretative understanding to explore the interplay of how, and the extent to which, individuals are enabled to have agency within their education, viewed as a socially constructed context.

Results: Preliminary data from 6 of 34 articles suggest CC has no universal definition and tends to be focused on knowledge of patients' cultural traditions. CC is emphasized by improving patients' compliance and minimizing health disparities. CC is often taught through an informal, hidden curriculum and is measured by student self-perceptions. In addition, challenges include resistance and comfort towards changing the status quo.

Conclusion: CC is a core component of quality care in an ever-growing diverse world. Our preliminary findings suggest CC is not well understood and neglects that CC is a gradual process of acquiring the skill to build one's own awareness to appreciate, accepting, respecting and comforting the diversity of clients.

Review of the National Perinatal Epidemiology Centre Perinatal Mortality Audit Reports (2009-2016)

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Background: The National Perinatal Epidemiology Centre (NPEC) publishes Annual Perinatal Mortality (PM) Audit Reports, monitoring adverse perinatal outcomes, risk factors and forming recommendations for improvement of obstetric care. Limited research has reviewed these reports, their recommendations and related implementation.

Methods: All 8 of the publicly available NPEC PM audit reports from 2009-2016 were reviewed by 2 assessors, using a structured review tool. The general format, content, trends in the findings and reports' recommendations were analysed.

Results: All 19 Irish maternity units submitted data on perinatal deaths to NPEC from 2009 to 2016. The PM Notification Form and NPEC PM Classification System were introduced in 2011, contributing to standardising reporting methods and further data consistency. Additional data on intrapartum death, autopsy uptake and placental conditions was also analysed in subsequent years. Major congenital anomaly was the main cause of death for neonatal deaths in all reports. The proportion of unexplained stillbirths has decreased over the years. Information provided on intrapartum stillbirths and intrapartum related neonatal death was limited. From 2011, 18 recommendations were introduced, 14 of these reiterated in subsequent reports. The recommendation to increase research into factors affecting autopsy uptake was present in all 6 reports. Parents declined post-mortems in 39%-46% of cases where these were available. Improved detection of foetal growth restriction antenatally and confidential inquiries for intrapartum perinatal deaths were recommended in 5/6 reports.

Conclusion: A standardized method for follow up of recommendations with the support of relevant national organisations would be important. PM audits are critical in identifying whether recommendations are applied and improving PM outcomes.

Analysis of Serum Extracellular Vesicle (EV) Encapsulated MicroRNA-193b

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Background: There is an emergent need for a non-invasive circulating biomarker for Breast Cancer to support early detection and patient stratification. Breast Cancer cells secrete Extracellular Vesicles(EVs) containing microRNAs(miRs) believed to act as a fingerprint for the parent cell of origin, presenting exciting potential for tumour-derived EVs as biomarkers of disease. Previous studies by this group detected EV-miR-193b secretion by breast cancer cells in Vitro. The aim of this study was to determine whether miR-193b was detectable in serum circulating EVs of breast cancer patients and healthy controls

Methods: Following ethical approval and informed patient consent, serum samples were collected. EVs from the sera of breast patients (n=6) and healthy controls (n=6) were isolated by differential centrifugation, microfiltration and ultracentrifugation. Nanoparticle tracking Analysis(NTA) was used to determine the number and size of EVs. RNA was extracted from EVs and cancer cells using the MagnaPure system, reverse transcribed and amplified using PCR targeting miR-193b and miR-16 (positive control).

Results: EVs were successfully isolated from the serum of breast cancer patients and healthy controls(n=12), with NTA revealing dispersed vesicles of 30-120nm in size. PCR resulted in successful amplification of miR-16 in all EV samples, confirming packaging of miRs into EVs. miR-193b was not detectable in any of the EV isolates but robust expression was detected in cancer cell RNA confirming the efficiency of the reaction.

Conclusion: Although a small sample size, the absence of miR-193b in all serum EVs from breast cancer patients and healthy controls suggests that this would not be a useful as a biomarker.

Differences between Roux-En-Y Gastric Bypass Surgery and Laparoscopic Sleeve Gastrectomy on Postoperative Lipid Levels and BMI

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Background: Morbid obesity is a worldwide epidemic, caused by increased caloric intake and sedentary lifestyles, leading to a significant increase in cardiovascular complications. The introduction of bariatric surgery has been shown to improve the parameters of metabolic syndrome. Our study aims to compare the differences between RYGB and LSG on long-term lipid levels and Body Mass Index (BMI) in patients who underwent bariatric surgery.

Methods: A total of 382 patients who underwent RYGB and LSG were followed-up for 24 months. Fasting lipids and BMI were measured preoperatively and at 12 and 24 months postoperatively.

Results: Statistically significant differences ($p<0.001$) were found for both RYGB and LSG procedures. Compared to baseline, LSG showed a 5% increase in BMI reduction and 30% increase in HDL levels than RYGB. However, RYGB showed a 10% higher reduction in TG. More patients who were prescribed statins were observed to have hypertriglycerideaemia and low HDL levels (<1.0mmol/L) after LSG than RYGB postoperatively.

Conclusion: Both LSG and RYGB are effective at lowering BMI and improving the lipid profile. LSG showed better outcomes in BMI and HDL levels compared to RYGB. However, RYGB should be recommended for patients who are taking statins pre-operatively due to the reduction in TG levels and increase in HDL levels.

Plasma Exchange in the Management of Paediatric Renal Conditions: Single Centre Experience over 17 years

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Background: Therapeutic Plasma Exchange (PLEX) is an adjunct therapy used in paediatric nephrology despite less evidence available for its use compared to adults. The aim of this study was to examine the indications, efficacy and safety of PLEX in a single centre over 17years.

Methods: A retrospective review of patients (n=59) who received PLEX between 2002-2019 for a renal indication was performed. Clinical data and complications (e.g. anaemia, hypocalcaemia, hypotension) arising from PLEX were documented. Statistical analysis was conducted using SPSSv25. This project was carried out in accordance with the local Code of Ethics.

