



MERCER'S INSTITUTE  
FOR RESEARCH ON AGEING

# Mercer's Institute for Research on Ageing (MIRA)

## Institiúid Mercer um Aosú Bisiúil

Annual Report 2018  
Tuarascáil Bhliantúil 2018



# Index

Introduction	2
Memory Clinic	7
Bone Health & Osteoporosis	14
Falls & Syncope Service	22
Neurovascular Service	31
Medical Physics & BioEngineering	40
Dementia Pathways Programme (DemPath)	48
Education & Training	49
Partnerships	53
Publications	54
Personnel	71

# Introduction

Two years after the opening of the Mercer's Institute for Successful Ageing, the extra and improved facilities available to us in our new MISA building has strengthened our capacity to deliver a broader and more comprehensive service to all our patients.

We have hugely expand our educational, training and teaching wings. Likewise, the extra research facilities has allowed us to integrate the different units of our research under one roof e.g. a major part of TILDA has been able to transfer from the Trinity College Campus to MISA closer to the other research and clinical sections of the Mercer's Institute.

The extra space available to Bioengineering, Bone, Falls and Brain Health and their close proximity to one another has facilitated networking, closer co-operation in research and teaching and the clinical care of our patients.

Likewise, our new MISA facility has enabled the establishment of the Creative Life (CL) pillar of MISA with the programme being led by Prof Coakley and Roisín Nevin. It has blossomed into an integral component of engagement and creative activities within, not just MISA, but the hospital as a whole; enabling patients, carers and families, staff and community to take part in the creative elements underpinned by the theme - art, drama, literature, music and films.

The Creative Life Programme is an arts and health social engagement programme that encompasses a person-centred approach, creating value to the importance of the arts as we age. It involves arts participation, engagement, education, art making, appreciation and performances throughout its programme which is inclusive to all.

An example of a novel initiative in Creative Life is the hugely successful junior hospital doctor's choir- "The Bleeping Interns Choir" which rehearses each Monday in the Creative Life unit under the baton of Dr Anne-Marie O'Dwyer. The choir as a means of social engagement for junior doctors, has been shown through research studies conducted by Dr O'Dwyer to reduce stress and improve well being and positivity, the choir has performed for many staff and patient events.

In 2018, Professor Brian Lawlor having been with our Memory Clinic since its inception, stepped down as Director of the Memory Clinic after a long and distinguished tenure. As well as playing an important clinical role in the Memory Clinic throughout its formative years and its service development, during his tenure he was principal investigator of many studies conducted in the Memory Clinic, including NILVAD, SteadFast, the NeuroExercise study and many others. He supported and supervised several Doctorates in the areas of cognition and ageing. He introduced DemPath to St James' hospital, a site-wide initiative to improve the experience and outcomes of people with dementia at St James'. He fostered links and helped found a global teaching programme with University of California, San Francisco in the form of the Global Brain Health Initiative (GBHI). He has now assumed the role of deputy co-director of GBHI, which will continue to have strong links with St James's Hospital and the Memory Clinic.

He has been succeeded in his role as Director by Dr David Robinson, Consultant Physician in Medicine for the Elderly, and Dr Caitriona Crowe and Dr Elaine Greene have come on board as the clinical leads in Psychiatry in the Memory Clinic.

The Bone Health and Osteoporosis Unit continued to focus on service development and quality improvement. 6041 patients attended the service this year. There has been significant growth in the assessment, diagnosis and management of patients with osteoporosis and fractures.

All older patients presenting to St James's Hospital with a hip fracture are identified and offered assessment and follow-up at the Clinical Nurse Specialist-led Pre-assessment Clinic. A recent national audit showed our Hip Fracture Bone Protection service reaching 96% of hip fracture patients presenting to St James's Hospital.

In addition, in 2018 patients identified as having sustained a wrist fracture were offered the opportunity to participate in a research and quality improvement project in the department investigating characteristics and outcomes of older adults with low trauma wrist fractures.

The Local Asset Mapping Project (LAMP) has continued to promote social prescribing in Ireland in 2018, hosting a regional meeting of the Social Prescribing Network of the UK and Ireland at MISA in March 2019.

LAMP's strategy will be to integrate with the governance of St James' Hospital in 2019 and use the online directory of services as a clinical tool at point of care in St James' Hospital clinics.

The next Watts Fellow will research the area of social prescribing in Ireland, and its impact on older people.

In October 2018, Dr Roman Romero-Ortuno was appointed as an Associate Professor in Medical Gerontology at Trinity College Dublin and as a Consultant Physician in St. James's Hospital. Prof Romero comes to us from a Consultant Physician post in Cambridge University Addenbrooke's Hospital. Prof Romero has an immense research and publication background in the area of Frailty and in its implications for clinical care provision and the organisation of services. He is a huge addition to MISA and we warmly welcome him back to the Mercer's Institute where he completed his PhD a number of years ago.

Professor Kenny and Ciara Rice were members of the Task Force of the European Society of Cardiology Guidelines on Syncope which were published in June 2018.

In September 2018, Ciara Rice organised the 7th International Syncope Training Conference which had been increased to a 3-day event due to demand.

The National Stroke Nursing Education Conference took place in Mercer's in November 2018 and was fully subscribed.

The TUDA 5+ study represents the longitudinal component of TUDA (The Trinity, University of Ulster and Department of Agriculture Study) Ageing Cohort and is composed of a subgroup of participants in the Bone and Hypertensive cohort who were re-assessed approximately five years after first study entry.

Recruitment for TUDA 5+ has now been completed and comprises 1000 subjects. Four hundred were recruited between April -Dec 2018 at the Mercer's Institute for Successful Ageing and a further 600 by our colleagues at the University of Ulster.

TILDA has now released its Report on the analysis of the data collected at Wave 4. This report includes the current status at Wave 4 and changes that occurred between Wave 1 (conducted in 2009-2011) and Wave 4 (conducted in 2016), in quality of life, social engagement, physical and brain health, living conditions, health care cover and utilisation. A consistent theme for this report is the benefit that social engagement, volunteering and friendships convey on quality of life, mental and physical health and wellbeing. The findings of Wave 4 are discussed in detail in this year's MIRA Report.

TILDA is currently developing new research strategies for early identification of risk factors, thus allowing timely and appropriate interventions to help avoid, delay and reverse frailty. Since 2017, TILDA has delivered a one-day frailty education programme, run in conjunction with the National Clinical Programme for Older People (NCPOP).

TILDA furthered its development of strategic partnerships in 2018 including with the GAA and Irish Rail. The work with both of these organisations will expand the knowledge transfer project which is gathering momentum.

The Home FIRsT community outreach training Workshop took place in March 2018.

Home FIRsT is a Specialist Older Persons Team based in the Emergency Department, in St James's Hospital. The team consists of a Clinical Advanced Nurse Practitioner for Older Persons, a Clinical Specialist Occupational Therapist, a Clinical Specialist Physiotherapist and a Senior Medical Social Worker. The team's aim is to promote admission avoidance and facilitate the safe discharge of older people who would otherwise require hospitalisation. Comprehensive Geriatric Assessment begins in the Emergency Department with specialist nursing, functional, cognitive and social needs assessments.

This workshop aimed to enable a multidisciplinary clinical audience to develop their knowledge on whole systems approach to older persons care and understanding and manage frailty syndromes in the emergency, acute and community settings.

It also aimed to strengthen the links between professionals in the community and hospital working with older people and allow for continued communication pathways/networks to be developed going forward.



The Medicine, Law and the older person conference took place in MISA on 13th April 2018. The prominent speakers and sessions were chosen to reduce gaps in knowledge and to address areas of increasing concern for doctors, including: ethics, ward of court and enduring power of attorney, the coroners court, consent and the nursing home support scheme.

The Medical Physics and Bioengineering Department (MPBE) continues to support and advance patient care in MISA. A number of significant milestones have been achieved in the last year by the team working on the Enterprise Ireland funded eye tremor project. For the first time at MISA, a locally designed medical device was progressed formally through regulatory processes, with the new eye tremor device being granted a HPRA “letter of no objection”. This is an important step in technology development capability at MISA, as passing this stage allows a device to be used in clinical trials that will ultimately lead to regulatory compliance necessary for commercialisation.

The device was used ‘in the field’ for the first time in December, as part of an investigation into the utility of eye tremor measurement in assessing head injuries outside of a clinical environment.

In January 2018 Matthew Gibb and the DemPath Team were the proud recipients of an award for a European Foundation Initiative on Dementia (EFID) for the St James’s Hospital Wayfinding project. The award ceremony took place in Sofia, Bulgaria on 22nd and 23rd January 2018.

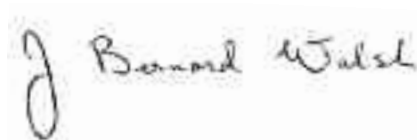
In June, MISA and the Dementia Services Information and Development Centre (DSIDC) co-hosted the 8th Annual Memory Clinic conference. The theme of the conference was “Strategies for Preventing Dementia” and explored ways in which we could potentially improve outcomes for the person with dementia and those at risk.

There are a number of changes on the Steering Committee and at operational level in MIRA going forward into 2019. At the end of December, Prof Davis Coakley stepped down as Chairman of the Steering Group after 30 years of leadership in the role of Director and subsequently as Chairman. He will remain on as a member of the Steering Committee. Prof J B Walsh has stepped down as Director and will take on the position of Chairman and Prof Rose Anne Kenny will assume the role of Director of MIRA in 2019.

We again express our deepest thanks and appreciation to all who continue to support the research, teaching and clinical work of the Mercer's Institute. We particularly wish to acknowledge the tremendous support we receive from the officers and boards of St James's hospital and Trinity College Dublin. The HSE and the Department of Health continue to work closely with us in helping us to improve our service to patients and to train staff not only from St James's Hospital but also staff from all over the country who come to MISA to attend conferences and courses.

We again reiterate our deep gratitude to Chuck Feeney and Atlantic Philanthropies whose unwavering commitment to the building of MISA made it happen.

Finally, we acknowledge our unending appreciation for the commitment of the members of the Board of the Mercer's Hospital Foundation who have been steadfast in the support of the Mercer's Institute since its formation over 30 years ago. Without their initial and continuing support the Mercer's Institute that we have today would never have come to fruition.



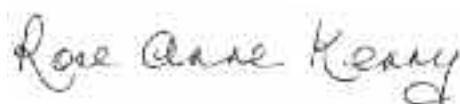
**J Bernard Walsh**

Director of the Mercer's Institute for Research on Ageing



**Davis Coakley**

Chairman of the Steering Committee Mercer's Institute for Research on Ageing



**Rose Anne Kenny**

Director of the Mercer's Institute for Successful Ageing

# Memory Clinic

After a distinguished service, having been with the Memory Clinic since its inception, in 2018 Professor Brian Lawlor stepped down as Director of the Memory Clinic after a long and distinguished tenure. As well as playing an important clinical role in the Memory Clinic throughout its formative years and its service development, during his tenure he was principal investigator of many studies conducted in the Memory Clinic, including NILVAD, SteadFast, the NeuroExercise study and many others. He supported and supervised several MDs in the areas of cognition and ageing. He introduced DemPath to St James' hospital, a site-wide initiative to improve the experience and outcomes of people with dementia at St James'. He fostered links and helped found a global teaching programme with University of California, San Francisco in the form of the Global Brain Health Initiative. He has now assumed the role of deputy co-director of GBHI, which will continue to have strong links with St James's Hospital and the Memory Clinic. He has been succeeded in his role as Director by Dr David Robinson, Consultant Physician in Medicine for the Elderly, and Dr Caitriona Crowe and Dr Elaine Greene have come on board as the clinical leads in Psychiatry in the Memory Clinic.

