

# School of Medicine

Undergraduate  
Research Day

Wednesday, 12<sup>th</sup> October 2016

**Large Lecture Theatre  
Clinical Science Institute**

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## **Undergraduate Research Committee, School of Medicine**

- Róisín Dwyer, Chairperson
- Diarmuid O'Donovan
- Helen Dodson
- Peter McCarthy
- Gerard Flaherty
- Aideen Ryan
- Gloria Avalos
- Conall Denny
- Liam Bannan
- Emer Bourke
- Deirdre Sheridan
- Katie St John (Student Representative)

Oral Presentation Session I		Chair: Dr Gerard Flaherty
<b>09:00</b>	<b>Welcome &amp; Opening Address:</b>	<b>Dr Carmel Malone</b> <b>Head of School of Medicine</b>
<b>09:10</b>	Andrea Grealish	Genetic polymorphisms in centrosomal kinase Aurora A and their association with breast cancer susceptibility
<b>09:20</b>	Eimear Dunne	Characterising the long term outcome of patients with Perianal Crohn's disease in University Hospital Galway
<b>09:30</b>	Miray Unal	Attention Deficit Hyperactivity Disorder (ADHD) in Adults: Use of Eye-Tracker Device to Detect Attention Deficits
<b>09:40</b>	Matthew Fahy	The neutrophil-to-lymphocyte ratio in HER2-receptor positive breast cancer is predictive of mortality
<b>09:50</b>	Alice Hegarty	Examination of Food-Producing Animals as a Reservoir for Antimicrobial Resistance
<b>10:00</b>	Ciara Matthews	Childhood Cancer - Feasibility of testing a new anti-GD2 neuroblastoma therapy in vitro and experimental optimization
<b>10:10</b>	Ronan Fahy	Urinary biomarkers in diabetic kidney disease
<b>10:20</b>	Ciara Ryan	Perioperative Steroid Supplementation in Inflammatory Bowel Disease: An Assessment of Current Practice

**10:30am**

**Coffee Break & Poster Viewing**

Oral Presentation Session II		Chair: Dr Sanjeev Gupta
<b>11:00</b>	Mary Gallagher	Variability in positive margins following conservative breast cancer surgery: A major challenge in delivery of breast care
<b>11:10</b>	Kumaraguru Muthu Kumar	Investigation of a potential role for MicroRNAs in Breast Cancer Lymph Node Metastasis
<b>11:20</b>	Emma Flaherty	Investigating the Link Between Adrenal Cushing's and ER-Positive Breast Cancer
<b>11:30</b>	Mohamed Elhadi	Serum Exosome-Encapsulated microRNAs as circulating biomarkers for Breast Cancer
<b>11:40</b>	John Tepper	The Effect of Mesenchymal Stem Cells on an Acute Respiratory Distress System Model
<b>11:50</b>	Niamh Lang	MicroRNAs of which H2AX is a validated target do not affect H2AX expression in several breast cancer cell lines
<b>12:00</b>	Patrick Canning	Cost-Effectiveness of Endovascular vs. Open Repair of Abdominal Aortic Aneurysm in a High Volume Centre
<b>12:10</b>	Akeel Haris	To assess the ability of pre-operative NLR scores to predict response to neo-adjuvant chemotherapy in Her2 receptor positive breast cancers
<b>12:20</b>	Barbara Julius	Current reconstructive practice variation following mastectomy in patients with breast cancer
<b>12:30</b>	<b>Lunch &amp; Poster Viewing</b>	

**Oral Presentation Session III****Chair: Dr Helen Dodson****14:30 Blackstone Launchpad****Mary Carty and Natalie Walsh****14:40** Caoimhe Ward

A validation of a Potency Assay for the Assessment of Adipose Derived Stromal Cells in the Modulation of Osteoarthritis

**14:50** Megan McNamara

"Problem Patients": Experiences of and Attitudes towards Patients with Substance Abuse Issues

**15:00** Alison Fahey

Deciding about Nursing Home Care in Dementia: A Conjoint Analysis of How Older People Balance Competing Goals

**15:10** Keunjae Ahn

Sarcopenia – How significant a problem is it in patients with newly diagnosed rheumatoid arthritis?

**15:20** Navian Lee Viknaswaran

An investigation of in vitro transformation potential of human bone marrow mesenchymal stem cells with abnormal karyotype

**15:30** Evelyn Fennelly

Vascular Access for Coronary Rotational Atherectomy: Radial versus Femoral

**15:40****Coffee & Poster Viewing****Invited Lecture & Prize Giving****16:00 19th John D. Kennedy Lecture; Introduction by Professor Peter McCarthy  
Professor Nicholas Allen, Head of Department of Paediatrics****16:50 Presentation of Prizes****17:00 Close of Meeting  
Pizza Party in CSI Canteen****Adjudicators for Oral Presentations**

1. Dr Dimitrios Adamis
2. Dr Derek Morris
3. Dr Eleanor McCarrick
4. Dr Aideen Ryan

**Student Adjudicators**

1. Shawna Kang
2. Isobel Gregg
3. Aoife Sweeney

**Adjudicators for Poster Presentations**

1. Dr Yvonne Finn
2. Dr Pablo Garrido
3. Dr Ananya Gupta
4. Dr Cynthia Coleman
5. Dr Sonja Khan
6. Dr Mary Clare O'Hara

## Poster Presentations: Room 303, Clinical Science Institute

Poster Board	Presenting Author	Title
1.	Fitzgerald, C.	The impact of concomitant Coeliac Disease on the management of Type 1 Diabetes
2.	Leon, G.	GPs Attitudes towards Diagnosis & Treatment of Male UTIs
3.	Vincent, S.	The Keys to Optimising Breast Wounds; A Meta-analysis
4.	Carthy, B.	Secular Trends in Hip Fracture Hospitalisations at Galway University Hospital
5.	McNamara, A.	Human Papilloma Virus – Associated Head and Neck Cancer: A 21 <sup>st</sup> Century Pandemic; Assessing Student Awareness and Knowledge.
6.	Lee, Y.X.	An assessment of common aerosol delivery methods during bronchospasm in the operating room
7.	Bonner, A.	Identifying Frailty at the Front Door
8.	Reza, M.	Audit of Aspects of Practice in Relation to Patients with Suspected Community-Onset Blood Stream Infection
9.	Nor Azlan, M.A.S.	The Quality of Life of patients with localized prostate cancer and treated following Brachytherapy in Galway Clinic
10.	Adbul Sukor, D. R.	The role of low dose chemotherapy in sensitising the colon tumour microenvironment to immunotherapy
11.	Tan, W.T.	Cognitive Dysfunction in Acute Psychosis
12.	Welikumbura, J.	A Review of Current Practices in Mastectomy and Reconstruction Practices in a Specialist Breast Tertiary Referral Centre
13.	De Jong, K.	Factors that influence routine clinical applicability of Tumour infiltrating Lymphocyte assessment, including Concordance, Time taken and Reproducibility
14.	Quek, R.	Investigations for biomarkers of Haemorrhagic Transformation
15.	Bourke, R.	Comparing clinical outcomes in people with type 2 diabetes before and after attending DESMOND and exploring primary care providers' experiences of referring patients to DESMOND
16.	Browne, D.	Chronic kidney disease referral appropriateness: a clinical audit
17.	Frere, M.	Assessing Situation Awareness in Medical OSCE Guides
18.	Haidei, A.A.	Prevalence of Diabetic Peripheral Neuropathy in a Secondary Care Diabetes Service and Alcohol Use in Patients with Diabetic Peripheral Neuropathy and Neuropathic Ulceration
19.	Higgins, P.	Penye nia ipo njia: a pilot audit of surgical services in a rural hospital in Tanzania
20.	Murphy, F.	The anatomy of attention: finding the facts with physostigmine and fMRI
21.	Elhelali, R.	Assessment of the association of FOXP3 positive tumour infiltrating lymphocytes with therapeutic response in triple negative breast cancer
22.	Leong, S.W.	Patients' Attitudes to Travelling Overseas with Type 1 Diabetes – a Pilot Study
23.	Bin Mohd Saian, A.R.	Oxygen Prescription and Saturation Adherence in the Emergency Department Audit Report
24.	Alruhmi, D.	The effects of Syndecan-2 fragments on TGF- $\beta$ induced genes in breast cancer cells (BCC)

25.	Byrne, M.	To develop a screening method and form a preliminary assessment of the extent of dissemination of linezolid resistant Enterococcus faecalis in routine rectal screens– Is optrA prevalent in Galway patient populations?
26.	Martin, N.	Transcatheter Aortic Valve Implantation: Evaluating procedural Safety and Efficacy
27.	McCabe, F.	RUNX2, the master regulator of bone metastasis?
28.	Lyons, R.	Identification of Undiagnosed Maturity Onset Diabetes of the Young
29.	Yap, K.L.	Bibliometric Analysis of Travel Medicine Research
30.	Sabri, S.	A Comparison of the Rates of Metabolic Syndrome in Patients Treated with Clozapine or Depot Antipsychotic Agents
31.	Burke, C.	Investigating the role of single nucleotide polymorphisms in NRG1 and DIRC3 in predisposition to breast cancer
32.	Conneely, M.	Enquiries to a national UK telephone advice line by healthcare professionals regarding the zika virus outbreak
33.	Teh, J.W.	THE IMPRUDENT UTILISATION OF BLOOD CULTURES IN THE PAEDIATRIC SETTING WHEN DISCHARGING PATIENTS FROM THE EMERGENCY DEPARTMENT
34.	Chang, H.W.	A Retrospective Analysis of Head and Neck Computed Tomography (CT) in Patients with Trauma over a Five-year Period in the Setting of a Level Three Hospital in the Republic of Ireland
35.	Davis, C.	What is research?: An exploration into the issues in conducting medical research in resource poor settings based on an experience in Berega Mission Hospital, Tanzania
36.	O' Beirne, A.	A retrospective analysis of CT thorax, abdomen and pelvis (CT TAP) in adult patients with trauma over a five-year period in the setting of a level 3 hospital in the Republic of Ireland
37.	O' Flynn, D	Investigation of long-term oxygen therapy prescription and determination of cost of provision among chronic obstructive disease patients in Co. Donegal
38.	Whelan, N.	Abdominal Aortic Aneurysm Morphology- the differences in males and females
39.	Joyce, K.	A Retrospective Study of the Adverse Events Experienced by Patients Treated for Localized Prostate Cancer Through Brachytherapy in The West of Ireland
40.	Ni Choinin, A.	Older and wiser: patient reported outcomes on transition from paediatric to adult cystic fibrosis clinic
41.	O'Maoileannaigh, L.	The Prevalence of Alcohol Related Admissions to ED in UCHG on Sunday Mornings between 0.00am and 6.00am between July 2015 and June 2016
42.	Pratumsuwan, T.	An audit on the treatment of iron deficiency anaemia in IBD patients at Galway University Hospital.
43.	Valentine, L.	Perioperative Glycaemic Control Audit
44.	Grealish, A.	An analysis of the clinical significance of exosomes in Breast Cancer patients
45.	Thong, C.	Clinical Characteristics of Patients Referred to the Local Sleep Clinics for Evaluation of Obstructive Sleep Apnoea.
46.	Harrington, R.	Efficacy and Drug Survival of Etanercept in Patients with Psoriasis

# **Oral Presentation Abstracts**

**Title:** Genetic polymorphisms in centrosomal kinase Aurora A and their association with breast cancer susceptibility.

**Authors:** Grealish, A.1, McVeigh, T.P.2, Miller, N.2, Kerin, M.J.2, Bourke, E.3

**Author affiliations:**

1. School of Medicine, National University of Ireland, Galway
2. Discipline of Surgery, School of Medicine, National University of Ireland, Galway
3. Discipline of Pathology, School of Medicine, National University of Ireland, Galway

**Introduction:**

The centrosome ensures accurate mitotic chromosomal segregation. Centrosome amplification is observed in 70% of invasive breast cancers (BC). AuroraA overexpression is associated with centrosome amplification and tumourigenesis. rs2273535 polymorphism has been identified in the coding region of AurA. The variant allele is preferentially amplified, linking it to AurA overexpression. We aim to confirm the role of rs2273535 in predisposition to BC development in an Irish population.

**Methods:**

A case control analysis was undertaken. BC patients were recruited via UHG Symptomatic and Screening units. Cancer-free controls were recruited from the community. 854 patient and 657 control blood samples were genotyped using a Taqman-based platform on the 7900HT real-time PCR to assess variant allele germline frequency. Statistical tests included Shapiro-Wilk and Chi-squared tests. RNA, DNA and protein were isolated from frozen tumour and tumour adjacent normal tissue from a subsection of genotyped patients (representing 3 genotypes). AURKA expression levels were analysed in RNA samples using RTPCR.

**Results:**

Variant was detected with minor allele frequency of 0.21 in controls and 0.22 in cases. 3.8percent of controls were homozygous for the variant compared to 4.8percent of cases, with associated genotypic odds ratio of 1.3 (0.78-2.18)(p:NS).Our analysis showed moderately elevated expression levels in the heterozygote (1.74log<sub>10</sub>RQ) and homozygote variant (1.27log<sub>10</sub>RQ) compared to homozygote wild-type (0.95log<sub>10</sub>RQ).

**Conclusions:**

This study suggests that the variant in its' homozygous form may be associated with BC in a West of Ireland population. Further large-scale multicenter studies are warranted to confirm findings with potential for patient-tailored therapy as patients carrying the SNP may respond well to AURKA inhibitors.



**Title:** Characterising the long term outcome of patients with Perianal Crohn's disease in University Hospital Galway

**Authors:** Dunne, E<sup>1</sup>., Burke, M<sup>2</sup>., Egan, L<sup>1,3</sup>.

**Author affiliations:** <sup>1</sup>National University of Ireland, Galway; <sup>2</sup>HRB Clinical Research Facility; <sup>3</sup>Department of Clinical Pharmacology, University Hospital Galway.

### **Introduction:**

Perianal manifestations of Crohn's disease are common, effecting up to 50% of patients with Crohn's disease. It is a significant cause of morbidity for Crohn's patients, and the long-term outcome of these patients remains relatively unknown. The aim of this study was to characterise the demographics, treatment, and outcome of Crohn's patients with perianal fistula, and identify factors which predict outcome.

### **Methods:**

In this retrospective cohort study, all Crohn's patients with perianal fistula attending University Hospital Galway from May 2011 to May 2016 were identified using the Hospital In-Patient Enquiry and Patient Correspondence System databases. Patient demographics, treatment, and outcomes were retrieved by reviewing patient records. Statistical analysis was performed on the data for correlation using the Pearson-Chi Square and Independent Samples T-Test.

### **Results:**

A total of 42 patients were included in this study. The mean age at time of fistula presentation was 33.7 years (range 13-79 years). Fistula healing occurred in 42.9% of patients, while 45.2% did not heal. 66.7% of patients had a fistula for more than 6 months, while 21.4% of patients did not. 7.1% of patients received Infliximab monotherapy, 9.5% received Adalimumab monotherapy, 33.3% received Infliximab in combination with other drugs, and 35.7% received Adalimumab in combination. 50% of patients underwent seton insertion. Seton insertion was correlated with higher rates of non-healing fistulas (60% vs 41.2%), though not statistically significant ( $p=0.254$ ).

### **Conclusions:**

The study suggests the majority (66.7%) of fistulas become chronic despite optimum treatment. Small sample size limits the study.

**Title:** Attention Deficit Hyperactivity Disorder (ADHD) in Adults: Use of Eye-Tracker Device to Detect Attention Deficits

**Authors:** Unal, M.1, O'Mahony, E.2, Adamis, D.2

**Author affiliations:**

1. School of Medicine, National University of Ireland, Galway
2. Department of Psychiatry, Sligo Mental Health Services, Sligo

Supported by Wellcome Trust.

**Introduction**

Adult patients with ADHD may go unrecognised due to various factors. This study aims to investigate the use of objective testing, with an eye-tracker device in the diagnosis of adult patients with ADHD.

**Methods**

An ethically approved cross-sectional study was conducted between ADHD patients and normal controls. Out-patients diagnosed with Conners' Adult ADHD scale (Group A, n=15) were matched for gender and age against controls (Group B, n=33). Participants completed four computer-based tasks while their eye movements were recorded. The tests included (i) Stroop Effect test<sup>1</sup>, (ii) Stroop Effect test with visual aid, (iii) Perceptual Selectivity test<sup>2</sup> and (iv) Saccadic Interference. Data was collected with respect to accuracy(%) and response time(msec) for tests i-iii. For test iv, saccade count, average saccade amplitude and average fixation duration was collected. Normally distributed data were analysed using parametric tests or otherwise non-parametric tests.

**Results**

Stroop test accuracy showed a statistically significant difference between group A and group B (Mann-Whitney U=153.000, p=0.004). Stroop response time also showed a statistically significant difference between the two groups (t=3.581,df:46, p=0.001). For test (ii), there was a significant difference for response time (t=2.326, df:46, p=0.024) but not for accuracy. For test (iii), the results were statistically significant for accuracy; (t=2.682, df:46, p=0.010) and for response time (t=3.531, df:46, p=0.001). There were no significant differences in the saccadic interference test.

**Conclusions:** Adults with ADHD have longer response times and perform less accurately than controls. Thus, these data demonstrate that there is a use for objective tests (tests i-iii) in the diagnosis of adult ADHD.

1. Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18(6), 643-662. doi:10.1037/h0054651
2. Theeuwes, J. (1992). Perceptual selectivity for color and form. *Perception & Psychophysics*, 51(6), 599-606. doi:10.3758/bf03211656

**Title:** The neutrophil-to-lymphocyte ratio in HER2-receptor positive breast cancer is predictive of mortality.

**Authors:** Fahy, M., McGuire, A., Kerin, M.J., Brown, J.A.L.

**Author Affiliations:** College of Medicine, Discipline of Surgery, Lambe Institute for Translational Research, NUI Galway, Galway, Ireland.

### **Introduction and Aim:**

Breast cancer represents a heterogenous condition in which the interaction between host immune response and primary oncogenic events can impact disease progression. The neutrophil-to-lymphocyte ratio (NLR) has emerged as a clinically-relevant measure of immune function. Our aim was to analyse the NLR values of patients with either Luminal B or HER2-positive breast cancer to determine if they were predictive of outcome.

### **Methods:**

Analysis of a database of 203 HER2 receptor overexpressing patients (123 Luminal B and 80 HER2), treated at a tertiary referral centre, was carried out. All blood tests were recorded within two weeks of initial surgery and obtained from the referral centre's own patient database.

### **Results:**

Of the cohort, 19 (9.4%) were palliative, 18 (8.9%) suffered a recurrence and 23 (10.8%) died (at 5 years follow up). No statistically significant differences in average NLR between the HER2 and Luminal B subgroups ( $p=.339$ ) was observed, nor was there a correlation between NLR and age at diagnosis ( $p=.230$ ). Selected NLR values (3.5, 4, 4.5, 5) were used for further analysis. NLR's  $\geq 4$  associated with a shorter survival time in months (mean difference=12.879,  $p=0.018$ , 95% CI 2.336, 23.423)(T-test). A NLR 4 was associated with death ( $p=0.018$ ), but not with recurrence ( $p=.724$ )(Chi-square).