Results: Fifty-nine patients (61% female) received PLEX. The median age was 3years (range: 3months–16years). A total of 1139 PLEX sessions were performed with a median number of 5 sessions per patient (range: 1-287). The most common indication was typical Haemolytic Uraemic Syndrome (HUS) [(n= 29,(49.2%)] with 21(35.6%) of these patients having neurological involvement. Atypical HUS [n=12,(20.3%)] and Recurrent Focal Segmental Glomerulosclerosis post transplantation[n=4,(6.8%)] were also common indications. Forty-one (69.5%) patients had a complication. Asymptomatic hypocalcaemia [n=25,(42.4%)] requiring calcium gluconate being most common. Thirty-five (59.3%) patients had a full recovery. Twenty (33.8%) patients required additional follow-up post-PLEX therapy, of which 6 (8.5%) patients required a renal transplant. One death occurred due to the patient's underlying renal condition. Neurological complications associated with HUS resolved in 20/21 patients.

Conclusion: We have demonstrated the safe and efficacious use of PLEX in a tertiary paediatric nephrology centre, including patients with neurological involvement in typical HUS. PLEX is a safe and effective therapy in paediatric renal disorders.

Exploring the Views of Irish General Practitioners to a Patient-held Checklist for Epilepsy Reviews: A Qualitative Feasibility Study

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Background: Epilepsy is a chronic neurological condition, and patients require ongoing follow-up with their healthcare providers. In Ireland, the management of patients with epilepsy in primary care is challenging, as reported by general practitioners (GPs) in previous studies. A patient-held checklist may increase involvement of the patients in their own care, as well as provide a tool for effective consultations with their GP. This study aims to assess the feasibility of implementing a checklist that would be held in the possession of patients with epilepsy and used as a guide during consultations with their GP.

Methods: In this qualitative study, participants are GPs practicing in Ireland and are recruited by convenience sampling. After informed consent is acquired, demographic data is collected and one-on-one semi-structured interviews are conducted, digital audio-recorded and transcribed verbatim. Thematic analysis is applied throughout the data collection period to identify significant themes. Interviews will be conducted until thematic saturation is achieved.

Results: Interviews have commenced and data analysis is being conducted on an ongoing basis. From preliminary analysis of the first five interviews, emerging results show that the predominant perceived strengths of the checklist include communication across levels of care, patient education, and patient empowerment. On the other hand, the predominant weaknesses of the checklist include costs, time constraints and potential confidentiality issues.

Conclusion: Emerging themes in the opinions of GPs will be reported in order to draw conclusions about the feasibility of a patient-held checklist and the potential for a follow-up pilot study.

An Exploratory Study of the Prevalence of Palmar and Plantar Warts in Patients with Inflammatory Bowel Disease

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Background: In order to induce and maintain remission from their symptoms, inflammatory bowel disease (IBD) patients turn to immuno-modulating therapies. By decreasing cell mediated immunity, these patients are at increased risk of acquiring unwanted viruses such as human papillomavirus. The aim of this study was to investigate: prevalence of palmoplantar warts in IBD patients; association between wart and immuno-modulating therapies.

Methods: Following ethical approval, 85 IBD patients consented to this single-centre, cross-sectional observational study. Participants completed a study specific survey followed by an examination of warts present. Prevalence of warts and numerous variables were analysed with chi square tests. Binary logistic regression analysis was used to predict the presence of warts.

Results: Currently 19(22.4%) of the participants have warts. Participants using azathioprine are 6 times more likely to have palmar warts in comparison with other IBD medications. p=0.011, 95% CI [1.5, 24.9]. Crohn's Disease participants are 5 times more likely to have palmar warts in comparison with ulcerative colitis patients. p=0.034, 95% CI [1.1, 26.4]. No significant association between use of biologic medications and warts was found. p=0.726.

Conclusion: The data suggests prevalence of warts in IBD patients is increased, with a diagnosis of Crohn's disease and the use of azathioprine being the largest predictors of the presence of the warts.

Knowledge, Attitudes and Beliefs of Pregnant Women Regarding Epidural Analgesia

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Background: Epidural analgesia is the most effective form of obstetric pain relief, with consent currently sought during labour. Doubts exist as to whether this timing is ideal to support informed decision-making. This study aims to describe pregnant women's knowledge of epidural analgesia, their sources of information, and their attitudes to the timing, extent and manner of delivery of patient information.

Methods: A quantitative cross-sectional survey was distributed to women </= 26 weeks gestation attending the low-risk antenatal clinic in Cork University Maternity Hospital. Data were analysed generating descriptive statistics, comparing responses between groups.

Results: One hundred women participated; median age 33, median gestation 36 weeks. 43% were primagravidae. 31% were planning an epidural, 41% were unsure. Friends and family were the most commonly used source of information (59%), followed by online sources (29%) and midwife (20%). On average women correctly identified 9/15 side effects of epidural analgesia. There was no relationship between parity, prior epidural, or plan for epidural and total score. 90% wanted information before labour. Discussion with a healthcare worker (68%), summary card (17%), video (12%) and app (12%) were acceptable formats. 91% wanted to know all risks

Conclusion: This study has implications for practice. Women wish to receive comprehensive information about the procedure prior to labour but are currently using unreliable sources. All women should be targeted and distribution of a summary card followed by discussion with a healthcare professional would meet women's preferences.

An Audit of Paediatric Cases referred to the Office of the State Pathologist from 2012-2017

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Background: The Office of the State Pathologist (OSP) provides a nationwide forensic pathology service in Ireland. Occasionally, the services of the OSP are requested following the sudden death of a child (person less than 18 years of age). Paediatric autopsy pathology is significantly different to that of adults and may require input from a paediatric pathologist (PP). This audit aims to determine the relevance of forensic pathologists in child death investigations in Ireland, adherence by the OSP to paediatric autopsy guidelines and to analyse the causes of these children's deaths.

Methods: A retrospective review of all paediatric cases referred to the OSP from 2012-2017 was conducted. Relevant information was collated and recorded using Microsoft Excel©.

Results: There were 79 cases included in this audit. 61 cases were referred as suspicious deaths while 18 cases were referred without forensic suspicion. PP were involved in 20 cases. The commonest causes of death for suspicious cases were homicide and road traffic accidents. The commonest cause of death in children under the age of 3 was natural disease. Most of the paediatric autopsy standards were reached by the OSP but there were some shortcomings identified.