In August 2018 we bid farewell to Matthew Gibb, who moved on from his former role as Senior Social Worker to become the Director of DSIDC (Dementia Services and Information Development Centre ) and we welcomed Diana Burgui, who started as Senior Social Worker in the Memory Clinic, combining this with a role as educator and researcher with DSIDC.

In 2018 the Memory clinic continued to provide a busy clinical and research service. The clinical service provides multidisciplinary assessments of complex cognitive presentations. Referrals continue to be received from multiple sources both locally and nationally for primary and secondary opinions. The age range of patients seen was 35-89, with a mean age of 62. Of 449 patients seen, 229 were female and 220 were male.

(Please note, not all patients who attended are included in the breakdown of patients by diagnosis as some patients are awaiting investigation to help make a clinical diagnosis.)

<b>Total number of patients seen</b>	449
Number of visits to the clinic (each patient attends the clinic on two occasions, first visit for assessment and second visit for disclosure of diagnosis)	898
<b>Number of new patients</b>	264
<b>Breakdown of Patients by diagnosis:</b>	
Alzheimer's dementia	75
Vascular dementia	5

Breakdown of Patients by diagnosis:	
Alzheimer's mixed dementia	31
Lewy Body type dementia	2
Frontal temporal dementia	3
Mild Cognitive Impairment	123
Vascular Cognitive Impairment	43
Subjective Memory complaints	104
Functional illness/Miscellaneous	33
Diagnosis unclear	21

### The NeuroExercise Study:

The NeuroExercise study, a European multi-centre RCT examining 'The Effect of an Extensive Exercise Programme on the Progression of Mild Cognitive Impairment' completed final study assessments in the cohort of 62 study participants in August 2018. Study results will be published throughout 2019 in collaboration with our international colleagues at the German Sports University Cologne and Radboud University Medical Center, Nijmegen.

Kate Devenney a research candidate working on the NeuroExercise study has submitted her doctoral thesis 'The Effect of Acute and Chronic Exercise on Brain Derived Neurotrophic Factor and Cognitive Performance in Mild Cognitive Impairment'.

### The Sense-Cog Trial:

A 36 week randomised, controlled, parallel-group, observer-blind, multicentre superiority intervention to standard care to improve quality of life in people with dementia and their companions.

Chief Investigator: Prof. Iracema Leroi, Manchester University

Principal Investigator: Brian Lawlor

This is a 36 week randomised, controlled, parallel group, observer blind, Multicentre (Manchester, Dublin, Nice, Athens and Nicosia) superiority trial comparing an individualised Sensory intervention (SI) to usual care in the Person with dementia (PwD) with hearing and/or visual impairment and their companion. Randomisation will be performed with a 1:1 allocation. The SI is comprised of three parts, delivered over a period of up to 18 weeks:

- Assessment of sensory impairment;
- Correction of sensory impairment;
- Maximum of ten SST home visits, typically on a weekly basis

A qualitative semi structured interview will be offered to dyads who experienced the Sensory intervention, at the end of the intervention. The primary aim will be to combine expertise in visual rehabilitation, auditory augmentation and non pharmacological approaches for dementia, to test a therapy for sensory optimisation for the Person with dementia (PWD). The hypothesis that such an intervention will promote mental well being in the PwD and their companions, thereby reducing the negative impact of dementia will be evaluated.

### **The PREVENT Research Programme:**

Post pilot Baseline and 2 year follow-up main study.

Chief Investigator – Prof. Craig Ritchie,  
(Edinburgh University, Imperial College London and West London NHS)

Principal Investigator, St. James's Hospital: Prof. Brian Lawlor

Dr. Lorina Naci, Trinity College Dublin

The project involves collaboration between Edinburgh University, Imperial College London, Cambridge, Oxford and St. James's Hospital Dublin and involves identifying biological and behavioural indicators which may be responsive to very early pre-clinical intervention, in the onset of dementia. Recent research on biomarkers and neuroimaging suggest that changes in several biological parameters may well precede overt clinical symptoms by many years if not decades. Within this collaborative pilot study we are examining biological and cognitive markers in persons from the PREVENT register with an extremely high likelihood of developing dementia at some point in their life compared to persons with a very low risk.

Recruitment numbers for SJH are 100 participants men/women between the ages of 40-59 years of age, half of the cohort must have a parent with dementia, 50 participants without parental history of dementia. Study design is a comprehensive assessment at baseline including neuroimaging and a 2 year follow up, this study is being currently conducted in the memory clinic, with 42 baseline assessments completed and baseline assessments will be ongoing until June/July 2019. 60-70% of the participants have agreed in Dublin to the CSF sub-study that involves collecting CSF samples at baseline and at the follow up assessment for analysis.

### **Memory Clinic – Audiometry Screening Technology Evaluation**

Hearing loss is a novel modifiable risk factor for cognitive impairment in older adults. MPBE is providing ongoing scientific input to facilitate development of audiometry screening capabilities for patients attending the memory clinic in collaboration with the GBHI (Prof. Lawlor/Dr. David Loughrey), MISA memory clinic team (Irene Bruce/Lisa Crosby), and SJH audiometry service (Geraldine Mann). A number of devices have been evaluated and a standard operating procedure now established for the memory clinic with initial patient testing underway.

### **Memory Clinic Psychiatry Clinical Research Fellow**

Dr Rachel Wallace took up her post in July 2018 and is undertaking a Doctorate in Clinical Medicine through Trinity College Dublin under the supervision of Prof. Elaine Greene. Her research area is affective disorders in the acute hospital setting. She will be looking at the rates of depression and anxiety in the elderly population of medically unwell patients in St James's Hospital, studying associated physical and mental health related difficulties and the effect of these on recovery.

### **Watts Research Fellow**

Dr Oisín Hannigan is the current Watts research fellow having commenced his post in July 2016. He is currently preparing his M.D. for submission to Trinity College Dublin under the supervision of Dr David Robinson entitled "Morbidity, Mortality and Quality of Life in Patients Discharged from Hospital to Long Term Care". As part of his MD he has performed 4 separate research studies around the following topics: morbidity and mortality in those listed for long-term care from a hospital setting, overall statistics on mortality in those who are living in long term care, the effects of socioeconomic background and social deprivation on admission to long term care, and the feasibility of the use of virtual reality software as both a recreational tool and a possible behavioural aid the elderly. These 4 papers are currently being prepared for submission as part of a thesis to Trinity College Dublin. Dr Mary Buckley has been appointed to the position of Watts research registrar from July 2019 under the supervision of Dr David Robinson. Her area of interest is in social prescribing, and she is currently obtaining ethical approval for her research projects.

### **Memory Clinic Conference:**

The 8th Annual Memory Clinic Conference took place on Friday 8th June 2018 in the Trinity Biomedical Sciences Institute and was hosted by the DSIDC and Mercer's Institute for Successful Ageing. The conference explored strategies to prevent dementia and the potential to improve outcomes for the person with dementia and those at risk.

Professor Brian Lawlor, at the time Director of the MIRA Memory Clinic, welcomed a host of international renowned speakers:

Ronan Smith was diagnosed with Younger Onset Alzheimer's in 2014. He cared for his father when he developed Alzheimer's 30 years ago and was active in the then newly formed The Alzheimer Society of Ireland. He is a strong advocate and passionate about representing the voice of the person with dementia. He is Chair of The Alzheimer Society of Ireland's Irish Dementia Working Group (IDWG) and member of the Understand Together Steering Group. In December 2017, the Alzheimers Society of Ireland appointed him as the first person with dementia to join its Board of Directors. He spoke at the conference about "Living a life with Dementia".

Dr Desmond Hickey is currently working as a Specialist Registrar in Public Health Medicine in the Department of Public Health, HSE East. He completed a Masters in Public Health at University College Dublin in 2017, focusing his dissertation on examining help-seeking attitudes and behaviour for suspected diagnosis of dementia in Irish adults. His talk was entitled "Knowledge and awareness of dementia in Ireland – the journey towards ensuring that we all Understand Together".

Prof Dario Arnaldi is assistant Professor of Neuroscience at the University of Genoa – graduated in 2006 and completed his PhD in Neuroscience in 2016. He spoke about How to intercept prodromal Lewy Body Disorders? The case of REM sleep behaviour disorder.

Dr Jules Montague, leading consultant Neurologist based in London. Her clinical specialisation is early-onset dementia and other neurodegenerative diseases. Her talk was entitled Lost and found: Memory, Identity and who do we become when we are no longer ourselves.

Prof Sarah Pendlebury, Associate Professor in the NIHR Oxford Biomedical Research Centre and the Centre for Prevention of Stroke and Dementia, Nuffield Department of Clinical Neurosciences, University of Oxford, and Consultant Physician and Clinical Lead for Dementia and Delirium at the Oxford University Hospitals NHS Foundation Trust. She spoke about Stroke and Dementia.

Prof Nikolaos Skarmeas associate Professor of Neurology and shares his time between research and clinical work at Columbia University and in University of Athens. He spoke about Mediterranean diet and cognition: epidemiology and mechanism.

Prof John Nolan, Principal Investigator of the Macular Pigment Research Group (MPRG) in the Nutrition Research Centre Ireland in Waterford Institute of Technology, Ireland. He talked about Xanthophyll Carotenoids and the Brain: A nutritional approach to enhance cognitive function.

Prof Ian Robertson is Co-Director of the Global Brain Health Institute and Emeritus Professor at Trinity College Dublin. A trained clinical psychologist as well as a neuroscientist, he is known internationally for his research on attention and the human brain. His talk was entitled “The Improbable Effectiveness of Cognitive Training – How To Explain It?”.

### **Dr Robert Coen. Senior Neuropsychologist.**

#### **Summary of activities / developments in MIRA – January – December 2018**

Primary duties relate to the Neuropsychological assessment of clients referred to the MIRA Memory Clinic and overseeing assessments undertaken by Nurse Irene Bruce and additional staff as appropriate including discussion of all cases at our weekly Consultant led Multi-Disciplinary Consensus Meetings. Duties also include Clinical supervision of Trainee Clinical Psychologists who undertake specialist placements in MIRA as part of their Clinical Training, teaching / training on programmes for Trainee Clinical Psychologists and Medical Students, and research supervision / collaboration on a variety of studies and research programmes and with various research groups, plus active participation in Global Brain Health Institute (GBHI) initiatives including education of GBHI Fellows. Below is a summary of main Clinical and research-related activities January – December 2018:

#### **Trainee Clinical Psychologist placement:**

Elaine Coyne, Psychologist in Clinical Training, TCD Doctoral Programme in Clinical Psychology successfully completed a split Specialist Clinical placement with Dr. Coen (in tandem with Dr. Nick Kidd) from May to September, 1.5 days per week. She is now a fully qualified Clinical Psychologist.