### **Conclusions:**

These results validate the NLR as a reliable predictor of poor outcome in Her2 positive breast cancer patients. Larger, prospective testing of the ability of NLR to predict response to surgery, radiotherapy and chemotherapy is necessary to validate our findings (including exploring NLR changes during treatment).

**Title:** Examination of Food-Producing Animals as a Reservoir for Antimicrobial Resistance

**Authors:** Hegarty, A.<sup>1</sup>, Mahon, B.<sup>1</sup>, Carter, A.<sup>1</sup>, Cormican, M.<sup>1</sup>, Morris, D.<sup>1</sup>

**Author affiliations:**

1. Antimicrobial Resistance and Microbial Ecology (ARME) Group, Discipline of Bacteriology, School of Medicine, NUI Galway

**Introduction**

Antibiotic resistance is a major public health problem worldwide. The role of food-producing animals in the dissemination of antibiotic resistant bacteria needs to be further explored. A total of 36 chicken caeca and 70 carcass swabs (38 ovine, 32 bovine) were forwarded to the ARME Group, NUI Galway and screened for antibiotic resistant isolates using selective agar. Purified isolates were identified using MALDI-TOF. The aim of this study was to characterize *E. coli* isolated from food-producing animals by antibiotic susceptibility testing (AST) and phylogenetic grouping.

**Methods**

All isolates were screened for susceptibility to 15 antimicrobial agents in accordance with EUCAST criteria. A representative sample (n = 64) of *E. coli* isolates were classed into phylogenetic groups by conventional polymerase chain reaction.

**Results**

AST showed that all Extended-Spectrum Beta Lactamase-Producing *E. coli* (ESBLPE) from the chicken caeca shared the same antibiotic resistance profile. Multidrug resistance was observed in 91% (147/161) and 56% (70/124) of *E. coli* isolated from caeca and carcass swab respectively. All caeca contained an ESBLPE, all of which belonged to phylogenetic group F. Non-ESBLPE were classified as phylogenetic group B1 (83%, 25/30) or B2 (17%, 5/30). Overall, 61% (22/36) of the caeca contained a ciprofloxacin resistant *E. coli*. One ESBLPE was detected among the carcass swabs which was classified into phylogenetic group B1.

**Conclusions**

Chicken caeca are a major reservoir for antimicrobial resistant *E. coli* of clinical significance. Further work needs to be done to understand the sources of these organisms.

**Title:** Childhood Cancer - Feasibility of testing a new anti-GD2 neuroblastoma therapy in vitro and experimental optimization.

**Authors:** Matthews, C. vanElk, M. Ruiz-Hernandez, E. Piskareva, O. Duffy, G.

**Author affiliations:**

- Matthews, C: Pharmacy Department, RCSI, Dublin.
- vanElk, M: Pharmacy Department, RCSI, Dublin.
- Ruiz-Hernandez, E: Pharmacy Department, RCSI, Dublin.
- Piskareva, O: Cancer Genetics, Molecular and Cellular Therapeutics, RCSI, Dublin. Duffy, G: Anatomy Department, RCSI, Dublin.

**Introduction:**

Neuroblastoma accounts for 7-10% of childhood malignancies. High-risk neuroblastoma has had little progress in cure rates. The GD2 antigen is commonly overexpressed in neuroblastoma. Therapies using anti-GD2 molecules provide targeted tumor-specific alternatives to free drugs. This project has 3 aims: to evaluate GD2 expression in 4 high-risk neuroblastoma cell lines (SK-N-AS, Kelly Luc, NB1691, SK-N-AS Luc) and control (HEK293), to create cell growth curves and to establish the IC50 of free Doxorubicin for the cells. Cell lines were narrowed down and one was chosen, along with the control, for future testing with a thermosensitive, doxorubicin-loaded, GD2 targeted nanoparticle therapy.

**Methods:**

GD2 expression was evaluated using immunohistochemistry. Cell growth patterns were observed and cytotoxicity studies used concentrations of Doxorubicin ranging from 0µg/ml-100µg/ml for 5 days. This was repeated washing the drug away after 3 hours instead of 5 days to mimic physiological removal of the particles. Biological and technical repeats were included. 2-way ANOVA tested significance.

**Results:**

Kelly Luc showed highest GD2 expression (but unpredictable growth patterns), SK-N- AS Luc second highest, and HEK293 lowest. For SK-N-AS Luc, 9000 cells/well gave smoothest growth curves. Progressive cell death was observed with Doxorubicin for all cell lines, treatment timepoints and drug concentrations. Both timepoints and concentrations had significant interactions with cell death for SK-N-AS Luc without washing ( $p < 0.0001$ ) and with washing ( $p < 0.05$ ). The IC50 for SK-N-AS Luc (chosen cell line) was between 0.01µg/ml and 0.1µg/ml.

**Conclusions:**

The IC50 determined for SKNAS Luc was within the particles therapeutic range. This is promising for the future of the project.

**Title:** Urinary biomarkers in diabetic kidney disease.

**Authors:** Fahy RP<sup>1</sup>, Griffin TP<sup>1,2</sup>, Islam MN<sup>1</sup>, O'Shea PM<sup>3</sup>, O'Brien T<sup>1,2</sup>, Griffin MD<sup>1,4</sup>.

1. Regenerative Medicine Institute (REMEDI), School of Medicine, NUI Galway.
2. Centre for Endocrinology, Diabetes and Metabolism, Galway University Hospitals, Galway.
3. Department of Clinical Biochemistry, Galway University Hospitals, Galway.
4. Department of Nephrology, Galway University Hospitals, Galway.

### **Introduction:**

A significant unmet clinical need is the identification of biomarkers that serve as predictors or early indicators of both disease progression and favourable therapeutic response in Diabetic Kidney Disease(DKD). The aim of this study was to determine the levels of urinary Adiponectin(uAdip), Neutrophil Gelatinase-Associated Lipocalin(uNGAL) and Monocyte Chemoattractant Protein-1(uMCP-1) at different stages of DKD and to evaluate their correlations with Glomerular Filtration Rate(eGFR) and urine albumin-to-creatinine ratio(ACR).

### **Methods:**

A cross-sectional study was conducted using consecutive convenience sampling at the Diabetes Centre and Nephrology Unit, Galway University Hospitals (GUH) from June to August 2016. Participants were divided into groups based on the stage of DKD (DKD-1: eGFR $\geq$ 90mL/min/1.73m<sup>2</sup>(n=35); DKD-2: eGFR 60-89mL/min/1.73m<sup>2</sup>(n=36); DKD-3: eGFR 30-59mL/min/1.73m<sup>2</sup>(n=40); DKD-4 eGFR 15-29mL/min/1.73m<sup>2</sup>(n=15) and quantity of albuminuria [normoalbuminuria(n=72), microalbuminuria(n=34), macroalbuminuria(n=20)]. Healthy volunteers(n=29) were recruited. Ethical approval was obtained from GUH REC. Urine was collected, transported to the laboratory and processed. uAdiponectin, uNGAL and uMCP-1 were measured using ELISA kits. Statistical analysis was performed using GraphPad Prism-6<sup>®</sup> (ANOVA, Kruskal Wallis, Pearson Correlation).

### **Results:**

uAdip and uNGAL distinguished subjects with different stages of DKD and albuminuria. eGFR showed a significant correlation with uAdip( $r = -0.306$ ,  $p = 0.0001$ ) and uMCP-1( $r = 0.1653$ ,  $p = 0.0425$ ). ACR showed a significant correlation with uAdip( $r = 0.5117$ ,  $p < 0.0001$ ), uNGAL( $r = 0.2368$ ,  $p = 0.0034$ ) and uMCP-1( $r = 0.5588$ ,  $p < 0.0001$ ).

### **Conclusion:**

Of the three, uAdip demonstrated the strongest relationship with eGFR and albuminuria status in DKD and may be the most promising as a prognostic biomarker. Further study is required to evaluate whether uAdip or other urinary biomarkers correlate with longitudinal trends in renal function.

### **Acknowledgements:**

We wish to express our gratitude to the study participants, scientific, nursing, and medical staff at the Centre for Diabetes, Endocrinology and Metabolism, Renal Unit and the Department of Clinical Biochemistry at Galway University Hospitals and Saolta University Healthcare Group.

**Funding:** NUI Galway School of Medicine, Horizon 2020 Collaborative Health Project NEPHSTROM (grant number 634086).

**Title:** Perioperative Steroid Supplementation in Inflammatory Bowel Disease: An Assessment of Current Practice

**Authors:** Ryan, C.1, Joyce, M.1, 2

**Author Affiliations:**

1. School of Medicine, National University of Ireland, Galway
2. Department of Surgery, University Hospital Galway

**Introduction**

The administration of supraphysiologic doses of intravenous steroids perioperatively is routine in steroid-treated Inflammatory Bowel Disease (IBD) patients undergoing major abdominal surgery in order to prevent the development of adrenal insufficiency (AI). This practice occurs despite the lack of clinical or biochemical evidence supporting their use.

**Aim**

To examine current practice of perioperative steroid administration in patients with IBD undergoing major abdominal surgery in a tertiary referral centre.

**Methods**

An ethically approved retrospective cohort study of all IBD patients who underwent major abdominal surgery at University Hospital Galway between June 2013 and June 2016 was carried out. Data was obtained by means of chart review in relation to the surgery performed, preoperative steroid treatment, perioperative steroid administration, and postoperative clinical course. Multivariate statistical analysis was carried out using SPSS.

**Results**

48 patients were identified for inclusion in the study, 63% had Crohn's Disease (n=30). 55% of patients were receiving steroid treatment at the time of surgery, 94% had received steroids in the previous 12 months. 63% of patients received perioperative intravenous steroid supplementation. There were no cases of AI or adrenal crisis. Most patients received a standard dose of 8mg dexamethasone IV at time of surgery. Thereafter there was no correlation between perioperative steroid administration and patients steroid dosage in the preceding months. Duration of steroid administration was also highly variable.

**Conclusion**

Current practice of perioperative steroid supplementation is highly variable even within a single centre. A survey examining national practice is in progress. Randomised controlled trials are required in order to provide level 1 evidence to inform the construction of guidelines.

**Funding Source:** Breast Cancer Research

**Title:** Variability in positive margins following conservative breast cancer surgery: A major challenge in delivery of breast care

**Authors;** M. Gallagher, S. Vincent, M. Choynowski, A. Johnston and M. Sugrue

Department of Breast Surgery Letterkenny University Hospital, Donegal Clinical Research Academy Ireland and National University of Ireland Galway

Supported by the Breast Development Fund Letterkenny and DCRA

## **Introduction**

A positive margin following conservative breast cancer surgery generally results in the need for reoperation with associated increase in cost, complications and potentially poorer oncological outcomes. This study undertook a meta-analysis of existing publications to determine variability in margin positivity and factors affecting it.

## **Methods**

An ethically approved systematic review and meta-analysis was conducted from May 2015 to July 2015 and from May 2016 to July 2016 through the databases Scopus and Pubmed. Extracted data included study characteristics and definition of positive margin used, as well as tumour, patient and technical factors. Margin positivity was defined as 'tumour on ink' in a subset comprising of thirty papers of the sixty-one papers analysed. This subset was used in the final analysis. A dichotomous fixed-effect Mantel-Haenszel method was performed to assess factors associated with increased positive margin rate.

## **Results**

A total of 3 185 positive margins that used the definition of 'tumour on ink' were reported from the 18 543 patients who underwent conservative breast cancer surgery, giving an average positive margin rate of 17.2%. Great variability in positive margin rate is reported ranging from 3.3% to 38.3%. Intraoperative ultrasound and tumour histology were shown to influence positive margin rate.

## **Conclusion**

Given the implications of a positive margin in terms of surgical resource utilisation, potential distress and negative outcomes for patients, there needs to be an international consensus on what is a standardised negative margin rate for variable tumour and breast sizes.



**Title:** Investigation of a potential role for MicroRNAs in Breast Cancer Lymph Node Metastasis

**Authors:** Muthu Kumar K, O' Brien K, Gilligan K, Kerin MJ, Dwyer RM, Khan S.

**Affiliation:** Discipline of Surgery, Lambe Institute for Translational Research, School of Medicine, National University of Ireland, Galway

## **Introduction**

Lymph node(LN) metastasis strongly predicts breast cancer patient prognosis. Based on computational algorithm both miR-379 and miR-3148 have a complementary binding sites on genes involved in lymphangiogenesis including VEGF-C and VEGF-D. The aim of the project was to determine expression of miR-379 and miR-3148 in patient serums and identify any relationship with patient clinicopathological details.

## **Methods**

Following ethical approval and informed patient consent, whole bloods were collected from breast cancer patients(n=16) and healthy controls(n=20). Samples were spun at 4000rpm for 5 minutes and serum was collected and stored at -80°C until further use. RNA was extracted, reverse transcribed and expression of miR-379 and miR-3148 were quantified using RQ-PCR. The endogenous control used was miR-16.

## **Results**

Both miR-379 and miR-3148 were detected in all serum samples from breast cancer patients and controls. Circulating miR-379 levels were found to be significantly decreased in breast cancer patients(Mean 1.53 Log<sub>10</sub> Relative Quantity (RQ)) when compared to controls(2.28 Log<sub>10</sub> RQ, p < 0.05) while no such observation was made for miR-3148. Circulating miR-379 levels were also significantly decreased in LN positive patients(1.07 Log<sub>10</sub> RQ) compared to LN negative patients(2.63 Log<sub>10</sub> RQ , p < 0.05).

## **Conclusion**

Previous data from this laboratory has shown that miR-379 is a tumour suppressor in breast cancer on a tissue level, the data presented here illustrates a role for miR-379 in the circulation. Circulating miR-379 may play a role during LN metastasis. Although the number of patients involved in this study is relatively small, further studies are warranted.

**Title:** Investigating the Link Between Adrenal Cushing's and ER-Positive Breast Cancer

**Authors:** Flaherty, E<sup>1</sup>, McCarthy A<sup>1</sup>, O'Shea PM<sup>2</sup>, Lowery A<sup>3</sup>, Gurnell, M<sup>4</sup>, Denedy, MC<sup>5,6</sup>

**Author Affiliations:** <sup>1</sup>School of Medicine, NUI Galway, Galway, <sup>2</sup>Department of Clinical Biochemistry, University Hospital Galway, <sup>3</sup>Department of Surgery, NUI Galway, Galway, <sup>4</sup>Institute of Metabolic Science, University of Cambridge, Cambridge, UK, <sup>5</sup>Discipline of Clinical Pharmacology & Therapeutics, NUI Galway, Galway, <sup>6</sup>Department of Endocrinology, Galway University Hospital, Galway,

### **Introduction:**

Subclinical hypercortisolism (SH) is associated with increased risk of malignancy.(1) We aimed to investigate the prevalence of aberrant glucocorticoid metabolism in women in remission from breast cancer.

### **Methods:**

Post-menopausal women in remission from ER(+) breast cancer were recruited under informed consent (n=97) and compared with age-matched women with adrenal incidentalomas (n=69). Each patient (i) underwent overnight dexamethasone suppression test (ONDST), and (ii) blood sampling for DHEAS. Patients receiving systemic non-hormonal chemotherapy and those taking high dose glucocorticoids were excluded. Statistical analysis used Chi Squared test for proportions and t-tests for hypothesis testing.

### **Results:**

A higher number of postmenopausal women with a history of breast cancer [16/98 (16%)] failed the ONDST (Cortisol >50nmol/L) (1) when compared to a control cohort of postmenopausal women [6/90 (7%)]. This was lower than women with adrenal nodules [33/69 (48%)] ( $\chi^2=41.76$ ;  $p<0.0001$ ). Low DHEAS ratio supported a diagnosis of SH in the breast cancer group failing the ONDST versus those passing [0.52 +/- 0.14 versus 1.05 +/- 0.19 ( $p=0.01$ )] (2). There was no association between failed ONDST and current hormonal therapy. Failed ONDST in this group was associated with larger adrenal glands [7.31 +/- 1.8 versus 3.74 +/- 0.47 ( $p=0.051$ )].

### **Conclusions:**

A higher proportion of women with a history of breast cancer demonstrated evidence of subclinical hypercortisolism independent of hormonal chemotherapy which suggests an association between abnormal glucocorticoid metabolism and breast cancer. Further mechanistic studies are necessary to determine the mechanism of this association

### **References:**

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2. M Conall Denedy, Anand K Annamalai, Olivia Prankerd Smith, Natalie Freeman, Kuhan Vengopal, Johann Graggaber, Olympia Koulouri, Andrew S Powlson, Ashley Shaw, David J Halsall, Mark Gurnell. Low DHEAS: A sensitive and specific test for the detection of subclinical hypercortisolism in adrenal incidentalomas. *JCEM* Sept 2016: In Press.

**Title:** Serum Exosome-Encapsulated microRNAs as circulating biomarkers for Breast Cancer.

**Authors:** Elhadi M, Moloney BM, Gilligan KE, Joyce DP, Kerin MJ, Dwyer RM

**Author affiliation:**

Discipline of Surgery, School of Medicine, Lambé Institute for Translational Research, National University of Ireland Galway.

**INTRODUCTION:**

Exosomes are small membrane-derived vesicles secreted by most cell types, that hold great promise as novel biomarkers for clinical diagnosis. Exosome-encapsulated microRNAs(miRNAs) secreted into circulation may represent a signature of the secreting tumour cell(1). Recent studies by this group have highlighted the presence of miR-451a in exosomes secreted by breast cancer cells in vitro.

**AIMS:**

To investigate the presence and clinical relevance of exosome-encapsulated miRNA-451a in the sera of breast cancer patients compared to healthy controls.

**METHODS:**

Following ethical approval and informed patient consent, sera of 40 breast cancer patients and 12 healthy controls was collected. Serum exosomes were isolated by differential centrifugation, microfiltration and ultracentrifugation. Exosome concentration was determined by protein assays and nanoparticle tracking analysis, which also measured size. RNA was then extracted from exosomes and RQ-PCR targeting miR-451a performed.

**RESULTS:**

Exosomes were successfully isolated from all serum samples analysed (n=52) and confirmed to be of the expected 30-120nm size. There was no significant difference between the overall exosome yield of serum from patients compared to healthy controls, with a broad range of concentrations detected from the same volume of serum. miR-451a was detected in 48/52 samples analysed, with higher levels of expression detected in circulating exosomes from breast cancer patients compared to healthy controls.

**CONCLUSION:**

The preliminary data presented highlights miR-451a as a potential circulating biomarker of disease. Exosome-encapsulated miRNAs may offer valuable tumour-related profiles to facilitate the early detection of breast cancer. Further analysis and investigation of any association with patient clinicopathological characteristics is warranted.

**REFERENCES**

1. Joyce DP, Kerin M, Dwyer RM. 2016. Exosome-encapsulated microRNAs as circulating biomarkers for breast cancer. *International Journal of Cancer*, 139(7), p.1443-1448.

**Title:** The Effect of Mesenchymal Stem Cells on an Acute Respiratory Distress System Model

**Authors:** John Tepper<sup>1</sup>, Jordan Kelly<sup>2</sup>, Daniel O'Toole<sup>2</sup>

1. School of Medicine, NUI Galway
2. Department of Medicine, Orbsen Building

**Introduction:**

There is no cure for ARDS, which is characterized by widespread inflammation in the lungs. Mesenchymal stem cells (MSCs) are self-renewing, multi-potent cells that have been shown to secrete therapeutic agents such as growth factors, anti-inflammatory cytokines and antibacterial peptides. To test MSCs' anti-inflammatory capacity, the release of pro-inflammatory cytokine Interleukin-8 (IL-8) concentration from A549 cells was measured secondary to activation.