Conclusion: Based on the assessment of deaths where a paediatric pathologist was not involved, the standards in the respective guidelines were less likely to be adhered to. Coupled with the high incidence of natural causes of death in children under three, it is more appropriate that these cases be referred to a paediatric pathologist in the first instance.

Correlation between Bhalla Score and Clinical Parameters in the Assessment of Disease Severity in Cystic Fibrosis Patients with Poor Lung Function on treatment with Orkambi (ivacaftor/lumacaftor)

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Background: Cystic Fibrosis is the most common lethal genetic disorder of Caucasian populations with 1/19 people in Ireland carrying a mutant allele. Disease severity is determined through a combination of clinical parameters such as FEV1 (%), FVC (%), and FEV1/FVCx100 and CT studies that are given a numerical (Bhalla) score. The aim of the study was to assess clinical parameters and Bhalla score in CF patients taking Orkambi.

Methods: This retrospective study took place in the CUH radiology and CF departments. The BMI, FEV1 (%), and FVC (%) of 7 patients were measured at baseline, and after 3 and 6 months of treatment. A modified Bhalla Scoring system was used by two radiologists to assess structural changes on CT Thoraces. Statistical analysis was performed to determine correlation and change in the data collected.

Results: Significant negative correlation was noted between total Bhalla Score and BMI at baseline (r=-0.767, p=0.044) and after 6 months of treatment (r=-0.772, p=0.042). No correlation between total Bhalla Score and BMI at 3 months, FEV1 (%), FVC (%), or FEV1/FVCx100 (p>0.05) was found. No statistically significant change found in BMI, FEV1 (%), FVC (%), or Bhalla Score over the 6-month period (p>0.05).

Conclusion: The lack of significant correlation between Bhalla Score and clinical parameters found in this study indicates that the Bhalla score may not be sensitive enough to detect changes that may have occurred in response to treatment. Orkambi has been shown to improve quality of life indices and wellbeing of patients in previous studies but showed no statistically significant clinical or stuctural improvement in this specific patient cohort over the 6-month period.

Twinned Audit of Severe Pre-Eclampsia Management to Address Equity in Maternal and Fetal Health in Mayo & Londiani

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Background: Pre-eclampsia is a cause of maternal mortality and morbidity globally in all settings. We conducted an initial audit cycle on adherence to the relevant national guidelines in twinned hospitals both a high and low-income setting.

Methods: Preliminary audits were carried out in both Mayo University hospital, Ireland(MUH) and Londiani Sub-county Hospital, Kenya(LSCH) using data from January 2017 to June 2019.In MUH, the High Dependency Unit register and electronic medical record were used for data collection. In LSCH the Maternity register and pharmacy records were used. The auditable standards for MUH were taken from the relevant RCPI guidelines1,and for LSCH from the relevant guidelines by the Kenyan Ministry of Public Health & Sanitation2.

Results: In MUH, anticonvulsant and antihypertensive medication protocol was followed in 75.6% of cases. Documentation was found to be poor in clinical response to desaturation and fluid management (not documented in 48.9% and 24,4% of cases respectively).   In LSCH, institutional maternal mortality was zero. Eclampsia was in 16.7%. Perinatal mortality was16.7%.Caesarean section rate was 4%.

Conclusion As both hospitals have areas for improvement, there could be a regular joint morbidity/mortality meeting under the twinning partnership. MUH: oversight of fluid management in accordance with the national guideline; implementation of standard clinician response in oxygen desaturation; Utilisation of diagnostic coding for severe preeclampsia. LSCH: establish a pre-eclampsia register; validate and implement pre-eclampsia mitigation/safe referral program; implement fetal assessment guidelines for pre-eclampsia.

P12

Safety Issues in Paediatric Emergency Departments

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Background: Paediatric Emergency Departments (PEDs) are a breeding ground for errors (Crosskerry at al. 2011). In 2015, PERUKI (Paediatric Emergency Research UK and Ireland) identified patient safety as one of the top 20 research priorities of paediatric emergency medicine (PEM) (Hartshorn et al). In 2018, 21% of the 65,000 CUH ED presentations were children (HSE, 2019). It is therefore paramount that potential areas for patient harm are identified to facilitate risk reduction. The aim was to identify the leading safety issues occurring in PEDs.

Methods: A qualitative methodology, employing focus groups, was employed. Two focus groups, facilitated by a Consultant in PEM, were held, comprised of medical and nursing staff from a mixed adult/paediatric ED, and a tertiary-level paediatric-only ED, Interviews were conducted from a setlist of open and closed questions, audio-recorded, transcribed and analysed using the Attride-Stirling framework for thematic analysis.

Results: From the global theme of 'Safety Issues within PEDs' emerged the themes of: Staffing, Space and Support. The endless stop-gap solutions that become long-term 'fixes' in EDs are daily struggles identified by the participants – with patient's needs always taking precedence.

Conclusion: Safety issues are easily identified by staff in the ED. There are persistent endeavours to identify and reduce the potential for patient harm, through ongoing training, the implementation of new policies and persistent patient focused care to ensure the best patient outcome.

The Use of Wearable Devices to monitor Motor Disability in Multiple Sclerosis - A Real World Pilot Study

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Background: Multiple Sclerosis (MS) is the most common neurological disease to affect young adults today. Although disease activity can be monitored by the development of clinical relapses and new lesions on MRI, accumulating disability or silent progression, is difficult to identify early. With the emerging interest in health monitoring technology we sought to investigate the usability of wearable devices in monitoring long term motor function in MS.

Methods: In this observational prospective study 19 patients with MS, following ethics approval, were fitted with a Fitbit Inspire device. Six Minute Timed Walk (6MTW) data was obtained under clinical supervision and Home-based Fitbit usage was monitored remotely. Fatigability was measured by comparing the step count at minute 1 versus minute 6 of the 6MTW.