### **The Irish Longitudinal Study on Ageing (TILDA).**

Having assisted with the development and implementation of the cognitive battery used in TILDA (PI Prof Rose Anne Kenny), Dr. Coen in collaboration with TCD Psychology Dept. staff, post-grads and TILDA staff continues to consult on TILDA developments, with active participation in the newly revived Neurocognitive working group, and was a Collaborator on the successful submission for continued funding for TILDA Phase II to fund Wave 5 and Wave 6 to 2022. A paper on semantic/phonemic verbal fluency discrepancy in MCI has now been published (with Dr. Roisin Vaughan, Clinical Supervisor Prof. Brian Lawlor) - see publications list.

### **Carotenoid supplementation in age-related macular degeneration (AMD).**

In collaboration with Principal Investigator Prof. John Nolan, Waterford IT, Dr. Coen is an active advisor / collaborator on three major studies evaluating cognitive outcomes following Carotenoid supplementation: (i) Enrichment of Macular Pigment and its impact on vision and blindness: Central Retinal Enrichment Supplementation Trials (CREST) (ii) Carotenoids and Age-Related Dementia Study (CARDS). (iii) a study of carotenoid supplementation in Mild Cognitive Impairment (MCI) was designed and commenced, with Supervision of the PhD Researcher (Rebecca Power) shared by Dr. Coen and Prof. Nolan. Control and MCI participant recruitment has now been completed, results presented at the BON Conference in Cambridge (published abstract, see publications) and a paper is in preparation. Dr. Coen also chaired the session on Innovations for Cognitive Health. A paper on supplemental retinal carotenoids enhancement of episodic memory of healthy individuals has been published - see publications list.

### **Viral Hepatitis C Associated Neurocognitive Dysfunction in Ireland in the DAA era.**

Dr. Coen was a co-applicant on this HRB funded research project (PI Prof Suzanne Norris, co-applicants Prof Rose Anne Kenny, Dr. John Gormley, Dr. Colin Doherty, Dr. Kelly O'Brien). The first aim of this study is to determine the prevalence and pattern of neurocognitive function in HCV-infected patients. The second is to determine if cognitive impairment can be stabilised or ameliorated through two differing interventions (i) viral eradication with DAA antiviral therapy (DAA treatment intervention study) (ii) a formal exercise programme to investigate the effects of exercise on cognitive function in this cohort (Exercise intervention study). Dr. Coen provided training and supervision for the Neuropsychological aspects of this research. The Neuropsychological strand is being researched by Orla Strahan with assistance from additional Psychology students and will form the basis for her PhD with joint supervision by Dr. Coen, Dr. Paul Dockree TCD and Dr. Colin Doherty. Data recruitment for the screening phase has now been completed and the other strands are ongoing. Several presentations have been made at National and International conferences, some with published abstracts - see publications list. Papers are in preparation as is Orla Strahan's PhD write-up.

### **Cognitive Impairment in patients with HIV Infection.**

In conjunction with Dr. Colin Doherty, Consultant Neurologist and others, Dr. Coen provided supervision for Dr. Patricia McNemara's PhD research on Cognitive Impairment in patients with HIV Infection. Her research has been completed and papers published. A longitudinal strand was undertaken and has been completed (Dr Lilia Zaporozhan under Dr. Doherty's supervision, again with input from Dr. Coen). Dr. Zaporozhan is writing up her thesis and papers are in preparation.

### **NILVAD: A European Multicentre Double-Blind Placebo Controlled trial of Nilvadipine in Mild to Moderate Alzheimer's disease.**

NILVAD was an investigator driven Phase III Clinical Trial funded by the European Commission under FP7 (Principal Investigator Prof. Brian Lawlor). It entailed a multicentre European trial in 8 different languages in 9 countries. Dr. Coen was the Work Package Leader for Education and Training and also took the lead in acquiring and developing for use across 8 European countries the primary and secondary outcome measures (ADAScog, SMMSE, CDR and DAD). The key publication reporting findings has now been published - see publications list.

### **The effects of an extensive exercise program on the progression of mild cognitive impairment (MCI).**

Dr. Coen has been involved in an advisory capacity regarding the cognitive assessment aspects of this multicentre study in 3 countries (PI Prof. Stefan Schneider, Institute for Movement and Neurosciences at the German Sport University in Cologne). Sub-studies are being undertaken by Kate Devenney (TCD, Academic Supervisor Prof Brian Lawlor) towards a PhD with input from Dr. Coen. Data collection was completed in 2018 with subsequent analysis, PhD write-up, and papers are in preparation. A systematic review has been submitted for publication - see publications list.

### **The Trinity, University of Ulster and Dept of Agriculture (TUDA) Cohort Phenotype / Genotype database.**

Dr. Coen in collaboration with Dr. Kevin McCarroll has investigated cognition related aspects of the TUDA data. Papers have been previously published from the initial cross-sectional component of this study. A longitudinal component was added and Dr. Coen has been involved in implementing that including study methodology and staff training. The longitudinal data collection has just been completed.

### **Neuropsychological functioning and prosthetic rehabilitation outcomes.**

In collaboration with Dr. Fiadhait O'Keefe, NRH and colleagues in DCU and NUI Maynooth, Dr. Coen was a co-investigator in research undertaken by Richard Lombard-Vance for his PhD (now awarded) investigating neuropsychological functioning in lower limb amputees. A paper has now been published - see publications list.

### **The Vascular Impairment of Cognition Classification Consensus Study.**

A large multinational group of clinicians and researchers (Skrobot et al.) participated in a two-phase Vascular Impairment of Cognition Classification Consensus Study (VICCCS) to agree on principles (VICCCS-1) and protocols (VICCCS-2) for diagnosis of VCI. Dr. Coen participated as a Delphi respondent in the VICCCS Studies designed to provide standardised guidelines for diagnosis and assessment of VCI. Papers have been published - see publications list.

# Bone Health & Osteoporosis

The Bone Health and Osteoporosis Unit continued to focus on service development and quality improvement this year. 6041 patients attended the service this year. There has been significant growth in assessment, diagnosis and management of patients with osteoporosis and fractures. In addition, the Unit sees patients with Hyperparathyroidism and other conditions relating to bone metabolism. Professor J Bernard Walsh, Dr Miriam Casey, Dr Kevin McCarroll and Dr Rosaleen Lannon are the principal consultants in the Unit and coordinate research activities and the overall running of the service.

## Summary of Unit:

- Clinical Nurse Specialist (CNS) led Pre-Assessment Clinic
- GP advice
- DXA (Clinical Densitometry) Service
- Osteoporosis and Bone Health Medical Clinic
- Fracture Liaison Service incorporating
  - Orthogeriatric Service and Hip Fracture Integrated Care Pathway
  - Colles (wrist) Fracture and Peripheral Fracture Clinic
  - Vertebral Fracture Clinic
- Treatment administration and monitoring clinics
  - Recombinant Parathyroid Hormone therapy (PTH) patient monitoring
  - IV Zoledronic acid administration and monitoring
  - Denosumab injection administration and monitoring
- Inpatient Falls and Fracture Prevention Service
- Audit
- Service development and education
- Research

## Clinical Nurse Specialist (CNS) led Pre-Assessment Clinic

The CNS-led Pre-Assessment Clinics, which occur twice weekly, continue to be the first point of contact for patients who are referred for assessment of their bone health and risk of fracture. Patients attend from 4 sources:

- External referrals from general practitioners or other hospitals
- General medicine, surgery and other clinics within St James's Hospital including the MedEL Department
- Fracture Liaison Service
- Referrals from DXA Service based on severely low bone density results or the presence of vertebral fractures

A comprehensive assessment is performed on all patients. This includes review of risk factors for osteoporosis, risk factors for falls and advice on diet, lifestyle modifications and education on treatments. On a patient's first attendance at this clinic an extensive screen is undertaken. This includes a DXA scan, a calcaneal bone ultrasound and a full biochemical and haematological work-up including serum bone turnover markers.

When results of the screening are completed and reviewed by CNSs and the Clinical Fellow in Bone Health, a full summary report and a detailed individualised management plan is sent to the patient's GP. Many patients are sent a subsequent appointment to the Bone Health and Osteoporosis Medical Clinic for further review and management, often for the purpose of offering IV Zoledronic acid therapy or PTH therapy.

In 2018 a total of 1239 patients were seen in the Nurse Led Pre-Assessment Clinic, this represents a similar number to previous years. The number of new patients rose again this year. The number of patients making return visits also remains high, highlighting the essential role of the CNS in monitoring the efficacy of treatments as well as promoting adherence and managing side effects.

The summary of numbers of patients seen in the various nurse led clinics is as follows:

	2015	2016	2017	2018
<b>New patient PAC</b>	544	489	568	635
<b>Return patient PAC</b>	846	791	710	604
<b>Total PAC attendances</b>	1390	1280	1278	1239

### GP Advice Service

Due to the increasing number of referrals to the Bone Health Unit in recent years, new initiatives were sought in recent years to improve speed and quality of access to our specialist services. One such programme commenced was the GP Advice Service. This allows for external (mainly GP) referrals to be rapidly triaged and acted upon by the Bone Health Fellow. Based on clinical need, the patient is either listed for a rapid PAC appointment, or alternatively has a comprehensive, immediate and individually tailored long-term management plan sent to the referring doctor within a week of receipt of referral.

### DXA (Clinical Densitometry) Service

Our DXA service carried out 2947 scans in 2018. The new DXA machines also facilitate extended research activities.

This service is open to referrals from general practitioners in the local community as well as other consultants within the hospital. Patients who have significant osteoporosis on DXA will be offered assessment in the Bone Health Clinic.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Total</b>	917	1794	2025	2184	2434	2554	2705	2906	3643	3285	3051	3135	2947

**Annual numbers of DXA scans performed in SJH**



### **Osteoporosis and Bone Health Medical Clinic**

Our Osteoporosis and Bone Health Medical Clinic has continued to grow this year with the most patients having attended the service since the clinic was established.

The weekly medical osteoporosis clinic has been in operation for more than a decade. It caters for patients already seen in the Pre-Assessment Clinic, who have been identified as requiring additional input and monitoring, often due the severity and complexity of their osteoporosis. 3 consultants, 2 clinical fellows, 3 registrars, 2 CNSs and one secretary staff this clinic. Patients attending for new and return visits can be commenced on treatments such as IV Zoledronic acid, recombinant parathyroid hormone therapy or may be referred onwards to our colleagues in Radiology for procedures such as vertebroplasty if required. This clinic also provides opportunity for performing additional blood tests, giving education sessions to patients and administering therapies such as loading doses of Vitamin D replacement.