**Methods:**

MSC and A549 cell cultures were activated using a 100µL mixture of IL-1β, TNF-α and IFN-γ, also known as Cytomix. Control groups did not receive any Cytomix.

The levels of IL-8 present in the conditioned media (CM) was assessed by ELISA assay. Analyzed cohorts included 24 hour naïve, 24 hour activated, 48 hour naïve, 48 hour activated, fresh naïve media, and fresh activated CM.

**Results:**

CM was activated and after 24 hours had a mean IL-8 value of 704 pg/ml ± 8.90. After 24 hours naïve CM had a mean IL-8 value of 7.22 pg/ml ± 0.46. Pre-activated CM harvested after 48 hours had a mean value of 13.53 pg/ml ± 0.15, whereas naïve CM had a mean value of 7.71 pg/ml ± 0.50. In terms of the fresh XF-CM, pre-activated CM had a mean value of 7.26 pg/ml ± 3.13 which was similar to the fresh naïve CM which had a mean value of 7.33 pg/ml ± 0.51.

**Discussion:**

The addition of MSCs' media did not inhibit IL-8 production, rather, it increased it or was pro-inflammatory. Further research into MSCs' anti-inflammatory capability is advocated

**Title:** MicroRNAs of which H2AX is a validated target do not affect H2AX expression in several breast cancer cell lines

**Authors:** Lang, N 1, Passos, J 2, Dodson ,H 2, 1School of Medicine, NUIG, 2Discipline of Anatomy, School of Medicine, NUIG

### **Introduction & Aim:**

MicroRNAs (miRNAs) are emerging regulators of gene expression. They bind to mRNAs post-transcriptionally, preventing their translation. miRNA regulation of histone H2AX is of interest in cancer research as H2AX is involved in initiating the DNA damage response.

We examined differences in expression of H2AX and several miRNAs in breast cancer cell lines. We hypothesized that if a miRNA prevented H2AX translation, the expression of that miRNA and H2AX would be inversely related.

### **Methods:**

Online sequence complementarity prediction tools were used to identify miRNA-24, miRNA-138 and miRNA-328 binding sites on the H2AX mRNA.

Total RNA was extracted from MCF10A (normal breast epithelial), MDA-MB-231, BT549 (triple negative breast cancer) and MCF7 (HER2- breast cancer) cells. H2AX mRNA copy number was determined by absolute qPCR. Separately, RNA enriched for miRNAs was extracted, and relative expression of the three miRNAs of interest was determined by relative qPCR.

### **Results:**

H2AX copy number was significantly higher in MDA-MB-231 ( $1.08 \times 10^7 \pm 0.45 \times 10^7$ ) than in MCF10A ( $2.5 \times 10^6 \pm 1.7 \times 10^6$ ), ( $p=0.0286$ ). There was no statistically significant difference between H2AX expression in MCF7 or BT549 compared to MCF10A.

The most notable miRNA finding was that miRNA-138 was expressed 134-fold higher in MDA-MB-231 than MCF10A ( $p=0.0096$ ), 146-fold higher in BT549 than MCF10A ( $p=0.002$ ), and was undetected in MCF7.

### **Conclusions:**

No miRNA investigated appears to regulate H2AX expression in these cell lines. However, the effects of miRNAs on cells are poorly understood. As the expression of miRNA-138 varies greatly between cell lines, it may affect expression of other tumour-suppressor and oncogenes, and is a good candidate for future research.

**Title:** Cost-Effectiveness of Endovascular vs. Open Repair of Abdominal Aortic Aneurysm in a High Volume Centre

**Authors:** Patrick Canning<sup>1,2</sup>, Wael Tawfik<sup>1,2</sup>, Niamh Hynes<sup>1,2,3</sup>, Sherif Sultan<sup>1,2,3</sup>

1. School of Medicine, National University of Ireland, Galway, Ireland (NUIG)
2. Western Vascular Institute, University College Hospital, Galway, Ireland (UCHG)
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## **Introduction**

Endovascular aneurysm repair (EVAR) for abdominal aortic aneurysms (AAA) is becoming a standard treatment for anatomically-suitable patients. EVAR has been associated with a lower peri-operative morbidity and mortality compared to open surgical repair (OSR), at the expense of increased reinterventions and costs.

## **Aim**

To compare the outcomes of EVAR and OSR for elective AAA repair. Primary endpoint was cost-per-Quality-Adjusted-Life-Years (QALY). Secondary endpoints were peri-operative morbidity and mortality, all-cause mortality, aneurysm-related mortality and reinterventions.

## **Methods**

The project was approved by the Galway Clinical Research Ethics Committee. Data on all elective AAA repairs at a tertiary referral vascular centre was collected from 2002-2015. Demographics and outcomes were reported according to the Society for Vascular Surgery guidelines. QALY was measured based on a Quality-of-Time-Spent-Without-Symptoms-of-Disease-or-Toxicity-of-Treatment (Q-TWiST) assessment. Data was analysed using parametric and non-parametric tests.

## **Results**

494 patients required elective AAA surgery between 2002-2015: 401 EVARs and 93 OSRs. Demographics and vascular related risk factors were similar in both groups.

Median (interquartile range) cost-per-QALY of EVAR at 3 years was €5776 (€5541-€6481) vs. €7101 (€5812-€8952) for OSR,  $p < 0.001$ . EVAR had reduced perioperative morbidity (12.2% vs. 50%;  $p < 0.001$ ) and perioperative mortality rates (1.7% vs. 4.3%;  $p = 0.130$ ). Reintervention was higher in the EVAR group vs. the OSR group (11% vs. 8.6%;  $p = 0.502$ ).

After three years, aneurysm-related mortality was 3.7% following EVAR vs. 7.7% following OSR ( $p = 0.154$ ). Mean overall survival was 78.76 months for EVAR and 94.03 months for OSR.

## **Conclusion**

Despite the higher incidence of reinterventions, EVAR is cost-effective with improved cost-per-QALY, and less perioperative morbidity and mortality.

**Title:** To assess the ability of pre-operative NLR scores to predict response to neo-adjuvant chemotherapy in Her2 receptor positive breast cancers.

**Authors:** A. Haris, A. McGuire, M.J. Kerin

**Author affiliations:** Discipline of Surgery; Lambe Institute for Translational Research; School of Medicine, National University of Ireland Galway, Ireland.

## **Introduction**

A recent study has suggested that a patient's immune status can affect response to neo-adjuvant Trastuzumab chemotherapy in Her2 receptor positive breast cancers. This is thought to be due to Trastuzumab incorporating the immune system as part of its mechanism of action. Multiple studies have shown that a patient's neutrophil to lymphocyte ratio (NLR) can be a good predictor of a patient's immune status.

## **Aim**

To identify if pre operative NLR can predict response to neo-adjuvant chemotherapy in Her2 receptor positive breast cancers.

## **Method**

Patients were identified using prospectively maintained database of patients who received neo-adjuvant Trastuzumab therapy in Galway University Hospital. The pre operative NLR was recorded for each patient, with a score  $>3$  considered high risk. The post operative pathology reports were used to assess pathological complete response rates (pCR) to neo-adjuvant chemotherapy.

## **Results**

In total 67 patients were included in the study, with 39 (58%) patients having NLR  $<3$  and 28 (42%) patients having a NLR score  $>3$ . A pCR was achieved in 25 (37.3%) of all patients. In patients not achieving a pCR, 13 had a NLR  $<3$  while 18 had NLR  $>3$  ( $p=0.13$ ). When looking at patients with a pCR, 16 had NLR  $<3$  and 9 had a NLR of  $>3$  ( $p=0.61$ ).

## **Discussion**

A low risk NLR score was not associated with a significantly increased pCR rates in Her2 receptor positive treated with Trastuzumab. This study suggests that NLR would not be a suitable marker for predicting response to neo-adjuvant chemotherapy.

**Title:** Current reconstructive practice variation following mastectomy in patients with breast cancer.

**Authors:** Julius,B., Affendi, A., Johnston, A., Sugrue, M.

Department of Breast Surgery, Letterkenny General Hospital and Donegal Clinical Research

- **Author affiliations:**
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Supported by the Breast Development Fund Letterkenny and DCRA

### **Introduction:**

To achieve excellence in breast cancer outcomes, breast reconstruction options should be available to those who wish following mastectomy. Understanding current practice is helpful in coming to that decision and this study evaluates current post mastectomy breast reconstruction outcomes.

### **Methods**

An ethically approved meta-analysis of studies published between January 2010 and July 2015 was conducted. A comprehensive search of MEDLINE, SCOPUS and the Cochrane Central Register of Controlled Trials was conducted. A forest plot was designed that compared the incidence of complications for patients undergoing IBR and DBR. This allowed an odds ratio and 95% confidence interval to be calculated.

### **Results**

26 studies met inclusion criteria, with 40308 patients, identifying that 70% of patients who undergo mastectomy do not go on to have a reconstruction. Overall, of the 30% undergoing reconstruction, 67% have immediate reconstruction and 33% a delayed reconstruction. The rate of reconstruction varied from 0.28 to 0.61 and was higher in the US (0.52) compared to Europe (0.28) The total number of complications observed in both immediate and delayed was compared using a forest plot. Odds Ratio was 1.07, which suggests that delayed reconstruction carries a higher rate of complications, however the difference was not found to be statistically significant, 95% CI [0.91, 1.25].

### **Conclusions:**

This review of current reconstructive identified significant variability in the delivery of reconstructive surgery. An international web-based registry of reconstructive practices and outcomes would guide future direction for ladies undergoing breast reconstructive surgery.



**Title:** A validation of a Potency Assay for the Assessment of Adipose Derived Stromal Cells in the Modulation of Osteoarthritis.

**Authors:** Caoimhe Ward, Georgina Shaw, Mary Murphy

**Author Affiliations:** Regenerative Medicine Institute (REMEDI)  
National University of Ireland Galway (NUIG).

## **Introduction**

Osteoarthritis is a degenerative joint disease mainly affecting the articular cartilage. Adipose Stromal Cells (ASCs) offer an exciting potential to combat the inflammatory aspect, reducing pain, joint swelling and potentially halting its progression.

## **Aim**

The ADIPOA2 project will perform a Phase II clinical trial consisting of an intra-articular dose of ASCs, examining their capacity to modulate pain and function in osteoarthritis of the knee. This study aimed to establish the assay conditions for testing the anti-inflammatory potential of ASCs, i.e. their ability to inhibit inflammatory cytokines thereby predicting their functionality prior to use.

## **Methods**

Following ethical approval and informed patient consent heparinised blood from healthy donors was activated with LPS to elicit an immune response in the presence or absence of HTERT/ASCs. Monocytes were selected with CD14 and CD45. Cells were fixed, permeabilised and intracellular TNF $\alpha$  and IL6 were stained. Flow cytometry quantified the anti-inflammatory potential of the HTERT/ASCs. The validation of this assay included a comparison of the lengths of incubation following stimulation with LPS, effects of passaging and cultured cells versus cryopreserved stock. Validation work was carried out using an immortalised cell line (HTERT).

## **Results**

HTERT/ASCs reduced TNF $\alpha$  and IL-6 in all donors. Extending the length of the incubation period and the effects of passaging showed no significant difference in the expression of TNF $\alpha$  and IL-6. Freshly cultured cells produced a better suppression of TNF $\alpha$  and IL-6 in comparison to frozen stock.

## **Conclusion**

Anti-inflammatory potential of ASCs can be established prior to clinical use.

**Title:** “Problem Patients”: Experiences of and Attitudes towards Patients with Substance Abuse Issues

**Authors:** Megan McNamara, Catherine Anne Field

**Author affiliations:** National University of Ireland, Galway (NUIG)

**Introduction:**

Negative attitudes towards patients with substance misuse problems occur among medical professionals and affect the quality of care received, precipitating reduced compliance and service use. Evidence has shown attitudes can develop at undergraduate level. This study examined attitudes and experiences of medical students towards substance misusers, with a focus on compassion and empathy.

**Methods:**

The study was quantitative, involving a cross-sectional survey of undergraduate medical students with clinical experience. The study tool was a questionnaire based on salient findings of a systematic literature review, and personal experience / knowledge of the researchers. It included two validated screening tools, the Toronto Empathy Questionnaire (TEQ) and Short Alcohol and Alcohol Problems Perception Questionnaire (SAPPQ). Participants were recruited through a ‘gatekeeper’ based in the School of Medicine. Participation was voluntary and anonymous. Data was stored and analysed in SPSS Statistics. Ethical approval granted by the College of Medicine, Nursing and Health Science (CMNHS) Ethics Committee.

**Results:**

Data collection is on-going (current response rate 13%). Early results show 91% had a previous encounter with a substance misuser, 24% reporting discomfort working with such patients. 80% were interested in substance misuse issues but only 34% were considering working in the field. A majority called for additional education and training in the area, and considered their undergraduate education inadequate to prepare them to manage such issues.

**Conclusion:**

Despite a generally positive attitude towards substance misusers, students feel underprepared to competently engage in a therapeutic relationship, and would welcome more education opportunities in the field.

**Title:** Deciding about Nursing Home Care in Dementia: A Conjoint Analysis of How Older People Balance Competing Goals

**Authors;** Fahey A, Ní Chaoimh D, Mulkerrin G, O’Keeffe ST

**Author Affiliations;** Department of Geriatric Medicine, University Hospital Galway. School of Medicine, National University of Ireland Galway.

## **Introduction**

‘Don’t put me in a home’ is a common preference of older people but so too is ‘I don’t want to be a burden on my family’, and these goals often conflict with each other when people develop physical or cognitive difficulties.

## **Aim**

This study used conjoint analysis to investigate how older people would trade-off between the different factors that might arise if they developed significant dementia.

## **Materials and Methods**

Following ethical approval, 102 inpatients aged 65-80y ranked in order of preference a randomly generated ‘orthogonal array’ of 11 (of 72 possible) vignettes with different levels of 4 factors (place of residence, burden on family, risk of harm and length of life) relevant to dementia outcomes. The "conjoint" procedure (SPSS), through linear regressions, generated utility and importance scores for each factor level.

## **Results**

Median (range) importance scores were 41.3(8.5-72.4)% for reducing the burden on family, 35.1(5.1-59.1)% for remaining at home, 13.5(2.6-41.3)% for minimising harm and 12.7% (5.1-50.8)% for maximising the length of life (Jonckheere–Terpstra test  $p < 0.001$ ). Individual importance scores for burden on family and place of residence were negatively correlated (Spearman’s rho -0.59,  $p < 0.0001$ ): 46% of patients rated burden on family as more important to a clinically significant degree (difference in importance score of 10% or more) and 31% rated place of residence as more important.

## **Conclusions**

There are important differences in how individual older people would balance the competing priorities of reducing the burden on their family and remaining at home in the event of developing dementia.

**Title:** Sarcopenia – How significant a problem is it in patients with newly diagnosed rheumatoid arthritis?

**Authors:** Keunjae Ahn<sup>1</sup>, Bernie McGowan<sup>2</sup>, Noreen Harrington<sup>2</sup>, Sarah McDonald<sup>2</sup>, Jane Reodica<sup>2</sup>, Bryan Whelan<sup>2</sup>, and Carmel Silke<sup>2</sup>

<sup>1</sup>College of Medicine, Nursing and Health Sciences, School of Medicine, National University of Ireland Galway

<sup>2</sup>The North Western Rheumatology Unit, Our Lady's Hospital, Manorhamilton, Co Leitrim, Ireland

## **Introduction**

The European Working Group on Sarcopenia in Older People (EWGSOP) defines sarcopenia as a progressive and generalised loss of skeletal muscle mass and strength. Elevated levels of interleukin-1 $\beta$  and TNF- $\alpha$  increase the risk of sarcopenia in patients with rheumatoid arthritis (RA). Studies to date evaluating the incidence of sarcopenia in RA patients are limited.

## **Aims**

- 1) To identify the incidence of sarcopenia in patients with newly diagnosed RA
- 2) To compare it with that of established inflammatory arthritis (IA) patient group
- 3) To identify the incidence of sarcopenia in patients with established IA being treated with and without biologic therapy

## **Method**

Newly diagnosed RA patients attending the North Western Rheumatology Unit (N=81) participated in the study. Separate database of patients with established IA (N=58) was used and categorized by the use of biologic therapy. Ethical approval was granted by the local hospital Ethics Committee, and written consent was obtained from all participants. Independent Sample t-test and Chi-Square test were employed using SPSS version 22.0.

## **Results**

In total, 26 (18.7%) patients with newly diagnosed RA and 21 (15.1%) patients with established IA were identified with sarcopenia. There was no significant difference between the incidences in patients with established IA being treated with and without biologics ( $p=0.622$ ).

## **Conclusions**

In conclusion, the incidence of sarcopenia was insignificantly lower in the established IA group than in the newly diagnosed RA group ( $p=0.102$ ). Substantial evidence suggests sarcopenia is a reversible cause of disability if detected early. Therefore, prompt screening and appropriate management are of the utmost importance.

**Title:** An investigation of in vitro transformation potential of human bone marrow mesenchymal stem cells with abnormal karyotype

**Authors:** Viknaswaran, N.L.<sup>1</sup>, Mohamed, S.<sup>2</sup>, Howard, L.<sup>2</sup>, O'Brien, T.<sup>1,2</sup>

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2. Regenerative Medicine Institute (REMEDI)

**Funded by:** Wellcome Trust

## **Introduction**

Stem cell therapy is a novel approach that has the potential to be used in many conditions of unmet medical need. However, upon cell expansion, karyotypic abnormalities may occur which raises the possibility of cell transformation. In a clinical study of autologous intramuscular transplantation of human bone marrow mesenchymal stem cells (hMSCs) for critical limb ischemia currently underway in the HRB Galway Clinical Research Facility, karyotypic abnormalities have been observed in two out of the seven patients recruited.

## **Aim**

To evaluate the oncogenic transformation potential of hMSCs with cytogenetic abnormalities after culture expansion under Good Manufacturing Practice (GMP) conditions.

## **Methods**

Human bone marrow MSCs containing a subpopulation of abnormal karyotype (trisomy 5) were compared with transformed prostate cancer cells (PC3) using a soft agar assay to examine the anchorage independent growth of the cells. A basal layer of 0.5% agarose was plated in 6 well plates followed by a cell layer. The plates were kept in 37°C incubators and were fed twice weekly. After 30 days, the wells were stained using crystal violet. Quantification of colonies were assessed using a colony counting software, Clono-Counter.

## **Results**

Culture of PC3 cells in 0.5% soft agar resulted in the formation of colonies while no colonies were formed by the cultured hMSCs. The number of colonies in each well ranged from 21 to 35 colonies.

## **Conclusion**

This study demonstrated that hMSCs with this abnormal karyotype are incapable of anchorage independent growth and have no transformation potential in vitro compared to prostate cancer cells.