Results: The mean daily adherence rate is 85.4%. The adherence rate of completing the Home 6MTW dropped over the study period from 34.2% to 5.3%. The patients performed 17.6 steps higher on average in the minute 6 versus minute 1 in the 6MTW.

Conclusion In this pilot study we found a high rate of adherence to regular use of the Fitbit. Fatigability was not identified on the 6MTW. Long-term monitoring may offer a guide on walking performance. Our findings suggest that wearable technologies can provide useful longitudinal monitoring in the long-term management of MS.

Assessment of Differences in Lifestyle Factors and Biological Sex on Cognition and Inflammation in Healthy Older Aged Adults

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Background: Low grade chronic inflammation is a common feature of ageing and has been linked to cognitive decline and the development of dementia and Alzheimer's Disease. Dementia occurs more frequently in women, while men are at a greater risk for developing mild cognitive impairment. Increased levels of pro-inflammatory cytokines have been shown to drive the progression of cognitive decline during ageing, while certain lifestyle factors such as physical activity may reduce the risk of developing dementia potentially because regular exercise exerts anti-inflammatory effects. In contrast, obesity is associated with increased risk for cognitive decline. However, it is currently unknown how these lifestyle factors influence pro-inflammatory cytokine expression during ageing, and if differences in sex exert an influence.

Methods: A cohort (n=30) of healthy male and female participants (aged 65-85) were recruited from waiting rooms in St. Finbarr's hospital and retirement clubs based on medical history, current medication status and Montreal cognitive assessment scores. Cognitive function was assessed using the Cambridge Neuropsychological Test Automated Battery. Serum samples were taken for analysis of inflammatory cytokine levels (TNF)-α, (IL)-4, (IL)-6, (IL)-8, (IL)-10 and (IL)-1. Physical activity using the International Physical Activity Questionnaires and body-mass index was recorded.

Results: There was a significant association between spatial working memory and sex, with females tending to make more errors. We also found that physical activity reduced pro-inflammatory cytokine levels, while higher BMI increased these levels.

Conclusion: Since the hippocampus is involved in spatial working memory, which is primarily affected in AD, it would be interesting to further explore its function in women.

Cancer Cachexia in Breast Cancer's Effect on Muscle Fibre Size and Mitochondrial and Atrophic RNA Expression in a Mouse Model

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Background: Cancer cachexia is a severe muscle wasting condition, affecting half of all cancer patients. Being responsible for 20% of cancer deaths, cancer cachexia is an important area of research in the treatment of cancer. This project aimed to explore the effects of breast cancer on muscle homeostasis in a mouse model.

Methods: The gastrocnemius (GAS) and tibialis anterior (TA) were isolated from 3 control mice and 3 tumour-bearing mice. The muscles were cryosectioned at 8um, stained with WGA and fluorescently imaged at 20x magnification. Furthermore, RNA was isolated to establish changes in the expression of mitochondrial and atrophy-related genes.

Results: Despite changes in muscle mass and contrary to findings from human studies, no significant difference was found between muscle fibre sizes in control mice and mice with cancer. A significant decrease in the relative expression of the mitochondrial genes TOMM20 and ND1 was observed in the TA samples from mice with cancer. A significant decrease in the relative expression of the mitochondrial gene COXIV was also observed in the GAS samples from the tumour-bearing mice.

Conclusion: The differences in changes of expression of mitochondrial genes between TA and GAS may be due to the muscle fibre type composition, with TA consisting mainly of type 2 (fast twitch) and GAS containing a mix of type 1 (slow twitch) and type 2 fibres.

A Retrospective Review of the Perinatal Palliative Care (PPC) Programme at Cork University Maternity Hospital (CUMH)

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Background: PPC is a philosophy of care for families following antenatal diagnosis and expected delivery of a baby with a life-limiting condition. Within this environment science, ethics, and faith intermingle in ways that affect everyone differently – there is one chance to get it right. The precious time parents have to spend with their baby can be brief, so a comprehensive, individualised approach is imperative. The HSE introduced the National Standards for Bereavement Care following Pregnancy Loss and Perinatal Death (NSBC) with the purpose of enhancing bereavement care (BC) services for families experiencing perinatal loss.

Methods: E-charts were reviewed against the NSBC. CUMH's Bereavement Specialist Team and the National Implementation Team supplemented data. Statistical analysis was conducted with SPSS -25.

Results: 38 referrals were received between 2017-2018. 36.8% pregnancies ended in stillbirth, 28.9% second-trimester miscarriage and 34.2% early-neonatal death. All pregnancies were cared for in dedicated rooms with the pregnancy loss symbol displayed clearly where appropriate. All points of care from the NSBC were observed to a high standard. Inconsistencies were noted in GP correspondence, and in the provision of written information surrounding antenatal diagnoses. CUMH appeared varied in efforts to ensure educational staff programmes in BC are available and/or mandatory. CUMH is working on formal policies for staff support services.

Conclusion: This review allows for development of an audit tool for the NSBC. It is evident that formalised and mandatory educational structures are needed to overcome inconsistencies in staff training. Comprehensive documentation by staff is also lacking and needs improving.

Assessing the Usefulness of Three-dimensional Imaging and Virtual Reality in Surgical Planning: A Medical Student Led Pilot Study

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Background: Nephron-sparing surgery is becoming more common as surgical techniques advance. Virtual reality(VR) and three-dimensional(3D) visualisation appear to provide better anatomical understanding in pre surgical planning than two-dimensional alone. 3D models may enable greater tissue salvation and fewer complications. 3D model preparation and advancing research is expensive and time consuming. The aim was to conduct a pilot study led by a medical student, create reliable anatomical kidney models and assess usefulness in surgical planning.

Methods: Routine computerised tomography(CT) Urograms were performed on 128 slice scanner using split bolus technique. Medical student segmented and displayed models in VR using 3DSlicer. Radiology registrar and consultant validated models. Two urology surgeons completed qualitative questionnaires.

Results: Two patients were included. Only minor segmentation tweaks required by radiologist ensured accurately demonstrated tumors. Tissue contrast quality varied between CT scans complicating segmentation. Both surgeons deemed models helpful in visualising hilar anatomy, determining laparoscopic/open approach and predicting bleeding complications. Surgeons prioritised vasculature visualisation over collecting system. One surgeon suggested gauging tumor depth would be especially useful. Considering 3D printing cost, surgeons agreed VR may suffice alone.