A lot of work was completed this year on minimising missed appointments in the bone health services. This was a multifaceted approach including improvements in communication with patients and GPs, text alerts and phone calls to patients ahead of clinics, close follow up of patients who have failed to attend to discuss reasons for nonattendance and provide contact information.

	2011	2012	2013	2014	2015	2016	2017	2018
<b>Total</b>	1441	1560	1589	1738	1433	1514	1335	1838
<b>New</b>	371	351	335	398	218	234	230	433
<b>Return</b>	1070	1209	1254	1340	1215	1280	1105	1405

### Osteoporosis and Bone Health Medical Clinic annual numbers

#### Fracture Liaison Service

Incidence of fractures is extremely high and will increase with the ageing population. Fractures affect the quality of life of patients. In SJH we are dedicated to identifying older patients presenting with fractures and offering screening for future fracture risk and/or treatment for osteoporosis.

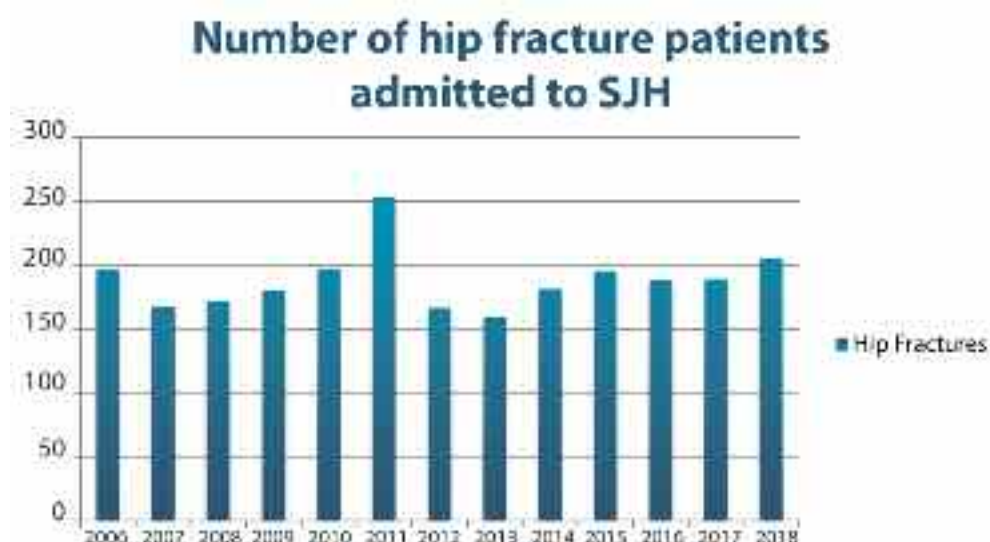
#### Orthogeriatric Service and Hip Fracture Integrated Care Pathway

All older patients presenting to St James's Hospital with a hip fracture are identified and offered assessment and follow-up at the CNS-led Pre-assessment Clinic. This service incorporates a weekly orthopaedic ward round where patients in need of the service are identified. These patients are commenced on appropriate bone protection therapy at an early juncture.

In 2018, patients with hip fractures were assessed on a weekly round by a Specialist Registrar and CNS, and a bone protection programme commenced. All patients are then offered an appointment in the Pre-Assessment Clinic.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Total</b>	167	172	180	197	253	166	159	181	195	188	189	205

### Annual numbers of hip fractures in SJH



A central aspect to the Fracture Liaison Service has been the rolling out of an Integrated Care Pathway for hip fracture patients and the Irish Hip Fracture Database. In conjunction with our colleagues in ED, Orthopaedics and allied health care, we are working to ensure targets are met for the six key performance indicators in the care of hip fracture patients: Time to surgery; time to admission to ward; pressure ulcer and skin care assessment; bone health review; falls assessment; and orthogeriatric review. Review of the IHFD confirms that figures in SJH for most key performance indicators compare favourably with the national average and we continue to work to improve care for these patients.

### **Colles (wrist) Fracture and Peripheral Fracture Clinic**

Colles fractures are important to identify, as their presentation may be an early indicator of osteoporosis. These patients are offered a follow-up appointment at a specialised nurse-led osteoporosis clinic, which occurs every 2nd Thursday morning. This clinic reviews risk factors for falls and osteoporosis. Patients are commenced on treatment as indicated by their assessments. Last year we made some changes to ensure patients who sustained a fracture and did not require admission to the hospital are also followed up and monitored after their discharge from the Emergency Department. Almost 300 patients with wrist fractures were identified over the year as well as patients admitted with other peripheral fractures. In 2018 patients identified to have sustained a wrist fracture were offered the opportunity to participate in a research and quality improvement project in the department investigating characteristics and outcomes of older adults with low trauma wrist fractures.

### **Vertebral Fracture Clinic**

Patients with vertebral fractures are identified, assessed and cared for by the Bone Health and Osteoporosis Unit. This Unit has been providing care for patients with vertebral fractures for many years. Traditionally the Unit assessed and cared for patients with vertebral fractures that based on retrospective referral from their GP. Patients attending for DXA diagnosed with vertebral fractures are offered appointments for assessment in the clinic directly. We also interrogate electronic databases weekly identifying inpatients with vertebral fractures.

We hope through improved identification of patients we can initiate earlier appropriate treatment for this vulnerable patient group and hence improve their healthcare outcomes.

### **Treatment administration and monitoring clinics:**

Recombinant Parathyroid Hormone therapy (PTH)

890 patients have been prescribed recombinant Parathyroid Hormone treatment to date. 32 new patients commenced teriparatide in 2018. These patients are often complex with severe osteoporosis and multiple fractures and have been refractory to other treatments. In patients with vertebral fracture, international studies have shown a substantial improvement in bone quality and also in back pain following this treatment. All patients on Parathyroid Hormone therapy are regularly followed up in the CNS-led service to monitor bone biochemistry and to observe for any side effects, the occurrence of which are rare.

#### **IV Zoledronic acid administration and monitoring**

Intravenous Zoledronic acid is a useful treatment in the prevention of both vertebral and non-vertebral fractures in patients with osteoporosis. It has been shown to significantly reduce mortality in patients after hip fracture. It provides an alternative to oral bisphosphonates and is an option in patients who are deemed not suitable for PTH therapy and in patients post PTH and denosumab therapy.

The infusion may be given at a standard (4mg) dose once yearly, or a lower (2mg) dose 6-monthly. Patients are assessed by the medical team at the Bone Health Clinic prior to administration of the drug. Serum calcium and vitamin D levels are measured within one week of the infusion by the CNSs in order to monitor for hypocalcaemia. This has led to a reduction in the incidence of complications from the infusion.

There were 433 infusions administered in 2018. This highlights the importance of this therapy – which can reduce the chance of vertebral fractures by up to 70% – in treating frail patients with severe osteoporosis.

#### **Denosumab injection administration and monitoring**

In late 2010 Denosumab was introduced for the treatment of osteoporosis. To date over 1000 patients have been prescribed the drug in our Bone Health Clinic. It is administered as a subcutaneous injection every 6 months either by the CNSs or in the community. Serum calcium and bone markers are measured 2 weeks post-dose. Reported side effects have been rare, making it a safe and convenient treatment option in our older population.

#### **Inpatient Falls and Fracture Prevention Service**

In early 2012 the falls and injury prevention programme was rolled out across the hospital. Since this intensive awareness drive, the risk management office has reported a reduction in the falls rates on all wards. The CNSs continue to work closely with the hospital falls management group in updating the falls risk assessment to reflect the need for a more cohesive MDT approach and incorporate HSE/NICE guidelines. A pilot project began in February 2015 to trial a modified falls assessment and MDT intervention record, and following its initial success, was instituted hospital-wide from early 2016. The Bone Health CNSs liaise with ward staff nurses and provide on-going falls-prevention education through the hospital and meet with the Hospital Falls Management Group on a 2-monthly basis.

#### **Audit**

Internal audits in the Unit during 2018 have been conducted on sources and outcomes for clinic referrals, indications for DXA scan requests and outcomes for patients attending Pre-Assessment Clinic, wrist and other peripheral fracture identification and treatment, as well as concordance with key performance indicators for care of hip fracture patients. Audit results are discussed and actioned upon at bi-weekly meetings in the Unit.

## Service development and education

Bi-weekly departmental “Bone Club” meetings encompass a wide range of topics and formats including research discussion groups, osteoporosis educational lectures and business meetings to discuss service development.

The Bone Unit is embracing technological advances. This year we rolled our new electronic database, we continue to triage referrals via the online Health link eReferral service, paper referrals are also scanned and triaged electronically.

Service provision initiatives in 2018 have entailed increasing capacity for total number of patients assessed as outlined above. In addition, we work closely with our colleagues in specialist departments such as radiation oncology, gastroenterology, GUIDE, neurology, endocrinology and rheumatology to refine pathways of care for patients at high risk of osteoporosis. Members of the Bone Health Unit have provided osteoporosis teaching sessions to medical and nursing students and interns and physiotherapists in the hospital, as well as to wider medical audiences in the Royal College of Physicians and at SJH Grand Rounds.

Education was delivered by the CNSs to the Pulmonary Rehab group every two months, and for MSc in gerontology, FETAC for Healthcare Assistants as well as ongoing education on falls management throughout the hospital. Bachelors of nursing students are also facilitated in the falls and osteoporosis service. The CNSs had an information stand in the Hospital Concourse to mark World Osteoporosis Day in October 2018 and Falls Awareness day 2018.

We are currently preparing for the first SJH Bone Health Conference due to take place in April 2019. The conference is led by national experts on Bone Health and Osteoporosis.

## Research

Continuous research forms an integrated part of the Bone Health and Osteoporosis Unit. The team are conducting a number of on-going projects.

Members of the team travelled to national and international conferences presenting research and keeping up to date with advances in the field. Members of our team attended ASMBR in Montreal in September, IGS in Cavan in September as well as Irish Hip Fracture Conference and Fragility Fracture Network Global Congress in Dublin.

Below we detail recent on-going research in our Bone Health Unit:

### *“Characteristics and Outcomes of Older Adults following Hip Fracture”*

Primary investigators: Prof JB Walsh  
Dr MC Casey  
Dr K McCarroll

Clinical investigator: Dr James Mahon,  
Clinical Fellow in Bone Health (2014-2017)– MD Thesis

This prospective study has completed recruitment of acute hip fracture patients in SJH for one year to compile cross-sectional data on this cohort, followed by a one-year longitudinal follow-up to measure functional and bone health outcomes after treatment with IV Zoledronic acid and ergocalciferol. In addition the study will characterise patients' progress through the hospital's hip fracture integrated care pathway.