**Title:** Vascular Access for Coronary Rotational Atherectomy: Radial versus Femoral

**Authors:** Fennelly, E.1, Lee, M.2, Crowley, J.2, Smyth, Y.2, Sharif, F.2, Da Costa, M.3, Veerasingham, D.3, George, A.4, Walsh, S.4, Cockburn, J.5, Neylon, A.6, Garot, P.6, Wolfrum, M.7, Banning, A.7, Mylotte, D.2

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7. Oxford Heart Centre, Oxford University Hospital, Oxford, England

**Introduction:**

Rotational atherectomy (RA) is an adjunct to percutaneous coronary intervention (PCI) that modifies calcified coronary artery plaques. We sought to evaluate outcomes of patients undergoing RA via transradial (TR) and transfemoral (TF) routes.

**Methods:**

The rotational atherectomy international (RAI) registry is a multinational collaboration of high-volume PCI centres. Data from 1569 patients were retrospectively collected. Each centre submitted patient baseline characteristics, angiographic data, procedural information, and scheduled clinical follow-up. All patients gave written informed consent. Continuous variables are presented as mean  $\pm$  standard deviation. Categorical variables are presented as frequencies and percentages and were compared using the Chi-square or Fisher exact test. A P-value  $\leq 0.05$  was considered statistically significant. Statistical analysis was performed using SPSS v22.0 (SPSS Inc., Chicago, IL, USA).

**Results:**

Of the 1569 patients in the RAI registry, most were male (N=1148;73.2%). Women were more likely to undergo TR approach than TF approach (56.5% vs 43.5%) though this did not reach statistical significance (P=0.054).

The left anterior descending was the most frequently treated artery (N=687;44.0%). Coronary stenting was performed in 1450 (92.7%) cases.

Some periprocedural complications were less likely with a TR approach: minor bleeding (0.1% vs 1.1%; P=0.017), occlusive dissection (0.9% vs 2.8%; P=0.007), and myocardial infarction (MI) (0.3% vs 1.5%; P=0.012).

30-day mortality was 2.2% with no statistical difference between the groups.

**Conclusions:**

TR access is a safe and effective method to perform RA. This approach is associated with excellent procedural success and fewer occlusive dissections, MIs and minor bleeding complications compared with TF access.

# Poster Presentation

## Abstracts

**Title:** The impact of concomitant Coeliac Disease on the management of Type 1 Diabetes

**Authors:** C. Fitzgerald<sup>1</sup>, E.O'Sullivan<sup>1,2</sup>

1. School of Medicine, National University of Ireland, Galway

2. Diabetes, Endocrinology and Metabolism, University Hospital Galway

The prevalence of Coeliac Disease (CD) in the general population is approximately 1% and in patients with Type 1 Diabetes (T1D) rates between 0.6-16.4% are reported.

To determine whether metabolic parameters differ between patients with T1DM and those with both T1DM and CD we reviewed the medical records of 1320 patients with T1D attending the Diabetes clinics in GUH. We divided the patients according to CD was present (Group A, n=46), or not (Group B, n=1274). Last recorded HbA1c, weight, BMI, BP and lipid profiles were compared between the two groups. Tissue Transglutamine IgG antibody titres (TTG) <1U/ml in Group A indicated adherence to gluten-free diet (GFD).

Student's T-tests were used for statistical evaluation.

HbA1c representing glycaemic control in T1DM+CD group was 75.0 (SD 20.3) vs 68.9 (17.8) in T1DM group ( $p < 0.05$ ). The HbA1c of those that were non-compliant to a GFD in T1DM+CD was greater than that of those who were (79.7± 20.7 vs 61.9±12.2,  $p < 0.05$ ). The compliant group was older (48±2 vs 35.5± 15.5 years,  $p < 0.05$ ) and had CD for longer than those that were non-compliant (16.3±14.8 vs 8.5±3.5 years,  $p < 0.05$ ), and their HbA1c was significantly lower than that of the T1D alone group.

Patients with T1D and CD have poorer glycaemic control compared to those with T1D alone, except for the subgroup that have laboratory evidence of GFD adherence, and this cohort had the best HbA1c. Suboptimal glycaemic control in those non-adherent to GFD is possibly due to non-compliance to diet and medical management in general.



**Title:** GPs Attitudes towards Diagnosis and Treatment of Male UTIs

**Authors:** Leon. G, Rajan. A, Sinead. D, Fitzgerald. C, Tierney. M, Vellinga. A.

**Affiliations:** Discipline of General Practice, School of Medicine, National University of Ireland, Galway.

**INTRODUCTION:** In general practice, males represent around 20% of the total number of UTI consultations as opposed to females. The majority of UTI research focuses on women. Less guidance and research may contribute to the (mis)conception of many GPs that male UTIs are complicated and should be treated accordingly.

**OBJECTIVES:** This research is done to better understand GPs attitudes towards the diagnosis and treatment of male UTIs.

**METHODS:** A qualitative interview study was carried out with GPs across Ireland. A topic guide was created to ensure consistency in interviews after receiving approval from the Irish College of General Practitioners (ICGP) Research Ethics Committee. Interviews were audio recorded and transcribed verbatim. The transcripts were analyzed using thematic analysis.

**RESULTS:** 15 interviews with GPs were set up. Preliminary analysis indicated that all GPs interviewed had prior knowledge of guidelines and used them when deciding a treatment plan. The infrequency of male UTIs as opposed to a STI remained a prominent theme, as some GPs reported never or seldom having treated a male UTI. Most interviewed GPs viewed male UTI as complicated and therefore took a more comprehensive approach in their investigations and treatment.

**CONCLUSION:** Male UTIs are perceived by GPs to be complicated, resulting in a different attitude toward its treatment as opposed to a female UTI. Further research is needed to determine if they are actually complicated diseases, or if GPs could benefit from a more standardized approach towards treatment of these patients.

**Title:** The Keys to Optimising Breast Wounds; A Meta-analysis

**Authors:** Vincent, S.<sup>1,2</sup>, Gallagher, M.<sup>1,2</sup>, Johnston, A.<sup>1</sup>, Djohan R.<sup>3</sup>, Sugrue, M.<sup>1</sup>

**Author affiliations:** <sup>1</sup> Department of Breast Surgery, Letterkenny Hospital and Donegal Clinical Research Academy Ireland; <sup>2</sup> National University of Ireland, Galway; <sup>3</sup> Department of Plastic Surgery, Cleveland Clinic, Cleveland, OH.

**Funding:** School of Medicine, National University of Ireland, Galway; Breast Development Fund Letterkenny and DCRA

**Introduction:** Breast disease and breast cancer management form a major part of healthcare delivery. Surgical site occurrence(SSO) pose septic and oncological risks to patients. This study aims to develop an evidence-based wound care bundle following meta-analysis identifying key risk factors and interventions for breast SSO.

**Methods:** An ethically approved, PROSPERO-registered meta-analysis following PRISMA guidelines and Cochrane Handbook for Systematic Reviews was undertaken of all published English articles using PubMed, Scopus and Cochrane Library databases from 2010 to July 2016 incorporating articles with MeSH terms risk factors, surgical site infections, breast surgery, and interventions. Articles scoring  $\geq 12$  using MINORS criteria were included. The OR or RR using random-effects, Mantel-Haenszel method were computed for each risk factor and intervention respectively with RevMan5.

**Results:** This study identified a number of statistical significant causative factors for SSO in breast surgery in the key phases of care.

Key phases of care	Statistically significant factors	OR/RR
Pre-operative	Diabetes mellitus ASA $\geq$ III Hypertension Obese vs non-obese Overweight/obese vs normal BMI Re-operated patients Antibiotic prophylaxis	OR=2.71,CI=1.67-4.41,p<0.001 OR=2.37,CI=1.51-3.74,p<0.001 OR=1.79,CI=1.42-2.27,p<0.001 OR= 1.79,CI=1.46-2.19,p<0.001 OR=1.70,CI=1.36-2.13,p<0.001 OR=1.61,CI=1.09-2.38,p=0.02 RR=0.70,CI=0.53-0.92,p=0.01
Intra-operative	Surgical wound classifications 3-4 Axillary lymph node dissection	OR=6.16,CI=2.52-15.02,p<0.001 OR=1.41,CI=1.07-1.86, p=0.02
Post-operative	Adjuvant chemotherapy Tumour/cancer clinical stage II-IV Post-operative antibiotics Drain antisepsis care	OR=2.86,CI=1.44-5.67,p=0.003 OR=3.93,CI=2.04-7.57,p<0.001 RR=0.63,CI=0.40-0.98,p=0.04 RR=0.15,CI=0.03-0.82,p=0.03

**Conclusion:**

The intrinsic factors of patients’ health status, medical co-morbidity, and pathological or cancer status can be considered as inherent factors counting towards risk stratification. Adopting a breast wound care bundle may streamline care and help reduce potential complications and cost.

**Title: SECULAR TRENDS IN HIP FRACTURE HOSPITALISATIONS AT GALWAY UNIVERSITY HOSPITAL.**

**Authors:** Carthy, B.[1], Arthur, P.[1], Armstrong, C [2]., Heaney, F.[2], Carey, J.J.[3].

**Author Affiliation:**

[1] National University of Ireland, Galway.

[2] Fracture Liaison Service, Department of Rheumatology, GUH.

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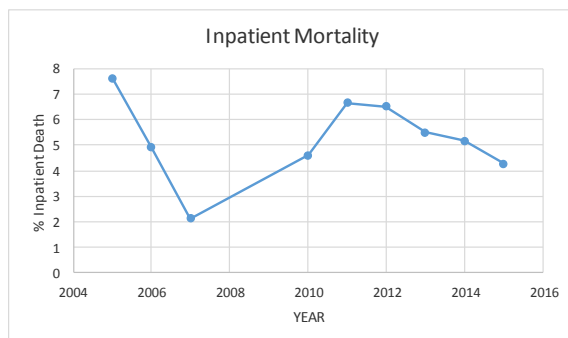
**Abstract text:**

**Introduction:** As our population ages, the burden of hip fractures is becoming ever more prevalent. It is known that hips fractures have a dramatic effect on a patient’s post fracture quality of life, with functional and survival outcomes dramatically reduced.

**Aim:** To perform a trend analysis of GUH Hip Fracture inpatient mortality, and discover if there may be a link between health budget cutbacks and inpatient mortality.

**Methods:** A retrospective study of 1761 ethically approved hip fracture patients at GUH between 2005 and 2015. A hip fracture database was compiled using information from online hospital systems and Fracture Liaison Service.

**Results:**



All 1761 (1248[70.87%] female, 513[29.13%] male) patients were admitted to GUH. Of those, 97[5.51%] died as inpatient. 61[4.89%] females and 36[7.02%] males died as inpatients.

With missing data for 2008-2009 accounted for, a trend is visible. A linear regression can be seen between the years 2005-2007 with inpatient mortality% decreasing over threefold. There is an increase between the years 2007-2010 and from 2010-2011, there is a

progressive increase in inpatient mortality. From 2011-2015, there is a progressive decrease with levels returning to 2006 levels by 2015.

**Conclusion:** The secular trends at GUH would support the idea, that as budgetary cuts from 2008 onwards were implemented, that inpatient mortality rates rose. In recent years, as health cutbacks have been reversed, inpatient mortality rates have progressively fallen.

**Title:** HUMAN PAPILOMA VIRUS-ASSOCIATED HEAD AND NECK CANCER: A 21ST CENTURY PANDEMIC; ASSESSING STUDENT AWARENESS AND KNOWLEDGE.

**Authors:** McNamara, A., Fapohunda, O., Keogh, JJ.

**Author Affiliations:** Department of Otorhinolaryngology, UCHG, Galway. National University of Ireland, Galway.

**Introduction:** Recent studies suggest up to 70% of oropharyngeal cancers are caused by Human Papilloma Virus (HPV)<sup>(1)</sup>, yet public awareness of HPV and its association with Head and Neck Cancer (HNC) is lacking. Our aim is to investigate the extent of knowledge within a high risk, and relevant cohort of Irish students in order to determine if there is more that can be done to raise awareness of the risk factors of HNC to curb the increasing incidence of HPV-related HNC, which is expected to surpass the incidence of cervical cancer by the year 2020<sup>(2)</sup>.

**Methods:** A self-designed, anonymous questionnaire was distributed to all registered students of NUIG (17,000 approx. sample size) via email, using a survey provider platform, allowing for a qualitative analysis of responses. Ethical approval was granted by GUH's Clinical Research Ethics Committee.

**Results:** The questionnaire has been distributed among students of NUIG and response collection is ongoing. We hope to be able to expand on our results in the near future on presentation of our work.

**Conclusions:** HPV is a relatively unknown STI, and is often only associated with cervical cancer, however it's significant role in HNC has been overlooked, as has its means of transmission, with particular regard to oral sex. More education is needed within schools, and university campaigns are necessary in order to better inform those potentially at risk. The introduction of HPV vaccines for boys must also be pushed to the forefront of future health policy.

1. O'Sullivan B, Huang SH, Su J, Garden AS, Sturgis EM, Dahlstrom K, et al. Development and validation of a staging system for HPV-related oropharyngeal cancer by the International Collaboration on Oropharyngeal cancer Network for Staging (ICON-S): a multicentre cohort study. *Lancet Oncol* [Internet]. 2016 Apr [cited 2016 Aug 20];17(4):440–51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26936027> Human Papillomavirus Associated Head and Neck Cancer [online] (2016) [accessed 1 Feb 2016].
2. Chaturvedi AK, Engels EA, Pfeiffer RM, Hernandez BY, Xiao W, Kim E, et al. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. *J Clin Oncol* [Internet]. American Society of Clinical Oncology; 2011 Nov 10 [cited 2016 Aug 19];29(32):4294–301. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21969503>

**Title:** An assessment of common aerosol delivery methods during bronchospasm in the operating room.

**Authors:** Lee, Y.X.<sup>1</sup>, Wolny M.<sup>2</sup>, MacLoughlin R.J.<sup>2</sup>, Higgins B.D.<sup>1</sup>

**Affiliation:** <sup>1</sup>Physiology, National University of Ireland, Galway, <sup>2</sup>Aerogen Ltd., Dangan, Galway,

### **Introduction:**

Acute bronchospasm, a common post-operative event, may occur more frequently in adult and paediatric patients with underlying conditions, such as asthma. Inhaled therapeutic beta-2 agonists are delivered by MDI through endotracheal tubes to patients. Therapeutic doses are difficult to deliver and many options have been improvised. This study aimed to assess 3 common delivery methods in operating rooms.

### **Methods:**

The improvised delivery device consisted of a salbutamol metered dose inhaler (Ventolin®-Evohaler® 100µg) placed into a 60mL syringe connected to either an adult (8.5mm) or paediatric ET tube (5.0mm). The methods tested included the improvised device connected to 1) adult and paediatric ET tubes directly; 2) ET tubes via bronchoscope t-piece connector to resuscitation bag; and 3) ET tubes, resuscitation bag; and a 19G iv catheter advanced within ET tube. For all experimental scenarios a therapeutic dose of 6 inhalations of salbutamol (600µg) was delivered (n=3) and collected on an absolute filter. The lung dose, expressed as a percentage of the nominal dose, was quantified by ultraviolet spectrometry at 243nm.

### **Results:**

Drug delivery was significantly higher when a resuscitation bag was used to aid delivery compared to an ET tube alone in both adult and paediatric set-ups (Adult: 8.05% ± 1.23 vs. 0.55% ± 0.99; Paediatric 23.95% ± 0.98 vs. 3.57% ± 2.28.  $p < 0.01$ ). The addition of a 19 G iv line inside the ET tubes resulted in significantly greater drug deposition when compared to ET tube alone (Adult: 89.9% ± 7.20 vs. 8.05% ± 1.23; Paediatric: 76.95% ± 10.84 vs. 23.95% ± 0.98.  $p < 0.01$ ).

### **Conclusion:**

The use of improvised methods of MDI drug delivery can significantly improve the amount of drug delivered in the scenarios described. The addition of positive pressure ventilation through use of a resuscitation bag was seen to facilitate a significant increase in delivered dose to the lung.

**Title:** Identifying Frailty at the Front Door

**Authors:** Bonner, A., Mulpeter, K.

**Author affiliations:** Geriatrics Department, Letterkenny University Hospital (LUH)

**Introduction:**

The percentage of elderly patients in hospitals is increasing. Variable Indicative of Placement (VIP) risk and Identification Seniors At Risk (ISAR) score are geriatric screening tools for identification elderly patients best suited to geriatric care, and most at risk of adverse health outcomes, enabling optimal use of healthcare resources.

**Aim:**

To determine effectiveness of VIP-risk and ISAR-score by calculating their correlation with Length Of Stay (LOS), Physiotherapy (PT)/Occupational Therapy (OT)/Speech Therapy (ST) requirement, number admissions in past year, and discharge locations.

**Materials & Methods:**

Questionnaire created. Data collected from talking to 201 patients, and from notes and/or family where necessary. Consent obtained from each patient. Apart from Enhanced Recovery and Intensive Care admissions, all admissions 75 years+ to LUH from 18/07/2016-11/08/2016 included. Data analysed using IBM SPSS-23. p-value < 0.05 considered statistically significant.

**Results:**

Statistically significant positive correlation between VIP-risk and LOS (.241), and previous admissions (.106). Mean rank and median VIP-risk significantly higher in patients who received PT/OT/ST (122.05 & 3 v 86.85 & 2). Median VIP-risk significantly higher in discharges to nursing homes and community hospitals (3 & 3), than to relative's home or own home (2 & 2).

Statistically significant positive correlation between ISAR-score and LOS (.129), and previous admissions (.475). Mean ISAR-score significantly higher in patients who received PT/OT/ST (3.09 ± 1.18 v 2.56 ± 1.25). Median ISAR-score significantly higher in discharges to nursing homes and community hospitals (4 & 4), than to relative's home (3) or own home (2).

**Discussion/Conclusion:**

VIP-risk shows good potential for predicting LOS and PT/OT/ST requirement. ISAR-score shows good potential for identifying patients at risk of readmission and those most likely to be discharged to nursing home or community hospital.

**Title:** Audit of Aspects of Practice in Relation to Patients with Suspected Community-Onset Blood Stream Infection

**Authors:** Reza, M.A. [1], Cormican, M. [1]

**Author affiliations:** [1] School of Medicine, National University of Ireland, Galway

**Introduction and Aim:**

Community-onset blood stream infection (C-BSI) is an important cause of sepsis. The urinary tract is an important source for C-BSI. Urinary catheters are a risk factor. Blood culture is the critical diagnostic test. Prompt effective antimicrobial therapy is a key intervention. We reviewed practice in relation to patients presenting with suspected C-BSI.

**Methods:**

Patients were those with blood cultures (BC) submitted from the Emergency Department over 4 weeks. Details were recorded from laboratory and patient records. Data were analysed in SPSS.

**Results:**

BC were taken from 201 patients. Suspected source was respiratory (32.8%), urine (14.9%) or other (52.3%). 9 (4.5%) patients had urine catheters. Urine was the suspected source of infection in 5 of these 9. Bacteriuria was present in 7 of these 9 from whom urine samples were submitted though it was polymicrobial in all but 2. Median time from registration to first administration of an antimicrobial was 226 minutes and was broadly guideline compliant in 121 (80.7%) of 151 patients who received treatment. BC were positive in 17 (8.5%) of which 10 (5.0%) were significant (mainly E. coli).

**Conclusions:**

Suspected C-BSI is common. Urine is a common suspect source. Urinary catheters are present in 4.5%. E. coli is the leading pathogen. Median time to first dose of antimicrobial treatment is almost 4 hours suggesting scope to expedite patients transition from presentation to intervention.