Conclusion: Surgeons found 3D and VR useful for surgical planning. Minor recommendations tweaking CT protocol make segmentation easier and more accurate, without increasing patient's radiation exposure. It's feasible for medical students with minimal surgical or radiological knowledge to advance this research and gain valuable experience. Annual leave during summer reflects case numbers. Since, we've identified more cases. We'll assess surgical parameters against matched cohort. We've also begun work for adrenal surgery.

The Added Utility of the EMA Panel to the Clinical and Pharmacological Management of Suspected Inflammatory Conditions

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Background: The idiopathic inflammatory myopathies are a rare collection of disorders characterised by proximal muscle weakness, cutaneous manifestations, Raynaud's syndrome, interstitial lung disease and arthropathy. Introduction of the EMA panel, testing for myositis specific and myositis associated antibodies (MSA/MAA) provides an additional mode of investigation to further refine inflammatory diagnoses and management. The objectives of the study are: to determine autoantibody prevalence from EMA panels; to identify disease manifestation in those with a positive result; to establish if presence of autoantibodies alters a diagnosis or treatment.

Methods: This is a retrospective chart review of CUH patients with a positive EMA panel test between January 2013 and June 2018. Data was obtained from CUH immunology lab archives, supplemented by patient charts and analysed using SPSS.

Results: 25.5% (86) of 337 EMA panel tested positive for MSA/MSAs. The most prevalent antibodies were Ro-52 (33%), PMSCl-75 (18%), Mi-2a/b (15%) and TIF1-gamma (10%). The most common disease presentation was ILD at 57% followed by arthropathy with a prevalence of 30%. Raynaud's, myositis and cutaneous lesions were present in approximately 29% patients. Patient diagnosis was adjusted in 40% and 62% experienced improvement in symptoms subsequent to medication alterations.

Conclusion: The EMA panel lead to a change in diagnosis for patients with subsequent adjustment of treatment and improvement of disease manifestations. 39% patients went on to have a myositis-related diagnosis following EMA test proving its use clinically. However, due small population size a longer-term study is required to precisely elucidate correlation between antibodies, diagnoses and treatment.

Effects of Chemotherapy on Tumor Stromal Cells in Breast Cancer Patients

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Background: Tumor stromal cells (TSCs) are a heterogenous population of non-cancer cells that exist within the tumor microenvironment. TSCs have a role in cancer development, progression and survival by a variety of mechanisms. Their expression of the cell surface markers GP38, PDGFR-α, PDL-1 and CD29 have been implicated in these processes. This study aims to establish what effect the chemotherapeutics; doxorubicin, paclitaxel and 5-FU have on the expression levels of these markers.

Methods: Core biopsies from the tumor mass (TSC) and distant breast tissue (TAN) were obtained from 2 patients undergoing curative surgery for breast cancer. Stromal cells were isolated and incubated. Once cell growth was established, a fixed number (5x105) of both cell populations were exposed to 1µM or 5µM paclitaxel, 1 µM or 5 µM 5-FU and 1 µM or 10 µM doxorubicin for 24hours. After this period cells were harvested and expression of the cell surface markers of interest was carried out by flow cytometry.

Results: In untreated TSCs and TANs the mean Mean Flourescence Intensitys for PDL-1, GP38, CD29 and PDGFRa were (TSCvTAN) (1476v1019), (7322v11421), (158954v148313), (749v2552) respectively. Exposure to 1µM and 5 µM Paclitaxel produced MFIs of were TSCvTAN (236v143), (606v425), (15919v15914) and (45.6v49.1) respectively at 1 µM and (252v147), (602v379), (16185v16410) and (43.5v43.1) at 5 µM). Exposure to 1µM and 5 µM 5FU produced and mean MFIs of (3421v1315), (15924v16983), (191245v179943) and (2394v933) at 1 µM. At 5 µM the mean MFIs were (1237v1425), (14719v18033), (125808v265000) and (21569v641) respectively. Finally, Exposure to 1µM and 10 µM Doxorubicin produced a mean MFIs of (3589v1530), (16312v17752), (212258v204133) and (1911v644) at 1 µM and (1381v1640), (14434v18682), (82055v81492) and (2173v113) for 10 µM Doxorubicin.

Conclusion: Any contribution made to the tumorigenesis by TSC overexpressing PDL-1 and GP38 is unimpaired by exposure to adjuvant chemotherapy in breast cancer. No change is seen when you introduce chemotherapy to the cell surface receptors.

P20

Brain Imaging at the Time of Diagnosis of Lung Cancer. A Large Retrospective Study of Compliance with National Guidelines.

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Background: One recent National Cancer Control Program (NCCP) lung cancer guideline focused on areas of lung cancer management with variation in practise, emerging evidence or uncertainty including highlighting the importance of brain imaging in patients with stage III non-small cell lung carcinoma (NSCLC) undergoing treatment with curative intent and limited small cell lung carcinoma (SCLC) 3. However, brain imaging was not recommended in patients with stage I and II NSCLC.

Methods: Our objective was to determine in our institution if patients with NSCLC or SCLC are undergoing appropriate brain imaging within 60 days of initial diagnosis as per NCCP guidelines through analysing all patients presenting in 2016.

Results: All 300 patients were included 252 (84%) NSCLC, 48 (16%) SCLC. All asymptomatic NSCLC stage I or II patients did not receive brain imaging as per NCCP guidelines. 48 patients had stage III NSCLC. 41 underwent treatment with curative intent, and only 13 received brain imaging (32%). Amongst those with limited SCLC (n = 13), 1 patient (7.7%) did not receive brain imaging.

Conclusion: With regards to the NCCP guidelines, our centre is compliant in stages I and II NSCLC and limited SCLC. However, we are not compliant regarding brain imaging in stage III NSCLC undergoing curative intent.