*"Characteristics and outcomes of adults with vertebral and distal forearm fractures and outcomes of patients with low trauma distal forearm fractures."*

**Primary investigators:** Prof JB Walsh  
Dr MC Casey  
Dr K McCarroll

**Clinical investigator:** Dr Máire Rafferty,  
Clinical Fellow in Bone Health (present) - MD Thesis

This project looks retrospectively at patients who attended the service following vertebral and distal forearm fractures outlining the characteristics of these patients. There is also a prospective arm currently in progress. Patients were recruited from January- October 2018. Cross-sectional data were collected, treatment initiated where appropriate and 6 and 12-month follow up is currently in progress.

Gillian Fitzgerald (Specialist Registrar in Rheumatology) conducted novel research at the Bone Health Unit (with guidance from Dr Finbar O'Shea and Dr Kevin McCarroll) to examine the role of lateral densitometry assessments in patients with ankylosing spondylitis.

Our newly equipped DXA has the novel facility of assessing lateral spine bone mineral density (BMD) as opposed to the traditional postero-anterior (PA) analysis. This may be important in specific patient groups where osteoporosis in the spine may be under diagnosed due to other factors erroneously increasing density measurements. Factors such as spinal osteoarthritis with vertebral end plate sclerosis may lead to higher calculated densities. In particular, in ankylosing spondylitis, calcification of the longitudinal spinal ligament and bridging osteophytes may give rise to the same issue. Despite this technique, it is little used and there are few studies to compare it to conventional measurements.

This study looked at 100 patients and identified that BMD of the spine measured by PA projection was significantly higher than that measured by lateral projection (mean difference 0.34 g/cm<sup>2</sup>, 95% CI 0.30 to 0.37). In addition, more patients had low BMD with lateral compared to PA projection (47% versus 16%, p=0.01). Furthermore, as expected disease duration, body mass index (BMI) and radiographic severity independently predicted a difference between PA and lateral measurements.

This has important implications and suggests that conventional DXA does not adequately captures low bone mass in certain patient subgroups. Findings are being prepared for submission for peer review.

# Falls & Syncope Service

## Executive Summary

- Dr Roman Romero-Ortuno is an Associate Professor in Medical Gerontology at Trinity College Dublin and a Consultant Physician in St. James's Hospital, Dublin was appointed in October 2018
- Professor Kenny and Ciara Rice were members of the Task Force of the European Society of Cardiology Guidelines on Syncope – published June 2018
- 7th International Syncope Conference sold out – September 2018
- Ongoing collaboration with MPBE in research and development of new technologies
- Expansion of the Home First Program
- Extensive published research from the clinical team

At some point in their lives, 40% of individuals will have an episode of blackout or faint. For the majority of younger individuals this represents a benign faint and they do not need to be assessed by a doctor. However, if this proves recurrent or if a blackout occurs in an older individual this does require investigation, due to the risk of underlying cardiovascular aetiology.

The Falls and Syncope Unit (FASU) is a day case assessment clinic that runs five days a week where patients with unexplained falls, syncope and presyncope are investigated using state of the art cardiovascular technology. The FASU operates a one stop assessment clinic and allows for a detailed investigative work-up. It is endeavoured that all tests are carried out on the day and a diagnosis often made with only one visit being required by the patient. The FASU aims to negate the need for hospital admission in those presenting with syncope and falls. Once diagnosed patients can link into existing hospital resources (including referral to MedEL Day hospital for gait and balance retraining or referral to cardiology services) but the vast majority are dealt with solely by the clinic and discharged back to the community.

The clinic commenced in 2003 with Dr Conal Cunningham and with the arrival of Professor Rose Anne Kenny, moved to a new expanded site beside the Emergency Department in 2005.

An increase in staff and space allowed for a rapid increase in the numbers of patients assessed. Activity continues to increase significantly every year with the main source of referrals coming from the Emergency Department, Inpatient Referrals within St James, GP's, Cardiology services, Neurology Services, MedEl services and Peripheral Hospitals from all around the country. It provides the largest syncope clinic service in Ireland. In 2016 FASU moved to the new MISA building with the addition of new technologies such as NIRS (near infrared spectrometry), video recording and gait assessment laboratory.

## Consultants

Professor Rose Anne Kenny (Director)

Professor Conal Cunningham (Co-Director)

Dr Susie O'Callaghan

Dr Roman Romero – Ortuno (Associate Professor Medical Gerontology and Consultant Physician St James) – Newly appointed 2018

Roman Romero-Ortuno is an Associate Professor in Medical Gerontology at Trinity College Dublin and a Consultant Physician in St. James's Hospital, Dublin. He brings to GBHI clinical experience in frailty, dementia, delirium and comprehensive geriatric assessment; and he has research experience in frailty, neurocardiovascular instability and health services research. Prof Ortuno aims to improve the identification, investigation and treatment of frailty in older adults and to explore the complex interactions between frailty and cognition and discover ways through which improving frailty in older adults could help reduce the scale and impact of dementia in ageing populations.

Prof Ortuno's clinical work is based at the Mercer's Institute for Successful Ageing in St James's Hospital, where he supports the delivery of multidisciplinary ambulatory care pathways for older people. His academic credentials include a PhD from Trinity College Dublin in the area of frailty (2011) and an MSc in European Social Policy (2003) from the London School of Economics and Political Science (LSE). Prof Ortuno works closely with The Irish Longitudinal Study of Ageing (TILDA). His research contributions in the area of frailty have been recognised with the 2015 British Geriatrics Society Rising Star Award and the 2017 Count of Cartagena Award from the Royal National Academy of Medicine of Spain.

At GBHI he provides facilitation and support to the Atlantic Fellows for Equity in Brain Health and helps develop and deliver the training curriculum.

## Investigations undertaken routinely in the FABU include:

- Electrocardiogram
- Active stand (finometer allows for continuous beat to beat blood pressure and heart rate to be recorded)
- Head up Tilting: Italian Protocol and Front-loaded
- Carotid Sinus Massage
- 24-hour blood pressure monitors (N = 16)
- Cardiac event monitors (N=16)
- Holter monitors (N=1)
- Internal loop Recorder Monitoring
- Hallpike and Epley Manoeuvres (diagnostic test and particle repositioning therapy for BPPV)

- Autonomic Function Test
- Gait Assessments
- Vestibular Assessments
- Blood Testing
- 24 Hour Urine Collection (Urine Volume and Electrolytes)
- FABU accepts referrals for persons (in-patients and out-patients) for:
  - Falls (mechanical and unexplained)
  - Syncope
  - Transient Loss of Consciousness
  - Vertigo
  - Dizziness
  - Blackouts
  - Faints

Outpatient referrals may be made by General Practitioners within the St James's local area, St James's Hospital Consultants and other hospitals and agencies, via Consultant Neurologists, Cardiologists and Geriatricians.

### **Consultant-led Clinics**

Clinics take place on Monday, Tuesday, Wednesday and Fridays accepting referrals from age 16 upwards. Wednesday clinic is a national tertiary referral service. On all clinic days, inpatient referrals are seen in addition to booked appointments if possible. In the event an inpatient referral has not been reviewed prior to discharge, it is prioritised as an outpatient. All referrals originating within the hospital are electronic via EPR.

### **Nurse-led Clinics:**

There are 16 nurse-led clinics per week, they include the following;

- Autonomic Function Testing
- Ambulatory Blood Pressure Monitoring
- Holter Monitoring
- Cardiac Event Monitoring
- Internal Loop Recorder Monitoring/Remote monitoring

This system allows for quick assessment of blood pressure and heart rate on a 24 hour or seven day basis. Downloading of results and reporting are carried out by nursing staff. Nurses within the clinic act as a direct line of contact for patients, who phone in on a 07.30-16.30 basis and are able to advise and instigate conservative measures often preventing unnecessary A&E attendances. This is in addition to the following activities amongst others; routine and non-routine phlebotomy e.g. Synacten testing and patient education regarding internal loop recorder insertion and remote monitoring via Carelink.

## Carelink

In 2010 a remote monitoring system for Implantable Loop recorders was established. This service provides a facility where patients can send heart recordings for immediate review by nursing and medical staff, thereby improving efficiency and safety for these patients. To date over 500 patients across Ireland have availed of this service. The service allows for immediate review of heart rate activity thereby reducing the number of hospital visits required for that patient by 75%.

## Physiotherapy Service in FASU

A Physiotherapy service was introduced to FASU in December 2016. This currently involves a Physiotherapist (Clinical Specialist or Senior grade) attending Professor Kenny's clinic every Wednesday and Dr Cunningham's clinic every Friday for 2 hours.

Appropriate patients attending FASU, are referred by the medical team or nursing staff.

Physiotherapy falls assessment includes:

- Subjective assessment of falls history
- Assessment of baseline mobility and physical activity levels
- Objective assessment including analysis of strength, range of movement, gait, posture and balance
- Intervention may include:
  - Advice and education in the area of falls prevention and physical activity
  - Specific advice regarding OH and helpful physical counter manoeuvres
  - Design and provision of an individually-tailored home exercise programme
  - Onward referral to Primary Care Physiotherapy or Robert Mayne Day Hospital

Another specific patient group referred to our service are patients with POTS (Postural Orthostatic Tachycardia Syndrome). Six patients with POTS have been referred to our service since 2016. This patient group are assessed as above but may have further one to one intervention over several months.

They are provided with a detailed exercise program inclusive of:

- Warm up
- Strengthening and cardiovascular exercises
- Cool down

In 2018, there were two new patients with POTS referred to the service while three patients who had been attending since 2016/2017 were discharged. On discharge from our service, these patients were referred onto community physiotherapists. Also, we advise on attending local exercise classes (e.g. Pilates).

	NP	Return	Total
<b>2017</b>	89	Pts hadn't been registered to a physiotherapy clinic on PAS until July 2017. They were registered to FASU clinic.	
<b>2018</b>	53	13	62

In 2018, 53 patients (age range 22-93 years, mean age =71 years) have been assessed by the Physiotherapy service in FASU. The majority of these patients are older adults with a history of falls or who are at risk of falls. There is a reduction in the numbers of 30 patients from 2017 due to limited clinics between July and Oct 2018 due to vacancy in the Clinical Specialist role and extended annual / unpaid leave.

This year we participated in the Falls and Syncope Conference workshop in Sept 2018 and we will be involved in the Conference again next year.

For 2019 we are planning to:

Progress the Physiotherapy service for POTs patients:

- Exercise/Advice handouts to be available in FASU clinic for all staff
- Trial Physiotherapy led exercise classes in MISA once a month
- Get patient feedback on Physiotherapy POTs Service
- Establish level of Community services input for referred POTs patients
- SMC to establish what CPD in this area and attend course in 2019

Development of Physiotherapy role in Gait lab

- BM being trained up in FASU Codamotion Gait analysis software
- Several healthy controls have been assessed using software
- Plan to assess patient gait using Codamotion software in Jan 2018
- Plans ongoing for collaborative research project with TCD, Med Physics and Physiotherapy using Coda Motion software and older population with OH

### Collaboration with Home First

Home FIRsT are a Specialist Older Persons Team based in the Emergency Department that commenced in 2017. The team's aim is to facilitate the safe discharge of older people who would otherwise require hospitalisation. Comprehensive Geriatric Assessment begins in the Emergency Department with specialist nursing, functional, cognitive and social needs assessments. Close links with FASU are an integral part of the Home FIRsT patient pathway. 2019 will see the expansion of this service to include a team in the Emergency Department specifically for patients of all ages that present with syncope or falls.