**Funding:** National University of Ireland, Galway

**Title:** The Quality of Life of patients with localized prostate cancer and treated following Brachytherapy in Galway Clinic.

**Author:** Nor Azlan, M.A.S. (1), Corcoran, R. (2), Sullivan, F. (3)

**Author affiliations:**

- (1) School of Medicine, National University of Ireland, Galway
- (2) Department of Public Health, Health Service Executive, West.
- (3) Prostate Cancer Institute, University Hospital Galway

**Introduction:**

Brachytherapy is one treatment of choice for localised prostate cancer. Radioactive seeds are placed in, or near, the tumor where they give a high radiation dose to the tumor and reduce radiation exposure in surrounding healthy tissue. After brachytherapy, patient's quality of life may worsen but should improve in the long-term.

**Aim:**

To demonstrate patient's quality of life before and after brachytherapy by using the Expanded Prostate cancer Index Composite for Clinical Practice (EPIC-CP). This questionnaire is validated to be sensitive to the treatment-related quality of life changes in men with prostate cancer and contains urinary, bowel, sexual, and hormonal domains.

**Materials and Methods:**

In this study we retrospectively extracted data from completed EPIC-CP questionnaires for 51 patients. The questionnaires were collected at baseline (before treatment), 1 year and 2 years after treatment. Data was saved on an electronic cloud-based database and analysed in SPSS.

**Results:**

Data analysis indicated a statistically significant difference ( $p=0.021$ ) in patients reported quality of life at baseline and 1 year after treatment, with worsening of symptoms in all domains. Patients reported quality of life at baseline and 2 years after treatment shows improvement in all domains, though statistically insignificant ( $p=0.06$ ).

**Conclusion:**

Results show that a patient's quality of life may worsen immediately after brachytherapy and this may last up to 1 year but symptoms may improve from thereon. This information is crucial in helping the patient choose between different treatments for localised prostate cancer.



**Title:** The role of low dose chemotherapy in sensitising the colon tumour microenvironment to immunotherapy.

**Authors:** Abdul Sukor DR1, Ahern M1, O'Malley G1,2, Rigalou A1,2, Ryan AE1,2

**Author affiliations:**

- (1) Regenerative Medicine Institute (REMEDI), College of Medicine, Nursing and Health Sciences (CMNHS), National University of Ireland Galway (NUIG), Ireland.
- (2) Discipline of Pharmacology and Therapeutics, CMNHS, NUIG, Ireland.

**Introduction:**

Metastatic colorectal cancer is a frequently lethal disease. Immunotherapies, alone or in combination with chemotherapy and radiotherapy have potential for treatment of metastatic disease as they act through unrelated mechanisms.

**Aim:**

We investigated if treatment of CT26 cells treated with low-dose chemotherapies in presence of anti-PD-L1 antibody will enhance antibody-dependent cellular phagocytosis (ADCP) or cytotoxicity (ADCC)-mediated tumour cell clearance by macrophages in-vitro.

**Methods:**

Conditioned media (CM) was collected from CT26 cells, mouse colon adenocarcinoma cells following treatment with a range of low-doses of fluorouracil (5FU) and cyclophosphamide (Cy). Cell death was assessed by cell SYTOX positivity as determined by flow cytometry. RAW 264.7 macrophages were incubated in the CM for 48 hours before being placed in co-culture with fluorescently-labelled CT26 cells in the presence or absence of anti-PD-L1 antibody. Tumour cell clearance by ADCP/ADCC was determined by analysis of the number of live fluorescently-labelled tumour cells in the cultures after 18 hours. Statistical analysis was performed by T-test analysis.

**Results:**

Cy and 5FU induced significant levels cell death of CT26 cells at concentrations above 10uM and 125ng/ml respectively. For subsequent co-cultures, CM from CT26 treated with 5, 10, 20uM Cy and 125, 250, 500ng/ml 5FU were assessed. The % live CT26 cells in low-dose (5-20uM) Cy and 5FU (<250ng/ml)-conditioned macrophage co-cultures was reduced compared to untreated controls. This effect was enhanced in the presence of PD-L1 antibody.

**Conclusion:**

Combination of low-dose chemotherapy and immunotherapeutic treatment promoted ADCC/ADCP-mediated tumour cell clearance by macrophages, suggesting potential therapy for metastatic colorectal cancer.

**Title:** Cognitive Dysfunction in Acute Psychosis

**Authors:** Tan, W.T.[1], Lowry, G., Adamis, D.[1,2]

### **Author affiliations**

[1] School of Medicine, NUI Galway, Galway.

[2] Department of Psychiatry, Sligo Mental Health Service, Sligo.

**Funded by:** Health Research Board (HRB)

### **Introduction**

Patients with psychosis often present with cognitive dysfunction during the course of their illness. Inflammatory markers such as cytokines and neurotrophins have been investigated as they are relevant to the change in cognitive function.

### **Aim**

To evaluate the cognitive function between patients with acute psychosis and those without. Moreover, this study also investigates cytokines and neurotrophins levels in acute psychosis and their relation with cognition, severity of psychosis and trajectory of their levels across time and under treatment.

### **Methods**

This is a longitudinal, observational, pilot study, of psychiatric inpatients. Participants were assessed on the first day using BPRS, CAGE, Trail making test B and Wisconsin-Card-Sorting-Test. These assessments were repeated weekly until patients were discharged. Blood samples were also collected on the same day for cytokines and neurotrophins analysis. However, the result on cytokines and neurotrophins levels is still pending, therefore only clinical findings will be presented.

**Results:** 31 patients (mean age: 43.7, SD: 18.9, 14 females and 17 males) were recruited. Eleven were acutely psychotic. Generalized Estimating Equations modeling was used to compare these two groups based on cognitive and demographic variables. Patients with psychosis are more likely to have significantly lower scores for CAGE (Wald- $\chi^2=6.268$ ,  $df=1$ ,  $p=0.012$ ), significantly more abnormal scores in Trail Making Test B (Wald- $\chi^2=7.338$ ,  $df=1$ ,  $p=0.007$ ), Failure-To-Maintain-Set (Wald- $\chi^2=8.323$ ,  $df=1$ ,  $p=0.004$ ) and Perseverative-Errors (Wald- $\chi^2=4.385$ ,  $df=1$ ,  $p=0.036$ ) although they have more years of education than those without psychosis.

**Conclusion:** These data show individuals with acute psychosis have impaired cognitive function compared the others.

**Title:** A Review of Current Practices in Mastectomy and Reconstruction Practices in a Specialist Breast Tertiary Referral Centre

**Author:** Jeewanthie Welikumbura<sup>1</sup>, Niamh O' Halloran<sup>1</sup>, Aoife Lowery<sup>2</sup>, Karl Sweeney<sup>1</sup>, Carmel Malone<sup>1</sup>, Ray McLaughlin<sup>1</sup>, Alan Hussey<sup>1</sup>, Jack Kelly<sup>1</sup>, Kevin Barry<sup>1</sup>, Michael Kerin<sup>1</sup>

1. Department of Surgery, The Lambe Institute, National University of Ireland Galway
2. Graduate Entry Medical School, University of Limerick

## **Introduction**

Breast reconstruction is becoming the standard of care in women undergoing mastectomy. The NICE guidelines state that all women undergoing mastectomy should be offered a reconstructive procedure, secondary to its proven psychosocial benefits. We aim to review the current breast reconstruction practices in a specialist breast tertiary referral centre over an 18 month period.

## **Methods**

A retrospective study of all mastectomy and reconstruction procedures carried out in Galway University Hospital from January 2015 to July 2016 was undertaken. Breast reconstruction practices were analysed with respect to patient demographics, histology, neoadjuvant and adjuvant treatment received.

## **Results**

Two hundred and nine mastectomy related procedures were carried out in this 18 month period. There was an overall reconstruction rate of 54.5% (n = 114). Women undergoing breast reconstruction post-mastectomy were younger (48 +/- 11 years) than those undergoing mastectomy alone (61 +/- 13 years). Reconstruction was more common in those patients with non-invasive (i.e. DCIS/LCIS) (p = 0.001) and node negative disease (p < 0.001). Reconstruction practices were not influenced by tumour grade or T stage. Patients receiving radiotherapy were less likely to undergo reconstruction (p = 0.015), as were those in receipt of chemotherapy (p = 0.029). Those in receipt of neoadjuvant chemotherapy were more likely; and those receiving adjuvant chemotherapy were less likely; to undergo breast reconstruction.

## **Conclusion**

Rates of breast reconstruction in a specialist breast tertiary referral centre are influenced by multiple factors such as patient age, tumour histology and stage and by additional oncological treatment administered.

**Title:** Factors that influence routine clinical applicability of Tumour infiltrating Lymphocyte assessment, including Concordance, Time taken and Reproducibility

**Authors:** Katie de Jong, Rawan Elhelali, Mark O'Loughlin, Liv Kristina Jentsch, Sharon Glynn, Grace Callagy

**Author Affiliations:** Discipline of Pathology, NUIG

## **Introduction**

There is evidence supporting a prognostic role for stromal tumour infiltrating lymphocytes (sTILs) in triple negative breast cancer (TNBC). Our aims were (i) to determine if sTIL assessment by non-consultant staff is feasible for day-to-day practice; and (ii) to examine the prognostic role of sTILs using the pre-treatment core biopsies in patients with TNBC who were treated with neo-adjuvant chemotherapy (NAC).

## **Methods**

Students received training in scoring TILs (online tutorial; TIL counting using a training set and a tutorial with a consultant pathologist). Thereafter, the time taken to score and inter-observer variability were determined. The association between sTILs and pathological response to NAC, a surrogate for outcome was examined. The subtype of TILs in TNBC was examined using anti-CD4, -CD8 and -PDL1 in a small number of cases.

## **Results:**

After a short training period, students were efficient at scoring sTILs, taking two minutes per image. There was an association between sTIL scores generated by the students and the consultant ( $p < 0.001$ ). Discordance was associated with core fragmentation, sampling, necrosis, and difficulty distinguishing invasive from in situ carcinoma. There was a marginal association between sTIL and response to NAC ( $p = 0.048$ ). The majority of TILs were CD8+, CD4- and PDL1 negative .

## **Conclusion:**

Staff other than consultants can be trained to count TILs with reasonable reproducibility. Despite evidence linking sTIL counts in resection specimens with outcome in TNBC, this appears to be weaker for sTILs assessed on core biopsies, which are the only specimens available for most TNBCs in routine practice.

**Title:** Investigations for biomarkers of Haemorrhagic Transformation

**Authors:** R. Quek, A. Douglas, J. Shearer, K.M. Doyle

**Author Affiliations:** Department of Physiology, School of Medicine, NUI Galway

Work by this author was partially supported by The Physiological Society.

### **Introduction**

Ischemic stroke and its complications are leading causes of disability and mortality [1]. Timely reperfusion of the occluded cerebral vasculature can minimize brain damage and optimize patient outcome. A major complication of reperfusion treatment is haemorrhagic transformation (HT) [2]. The causative factors responsible for development of ischemia into HT are poorly understood. We aimed to study the expression of biomarkers of HT in brain tissue following temporary middle cerebral artery occlusion and subsequent reperfusion in a rat model of acute stroke.

### **Methods**

TTC staining was utilized to identify extent of infarct and oedema in non-perfusion fixed tissue (n=4) in male Sprague Dawley rats with temporary focal ischemia for 2h, followed by reperfusion of 2h. MMP-9 and BDNF levels were assessed using ELISA to illustrate changes in expression levels in brain regions. Separately, rats were injected with horseradish peroxidase (HRP) 10 minutes prior to perfusion fixation, and immunohistochemistry and immunofluorescence were utilized to characterize changes in MMP-9 expression, HRP infiltration and extent of ischemic infarct in brain tissue (n=1).

### **Results**

ELISA and immunofluorescence showed that MMP-9 expression was significantly elevated ( $P < 0.05$ ) in anterior temporal cortex, striatum and posterior temporal cortex within the ischemic hemisphere versus the contralateral hemisphere. Increased HRP infiltration was observed in the ischemic hemisphere, reflecting blood brain barrier (BBB) breakdown.

### **Conclusion**

Biomarkers for HT, disruption of the BBB and vasogenic oedema can be observed following transient focal ischaemia. These results demonstrate that MMP-9 elevation in brain tissue is a significant response to cerebral focal ischemia and reperfusion.

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2. Jickling, G., Liu, D., Stamova, B., Ander, B., Zhan, X., Lu, A. and Sharp, F. (2013). Hemorrhagic transformation after ischemic stroke in animals and humans. *Journal of Cerebral Blood Flow & Metabolism*, 34(2), pp.185-199.

**Title:** Comparing clinical outcomes in people with type 2 diabetes before and after attending DESMOND and exploring primary care providers' experiences of referring patients to DESMOND

**Authors:** R. Bourke, C. Heverin, Dr. M. O'Donnell, Prof S. Dinneen

A summer student scholarship funded by the Irish Endocrine Society.

**Aims:**

To compare clinical outcomes (HbA1c, LDL and weight) in people with type 2 diabetes before and after attending an evidence-based group structured education programme (DESMOND) and to explore primary care providers' experiences of referring patients to DESMOND.

**Methods:**

Differences in clinical outcomes before and after attending DESMOND were measured in 100 DESMOND attendees using a paired sample two-tailed t test. Semi-structured interviews were conducted with 3 GPs/6 practice nurses and analysed using a thematic approach.

**Results:**

The mean age of the patient sample was 61 years and 51% were male. For participants with clinical data at both baseline and follow up at 3- 6 months, there was a statistically significant improvement in HbA1c (n = 87; 65 mmol/mol V 53 mmol/mol, p < 0.05) and LDL (n =82; 2.7 V 2.5, p < 0.05) following attendance. Weight also decreased but this was not statistically significant (n = 48, 96.1kg V 94.5 kg).

GPs/Practice nurses reported that attendance was generally good and that attendees self-manage their condition better following attendance. Barriers to attendance included the time commitment and mobility or transport issues. More communication on DESMOND dates, more rural venues, and DESMOND patient information leaflets were identified as ways the DESMOND team could support GP practices in promoting DESMOND.

**Conclusions:**

Improvements in clinical outcomes were observed in DESMOND attendees and GPs/practice nurses report that attendees are better at self-managing their condition. On-going communication from the DESMOND team was identified as a way of supporting GP practices in promoting DESMOND.

**Title:** Chronic kidney disease referral appropriateness: a clinical audit

**Authors:** Browne, D.P.<sup>1</sup>, Smyth, A.<sup>2</sup>, Reddan, D.<sup>2</sup>

**Author affiliations:**

1. School of Medicine, NUI Galway
2. Department of Nephrology, Galway University Hospitals

**Introduction:**

Chronic kidney disease (CKD) is increasing in prevalence<sup>1</sup> and awareness of CKD as a morbidity is growing. Nephrology services are struggling from a capacity perspective. Refinement of how patients are prioritised is therefore required.

**Aim:** Quantify the appropriateness of patient referrals for CKD in the Galway-Mayo SAOLTA region.

**Materials and Methods:**

All adult referrals from primary care for CKD to nephrology from February to June 2016 were categorised as appropriate, inappropriate or inadequate using the Renal Association criteria<sup>2</sup>(9 specific criteria). Serum creatinine and estimated glomerular filtration rate (eGFR) immediately preceding the referral date, were recorded. Missing laboratory data was obtained from the hospital laboratory system. Descriptive statistics were performed using SPSS v23.

**Results:**

Baseline characteristics: mean age 64 years, 52% female, and mean eGFR 51(ml/min/1.73m<sup>2</sup>). Of 119 received referral letters, 24% were deemed inappropriate and 22% inadequate. Of appropriate referrals, 4% were inappropriate on review of additional lab values. All inadequate referrals were later deemed appropriate after review of additional lab values. Inappropriate referrals were more frequent in patients aged <65.

**Discussion:**

Almost half of referrals for CKD from primary care were either: inappropriate, congesting the referral system; or inadequate, impacting classification of referrals as urgent vs. routine and waiting times. Efforts are needed to highlight this issue and the importance of guidelines for referral, to primary care. There is a need to establish a standardised and accountable referral system in Ireland.

**References:**

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2. <http://www.renal.org/information-resources/the-uk-eckd-guide/referral#sthash.DgQZrCED.PPGAEI7m.dpbs>

**Funding source:** Nephrology research fund

**TITLE:** Assessing Situation Awareness in Medical OSCE Guides

**AUTHORS:** Margaret Frere<sup>1</sup>, Markus, Fischer<sup>1</sup>, Thomas Kropmans<sup>1</sup>

**AUTHOR AFFILIATIONS:** <sup>1</sup>School of Medicine, National University of Ireland, Galway

**FUNDING:** NUIG School of Medicine Scholarship

## **INTRODUCTION:**

Medical errors are among the most prevalent adverse events in healthcare. Lack of situation awareness (SA) is an important factor leading to poor clinical decision-making and medical errors. SA is “the perception of the elements in the environment ... , the comprehension of their meaning and the projection of their status in the near future” (1). While there is extensive literature on SA theory, it is difficult to measure and quantify in simulation, such as the objective structured clinical exam (OSCE).

## **AIM:**

The purpose of this study was to measure SA in three different medical OSCE guides, using a tool developed from Endsley’s model of SA.

## **METHODS:**

Three OSCE guides were qualitatively analysed in NVivo using the self-developed tool. Data from NVivo analyses were then quantitatively analyzed using non-parametric statistics (frequency, Kruskal-Wallis variance) in Excel and SPSS.

## **RESULTS:**

Kruskal-Wallis test showed significant differences in SA observed between the guides ( $\chi^2(2) = 7.153$ ,  $p = 0.028$ ). In all three guides, level 1 SA was most frequently observed. All stations in every guide exhibited level 1 and level 2 SA, except urology. Only four specialties exhibited level 3 SA in every station.

## **CONCLUSION:**

In order to improve SA in clinical settings, SA education must be provided to students. SA is taught using simulations, but it is difficult to measure. Many SA measurements have been proposed, including this tool, but there is no consensus on the ‘best’ method. More research is required to better understand SA and its measurement in medical training.

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**Title:** Prevalence of Diabetic Peripheral Neuropathy in a Secondary Care Diabetes Service and Alcohol Use in Patients with Diabetic Peripheral Neuropathy and Neuropathic Ulceration.

**Authors:** Haidei A,<sup>1</sup> Rourke C,<sup>2,4</sup> Kelly M,<sup>2</sup> Costelloe M,<sup>2</sup> Gately M,<sup>3</sup> Watterson D,<sup>4</sup> Murphy P,<sup>5</sup> O'Loughlin A,<sup>2,4</sup>

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2. Department of Diabetes, Roscommon University Hospital, Saolta Healthcare Group.
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5. Department of Psychology, Saolta Healthcare Group.

### **Introduction:**

Peripheral neuropathy is a complication of diabetes mellitus with currently no treatment to reverse the condition. Excess alcohol use may cause peripheral neuropathy and is a modifiable risk factor for neuropathy. Diabetic peripheral neuropathy (DPN) may result in diabetic foot ulceration.

### **Aims**

1. To determine the prevalence of DPN in a secondary care diabetes service
2. To determine the prevalence of alcohol dependence in a cohort of patients with DPN and neuropathic ulceration.