P21

Knowledge of and Attitudes Towards HPV and the HPV Vaccine among Inflammatory Bowel Disease Patients

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Background: Treatment induced immunosuppression of Inflammatory Bowel Disease (IBD) patients may cause an increased risk of developing chronic HPV infections and subsequently HPV-related cancers. IBD patients should receive the HPV vaccine if available to them, however the attitudes and acceptability of the HPV vaccine in IBD patients is unknown. The aim was to investigate awareness, knowledge and attitude to HPV and the HPV vaccine in patients with IBD.

Methods: In this cross-sectional study, 86 IBD patients were recruited at outpatient clinics in University Hospital Galway and the infusion unit in Merlin Park Hospital. Participants completed a demographics and medical history questionnaire as well as a modified version of the Carolina HPV Immunization Attitudes and Beliefs Scale (CHIAS). The study was approved by NUI Galway Research Ethics Committee. Data analysis was carried out using SPSS v26.

Results: 69.4% (59) had heard of HPV and 30.6% (26) had not. 70.6% (60) had heard of the HPV vaccine and 29.4% (25) had not. 68.8% (33) of participants agreed they would receive the vaccine if offered to them, and 31.3% (15) stated they would not. Males were less likely than females to have heard of HPV (p=0.003) or the HPV vaccine (p<0.001). Participants were also more likely to agree to receive the vaccine if they believed it was more effective at preventing cervical cancer (p=0.05).

Conclusion: Increased knowledge of HPV and the HPV vaccine and its effectiveness is required, particularly among male participants and can result in increased acceptability of the vaccine among participants.

An Investigation into Potential Prognostic Indicators in a Large Cohort of Patients with Small Cell Lung Cancer (SCLC)

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Background: SCLC is a highly aggressive, undifferentiated neoplasia that originates from the precursors of neuroendocrine cells and is characterised by a high proliferation rate and early metastasis. The aim of this research was to investigate the potential prognostic benefit of several clinical and lab-based variables in all patients radiologically diagnosed with SCLC in CUH between 2011 and 2014.

Methods: All patients with SCLC diagnosed through CUH MDT between 2011 and 2014 were identified. Data for potential prognostic indicators was analysed using Kaplan-Meir Curves and Cox Regression Analysis on IBM SPSS v25.

Results: Initially, 116 patients were identified, however 39 were excluded due to lack of data, leaving 77 patients to be included in the study (mean age = 66, female = 43%). Factors that had prognostic significance following univariate analysis were age, disease extent, gender, albumin, neutrophil to lymphocyte ratio, and urea. Disease extent, age at diagnosis and NLR were found to be independent prognostic indicators following multivariate Cox regression analysis.

Conclusion: In conclusion age and extensive stage were, as expected, associated with poor prognosis. The association of NLR with poor prognosis requires further investigation in the era of immunotherapy for lung cancer.

Men's Perceptions of Living with Osteoporosis: A Systematic Review of Qualitative Studies

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Background: One in five men will experience an osteoporosis-related fracture in their lifetime. However, osteoporosis is widely perceived as a women's disease [1] and few studies focus specifically on men [2]. Our objective was to identify qualitative evidence to understand men's perceptions of osteoporosis and fracture.

Methods: We conducted a systematic review following standardised guidelines. We identified qualitative studies that included men aged 18 years and over using the terms: osteoporosis, fragility or low-trauma fracture, bone health; and perceptions or experiences with osteoporosis and fractures. We appraised the quality of data and used a meta-aggregative approach to synthesise findings.

Results: We identified four publications, based on three studies (n = 61 participants); one of the publications was a secondary analysis. The following themes were developed from the literature: (1) perceived healthcare gap for men; (2) strong focus on women, with a need for support from spouses and health professionals; and (3) three general responses to men's osteoporosis self-management: limiting lifestyle, minimising importance of diagnosis, and risk taking.

Conclusion: The most striking finding from this review was the lack of available qualitative evidence. However, it emerged that the present focus of osteoporosis as a women's disease may influence how men develop self-management strategies. These data highlight the need to include men in future osteoporosis health-related conversations and interventions.

The Relationship of Athlete Factors and Patient Reported Outcomes on Return to Play 1-year Post ACL Reconstruction

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Background: Anterior cruciate ligament (ACL) tears are the most frequently reported knee injury in athletes. For those who wish to return to play (RTP), ACL reconstruction (ACLR) is recommended to restore knee function and stability. Knowledge of important predictors of RTP post-ACLR can aid surgeons and allied health professionals to effectively manage athletes' rehabilitation expectations. The purpose of this study was to determine which athlete factors and patient reported outcomes predict RTP at 1-year post-ACLR.

Methods: This prospective cohort study recruited 336 participants who underwent ACLR at SSC in Dublin. Data collected included; baseline demographics, details of sport participation, injury mechanism, intent to RTP and patient-reported outcome measure (PROM) questionnaires at baseline (Marx, ACL-RSI) and at 1-year post-ACLR (Marx, ACL-RSI, Cincinnati, IKDC). Participants were categorized based on successful RTP 1-year post-ACLR. Univariate and multivariate logistic regression analysis were used to evaluate the association between RTP and athlete factors and PROMs.

Results: Two hundred and twenty (65.45%) participants RTP at 1-year post-ACLR. Participants were more likely to RTP if they were younger (OR:0.972, 95%CI:0.952-0.995), intended to return to a higher level of sport (OR:2.125, 95%CI:1.169-3.861), had higher baseline Marx scores (OR: 1.066, 95%CI:1.022-1.111), and higher Marx (OR:1.291, 95%CI:1.214-1.373) and IKDC scores at 1-year postoperative (OR:1.065, 95%CI:1.041-1.088). Higher Marx scores at 1-year postoperative (OR:1.291, 95%CI:1.214-1.373) were the only significant predictors of RTP.

Conclusion: Patients were more likely to RTP if they had better functional activity outcomes at 1-year post-ACLR, suggesting that PROMs can be used to assess how likely an athlete is to RTP.