### Falls and Syncope Clinic Metrics:

Summary of Attendances All Clinics (Professor Kenny / Dr Cunningham / Autonomic Clinic / Monitor ClinFalls and Blackout Unit: Monitor Clinic Falls and Blackout Unit:

<b>Autonomic Function Tests</b>	<b>29</b>
<b>Monitor Clinic</b>	<b>2,013</b>
<b>Carelink</b>	<b>2,026</b>
<b>Physiotherapy Clinic</b>	<b>45</b>
<b>Day Cases</b>	<b>2374</b>

### Activity 2018

### MPBE in Falls and Syncope Unit

#### Summary

The Medical Physics and Bioengineering team have a long-standing partnership with the Falls and Syncope Unit, since the opening of the original FASU in 2006. This partnership has continued to grow with MPBE involved in a number of ongoing initiatives spanning clinical service, research and innovation. 2018 has been a particularly successful year with new staff and student projects initiated, grants awarded, and publications and presentations on both national and international stages.

#### New Tools for Assessment of Falls and Syncope

##### *Introduction of Near-Infrared Spectroscopy Technology*

We welcomed Laura Perez Denia to the MPBE and FASU teams in 2017/2018 into a new role as a biomedical engineering research assistant based in FASU where Laura has been facilitating the integration of novel measures of cerebral perfusion into the clinic. This appointment is a first dedicated to integrating biomedical engineering directly into the Fall's and Syncope Unit team.

We'd also like to congratulate Laura who was awarded two prestigious grants from the Irish Research Council (€98k) and from the Agustí Pedro i Pons Foundation (€11k), Universitat de Barcelona to support her PhD based in School of Medical Gerontology and MISA. This research focusses on understanding how changes in brain blood flow as measured by near-infrared spectroscopy can be used in the management of disorders related to ageing e.g. falls, orthostatic hypotension, and syncope. Laura's PhD will study measurement and analysis methods of near infrared spectroscopy signals (NIRs) with a view to informing its clinical use in syncope and falls management. Data from the NIRS technology is proving to complement existing clinical tests and will be analysed for its potential added value in the diagnosis and further understanding of falls and syncope. This work is being conducted in close collaboration with Dr Paul Claffey, Ms Ciara Rice under the supervision of Dr Ciarán Finucane and Prof Rose Anne Kenny.



Figure: NIRS technology (forehead sensor) introduced into clinical testing in FASU (left).

Ambulatory NIRS and Gait Assessment technology (forehead sensor) introduced into research study in FASU (right).

### ***Ambulatory Monitoring of Gait and Cerebral Perfusion***

As part of our ongoing collaboration with Trinity Centre for Bioengineering, we also welcomed Ms Ailbhe O'Reilly (supervisors: Dr Ciarán Finucane; Dr Tim Foran) and Mr Seán McGrath (supervisor: Dr Ciarán Finucane), both Biomedical Engineering interns from Trinity College Dublin in 2018. Seán's project focussed on the design of a novel implantable blood pressure regulation device for the treatment of syncope and falls, with Ailbhe conducting a study on ambulatory measurements of cerebral perfusion and gait in older fallers. Ailbhe has since continued to develop this project in part fulfilment of her Master's degree in Bioengineering co-supervised by Dr Ciarán Finucane, Dr Tim Foran, Prof Kenny and Ms Ciara Rice.

### ***Novel Blood Pressure Monitoring Device***

As part of her MSc thesis under the supervision of Dr. Ciarán Finucane in August 2017, Ms Laura Perez recently validated a novel system for assessing neurocardiovascular instability in young and older adults in FASU that is intended to be cheaper and more convenient for wider clinical and community use than current technologies. This work was presented at the World Congress of Medical Physics and Bioengineering (Prague, June 2018), and at the Heart Rhythm Congress (Birmingham, October 2018), with an article also in preparation for publication in the IEEE Transactions on Biomedical Engineering.

### ***International Collaborations***

#### ***Schlegel Research Institute for Ageing, Waterloo, Canada***

Collaborative work between members of FASU and Schlegel Research Institute for Ageing in Waterloo continued in 2018 with a team from FASU including Prof Kenny, Dr Finucane and Dr Claffey invited as speakers at the 1st International Cerebral Hypoperfusion Summit in Ontario, Canada in 2018. Professor Hughson and Professor Heckman made a return visit to MISA and FASU in 2018. The Canadian team are now in the process of replicating the FASU model to serve the southern areas of Ontario.

## Teaching and Audit

Ciara Rice has organised the 7th International Syncope Training Days which had been increased to a 3-day event due to the demand –this was due to take place in Feb. /Mar but due to adverse weather had to be postponed until September, this event was sold out and took place in the MISA seminar room. The course directors are Professor Rose Anne Kenny and Dr Conal Cunningham. This was a well-attended and successful training event.

Training of both medical and nursing students occurs on an ongoing basis along with visiting nursing staff from centres in other hospitals where syncope units are in the early stages of development.

Audit occurs on an ongoing basis in the FABU, with particular focus on improving service provision.

Presentations to other departments within the hospital such as cardiology and emergency room staff occurs intermittently, as a means of providing training and developing awareness of the service, in addition to facilitating interdepartmental collaboration, both clinically and in terms of research.

A Clinical Case Conference occurs in FASU regularly. This is a forum for all staff in the FABU to present and discuss clinical cases and review literature relevant to falls and syncope.

Ciara Rice presented at the Euro Heart Care 2018 conference in Trinity College Dublin.

Facilitated International visitors to the Falls and Syncope as a model of care.

Professor Rose Anne Kenny and Ciara Rice were members of the European Task Force that published the new Syncope guidelines in 2018.

## Research

**Dr Triona McNicholas** is the Davis Coakley research fellow working as part of the TILDA team. She is undertaking a PhD under the guidance of Professor Rose Anne Kenny and her research focuses on cardiovascular ageing and autonomic function, and its impact on cognition and falls. Her work within the TILDA project has been presented at both national and international conferences and she has used her clinical experience in FASU in a publication on the management of vasovagal syncope. She also successfully completed the Diploma in Syncope and related disorders in the Royal College of Physicians.

**Dr Paul Claffey** is currently an Assistant Professor of Medical Gerontology in the School of Medicine and is also a TILDA fellow. He is currently completing an MSc in the area of near infrared Spectroscopy and syncope.

Over the last year, Paul was involved in the delivery of undergraduate teaching within the departments of Medical Gerontology and Clinical Medicine culminating in the final medicine examinations in April 2018. His role also involves the preparation of the university team for participation in the Jack Flanagan Medal Competition in Geriatric Medicine.



The Flanagan Medal winning team with Dr. Jack Flanagan's daughter Finola Flanagan.



Dr Paul Claffey, Professor Rose Anne Kenny and Professor Joe Harbison with the winning team.

This is an intervarsity Clinico-Pathological Case Presentation competition focusing on the care of older patients. The team comprising Tallula Dunne, Lydia Tan, Eleanor Gallagher and Sam Grennan were successful in winning the competition which was held at the RCSI in St. Stephen's Green in November 2018. Each received a medal, cash bursary and the team was awarded a new perpetual trophy fashioned from Dr Flanagan's original sphygmomanometer. The department now has the honour of hosting the competition in 2019.

Paul's clinical commitment is to the Falls and Syncope Unit at MISA. He is also undertaking a higher degree at Trinity College Dublin – investigating the role of near infrared spectroscopy in the evaluation of patients presenting to the Falls and Syncope Clinic.

He has represented both MISA and Trinity College in the delivery of lectures outside of his role in undergraduate teaching. He presented a lecture as part of the Foundation Course in Gerontological Nursing at MISA and as an invited speaker at the European Society of Preventive Cardiology in April 2018. He was part of a team from MISA to present at the Cerebral Hypoperfusion Summit at the Research Institute for Aging at the University of Waterloo, Canada in April 2018.

Over the last year, he graduated with a Diploma in Cerebrovascular and Stroke Medicine awarded by the RCPI, November 2017 and has completed courses in Osteoporosis and other Bone Related Disorders at Merton College, Oxford organised by the UK Bone Research Society. (March 2018).

He is a member of the MISA Education and Training Committee within Mercer's Institute at St James's. He was part of the organising committee for a "Biostatistics for Healthcare Professionals" course which was held in May 2018.

Paul is an advisor to the editorial team of syncopedia.org – a new educational web resource dedicated to the delivery of high quality education on syncope and its physiology. This is in collaboration with Prof W. Wieling and colleagues at the Academic Medical Centre, Amsterdam.

# Neurovascular Service

Hyper acute stroke unit has increased capacity to include pre and post partum pregnant mothers and tracheostomy patients with collaboration from Tracheostomy Service and Nurse Practice Development Unit NPDU.

The National Stroke Nursing Education Conference took place November 2018 and was fully subscribed and the feedback was very positive.

National MDT SCOPE Education Day planned for February 2019.

Dr. Ruth McDonagh is the current Stroke Research SpR and is currently researching Bone Metabolism in Stroke patients for her PhD.

Dr. Paul Claffey, Gerontology Registrar presented in April 2018 as an invited speaker on SURF -A new audit tool for secondary prevention in Stroke.

Contributed to the National Register of Stroke Care with KPI'S in Thrombolysis and Swallowing post stroke.

We continue to provide stroke information sessions for the public.

We support the placement of students undertaking the Diploma in Stroke and are part of a focus group looking at converting the Diploma in Stroke to Master's level.

## **TUDA Study**

**Principal Investigators:** Dr Conal Cunningham, Dr Miriam Casey, Dr Kevin McCarroll, Prof Anne Molloy.

The TUDA (Trinity, Ulster, Dept of Agriculture) study is the largest cross-sectional study of its type on the island of-Ireland. It represents collaboration between the *Mercer's Institute for Research on Ageing*, *MedEL Directorate* at St James's Hospital, Dublin, *Trinity College Dublin* and the *Nutrition Innovation Centre for Food and Health* (NICHE) at the University of Ulster.

The TUDA study database comprises 5186 community dwelling adults aged over 60, defined by three distinct disease cohorts and recruited between December 2008 and September 2012. Those with Osteopaenia / osteoporosis (n=1394) and cognitive impairment (n=1699) represent the respective Bone and Cognitive cohorts and were recruited from St James's Hospital, Dublin. Those with high blood pressure comprise the Hypertensive cohort (n=2093) and were recruited from GP practises in Northern Ireland.

TUDA provides a rich source of detailed clinical information profiling patients medical history, psychosocial and mood status, nutrition, frailty and functional level. In particular, unlike many other studies participants undertook comprehensive cognitive assessments that included the RBANS (Repeatable Battery for the Assessment of Neuropsychological Status) providing very valuable information on cognitive status across multiple domains in an ageing population.