### **Methods:**

Ethical approval was obtained for the study. The prevalence of DPN was derived from audit of an electronic diabetes database (DIAMOND). Patient demographics were recorded. Consecutive patients attending diabetes podiatry clinics with DPN or neuropathic foot ulceration were screened using the CAGE questionnaire. A score of  $\geq 2$  indicates alcohol dependence.<sup>1</sup>

### **Results:**

The prevalence of DPN for patients attending Roscommon diabetes services was 22.2%. For subjects with DPN (n=8), 50% (n=4) scored  $\geq 2$ . For subjects with active diabetic neuropathic foot ulceration (n=14), 7.14% (n=1) scored  $\geq 2$  on the CAGE questionnaire.

### **Conclusion:**

DPN is present in a significant number of patients attending a secondary care diabetes clinic. Alcoholism was detected in patients with diabetic foot complications. As alcohol dependence is a modifiable risk factor for DPN, the potential presence of alcohol dependence should be determined in the clinical assessment of these patients, and may reduce the burden of diabetic foot disease.

Wing JA. Detecting alcoholism. The CAGE questionnaire. JAMA. 1984;252(14):1905–7.1

**Title:** Penye nia ipo njia: *a pilot audit of surgical services in a rural hospital in Tanzania.*

**Authors**

Higgins Patrick<sup>1</sup>, O'Sullivan Lisa<sup>1</sup>, Davis Cian<sup>1</sup>, Corbett Mel<sup>1</sup>, Tiarnan Morris<sup>1</sup>, Mgego Isaac<sup>2</sup>, Arnold Philis<sup>2</sup>, Sepoko Hussein<sup>2</sup>, O'Donovan Diarmuid<sup>1</sup>.

1. College of Medicine Nursing and Health Sciences, National University of Ireland Galway.
2. Berega Mission Hospital, Morogoro, Tanzania.

**Introduction:**

5 billion people do not have access to safe and affordable surgical care in 2016. Of the 313 million procedures undertaken worldwide each year, only 6% occur in the poorest countries, where poor resources and low operative volumes are associated with high case-fatality and complication rates<sup>1</sup>. Berega Mission Hospital is a 120 bed hospital in rural Tanzania which serves a population of 200,000 with one major and one minor operating theatre<sup>2</sup>.

**Aim:** At the request of the hospital management we undertook a pilot audit to examine current surgical practice in the major operating theatre of Berega Mission Hospital to identify opportunities for quality improvement.

**Methods:** We identified all procedures carried out in the major theatre during an 18 month period using the operating log and collated the following information from patient notes: age, gender, HIV status, operation, indication, elective or emergency, admission duration, total cost of admission, complications, mortality, antibiotic within one hour of surgery, type of anaesthetic used, blood transfusion requirement post-operatively, need for reoperation, preanaesthetic visit, grade of surgeon and assistant, pre-operative blood pressure, pre-operative and post-operative haemoglobin, and if outpatient visit attended. We also included duration of labour, bleeding before labour, gravidity and parity and number of antenatal visit in all maternity cases.

**Results:** 665 procedures were undertaken during the 18 month period of which the charts for 639 (97.5%) were identified. Final results are pending and will be presented on the day.

**Conclusion:** Better information on surgical practice and outcomes is critical for planning and assuring quality of services in the developing world.

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2. Grady D. Where Life's Start Is a Deadly Risk. *The New York Times*. 2009.

**Title** The anatomy of attention: finding the facts with physostigmine and fMRI

**Authors** Murphy, F., Cannon, D, Nabulsi, L., McPhilemy, G., Ambati, S., Hallahan, B., McDonald, C., Najt, P.

**Affiliation** Centre for Neuroimaging & Cognitive Genomics (NICOG), Clinical Neuroimaging Laboratory, NCBES Galway Neuroscience Centre, College of Medicine Nursing and Health Sciences, National University of Ireland Galway, H91 TK33 Galway, Ireland.

### Introduction

The purpose of this study was to evaluate the interaction between attentional task demands and cholinergic enhancement on neural responses. Upon cholinergic stimulation we sought to identify top-down cognitive control processes that enhance attention to the signal and suppress distraction.

### Methods

24 healthy volunteers underwent ethically-approved functional Magnetic Resonance Imaging during an emotional-attention test. Participants were presented with a series of pictures (stimuli) which had either negative, positive, or neutral emotional content. Following each stimulus, participants were asked about the emotion elicited by the picture or its orientation (portrait/landscape). The test was repeated during an intravenous infusion of acetylcholinesterase inhibitor physostigmine (1mg/h). Following concatenation of baseline and post-infusion scans, cholinergic neurotransmission was assessed within-subject via a 2x3 full-factorial model. Significance defined as  $p_{FWE} < 0.001$ .

### Results

Contrast between negative and neutral pictures showed involvement of the anterior cingulate cortex (ACC), superomedial frontal lobe, and amygdala with additional clusters in the anterior thalamus and caudate. Contrast between negative and positive pictures showed no significant involvement. Interaction between the type of stimuli (emotion/geometric) and neutral/negative pictures showed involvement of the dorsolateral prefrontal cortex (DLPFC) as well as lingual and precentral gyri. Interaction between stimuli type and negative/positive pictures showed involvement of the ACC, superior temporal, precentral gyri, and the putamen.

### Conclusion

We found evidence that activity induced by physostigmine delineated two systems engaged in selective attention. Whereas involvement of the DLPFC during challenging attentional trials supports top-down suppression (1), sensory cortical involvement associated with emotional content suggest bottom-up engagement (2).

*The authors offer thanks to the School of Medicine, NUI Galway for its support in funding this project under a summer research scholarship.*

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2. Neuronal correlates of signal detection in the posterior parietal cortex of rats performing a sustained attention task. **Broussard, J, Sarter, M and Givens, B.** 143, s.l. : *Neuroscience*, 2006, pp. 407-417.

**Title:** Assessment of the association of FOXP3 positive tumour infiltrating lymphocytes with therapeutic response in triple negative breast cancer

**Authors:** Elhelali, R.1, Glynn, S.1, Callagy, G.1,2, Shallaby, A.1, Webber, M.1, O'Loughlin, Mark.1, Jentsch, L.K.1, de Jong, K.1

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This research project was funded by the Wellcome Trust Biomedical Vacation Scholarship

**Introduction:**

Recent evidence supports stromal tumour infiltrating lymphocytes (sTILs) as an independent prognostic factor in triple negative breast cancer (TNBC).<sup>1</sup> However, the number of co-variables included in most analyses are small and the relevance of lymphocyte sub-populations is unclear. Assessment of sTILs on tissue microarrays (TMAs) would facilitate more thorough representation of sTILs and sTIL sub-populations in TNBCs.

**Aims:**

- I. To investigate if sTIL assessment using TMAs is reliable for TNBC.
- II. To evaluate the role of Forkhead Box P3 (FOXP3) positive lymphocytes in TNBC.

**Materials and Methods:**

Training in scoring sTILs was provided and was based on recommendations from the international TILs working group<sup>2</sup>. A TMA series was constructed from a study of 383 TNBC cases from 365 patients that attended GUH from 1999-2015. Ethical approval was not required as all relevant data was previously collected and anonymised. The TMA sTILs were scored and compared to full face sections (FFS) from the same cases. Anti-CD4, anti-CD8 and FOXP3 were optimised using a small subset of TNBCs.

**Results:**

sTILs were only assessable in 25% of TMAs, due to confounding factors (limited tumour, cores folded, necrosis etc.). Nonetheless, there was an association between sTILs on TMA cores and FFS for 91 cases (kendalls tau\_b 0.36, p < 0.001). FOXP3+ lymphocytes constituted a minority of TILs in TNBC (<5%).

**Discussion/Conclusion:** nsTIL assessment on TMAs may require a larger sample size, as many are difficult to score. sTILs in TNBC include a small proportion of FOXP3+ lymphocytes, which will be examined in a larger series.

**References:**

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**Title:** Patients' Attitudes to Travelling Overseas with Type 1 Diabetes – a Pilot Study

**Authors:** Leong, S.W, Flaherty, G.

**Author affiliations:** School of Medicine, National University of Ireland, Galway, Ireland; School of Medicine, International Medical University, Kuala Lumpur, Malaysia

### **Introduction**

Patients living with type 1 diabetes (T1DM) face health risks during international travel. We present preliminary results from a study using a novel questionnaire which we have designed, examining the travel health knowledge, attitudes and practices of T1DM patients.

### **Methods**

A 75-item questionnaire which was divided into 3 domains (pre-travel preparation, insulin and glycaemic control and travel risk behaviour) was distributed to T1DM patients attending the diabetes clinic in University Hospital Galway.

### **Results**

150 patients (53% male) completed the questionnaire, 39% of whom were aged 30-49. 46% (n=94) of respondents do not consult a healthcare professional before travelling. The majority of travellers would not postpone travel if their glycaemic control were suboptimal. 61% (n=92) do not wear a MedicAlert bracelet. Most type 1 diabetics do not contact airlines to check their insulin transport policy. A quarter of travellers were not aware of how to access medical care overseas. There was confusion about insulin dose adjustment across time zones. There was a lack of knowledge about the potential for hypoglycaemia in hot climates, despite 20% (n=30) reporting a previous episode of hypoglycaemia during travel. There was low awareness of the effects of altitude travel on diabetes and the need for foot care during travel.

### **Conclusions**

This is the first study to examine travel health preparations of patients with T1DM. It highlights deficiencies in insulin dose adjustment, hypoglycaemia, altitude travel, foot care and accessing medical care overseas. An exploratory factor analysis will refine the questionnaire further as part of its validation.

**Title:** Oxygen Prescription and Saturation Adherence in the Emergency Department Audit Report

**Authors:** Saian, R.1, Keatings, V.2, O’Gorman, S3.

**Author affiliations:**

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3. Emergency Department, Letterkenny University Hospital

**Funding source:** Letterkenny University Hospital Medical Education Bursary

**Introduction**

Oxygen is frequently prescribed in the Emergency Department. However its prescription is not always written down properly. This study looked at the quality of prescription and administration among adult patients attending the Emergency Department who required supplementary oxygen based on the 2008 British Thoracic Society Guidelines for Emergency Oxygen Use in Adult Patients.

**Methods:**

Adult patients who presented to the Emergency Department who were given supplemental oxygen were included. Data were collected on a cross sectional and convenience sampling basis. Compliance with the 2008 BTS Guideline for Emergency Oxygen Use in Adult Patients was measured. Doctors’ and patients’ names were kept anonymous to comply with ethical standards.

**Results:**

There were 2 parts in this audit. Part A was done without notification to the ED doctors and Part B was done after doctors were aware of the audit. There were 29 patients in Part A and 30 patients in Part B. There was a subgroup of 9 patients with a history of COPD in each part. Written prescription increased by 46.1%, recommended prescription format increased by 29.8%, oxygen saturation compliance increased by 9%. In the subgroup of patients with history of COPD, compliant prescription increased by 51.4% and compliant oxygen saturation increased by 11.1%.

**Conclusion:**

The notification of the audit did lead to the improvement of prescription writing, prescription compliance, and oxygen saturation compliance, both in COPD and non-COPD patients.

**Title:** The effects of Syndecan-2 fragments on TGF- $\beta$  induced genes in breast cancer cells (BCC).

**Author:** Alrumhi, D., Loftus, P., Barkley, L.R.

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**Funding:** HRB (Health Research Board) Summer Student Scholarship.

**Introduction:**

Syndecan-2 (Sdc2) is a transmembrane heparan sulphate proteoglycan that has promigratory and immunosuppressive properties within the breast tumour microenvironment. We have developed Sdc2 peptide fragments, F1 and F2, that inhibit these properties. The aim was to elucidate the molecular pathway by which these Sdc2 peptides are exerting these phenotypes. It has been previously indicated that Sdc2 is involved in TGF- $\beta$  signalling, thus we will test if Sdc2 peptides inhibit TGF- $\beta$  signaling.

**Method:**

Cultured MDA-MB-231 BCC's were Fugene transfected with Fc-empty-vector, Sdc2-F1 or Sdc2-F2 DNA. 48 hours later cells were serum starved for 24 hours and treated with 5ng/ml of TGF- $\beta$ 3. RNA was harvested from the cells at 0, 1, 2, 4, 6 hours after TGF- $\beta$ 3 treatment. The RNA was purified and quantified, followed by cDNA synthesis via reverse transcription. qPCR was carried out to determine the effect of Sdc2 peptide fragments on TGF- $\beta$  induced genes such as SMAd7, Serpine1 and CTGF.

**Results:**

The TGF- $\beta$  pathway was successfully activated as we detected an upregulation in TGF- $\beta$ -regulated genes listed above. After 6 hours of TGF- $\beta$  exposure, overexpression of Sdc2-F1 and Sdc2-F2 reduced the expression of these TGF- $\beta$ -induced epithelial to mesenchymal transition markers compared to controls. These trends were observed over three individual experiments, however when these experiments were pooled together no statistical significance was detected using repeated-measures-ANOVA, due to variation in Sdc2 peptide expression between each experiment.

**Conclusions:**

Further investigation of Sdc-2-Fc-peptides is imperative since data collected revealed Sdc2 peptides inhibit TGF- $\beta$  signaling which is an important therapeutic target in breast cancer.

**Title:** To develop a screening method and form a preliminary assessment of the extent of dissemination of linezolid resistant *Enterococcus faecalis* in routine rectal screens– Is *optrA* prevalent in Galway patient populations?

**Authors:** Byrne, M1. Ní Riain Ú2. Cormican, M2.

**Author affiliations:** 1Undergraduate, School of Medicine, National University of Ireland Galway. 2Discipline of Bacteriology, School of Medicine, National University of Ireland, Galway.

### **Introduction:**

A recent publication described an emerging mechanism of resistance to linezolid in *E. faecalis* from three Irish isolates via the resistance gene *optrA*, 2,3.

One of the isolates was referred from University Hospital Galway. The prevalence of linezolid resistant *E. faecalis* in Galway patient populations is unknown.

We developed a screening method to determine the prevalence of linezolid resistant *E. faecalis* in rectal swabs routinely submitted for screening for other antimicrobial resistant organisms. Mechanism of resistance was established for any linezolid resistant isolates to determine if the *optrA* mechanism was implicated.

**Methods:** Over a 3-week period, June 2016, all rectal swabs (N=182) received in the microbiology department of University Hospital Galway for routine ESBL and VRE screening were also screened for linezolid resistant *E. faecalis*.

Swabs were plated onto Slanetz and Bartley agar, an *Enterococcus* selective medium. A 10µg linezolid disk was added, plates incubated at 37 °C and reviewed at 24 and 48 hours for bacterial growth.

Colonies displaying growth within 21mm of the linezolid disk at 24 or 48h were identified by Matrix-assisted laser desorption/ionization mass spectrometry (MALDI-TOF). An eTEST® was performed on any *E. faecalis* identified to establish the minimum inhibitory concentration (MIC) value. Samples with a MIC >4mg/L, indicating linezolid resistance, were sent to a reference laboratory for confirmation and identification of resistance mechanisms.

**Results:** 2 (1%) of 182 swabs yielded *E. faecalis* with a linezolid MIC >4mg/L. 1 (0.5%) of these was confirmed by the reference laboratory as linezolid resistant with resistance conferred by the *Optra* gene.

**Conclusion:** Consideration should be given to including screening for linezolid resistant *E. faecalis* along with routine screening of rectal swabs for ESBL and VRE.

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2. Guzman Prieto AM, van Schaik W, Rogers MR, Coque TM, Baquero F, Corander J, Willems RJ. Global Emergence and Dissemination of Enterococci as Nosocomial Pathogens: Attack of the Clones?. *Frontiers in Microbiology*. 2016 May 26;7:788.
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**Title:** Transcatheter Aortic Valve Implantation: Evaluating procedural Safety and Efficacy.

**Authors:** Martin, N.<sup>1</sup>, Lee, M.<sup>2</sup>, Makki, H.<sup>2</sup>, Crowley, J.<sup>2</sup>, Da Costa, M<sup>3</sup>, Veerasingham, D.<sup>3</sup>, Smyth, Y.<sup>2</sup>, Sharif, F.<sup>2</sup>, Mylotte, D.<sup>2</sup>

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- 3: Cardiothoracic Surgery Unit, University College Hospital, Galway

**Introduction:**

Transcatheter Aortic Valve Implantation (TAVI) is gaining popularity in patients with severe symptomatic aortic stenosis (AS) at high surgical risk. We evaluated patient outcomes.

**Methods:**

Patients undergoing TAVI at University Hospital Galway (UHG) were added to a dedicated database (February 2014-July 2016). Demographic and procedural data were collected and endpoints were defined according to the Valve Academic Research Consortium-2 (VARC2) criteria. Continuous variables are shown as mean +/-SD or medians/ranges, according to distribution. Categorical variables are presented as frequencies and percentages. Statistical analysis was performed using excel 2016.

**Results:**

The mean age of the 82 patients who underwent a TAVI at UHG was  $82 \pm 8.6$  years. The majority presented with New York Heart Association Class III dyspnoea (N=46;56.1%), with 20 patients (24.39%) requiring inpatient TAVI. The population was high-risk with a mean Society of Thoracic Surgeons predicted risk of mortality of  $7.7 \pm 6.2\%$ .

Transfemoral, transsubclavian and transcarotid vascular access was used in 77 (94%), 3 (3.66%) and 2 (2.44%) cases, respectively. The Medtronic CoreValve (N=40; 48.8%), EvolutR (N=32; 39%) and Boston Scientific Lotus (N=10; 12.2%) devices were used (median valve size 29mm).

VARC2-defined procedural success was 92.7% (N=76), with 1 procedural death. 30-day mortality was 2.4% (N=2), and clinical outcomes were acceptable: 1 (1.2%) cardiac tamponade, 1 (1.2%) open heart surgery; 3 (3.7%) major vascular complications, 1 (1.2%) myocardial infarction, 2 (2.4%) strokes. At 30 days, the mean transaortic gradient had decreased from  $51.1 \pm 16.2$ mmHg to  $9.8 \pm 6.3$ mmHg

**Conclusions:**

TAVI is an effective and safe treatment for severe symptomatic AS in patients unsuitable for surgery.

**Title:** RUNX2, the master regulator of bone metastasis?

**Authors:** FJ McCabe<sup>1</sup>, D Courtney<sup>1</sup>, MM Jadaan<sup>2</sup>, JP McCabe<sup>2</sup>, MJ Kerin<sup>1</sup>

### **Affiliations**

1. Department of Surgery, Lambe Institute for Translational Research, National University of Ireland, Galway
2. Spine Service, Department of Trauma & Orthopaedics, Galway University Hospitals

### **Introduction**

Many cancers, including breast cancer, preferentially spread to bone. This predilection is believed to result from osteomimicry - upregulation of a number of bone-specific genes in the cancer cells. The bone-specific transcription factor, RUNX2, is considered a prime candidate for regulation of this metastatic process. Our aim was to determine the expression of RUNX2 in breast cancer primary tumours that eventually spread to bone, compared to those that did not.

### **Methods**

Primary breast tumours were prospectively collected and differentiated into two groups; those from patients that did develop bone metastases, and those from patients that did not develop bone metastases. RNA was extracted from these tissues and RUNX2 gene expression analysis was accomplished via RT-PCR. Statistical analysis was performed using Minitab software.