Using Fitbit to Track Sleep and Exercise in Older Adults with Dementia

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Background: Exercise have been found to have remarkable cognitive benefits on brain which include improvements in memory and attention in older adults with mild dementia[1] ,whereas sleep helps in improving mood. Older adults with dementia often experience poor sleep quality and are less likely to engage in physical activity due to the pathophysiological effects of the disease. Fitbit fitness device ability to track exercise and sleep patterns enables health monitoring and promotion.   The aim was to review the literature in relation to the validity, feasibility and usability of Fitbit to track sleep and exercise in older people with mild dementia.

Methods: PICO concept of the evidence based medicine was used to identify the literature on Fitbit tracking device for sleep and exercise of older adults with dementia from 2014-2019 using a number of databases including Google Scholar, PubMed, BMC and Scopus. Key terms used were "Older adults" "mild dementia" "exercise" "Sleep" "Fitbit" "Validity" "Feasibility" "usability". PRISMA flow diagram was used to include eligible articles.

Results: In total (n=16) academic articles were identified. Fitbit was found to have good validity for step count and sleep time. Fitbit step count was found to be under-estimated(n=4). Fitbit over-estimate sleep time (n=4). Two articles found Fitbit feasible for people with dementia. Fitbit was rated 66.22 in system usability scale (0-100) for older adults usage(n=1), it has high acceptance among older adults with dementia (n=3). Two studies pointed some issues in regards to Fitbit usability which was a lack of descriptive instruction manual, delicate locking mechanism

Conclusion: The majority of studies reveal that Fitbit validity and feasibility to record and track the physical activity and sleep patterns enables it to be used by people with mild dementia.

Patients Referred for Arteriovenous Fistula Construction: A Retrospective Outcome Analysis

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Background: Haemodialysis vascular access modalities include central venous catheters, arteriovenous grafts, and arteriovenous fistulae (AVF). With lower rates of sepsis and re-interventions, AVF are preferred.

Methods: The current study is a single centre retrospective review of all patients who underwent AVF creation over a 2-year period between 2015 to 2017. Additionally, data was collected from the kidney disease clinical patient management system to provide statistics on AVF use in Ireland.

Results: At the time of the study, 39.3% of hemodialysis patients in Ireland were using an AVF for vascular access and regional use varied from 50% to 20% across Irish hemodialysis centers. At the study center, 192 AVFs were created and the population was 69.3% male (n=133), 30.7% female (n=59) with a mean (⯑SEM) age of 58.8⯑1.03 years. Diabetes had been previously diagnosed in 57 patients. 54% of the fistulae were brachiocephalic (n=103), 33% were radiocephalic (n=63), 4% were brachiobasilic (n=8). A post-operative thrill or continuous flow on Doppler was present in 99% of patients (n=190) and there was an 82.7% maturation rate (n=153). Complications occurred in 5.7% of procedures (n=11). The AVFs were suitable for hemodialysis needling in 69.9% of patients (n=114).

Conclusion: The results suggest AVF outcomes at this center are consistent with reported statistics in the literature. Age, sex, and diabetic status of a patient may influence surgical planning to move proximally for AVF construction. This study also supports AVFs as the optimal vascular access modality due to low perioperative morbidity and complication frequency.

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hESC-Derived Cerebral Organoids Demonstrate Brain Regionalisation

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Background: The Central Nervous System (CNS) remains an elusive area in Medicine in part due to its complexity, but also due to the paucity of access to functional tissues. As such, realistic models of the human brain are important for studying the organ in vitro. Cerebral organoids develop neural identity from the neuroectodermal layer of embryoid bodies (EB) and acquire 3D spatial organisation spontaneously when agitated on matrigel. Compared to monolayer culture or 3D neurospheres, cells forming the cerebral organoids are capable of complex organisation, hence serving as an unprecedented model with better structural and functional complexity resembling the human brain.

Methods: In this project, cerebral organoids were differentiated from human Embryonic Stem Cells (hESCs) following closely with a protocol established by Lancaster et al. Cultures were kept for 60 days and their regional identities were analysed.

Results: Results show that cerebral organoids successfully aggregate into embryoid bodies (EB) and undergo neural induction, expansion and maturation. hESC-derived cerebral organoids also demonstrate brain regionalisation and are viable, novel models of the human brain in vivo. Finally, light sheet microscopy can be used to observe 3D cerebral organoids without the need for sectioning.

Conclusion: This exploratory study paves the way for future studies using cerebral organoids, including analysis of cellular and tissue identity, neural function or epigenomics through sequencing and could potentially bridge the gap between animal and human models of the CNS, enhancing our understanding of neuropsychiatric diseases.

Three-dimensional Computed Tomographic Reconstruction of Superficial Femoral Artery: Anatomical Variation as a Risk Factor for Arterial Disease

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Background: Anatomical parameters are postulated to play a role in the development of arterial disease alongside well known risk factors. The aim was to investigate the relationship between anatomical parameters which are identifiable on three-dimensional CT reconstruction and arterial disease.

Methods: This was a retrospective cross-sectional imaging study. A series of 99 non selected consecutive CT lower limb angiograms (198 arteries) were analysed by utilising a three-dimensional reconstructive software. The anatomical parameters of superficial femoral artery (SFA) that were measured are vessel length, vessel straight-line distance (SLD), vessel diameter at the origin and the termination, vessel area at the origin and at the termination, angle of bifurcation of the SFA and profunda femoris and vessel volume. The tortuosity index (TI) was then derived by calculating vessel length by SLD. The 198 SFA analysed were grouped in accordance to the severity of the disease which comprised of no disease, mild, moderate and severe disease. The data on the severity of subject's disease was obtained from the radiology report of each CT lower limb angiogram. The relationship of each parameter to arterial disease was assessed.

Results: Spearman's coefficient showed a moderate, positive correlation between tortuosity and severity of arterial disease in male patients ($r = 0.419$, $p < 0.001$).

Conclusion: The tortuosity of the SFA may be useful in predicting arterial disease and could provide an explanation to unexpected high failure rate of stents placed in the artery. Additional research in the effect of anatomical parameters to arterial disease is paramount.

The Grit Factor- Acquired or Inherent?

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Background: Grit, defined as "passion and perseverance for long term goals"1 is key to academic success and career achievement. Doctors require high levels of grit to achieve success and avoid burn-out. The study aimed to measure grit among hospital doctors and medical students and to establish whether it is an acquired trait that increases with experience, or inherent and remains fixed across career grades.