Importantly, numerous serum biomarkers have been measured and blood has been biobanked for future genetic analysis. Already, vitamin D polymorphisms have been profiled for the TUDA population. As the cohorts are disease defined, it provides a unique insight into the potential role and interaction of several pathogenetic factors including nutritional, genetic, health and lifestyle in the development of common diseases of ageing.

TUDA is one of the largest and most comprehensively characterised cohorts of its kind in the area of ageing research and will continue to be a source for much research into the future.

### **TUDA 5+**

The above study represents the longitudinal component of TUDA and is composed of a subgroup of participants in the Bone and Hypertensive cohort who were re-assessed approximately five years after first study entry. Recruitment for TUDA 5+ has now been completed and comprises 1000 subjects. Four hundred were recruited between April - Dec 2018 at the Mercer's Institute for Successful Ageing and a further 600 by our colleagues at the University of Ulster.

Importantly, all study subjects have had all of the original assessments repeated and in addition further more detailed information on dietary intakes were obtained. TUDA 5+ now provides a great opportunity to explore prospectively for determinants of age related conditions such as cognitive decline. As both initial and follow up blood samples in TUDA have been bio-banked, genome analysis and exploration of novel bio-markers can be undertaken.

### **VALID**

*Valerolactones and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolic status and inflammation with cognition in older adults*

An important study arising out of TUDA 5+ is VALID: Valerolactones and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolic status and inflammation with cognition in older adults. The VALID study aims to determine the potential role of catechin/procyanidin-rich foods in preventing cognitive decline over a 5-year follow-up period using data from TUDA 5+.



VALID is a collaboration between TUDA partners (Mercers' Institute for Research on Ageing, Trinity College Dublin & University of Ulster) and the University of Parma, Italy.

The VALID Project is supported by the EU Joint Programming Initiative 'A Healthy Diet for a Healthy Life' through participating organisations local funding agencies.

To date, work on validating serum Valerolactones on blood samples from subjects in TUDA 5+ is being undertaken by our partners at the University of Parma. In addition, an analysis of the association between Valerolactones and cognitive decline is due to be completed this year (2019).

VALID is the by far, the largest study to date to validate serum Valerolactones levels and to explore for potential effects on cognitive function.

## **TUDA Publications**

### **Cognitive Function and Obesity**

Dr Onte Nthlong examined the association between adiposity and cognitive function in participants of TUDA with findings being published in the British Journal of Nutrition in September 2018. The study analysis included over 5000 subjects comprising all three TUDA cohorts and found a significant and consistent negative association between abdominal fat as measured by waist hip ratio and cognitive performance (independent of body mass index) across a number of cognitive domains.

Of interest, increasing body mass index had no negative effect on cognition suggesting that potential adverse effects may be more mediated by central abdominal or visceral fat. Studies in animal models show that visceral fat is most metabolically active and appears to be involved in the synthesis of numerous adipocytokines with pro-inflammatory properties such as IL-6 and TNF. These may pass the blood brain barrier and contribute to cognitive dysfunction and neuronal damage over prolonged periods of time.

The findings add to the importance of both the individual as well as the public health message of preventing and addressing obesity, as way of combating against disease in later life. Importantly, it suggests that preventing excessive abdominal weight or "belly fat" may be a strategy in reducing dementia incidence. The study results were widely reported in the international media including in the UK (London times, Daily Mail, Spectator), USA and in Asia. It also featured on RTE news media.

### **Vitamin B deficiency and Cognitive dysfunction**

Metformin use and lower levels of vitamin B12 were both associated with poorer cognitive performance in an analysis of the entire TUDA cohort. In addition, hyperglycaemia was linked to lower levels of serum vitamin B6. Study findings are currently in the last stages of peer review.

### **Mercer's Glanbia Fellow**

A senior post graduate researcher has been appointed to the above position and is due to commence their role at the Mercer's Institute in early 2019. The position was made possible through funding arising from research grants from Glanbia Plc and the Mercer's Hospital Foundation.

The Mercer's Glanbia Fellow will explore the determinants of vitamin D deficiency in a large cohort of patients who had serum vitamin D levels measured at St James's Hospital. In particular, The Fellow will look in detail and prospectively at the relative importance of a variety of factors including environmental, ethnic, dietary, psychosocial and medical in influencing vitamin D status.

Furthermore, a retrospective analysis will be conducted of approximately 40,000+ Vitamin D sample results obtained at the St James's biochemistry laboratory over the past several years. In particular they will examine for trends in the prevalence of vitamin D deficiency and insufficiency by age, gender, ethnicity and geographical location.

### **The Irish Longitudinal Study on Ageing (TILDA)**

The role of research in responding to the challenges and opportunities of an ageing society requires a multidisciplinary and integrated approach. TILDA is a large-scale nationally representative study of more than 8,500 people aged 50 and over, and it is the most ambitious study on ageing. TILDA, through its extensive database of the health, social and economic characteristics of older persons in Ireland, is establishing a comprehensive and accurate picture of the ageing process, including prevalence and incidence of disease; physical, mental, cognitive, behavioural and biological health; the socio-economic determinants of health and wellbeing; and the underlying genetic factors that influence or are influenced by the ageing process.

2018 was characterised by a focus on research excellence, the translation of research for policymakers, non-governmental agencies, healthcare practitioners, institutions of higher learning, industry, and the general public. This has resulted in policy impacts and changes to clinical practices, in addition to ongoing contributions in the areas of teaching, learning, healthcare provision, technological innovation and national/international collaborations.

### **TILDA Research Highlights:**

#### **Wave 4 Report**

In 2017 TILDA released its Report on the analysis of the data collected at Wave 4 <https://tilda.tcd.ie/publications/reports/pdf/w4-key-findings-report/TILDA-Wave4-Key-Findings-report.pdf>. This report includes current status at Wave 4 and changes that occurred between Wave 1 (conducted in 2009-2011) and Wave 4 (conducted in 2016), in quality of life, social engagement, physical and brain health, living conditions, health care cover and utilisation. A consistent theme for this report is the benefit that social engagement, volunteering and friendships convey on quality of life, mental and physical health and wellbeing.

The reports highlights how prevalence of chronic conditions and outcomes such as falls and fracture increase over time due to advancing age but there are opportunities to improve health through modifying health behaviours. However self-rated health appears to be improving in those under 75 years, for example, the proportion of 65-74 year olds reporting fair or poor health declined from 23% to 16% between Waves 1 and 4. As expected with an ageing population, the same period saw an increase in the prevalence of many health conditions, including any falls (20% to 52%), arthritis (26% to 39%), osteoporosis (9% to 17%), cataracts (9% to 14%), hypertension (35% to 38%), diabetes (8% to 11%), wrist fractures (12% to 14%), heart attacks (4% to 6%), transient ischaemic attacks (2% to 4%), lung disease (4% to 5%) and strokes (1% to 2%). For some conditions, there was a spike in incidence at Wave 2, possibly due to the effects of feedback after the Wave 1 health assessment, however incidence was consistent thereafter.

Analysis of the data showed the number of current smokers declined, mostly driven by the reduction observed in women aged 50-64 years (from 24% at Wave 1 to 17% at Wave 4). Of concern was only 52% of adults at Wave 4 achieved the target of 150 minutes of brisk walking per week, down from 62% at Wave 1. Modifying these health behaviours would not only improve physical health but also psychological health, highlighting the importance of recent legislation and policy initiatives which target improvements in these areas.

Frailty, while common and often associated with negative consequences, is not an inevitable condition and early recognition of risk factors can help avoid, delay and reverse frailty. The prevalence of frailty in adults aged 50 years and over in Ireland is almost 13% which is equivalent to 160,000 adults. The prevalence of pre-frailty is 31%, equivalent to 370,000 adults. However, frailty is not inevitable; it is a dynamic process in which a person can transition in both directions between the different states of frailty, namely robustness, prefrailty (an intermediate state) and frailty – almost one third transitioned from frailty at Wave 1 to pre-frailty at Wave 4. In TILDA, adults most at risk of becoming frail are more likely to be older, female, widowed, living alone and with lower educational attainment. Of note, and consistent with the benefits to overall health and wellbeing, forms of social engagement such as emotional support and volunteering have been shown to be protective for the development of pre-frailty and frailty respectively. TILDA is currently developing new research strategies for early identification of risk factors, thus allowing timely and appropriate interventions to help avoid, delay and reverse frailty. Since 2017, TILDA has delivered a one-day frailty education programme, run in conjunction with the National Clinical Programme for Older People (NCPOP). The purpose of this education day is to Wellbeing and Health in Ireland's over 50s 2009-2016 train healthcare professionals to understand the risk factors for frailty enabling them to implement programmes for early detection, prevention and management.

The Wave 4 report examined cognitive functioning across the waves and determined that participants continue to perform well at core cognitive tests, assessing global cognition, memory and executive function, at an average of six years follow-up. Where a decline did occur, the changes were small and predominantly evident in those aged 75 and older. For example, this age group recalled 1 word less at Wave 4 compared to Wave 1 in the delayed recall task; they named 4 fewer animals at Wave 4 in the verbal fluency test and the success rate in the prospective memory test dropped from 53% at Wave 1 to 40% at Wave 4. This is consistent with international evidence, which suggests acceleration in cognitive decline, at least in some domains, from age 75-80 years onwards. Only 7% of adults felt that their memory was continuously declining at each wave and they had a slightly larger decrease in delayed word recall, verbal fluency and global cognitive scores over the four Waves.

The Wave 4 report concludes with a chapter on healthcare utilisation. From examining participants use in the context of changing health policy and spending it was determined that there were a number of changes. For example, the proportion of those 70 and over with a medical card dropped from 90% at Wave 1 to 74% at Wave 4 after a means testing system for this age group was introduced in January 2009 and the threshold decreased during subsequent Budgets. Similarly, the proportion with a GP visit card increased from 1% to 19%, likely attributable to the introduction of the universal GP visit card for the over 70s in 2015. The proportion of participants accessing dental care decreased at Wave 4 compared to Wave 1 (11% to 9%), most notably in those who were frail (17% to 11%); this followed a number of cuts to dental care entitlements.

Overall, there was no change in the rate of purchasing private health insurance among older adults in Ireland (54-57% at each wave) with no difference in cover between age groups at Wave 4. Medical care utilisation increased between Wave 1 and Wave 4 including GP visits (87% to 92%), Emergency Department visits (15% to 18%), outpatient clinic visits (41% to 44%) and overnight admissions (12% to 16%). The average number of nights spent in hospital also increased from 1 to 2 nights. These changes are mostly driven by changes observed for older adults with frailty (e.g. overnight admissions increased from 23% to 31%; average number of nights more than doubled 2.7 to 6.5 nights) although the proportion with at least one outpatient visit fell from 69% to 59%).