### **Results**

27 breast tumours that metastasised to bone and 20 that did not spread to bone achieved adequate RNA concentrations for gene expression analysis. There was no statistically significant difference in RUNX2 expression between those cancers that spread to bone versus those that did not ( $p=0.47$ ). Furthermore, there was no association between RUNX2 expression and tumour size (0.383), tumour grade (0.518), histological subtype (0.603), presentation with metastatic disease ( $p=0.482$ ) or menopausal status (0.813).

### **Conclusion**

In the first study analysing RUNX2 expression in human tumours, we have determined that RUNX2 is not expressed at higher levels in primary breast tumours that spread to bone, versus those that did not. Further studies are needed to establish RUNX2 levels in metastatic bone tumours.

**Title:** Identification of Undiagnosed Maturity Onset Diabetes of the Young

**Authors:** Lyons, R., O'Keeffe, D., Liew, A.

**Author affiliations:** Department of Medicine, NUI Galway, Ireland

**Introduction:**

Maturity Onset Diabetes of the Young (MODY) is an autosomal dominant monogenic form of diabetes mellitus (approx.1% of all diabetes cases). MODY patients are often diagnosed as having type 1 or type 2 diabetes due to lack of awareness and clinician unfamiliarity with the subtle differences seen in the disease. To date no consensus has been reached on a practically useful set of criteria to identify undiagnosed MODY cases from a large cohort of patients.

**Methods:**

The DIAMOND diabetes database which contains data on 8,878 diabetic patients was searched using existing criteria/guidelines as well as data extrapolated from 22 Galway MODY patients. 4 sets of criteria were applied towards known MODY patients in order to evaluate their identification rates and towards type 1 and type 2 diabetic cohorts in an effort to identify undiagnosed MODY patients.

**Results:**

27/6662 (0.405%) type 2 diabetic and 636/1760 (36.136%) type 1 diabetic patients were identified. The mean identification rate of criteria used was 28.573% (19.05-38.10%). The 27 type 2 diabetic patients were flagged for further review and possible genetic testing upon their next clinical encounter.

**Conclusion:**

The searching of large diabetes databases will have a limited ability to identify MODY patients, especially from type 1 diabetic cohorts. Further research into MODY identification and refinement of existing guidelines/criteria is needed. The value of the systematic searching of electronic diabetes databases remains to be seen, for now clinician intuition and careful history taking will continue to be the key in the identification of MODY patients.

**Acknowledgment of Funding Source:** Funding was provided by the Health Research Board (HRB).

**Title:** Bibliometric Analysis of Travel Medicine Research

**Authors:** Yap, KL, Flaherty, G.

**Author affiliations:** School of Medicine, National University of Ireland, Galway, Ireland; School of Medicine, International Medical University, Kuala Lumpur, Malaysia.

**Introduction:**

Evidence-based travel medicine requires that research priorities reflect the wide knowledge base of this relatively new discipline. Journal of Travel Medicine (JTM) is the longest standing journal in the field and was established by the International Society of Travel Medicine (ISTM) in 1994.

**Methods:**

All eligible articles published in JTM between 1994 and 2016 were mapped against the Body of Knowledge curriculum of the ISTM, comprising 7 domains and 173 sub-domains, and upon which the competency-based Certificate in Travel Health examination is based. Where an individual article reflected more than one sub-domain, it was categorised to each sub-domain. A temporal analysis of publication trends was also performed.

**Results:**

Categorical mapping of 1,745 eligible articles yielded the following number of articles per domain: Epidemiology (6%, n=105); Immunology/Vaccinology (8.5%, n=148); Pre-travel assessment/consultation (30.5%, n=533); Diseases contracted during travel (48.3%, n=843); Other clinical conditions associated with travel (6.8%, n=119); Post-travel assessment (5.2%, n=91); and Administrative and general travel medicine issues (6%, n=105). A mapping exercise was performed at the sub-domain level. 66 articles relating mostly to education, research, antimicrobial resistance and air travel were uncategorisable. There was a longitudinal trend towards higher research output in the post-travel assessment domain.

**Conclusions:**

This first bibliometric analysis of travel medicine research publications provides useful information about research output, demonstrating a significantly higher level of activity in pre-travel assessment and diseases contracted during travel. Sub-domain analysis provided further insights. Our study also highlights deficiencies in the travel medicine curriculum which should be addressed in future revisions.

**Title:** A Comparison of the Rates of Metabolic Syndrome in Patients Treated with Clozapine or Depot Antipsychotic Agents

**Authors:** Safuan Sabri, Brian Hallahan

**Author Affiliation:**

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2. School of Medicine, National University of Ireland (NUIG), Galway

**Introduction:** Antipsychotic agents are associated with an increased risk of metabolic syndrome.<sup>1</sup> Patients with psychotic disorders have regular contact (every 1-4 weeks) with their treating mental health team, particularly if treated with clozapine or depot antipsychotics. However monitoring and rates of metabolic syndrome in these cohorts have yet to be elucidated or compared.

**Objectives:** To assess and compare the rate of metabolic syndrome monitoring in individuals treated with clozapine and depot antipsychotic agents.

**Methods:** A retrospective chart review of patients treated with clozapine and depot antipsychotic (n=120 each group) in relation to demographic, clinical factors and monitoring of metabolic syndrome over the previous year was undertaken. Criteria for metabolic syndrome (waist circumferences, triglycerides (TG), high-density cholesterol (HDL), blood pressure (BP) and fasting glucose)<sup>2</sup> were evaluated. Parametric data was analysed utilising the independent t-test and non-parametric data was analysed using Chi-square test.

**Results:** Patients treated with clozapine had greater monitoring for metabolic syndrome compared to those treated with depot antipsychotic agents (67.8% vs 25.6%, p<0.05), however not all criteria were examined in either group (see Table).

	Waist Circumference n(%)	TG n(%)	HDL n(%)	BP n(%)	Fasting glucose n(%)
Clozapine (n=120)	0(0)	120(100)	120 (100)	120(100)	47(39.2)
Depot (n=120)	0(0)	61(50.8)*	61(50.8)*	0(0)*	32(26.7)

\*p<0.05

Metabolic syndrome (from available data) was evident in 59.2% of clozapine compared to 44.2% of depot treated patients (p>0.05)

**Conclusion:** A more comprehensive monitoring of metabolic syndrome in individuals, particularly if receiving depot antipsychotic agents is currently required.

**Reference:**

1. Casey DE (2004) Dyslipidemia and atypical antipsychotic drugs. *J Clin Psychiatry* 65:27–35.
2. Allison DB, Mentore JM, Heo M et al. (1999) Antipsychotic induced weight gain: a comprehensive research synthesis. *Am J Psychiatry* 156:1686–1696.

**Title:** Investigating the role of single nucleotide polymorphisms in NRG1 and DIRC3 in predisposition to breast cancer.

**Authors:** Burke C.[1], McVeigh U.M.[1], McVeigh T.P.[1], Kerin, M.J.[1]

**Author Affiliations:** [1] Discipline of Surgery, Lambe Institute for Translational Research, NUI Galway.

**Introduction:** The NRG1(neuregulin1) gene interacts with EGFR and HER2, is anti-proliferative; and is silenced in breast cancer. The DIRC3 gene is dysregulated in thyroid and renal cancers. Two intronic variants in NRG1(rs2439302) and DIRC3(rs966423) have been associated with thyroid cancer, but have not been investigated in breast cancer, although breast and thyroid cancers share some genetic loci(e.g.PTEN).

**Aim:** We aimed to investigate the role of rs2439302 and rs966423 in breast cancer predisposition.

**Methods:** A case-control study was undertaken, including unselected patients with breast cancer, and unaffected female controls over 60 years with no personal/familial history of breast cancer. DNA was extracted from blood using the Roche automated MagNAPure Compact system, and genotyped using Taqman-based PCR. Data was analysed using SPSS.

**Results:** Negative correlations between duration of storage and DNA yield ( $p=0.007$ ); and DNA quality ( $p<0.001$ ) were observed. A total of 1520 samples were of sufficient quality to undergo genotyping. Increased disease risk was associated with mono-allelic but not bi-allelic rs966423 C allele. Homozygosity for rs2439302 was significantly associated with a reduced risk of cancer, but heterozygosity was associated with increased odds.

	rs2439302(NRG1)			rs966423(DIRC3)		
	CC	CG	GG	TT	CT	CC
Control	220	294	177	259	333	114
Case	249	419	144	255	415	144
OR	1	1.26(1.0-1.59)	0.72(0.54-0.96)	1	1.27(1.01-1.59)	1.28(0.95-1.73)
p-value	-	0.05	<b>0.02</b>	-	<b>0.04</b>	0.1

**Conclusion:**

Heterozygosity, but not homozygosity, for variant rs966423 was significantly associated with breast cancer risk, while rs2439302 had conflicting impact depending on genotype. The clinical significance of these findings requires further evaluation.

**Title:** Enquiries to a national UK telephone advice line by healthcare professionals regarding the zika virus outbreak

**Authors:** Megan Conneely. Dr. Dipti Patel.

### **Aims**

To audit calls to the National Travel Health Network and Centre (NaTHNaC) advice line from healthcare professionals (HCPs) regarding zika virus outbreak.

### **Content**

Retrospective analysis of telephone enquiries, from January 1st – June 30th 2016. Data was collected and analysed on traveller demographics, destination, duration, and purpose of travel, nature of caller enquiry, and advice provided.

### **Relevance**

By June 2016, zika virus had spread to 61 countries and territories, with potential for further spread. There were repeated enquiries to the advice line by frontline UK HCPs (mainly from primary care) for zika virus advice. Analysis of enquiries informs of the concerns of British travellers and information needs of HCPs regarding this recent outbreak.

### **Outcomes**

There were 3154 calls to NaTHNaC's advice line during this 6 month period. 87 calls related to zika virus (2.76%), with 58.6% regarding pregnant or pre-conception travellers. 37.9% of travellers were travelling to twelve countries in the Americas. Enquiries related to time to conceive after travel to risk areas (18.2%), general zika information (16.4%) and risk of zika virus in specific travel destinations (13.6%).

### **Discussion**

One limiting factor is that the HCPs who called the advice line may not represent all HCPs in the UK. Strengths include a large dataset from a national centre. Clinical information not entered in the online call forms was obtained by reviewing call recordings. This study provides useful data on the queries that HCPs have in relation to Zika, and will help inform future guidance.

**Title:** THE IMPRUDENT UTILISATION OF BLOOD CULTURES IN THE PAEDIATRIC SETTING WHEN DISCHARGING PATIENTS FROM THE EMERGENCY DEPARTMENT

**Authors:** Teh, J.W.<sup>1</sup>, Pereira, R.<sup>1</sup>, Hanahoe, B,<sup>3</sup> and Moylett, E.<sup>1,2</sup>

<sup>1</sup>School of Medicine, National University of Ireland, Galway.

<sup>2</sup>Department of Paediatrics, University College Hospital Galway, Ireland.

<sup>3</sup>Department of Microbiology, University College Hospital Galway, Ireland.

## **INTRODUCTION**

Fever is a common presenting complaint in the paediatric Emergency Department (ED). It is difficult to clearly distinguish an illness of viral or bacterial etiology hence blood cultures used as a safety net.

## **AIM**

To ascertain the extent and outcome of performing blood cultures in paediatric patients being discharged from the ED.

## **METHODS**

The setting, a tertiary adult ED with paediatric facilities, approx 15,000 children reviewed annually, 50% with a medical complaint. Study period October 2015 to March 2016. Retrospective review of the Microbiology Database at UHG identified all individuals <16 years with a blood culture sent from the ED. ED patient records were reviewed for all children discharged home with a blood culture as part of their evaluation.

## **RESULTS**

During the study period, 450 patients aged 16 and under had blood cultures sent from the ED; 119 (26.44%) were discharged home. 29 of the 450 blood cultures were positive, with 4 true positive (1E. coli, 1group B streptococcus, 2group A streptococcus) the remainder skin contaminants. Among those discharged from ED, 6.72%(8/119) represented with a similar complaint, 6/8 were admitted. The rate of blood culture positivity among the 119 discharged was 4.2%(5/119), all likely contaminants; 1 of 5 of these culture positive patients represented, negative repeat culture, likely contaminant.

## **CONCLUSION**

In this study of low risk patients presenting to the ED, blood cultures should not be performed as part of the evaluation for children being discharged home. Unnecessary additional cost is incurred in addition to the risk for false positive results being repeated.



**Title:** A Retrospective Analysis of Head and Neck Computed Tomography (CT) in Patients with Trauma over a Five-year Period in the Setting of a Level Three Hospital in the Republic of Ireland

**Authors:** Chang HW<sup>1,2</sup>, O'Beirne A<sup>1,2</sup>, O'Donnell C<sup>1</sup>

**Author affiliations:**

- (1) Radiology Department, Letterkenny University Hospital, Donegal, Ireland.
- (2) School of Medicine, National University of Ireland, Galway.

**Introduction:**

CT scanning is increasingly being utilised in emergency trauma evaluation in recent years due to its increased availability and higher rate of detection of a wider range of injuries as compared to other imaging modalities.

**Aim:**

We analysed the positive pick-up rates for traumatic injuries detected on head and neck CT in emergency cases over a 5-year period in a Level Three hospital.

**Methods:**

A database of radiologists' reports of 414 consecutive adult patients presented to the emergency department who were referred for head and neck CT between February 2011 and May 2016 was reviewed retrospectively. Regional traumatic injuries as well as non-traumatic incidental findings were recorded. Statistical analysis was performed on the data with the Statistical Analysis Software Package to find for correlation using the T-test and frequency tests.

**Results:**

This trauma series comprised of 290 (70.08%) males and 124 (29.92%) females, with the mean age of 48.65 (standard deviation 21.997; range 80; minimum 18; maximum 98). 51.9% of the patients in this series had some trauma-related injury. The total fracture probability for someone receiving a CT scan post-trauma in Letterkenny University Hospital between 2011 and 2016 is 0.581; 95% CI [0.511-0.650]. All the patients had neck CT, and 13.8% was found to have thoracic fracture. Other findings revolve around several common injuries.

**Conclusion:**

In emergency trauma cases in which CT scanning is deemed necessary by the attending physician, there is a definitive set of injuries that make up the majority of cases. Neck CT should include the upper thorax.

**Acknowledgement:**

This work was supported by funding from the School of Medicine and Koninklijke Philips N.V. to Hoay-Wen Chang for the duration of June to August 2016.

**Title:** What is research?: An exploration into the issues in conducting medical research in resource poor settings based on an experience in Berega Mission Hospital, Tanzania.

**Authors:** Davis Cian, Higgins Patrick, O'Sullivan Lisa, Corbett Mel, Tiarnan Morris, O'Donovan Diarmuid. School of Medicine, National University of Ireland, Galway.

**Introduction:** The interest in global health issues amongst medical students has grown significantly in recent years with an increasing number of students travelling to resource poor settings to undertake both clinical and research electives<sup>1</sup>. This raises a number of ethical issues, particularly in the arena of research where controversy exists as to the definition of ethical research<sup>2</sup>. We were asked to conduct a pilot surgical audit whilst on elective at Berega Mission Hospital, Tanzania by the hospital administrator. This is a rural, 120 bed hospital serving a population of 200,000<sup>3</sup>. We conducted the audit and will highlight, address and reflect on the issues we faced during this undertaking. **Aim:** To conduct a literature review on the ethics, research governance and best practice guidelines on the conduct of research in resource poor settings and relate this to our own experience in Tanzania. **Methods:** Issues encountered were identified on personal reflection amongst the group and a comprehensive literature review was performed. **Results/Conclusion:** Many issues in the conduct of research in resource poor settings raise questions of ethics, human rights, data protection and research governance, that can be contentious. These issues will be discussed in the presentation.

## References

1. Provenzano A et al. Short-Term Global Health Research Projects by US Medical Students: Ethical Challenges for Partnerships. *The American Journal of Tropical Medicine and Hygiene*. 2010; 83(2):213-234.
2. Emanuel E. What Makes Clinical Research Ethical? *JAMA*. 2000; 283(20):2701.
3. Grady D. Where Life's Start Is a Deadly Risk. *The New York Times*. 2009.

**Title:** A retrospective analysis of CT thorax, abdomen and pelvis (CT TAP) in adult patients with trauma over a five-year period in the setting of a level 3 hospital in the Republic of Ireland.

**Authors:** O'Beirne A<sup>1,2</sup>, Chang HW<sup>1,2</sup>, O'Donnell C<sup>1</sup>

**Author affiliations:** (1) Letterkenny University Hospital, Letterkenny, Donegal, Ireland.

(2) School of Medicine, National University of Ireland, Galway.

## **Introduction**

We set out to find the frequency of injuries found on TAP CT in emergency trauma cases over a 5-year period in Letterkenny General Hospital, Ireland.

## **Methods**

We retrospectively reviewed the radiologists' CT reports of 198 consecutive patients who were admitted in the emergency trauma setting and who received a CT scan of their thorax, abdomen and/or pelvis over a five-year period between March 2011 and May 2016.

## **Results**

Of the 198 patients, 159 (80.3%) had a trauma-related injury reported on CT. Of the trauma-related injuries 129 (65.2%) patients had thoracic injuries, 31 (15.7%) had intra abdominal injuries, 115 (58.1%) patients had fractures while 8 (4.0%) had non-bony injuries to the pelvic region. The most common fractures were rib fractures in 75 patients (37.9%) and vertebral fractures in 41 patients (20.7%). The most common reported thoracic injuries were lung contusion in 48(24.2%) and pneumothorax in 33(16.7%). There were no abdominal or non-bony injuries with an incidence below 10%. The most common abdominal findings were intra-abdominal bleeding in 15 patients (7.6%), free fluid in 10 (5.1%) and liver laceration in 4 (2.0%). The incidence of incidental findings reported was also high at 184 findings in 100 (50.5%) of patients.

## **Conclusion**

In cases of CT TAP in the emergency trauma setting it is clear that there are a limited number very prevalent injuries whose absence should be noted along with the presence of the less common injuries.

## **Acknowledgements**

This work was supported by funding from the Philips and The School of Medicine to Aidan O'Beirne and Hoay Wen Chang.

**Title:** Investigation of long-term oxygen therapy prescription and determination of cost of provision among chronic obstructive disease patients in Co. Donegal.

**Authors:** D.O'Flynn, V.Keatings, P.McLaughlin

**Affiliations:** Department of Internal Medicine, Letterkenny General Hospital, Letterkenny, Co. Donegal

Funding was received from the NIUG undergraduate research committee

## **Introduction**

Long-term oxygen therapy (LTOT) is the prescription of home oxygen for patients with long-term breathing problems like chronic obstructive pulmonary disease (COPD). It is recommended in by the British Thoracic Society (BTS) [1] in patients with certain lung problems, including COPD. Outside of these recommendations there is little evidence of benefit. The aim of this study is to discover those patients receiving unnecessary LTOT and determine the cost associated with this.

## **Methods**

The study was carried out primarily as a retrospective analysis of the cohort of LTOT patients in Donegal, 176 patients in total. Their past medical records were examined, as were their past lab and spirometry results. Patients were also interviewed to determine quality of life and LTOT usage data.

## **Results**

123 met inclusion criteria. 36(29%) of patients did not meet the BTS requirements for LTOT. 40% of patients interviewed were using their LTOT less than the minimum 15 hours per day. Of 33 excluded deceased patients 10 were still receiving payment for LTOT.