Methods: Prospective-survey involving medical students and doctors in University Hospital Galway by anonymous voluntary questionnaires using the validated Grit-S scale. Data including age, gender, specialty, grade and Grit score were recorded. Mean Grit scores of various subgroups was tested using student t-test, one-way ANOVA, linear regression analysis, and multivariate analysis using SPSS V25™.

Results: 378 completed the questionnaire (participation rate 78.6%), female: male ratio= 1.2:1, and mean age 29.6 ±8.3 years. The mean Grit score was 3.56 ± 0.55. Grit was independent of gender and had positive correlation with age. Consultants had higher Grit score (3.86 ± 0.59, $p = 0.004$), however this became statistically non-significant when adjusted to age. There was no difference between specialties, nor between graduate-entry and undergraduate students.

Conclusion: Results show that students and hospital doctors have a high degree of grit that persists across various career stages. This suggests that grit is mostly an inherent personality trait, and probably cannot be enhanced by training. GRIT score might be of benefit as an adjunct in the selection process of applicants for training schemes and jobs requiring high levels of resilience.

The Implication of BRAF Mutation in Advanced Colorectal Cancer

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Background: Colorectal cancer (CRC) is a lethal disease with heterogeneous outcomes. BRAF is a key driver mutation in CRC and is involved in deregulation of the MAPK pathway. While international studies have correlated BRAF status with poor prognosis, this has never been studied in an Irish population. Identification of a mutation predicting poor prognosis would have significant implications for CRC management. The aim was to compare the natural history of patients with BRAFMUT CRC with a control sample of patients without BRAF (BRAFWT wild-type).

Methods: A retrospective observational analysis of advanced CRC patients with known BRAFMUT was conducted. BRAFMUT patients were identified from the CUH histopathology database. Controls with known BRAFWT were randomly selected from the database. Demographic characteristics and clinicopathological data were recorded. Survival was assessed with Kaplan-Meier / Cox proportional hazard models.

Results: 21 patients were BRAFMUT and 35 with BRAFWT were studied. BRAFMUT were more likely female (75% vs 33%, $p=0.007$) and right-sided (65% vs 31.4%, $p=0.033$). Median overall survival was lower in BRAFMUT group [17.3 months (95% CI: 0-40.8)] compared to patients with BRAFWT [median survival not reached, log rank $p=0.001$]. On multivariate analysis BRAFMUT was independently associated with an increased risk of mortality (HR 12.76 (95% CI: 3.15-51.7), $p<0.001$).

Conclusion: BRAFMUT colorectal cancer was associated with significantly reduced overall survival. Knowledge of this mutation is now standard of care and should dictate management. Surgeons should be aware of this genetic signature as the natural history of the disease may mitigate against an aggressive surgical strategy.

Development of Bone Phantoms for Evaluation of a Novel Osteoporosis Monitoring Device

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Background: Microwave imaging has shown potential as a future imaging modality for use in the diagnosis of osteoporosis due to its low cost, portability and lack of ionizing radiation. Experimental evaluation of prototype imaging devices is vital yet currently no model exists simulating the dielectric properties (conductivity and permittivity) of bone. The aim was to develop a dielectrically and anatomically accurate calcaneus bone model for use in the development of osteoporosis monitoring microwave imaging systems.

Methods: In order to create dielectrically accurate models, the dielectric properties of skin, cortical and trabecular bone were identified in literature. These dielectric properties were mimicked by creating mixtures of carbon black and rubber, as well as Triton X-100 liquid. A vector network analyser was used to measure the dielectric properties of bone mimicking materials. Once suitable mixtures were identified for skin, cortical and trabecular bone, they were then poured into anatomically accurate 3D-printed moulds to produce a three-layered model.

Results: All three tissue mimicking materials displayed dielectric profiles that closely simulated their respective target tissues. The carbon black skin mixture was found to have permittivity ranging from 47 at 500MHz to 33 at 8.5GHz, and conductivity ranging from 0.5S/m at 500Mhz to 6.1S/m at 8.5Ghz. The cortical bone carbon black mixture had permittivity ranging from 13 to 7 and conductivity in the range of 0.1S/m to 2S/m. Finally, the trabecular Triton X-100 solution had permittivity ranging from 22.5 to 13 and conductivity in the range of 0.1 S/m to 3.1S/m.

Conclusion: This project has succeeded in developing a dielectrically accurate, easily producible, multi-layered bone model, which is suitable for use in the testing of microwave imaging devices.

A Five-year Retrospective Review of Fatalities Involving Novel Psychoactive Substances in Southern Ireland

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Background: Novel Psychoactive Substances (NPS) are emerging and being reformulated at increasingly rapid rates, creating unpredictability in drug markets and ineffective drug policies. The National Advisory Committee on Drugs has recommended surveillance of local trends in NPS use given that Ireland has the highest self-reported use in Europe and there is a lack of literature on the health risks of these substances. The aim was to elucidate the demographic and autopsy findings of fatal cases involving consumption of NPS in Southern Ireland as compared to other illicit drugs of abuse (DOA).

Methods: Postmortem reports completed by the Assistant State Pathologist between 2012 and 2016 with positive toxicology for illicit DOA were identified, and descriptive analysis was undertaken to compare toxicological findings, pathology, and circumstances surrounding death.

Results: 164 cases with positive toxicology for illicit substances were identified, of which 17 (10.4%) involved NPS. Where detected, NPS contributed to the cause of death in 64.7% of cases. Polydrug use accounted for the majority (72.7%) of acute intoxications, and fatal users were predominantly male (90.9%) and young (mean 29.5 years). Most deaths occurred in a home environment, but cases of NPS overdose were more likely to reach hospital than with other DOA. Autopsy findings were minimal but commonly featured pulmonary congestion, aspiration of foreign material, and cerebral oedema.

Conclusion: NPS are involved in a small fraction of autopsy cases, but contribute significantly to acute intoxication fatalities. Knowledge of common autopsy findings and associated demographics can reinforce the need for toxicological analysis when autopsy fails to find significant natural disease or trauma.