## **Conclusion**

Results suggest there are a considerable number of erroneous LTOT prescriptions. Many patients using LTOT are not using the recommended amount, reducing cost-benefit. Moreover there are deceased patients still receiving payment. There is therefore scope to reduce cost and LTOT prescription.

[1] Hardinge M, Suntharalingam J, Wilkinson T. Guideline update: The British Thoracic Society Guidelines on home oxygen use in adults. *Thorax*. 2015;70(6):589-591

**Title:** Abdominal Aortic Aneurysm Morphology- the differences in males and females

**Authors:** Nicola Whelan<sup>1,2</sup>, Wael Tawfick<sup>1,2</sup>, Sherif Sultan<sup>1,2,3</sup>

1. School of Medicine, National University of Ireland, Galway, Ireland (NUIG)
2. Western Vascular Institute, University College Hospital, Galway, Ireland (UCHG)
3. Galway Clinic, Royal College of Surgeons of Ireland, Galway, Ireland (RCSI)

## **Introduction**

Abdominal aortic aneurysms are a condition found primarily in males. When females do undergo aneurysm repair they tend to have increased morbidity rates in comparison to their male counterparts. One of the possible reasons for this discrepancy is that females have less favourable anatomy than males.

## **Aim**

The aim of this study is to identify and compare the differences in abdominal aortic aneurysm morphology in males and females, and to investigate whether there are any differences in outcome between the genders following endovascular aneurysm repair.

## **Materials and methods**

Data was reviewed for all patients who underwent endovascular aneurysm repair (EVAR) in our tertiary vascular centre from 2002-2015. CT scans of included patients were analysed using 3mensio 3D reconstruction software and analysed according to the Society of Vascular Surgery. Data was analysed using parametric and non-parametric testing. Ethical approval was obtained from the Galway Clinical Research Ethics Committee.

## **Results**

185 patients were included in the study; 133 males and 52 females. Females were 4.02 years older than males.

38.5% of female patients had a moderate to severe aortic tortuosity index, in comparison to 18.8% of male patients ( $p=.005$ ). Females had tighter access vessels, with 11.5% of females vs 1.5% of males having moderate to severely small left common iliac diameter ( $p=.007$ ).

Female patients had a higher incidence of deployment-related complications (38.4%) vs 9.8% of males ( $p<.001$ ), higher levels of operative bleeding (OR: 5.679) and higher incidence of overall 30-day morbidity ( $p=.027$ ). Female patients also had a longer total stay of 3.5 days vs 2 days for men ( $p<.001$ ).

## **Discussion**

Females have more severely small iliac arteries than males. This difference in morphology may make them less favourable candidates for EVAR and attribute to increased rates of deployment related complications and 30-day morbidity.

**Title:** A Retrospective Study of the Adverse Events Experienced by Patients Treated for Localized Prostate Cancer Through Brachytherapy in The West of Ireland

**Author:** Joyce, K. (1), Corcoran, R. (2), Sullivan, F. (3), O'Donovan, D. (4)

**Author affiliations:**

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(3)National University of Ireland Galway, HRB Clinical Research Facility, Galway, Ireland

(4) National University of Ireland Galway

**Introduction:**

Brachytherapy is a form of radiotherapy where radioactive seeds are implanted into the prostate gland giving local high dose radiation. Localized prostate cancer may be treated with Brachytherapy as monotherapy or in combination with external beam radiation and androgen deprivation therapy, referred to as triple therapy amongst physicians. Post-treatment, patients are likely to experience a decline in urinary function.

**Aim:**

To compare the proportion of patients that experience urinary symptoms between 12 and 24 months post treatment depending on the treatment approach the patient receives. Common Terminology Criteria For Adverse Events (CTCAE) is a validated descriptive terminology used for reporting adverse events.

**Materials and Methods:**

In this study we retrospectively filled CTCAE forms based on consultation letters from follow-ups with 633 patients within 12 and 24 months post implant. Data was saved on an electronic cloud-based database and analyzed the urinary function domain for adverse events in SPSS.

**Results:**

Results were obtained in 3 domains across version 3 and 4 of CTCAE forms. Differences in reports of urinary outcomes using version 3 and reports of increases in urinary frequency using version 4 were statistically insignificant ( $p=.0928$  and  $p=0.0761$  respectively). Incidents of urinary urgency measured by version 4 of the form showed a statistically significant increase in patients that received triple therapy(87/158, 64.4%) than those receiving monotherapy(306/475, 55.1%) where  $p=0.0357$ .

**Conclusion:**

Patients with higher grade disease that receive brachytherapy with external beam radiation and hormone therapy are more likely to experience urinary symptoms post treatment than those patients with lower grade disease treated with brachytherapy as monotherapy.

**Funding Source:** National University of Ireland, Galway

**Title:** Older and wiser: patient reported outcomes on transition from paediatric to adult cystic fibrosis clinic

**Authors:** Ni Choinin, A. (1), Herzig, M. (2)

**Author affiliations:**

- 1) School of Medicine, National University of Ireland, Galway, Ireland
- 2) Paediatric Department, Galway University Hospital, Newcastle Road, Galway

**Introduction** Adult services treat patients with conditions that were once considered diseases of childhood<sup>1</sup>. There is no agreement on optimal timing for the transition from paediatric to adult services and the area lacks standardisation<sup>2</sup>.

**Aims**

1. Investigate transition experience from viewpoint of parent, pre-transition and post-transition groups
2. Establish what services are in place and lacking

**Methods** A questionnaire was designed and posted. Ethical approval was received from Galway University Hospital's ethical committee. Follow-up by telephone call and reminder texts. Data was coded and analysed using SPSS 23.0. Inclusion criteria: attending Galway University Hospital cystic fibrosis unit, aged 17-30y, aged 12-16y, parents of pre-transition group. Post-transition group n=21, pre-transition group n=7, parent group n=6.

**Results:**

Response rate n=14(41%). Age transition should be mentioned 14y(+/-2.11), age transition should occur 17y(+/-0.37). Involvement wanted of; parent 14(100%), consultant 12(85%), junior doctor 4(28%), cystic fibrosis nurse specialist 13(92%), physiotherapist 11(78%), counsellor 7(50%), dietician 12(85%). Discussed; respiratory bugs 11(78%), medication dose 7(50%), frequency 6(42%), why used 6(42%), side-effects 5(35%), nutrition 13(92%), travel 8(57%), entitlements 6(42%), fertility, reproduction and sexual health 1(7%). Contraception was not discussed.

**Conclusion:** There is a clear varied transition experience and lack of discussion surrounding sexual health, contraception and fertility. Further research in this area may prove beneficial in the development of standardised assessment tools for ensuring patients receive uniform education and consistency in delivery of service.

**References:**

1. Scal, P., Evans, T., Blozis, S., Okinow, N. & Blum, R. Trends in Transition from Pediatric to Adult Health Care Services for Young Adults with Chronic Conditions. *Journal of Adolescent Health*. 1999; 24:259-264
2. The Cystic Fibrosis Association of Ireland. Towards a Better Service. The Treatment of Cystic Fibrosis in Ireland Problems and Solutions. CF House: 24 Lower Rathmines Road, Dublin 6. 2005

**Title:** The Prevalence of Alcohol Related Admissions to ED in UCHG on Sunday Mornings between 0.00am and 6.00am between July 2015 and June 2016

Lorcán Ó Maoileannaigh [1], Dr. Brian McNicholl [2], Dr David Evans [3], Dr. Diarmuid O'Donovan

NUIG School of Medicine [1], Emergency Department GUH [2], Public Health Department HSE West [3].

**Funding Source:** NUIG College of Medicine Summer Scholarship Fund/Public Health Department, HSE West

## **Introduction**

Alcohol consumption higher than the national recommended guidelines<sup>3</sup> is common in Ireland<sup>4</sup> with over 40% of adults binge drinking at least once a month. Knowledge of the prevalence of alcohol related presentations in Emergency Departments (ED) are limited.

There is no, nationally agreed, systematic way of counting alcohol related presentations.

## **Aim**

To categorise and identify trends in alcohol related presentations to ED between midnight Saturdays and 06.00 Sundays, between July 2015 and June 2016.

Data was also collected for 4 Wednesday afternoons for comparative purposes.

The secondary aim is to examine the feasibility of such regular data collection.

## **Materials and Methods**

The hospital IT system was used to study scanned ED records.

Alcohol related presentations were categorised as: "Injuries", "Intoxication", "Medical Condition as a result of harmful Alcohol Consumption", "Social Problems", "Mental Health" and "Indirect".

Demographic information, admission method and time spent in ED were also collected.

SPSS was used for analysis.

## **Results**

To date over 300 alcohol related presentations have been identified.

Analysis will be completed mid-September.

Upon completion, we will have the first point prevalence data on alcohol related ED attendances in Ireland.

## **Discussion and Conclusion**

Alcohol related presentations are a significant burden on EDs on Saturday nights. Reducing alcohol related harm is a national priority; addressing the burden requires improved information systems and data collection.

The results of this study are being used to develop a national point prevalence study of alcohol related ED attendances. Further discussion will be presented with the complete data.

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<sup>3</sup> <http://www.yourdrinking.ie/about-alcohol/what-is-a-standard-drink/>

<sup>4</sup> <http://www.healthyiireland.ie/about/research/healthy-ireland-survey/>



**Title:** An audit on the treatment of iron deficiency anaemia in IBD patients at Galway University Hospital.

**Authors:** Pratumswan, T.1, Burke, M.2,3,4, Egan, L.J.2,3,4

**Author affiliations:**

1. School of Medicine, National University of Ireland, Galway
2. HRB Clinical Research Facility, National University of Ireland, Galway, Galway University Hospital
3. Department of Pharmacology and Therapeutics, National University of Ireland, Galway
4. Department of Gastroenterology, Galway University Hospital

**Introduction**

Iron deficiency anaemia (IDA) is a common complication of IBD. We aim to identify the prevalence and diagnosis of IDA in IBD patients at GUH. Additionally, we aim to compare the diagnoses and management of IBD patients with IDA at GUH with reference to the ECCO guidelines.

**Methods**

As a retrospective cohort study, 526 IBD patients were identified and the PAS system (hospital enquiry database) was used to identify their anaemic status. The current and lowest full blood count and serum ferritin values within the last 3 years were extracted, compared, and determined whether the patient has IDA or not. Medical records and correspondence letters were accessed to identify the treatments received.

**Results**

174 (33%) IBD patients are anaemic with 79 (45%) females and 95 (55%) males. 13 (59%) females and 9 (41%) males have IDA. Following the treatments, only 1 IDA patient's haemoglobin normalized and 11 IDA patients' serum ferritin increased. 8 IDA patients received IV iron replacement therapy, which is ECCO's preferred first line IDA treatment in IBD patients.

**Conclusions**

The diagnosis of IDA adheres to the ECCO guidelines. However, the treatment and management of IDA are less consistent to the guidelines. IDA treatment is often overlooked and is less of a priority. There were discrepancies between the requested screenings, medical records, and correspondence letters. This study demonstrated the prevalence, diagnosis, and management of IDA in IBD patients at GUH. Although patients are improving, adherence to the ECCO's guidelines may be more advantageous to the patients.

**Title:** Perioperative Glycaemic Control Audit

**Authors:** Valentine L [1], Sacchin Arockiam, Noel B. Fitzpatrick, (DM CNS's? Ms. Ann Ferguson, Ms. Caitriona Coleman, Ms. Kelley Hennigan, Ms. Majella Toomey, Ms. Patricia M Murray, Ms. Sinead Molloy, Ms. Noreen McHale), Catherine M. McHugh. [2]

**1. School of Medicine, National University of Ireland, Galway.**

**2. Department of Endocrinology, Sligo University Hospital.**

### **Introduction:**

Surgical patients with diabetes have increased mortality perioperatively compared to the normal population (1). This and pre-existing morbidity of long standing diabetes requires careful perioperative management.

### **Aims**

The aim of the study is to determine the usage rates of the perioperative protocol in Sligo Hospital, and the clinical outcomes.

### **Methods**

This audit was a retrospective observational study of 30 surgical patients in Sligo Hospital from January - March 2016. Data was obtained from HIPE Office, theatre lists and chart reviews and analysed using Excel 2016.

### **Results:**

30 cases were reviewed. 10 had diabetes specialist nurse input. 20 were managed by the admitting SHO, both in the pre-operative period.

16 had orthopaedic surgery ,10 -general surgery 12 -ENT, 2 -gynaecological. 27 had type 2 diabetes, 3 had type 1 diabetes. 5 had major surgery (>1 missed meals), 25 - minor surgery (<1 missed meal).

6 required use of the perioperative protocol (BG>12mmol/L) ,4 of these required IV insulin infusion with blood glucose >12mmol/L on admission. 4 required insulin (3 had type 1, 1 had type 2 diabetes). Average BG on admission-8.5mmol/l

### **Discussion:**

20% of surgical admissions require using a perioperative protocol. 4 received insulin but 6 should have. 1 had no complications, 3 had hypoglycaemia post operatively with 1 requiring treatment. 1 had hypoglycaemia pre operatively. The data shows a high number of surgical patients with diabetes require a formalised safe protocol. Further studies with bigger numbers would determine the uptake and use of the protocol and its changes to the outcome.

### **References:**

Gavin LA. Perioperative management of the diabetic patient. Endocrinol Metab Clin North Am. 1992 Jun. 21(2):457-75. [Medline].

**Title:** An analysis of the clinical significance of exosomes in Breast Cancer patients

**Authors:** Grealish AB<sup>1</sup>, Moloney BM<sup>1</sup>, Gilligan KE<sup>1</sup>, O'Brien KP<sup>1</sup>, Kerin MJ<sup>1</sup>, Keane M<sup>2</sup>, Dwyer RM<sup>1</sup>, Malone C<sup>1</sup>

<sup>1</sup>Discipline of Surgery, Lambe Institute for Translational Research, NUI Galway

<sup>2</sup>Department of Medical Oncology, Galway University Hospital, Saolta Hospitals Group

Funded by Breast Cancer Research

**Introduction:** Exosomes are membrane-derived vesicles actively secreted by cells. Exosomes secreted into the circulation by breast tumour cells have immense potential as biomarkers of disease. We aim to examine the clinical significance of exosomes in Breast Cancer(BC) patients through isolation from serum of BC patients and controls to determine any relationship with tumour size, stage and exosome yield.

**Methods:** BC patients(n=39) and cancer-free controls(n=12) were recruited via GUH Symptomatic and Screening Units. BC patients with bone metastases(n=23) were recruited via GUH Oncology Department. Clinicopathological information was compiled and documented for each patient. Serum samples were collected following ethical approval and informed consent. Serum exosomes were isolated using differential centrifugation, microfiltration, and ultracentrifugation. Exosome concentration was determined by protein assay and nanoparticle tracking analysis(NTA). Pearson and Spearman's correlational tests were used to analyse the data.

**Results:** Exosomes were successfully isolated from all serum samples (n=51) and confirmed to be of the expected 30-120nm size. No significant difference was observed between exosome yields from patient serum and controls, with a broad range of concentrations detected from identical volumes of serum. Current literature utilizes protein estimation as a surrogate marker for exosome concentration. Interestingly, we noted no correlation between protein estimation and exosome yield( $r=-.021, p=.885$ ). A significant positive correlation was observed between exosome yield and tumour size (mm)( $r=.373, p=.027$ ) and disease stage (T)( $r_s=.390, p=.020$ ), while the positive correlation between nodal status (N) and exosome yield was approaching significance( $r_s=.324, p=.066$ ).

**Conclusions:** This study suggests that tumour size and clinical stage may be associated with increased exosome concentration in the serum of BC patients.

Further large-scale multicenter studies are warranted to confirm findings as exosomes have immense potential as biomarkers of disease.

**Title:** Clinical Characteristics of Patients Referred to the Local Sleep Clinics for Evaluation of Obstructive Sleep Apnoea.

**Authors;**

ZI YI CHRISTOPHER THONG<sup>1</sup>, JOHNNY WONG<sup>2</sup>, MARIA VICTORIA JANE PAROT<sup>2</sup>, HAN TUN OO<sup>2</sup>, AI PING CHUA<sup>2</sup>

<sup>1</sup>National University of Ireland, Galway

<sup>2</sup>Ng Teng Fong General Hospital, Singapore

**Objective:** Obstructive sleep apnoea (OSA) is a highly prevalent chronic disease of public health significance. We studied the demographic and clinical characteristics of patients presenting with suspected OSA.

**Methods:** This is a descriptive retrospective study of 668 patients who presented to the specialist sleep clinics in two public hospitals in Singapore from May 2012 to August 2015 for suspected sleep apnea. Patients' clinical records and polysomnography results were reviewed.

**Results:** OSA was confirmed in 96.3% polysomnographically with 89.2% having at least moderate to severe OSA. Mean age was 47 (SD = 15) year old. There was male preponderance (3:1) with 68.8% Chinese, 16.6% Malay and 9.7% Indian. 59.9% had one or more cardiovascular comorbid risks/diseases (hypertension, diabetes, hyperlipidemia, ischemic heart disease and stroke). Major reported symptoms were snoring (89.7%), unrefreshed sleep (74.8%), dry mouth (57.4%), frequent awakening (57.0%), choking /gasp during sleep (40.9%) and witnessed apnoea (33.2%). 93.8% had one or more of the following signs (Friedman III /IV tongue position, low lying palate, tonsillar hypertrophy, elongated uvula, tongue scalloping, retrognathia, turbinate hypertrophy and deviated nasal septum). 66.0% were obese and/or had increased neck girth and/or unhealthy waist-hip ratio. 51.8% of them had normal Epworth sleepiness scale (ESS) less than 10.

**Conclusion:** Moderate to severe OSA was prevalent among patients with suspected OSA referred to the sleep specialists. Snoring and unrefreshed sleep were still the commonest presenting symptoms. Majority had one or more anatomical and/or anthropometric risk factors. Significant proportion were not sleepy and had at least one or more cardiovascular comorbid conditions.

**Title:** Efficacy and Drug Survival of Etanercept in Patients with Psoriasis

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**Introduction:**

Twenty five percent of patients with psoriasis have severe disease requiring systemic or biologic therapy. Etanercept, is our first line biologic agent at UHG. Our aim was to assess the efficacy and drug survival of Etanercept in our clinic.

**Methods:**

This is a retrospective review of 50 patients who received Etanercept in our unit. Patient demographics, year of onset, duration of psoriasis and treatment outcome measures such as (PASI, BSA and DLQI) were recorded.

**Results:**

The average patient age was 46.4 yrs with a mean duration of psoriasis of 24.6 yrs.

Pre-treatment mean PASI was 10, BSA was 13.8 and DLQ was 11.1

86% of patients were clear (PASI,BSA 0) at six months while 64% remained clear at 2 yrs.

Primary failure occurred in 14% with secondary failure occurring in 36% of patients with a mean duration of therapy of 10.2 months (range 8-53 months).

50% of patients remain on therapy with a mean duration of 29.3 months (range 6-72).

**Discussion:**

Several new biologic agents are now licensed for psoriasis with many showing higher short term efficacy rates than etanercept. Our results demonstrate continued first line therapy with etanercept is effective and safe justifying its current role as a first line biologic agent for psoriasis.

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**Research Location:** UHG