Overall, the proportion accessing community services (e.g. respite, day centre, meals on wheels, occupational therapy or community nursing) is low at  $\leq 6\%$  and shows minimal change across the waves although home help provision or personal care provision increased marginally (2% to 4%). However, the characteristics of users of the home help service changed – 19% of users had limitations in activities of daily living (ADL) and instrumental activities of daily living (IADL) at Wave 1 compared to 41% at Wave 4. This is most likely attributable to a 2012 policy change, where the HSE changed the criteria from providing ‘domestic help’ to providing ‘personal care’. Conversely, informal care (i.e. care from family or friend) increased substantially from 5% at Wave 1 to 9% at Wave 4. The reasons for this increase require further study but it suggests that the burden of care was transferred from the state to the families during this period.

### Grants

TILDA had a very successful year attracting funding. Of particular note an EIT grant for nearly €1.5 million was secured to conduct a clinical trial of an implantable device for attendees at the falls and syncope unit with a history of recurrent falls. This will commence in January 2019. Two researchers, Peter May and Lorna Roe successfully applied for Applying Research into Policy & Practice (ARPP) Postdoctoral Fellowships which will also commence in 2020. A Knowledge Exchange Fund grant was also awarded which will enable this aspect of TILDA’s work to grow and utilise modern technologies. TILDA submitted eight grants under various award schemes and await the outcome of the reviews of these.

### Awards

The HSE National Programme for Older People won a prestigious ICON award for the Frailty Education programme in which TILDA is a key partner.

### TILDA Tweets

TILDA contributes in many ways to the public discourse on retirement and ageing. Twitter and radio were two very successful avenues in 2018. Thanks to the social media expertise of Deirdre O’Connor, one of the long-standing TILDA team members, the TILDA Twitter account had a very active year in 2018. 84 tweets, 195,522 unique impressions 6575 engagement 664 retweets. 1,208 likes, 818 user profile clicks, 988 url clicks, 72 hashtag clicks, 859 details expands, 4138 media views, 1939 media engagements. Professor Kenny made a number of appearances on the Pat Kenny Show on Newstalk FM to discuss age related topics and answering listeners’ questions.

## Strategic Partnerships

TILDA furthered its development of strategic partnerships in 2018 including with the GAA and Irish Rail. The work with both of these organisations will expand the knowledge transfer project which is gathering momentum.

## Knowledge Transfer

TILDA increased the work in this area in 2018. Over 180 libraries were agreeable when approached about displaying TILDA infographic posters in their Healthy Ireland area. Professor Kenny delivered a public talk in TCD on How to Age Well: Evidence from TILDA as part of positive ageing week. This was attended by over 200 people on the night and a recording of it was uploaded onto YouTube. The GAA agreed to partner with TILDA on a Public Talks Series in 2019 and distributed the infographics to over 400 attendees at a healthy club's conference.

## Plans for 2019

- Hold a Scientific Advisory Board meeting in the West of Ireland
- Successful commence operations of the EIT grant
- Commence a national Public Talks Series in partnership with the GAA
- Hold a policy conference by the end of the year
- Commence a webinar series with separate workshops aimed at researchers, professionals and members of the public
- Continue to deliver the Frailty Education programme in conjunction with HSE National Office for Older People

Be a core member of a national Frailty Network.

## Education and Training

Cora O'Connor was the MISA Education and Training Coordinator up until her move to Mayo General Hospital in December 2018. We are hugely indebted to Cora for her incredible commitment to Education and Training and for her lead role in so many of the conferences, courses and teaching days in MISA in 2018. We wish her every success in our new post in Castlebar. A MISA education and training steering group acts as an advisory role on upcoming programmes of education to be developed and held in MISA. The steering group consists of Professor Conal Cunningham, Professor Rose Anne Kenny, Ms. Carol Murphy, Ms. Joe Donlon, Ms. Kara Fitzgerald, Ms. Cora O'Connor, Mr. Matthew Gibb, Ms. Niamh Murphy, Dr Gerard Boyle, Ms. Roisin Nevin, Dr Ann Hever, Dr Triona McNicholas and Dr Paul Claffey. The group meets quarterly.

## Training & Education Events in 2018

A Foundation course in Gerontological Nursing run over five days was held in MISA in January 2018. The course was fully subscribed and attended by 40 registered nurses from many speciality areas including the community, acute care, rehabilitation and residential settings. The course aims to: develop the knowledge required to meet the complex needs of older people in care settings such as acute, residential, rehabilitation and the community and to develop the skills the nurse requires

to function as an integral part of the multidisciplinary team caring for the older person. The course is lecture and workshop based. Participants are assessed at the end of each course by multiple-choice questions and by submitting a case study. This course has received Category 1 approval with the Nursing & Midwifery Board of Ireland for 32.5 CEU's and accreditation with the Trinity Centre for Practice and Healthcare Innovation at the School of Nursing and Midwifery, Trinity College, Dublin.

### **Biogerontology for Clinicians International conference**

#### **- 16th & 17th February 2018**

This two-day Biogerontology Conference gave practising clinicians an understanding of: the biological mechanisms that underlie ageing and the immune system, ageing and the cardiovascular system; ageing and the brain; and potential therapeutic strategies that address ageing.

The aim of this event was to put recent advances in biology in context within the pathology of ageing. The event brought together leaders in ageing from academic, clinical and industrial settings with a passion for the subject which generated meaningful collaborative, translational approaches with significant potential strategic value to service users. The number of registered participants attending was 93.

### **Home FIRsT community outreach training Workshop on 9th March 2018**

Home FIRsT are a Specialist Older Persons Team based in the Emergency Department, in St James's Hospital. The team consists of a cANP for Older Persons, Clinical Specialist Occupational Therapist, Clinical Specialist Physiotherapist and Senior Medical Social Worker. The team's aim is to promote admission avoidance and facilitate the safe discharge of older people who would otherwise require hospitalisation. Comprehensive Geriatric Assessment begins in the Emergency Department with specialist nursing, functional, cognitive and social needs assessments.

This workshop aimed to enable a multidisciplinary clinical audience to develop their knowledge on whole systems approach to older persons care and understanding and manage frailty syndromes in the emergency, acute and community settings. It also aimed to strengthen the links between professionals in the community and hospital working with older people and allow for continued communication pathways/networks to be developed going forward.

The learning objectives for the event were to:

- Bring professionals from the hospital and the community setting together to create a space to share experiences and consider models which support best practice principles for integrated older persons services
- Gain information about Home FIRsT: A specialist older person's team based in the Emergency Department
- Learn about the clinical role of each member of the interdisciplinary team in assessing and intervening with this frail older population

100 participants registered to attend the event.

### **Medicine, Law and the older person conference on 13th April 2018**

This one-day event provided an overview of medico legal topics. The prominent speakers and sessions were chosen to reduce gaps in knowledge and to address areas of increasing concern for doctors, including: ethics, Ward of court and enduring power of attorney, Negligence, The Medical Witness, The Coroners Court, Consent, Medical Council complaints, Report writing and Nursing home support scheme. This course is designed for medical doctors working with older people with an interest in the medico legal area. The course equipped doctors with the vital knowledge of the main core medico legal aspects of healthcare. The course was lecture style with workshops in the afternoon.

The objectives for the course were:

- To equip participants with the vital general knowledge of the main core medico legal aspects of healthcare when working with older people
- Identify recent changes in law in relation to healthcare
- Discuss the importance of accurate report writing
- Identify the key components of the Coroners Court, Medical Council Complaints and Ward of Court and Enduring power of attorney

There were 92 attendees.

### **An introduction to Biostatistics for healthcare professionals on 18th May 2018**

Biostatistics involves the statistical processes and methods applied to the collection, analysis, and interpretation of biological data, in particular data relating to human biology, health, and medicine. This study day was designed to teach NCHDs, Registered Nurses, Allied Health and Social Care Professionals the basic principles of biostatistics. The purpose of the event is to give participants an introduction to the discipline, providing an overview of the main concepts of biostatistics and to develop basic critical appraisal skills to assess the quality of research evidence of publications. A 1-hour workshop was held for participants to discuss their own research. This study day offered a stepping stone to attending more advanced biostatistics courses if required. This event provides an overview of research methods, the research process, sampling, research designs and an introduction to inferential statistics. 60 people attended the event.

### **Falls and Syncope Training event (rescheduled) 13th and 14th September**

(Ciara Rice will discuss in FASU section)

### **MDT Clinical Skills Fair – theme older person care 26th September**

The skills fair is a type of informal learning, where all healthcare workers (of all levels) came and learned about topics related to older persons. Attendees were invited to call into the fair and visit the various stations on delirium, frailty, The Longitudinal Study on Ageing (TILDA), incontinence, dementia, polypharmacy, end of life care, PJ paralysis project, cognition – compensatory strategies, low vision -self management, falls, lying and standing blood pressure technique, nutrition, communication, dysphagia, tissue viability, seating, stroke, RIG/PEG feeding, fluid thickening and swallow deficiencies, community supports, grip strength/ timed up and go.

There were 74 attendees during the 2-hour event.

# Medical Physics & BioEngineering

The Medical Physics and Bioengineering Department (MPBE) continues to support and advance patient care in MISA. The core MPBE team at MISA comprises Dr. Gerard Boyle, Dr. Tim Foran, Dr. Ciarán Finucane, Dr. Chris Soraghan, Dr. Mindaugas Norkus and Ms. Laura Perez Denia, PhD student.



Medical Physics and Bio-engineering team

Central to the work of the team is the Biomedical Engineering Lab which houses and facilitates the continual growth of innovation and research. The Biomedical Engineering lab at MISA provides a space for engineering concepts and skills to be applied to clinical and research problems in medicine, with a particular focus on older age. The lab is hosted by Mercer's Institute for Research on Ageing (MIRA) and the Dept. of Medical Physics and Bioengineering (MPBE) at St. James's Hospital. The unique attributes of the lab are its integration with and physical proximity to the working life of a large acute hospital. This allows engineering and medicine to work together close to the point of care. In this way, medical and engineering effort can be combined and focused on identifying and solving problems that are of real concern to patients and clinicians.

The Biomedical Engineering lab hosts hospital personnel and visiting postdoctoral, postgraduate and undergraduate students working on clinical projects with a technological or engineering science component. The MISA lab is equipped to support electronic prototyping, software development, data analytics, optics development, system modelling and 3D printing.

## Eye Tremor Research

A number of significant milestones have been achieved in the last year by the team working on the Enterprise Ireland funded eye tremor project. For the first time at MISA, a locally designed medical device was progressed formally through regulatory processes, with the new eye tremor device being granted a HPRA 'letter of no objection'. This is an important step in technology development capability at MISA, as passing this stage allows a device to be used in clinical trials that will ultimately lead to regulatory compliance necessary for commercialisation.



The 'itremor' team, from left to right: Dr. Gerard Boyle (PI), Mr. David van Zuydam and Dr. Mindaugas Norkus at the Enterprise Ireland 'Big Ideas' event in Sept 2018.

The device was used 'in the field' for the first time in December, as part of an investigation into the utility of eye tremor measurement in assessing head injuries outside of a clinical environment. The team has been collaborating with the 'Concussion Research Interest Group' (CRIG) at TCD investigating the changes in eye tremor in a cohort of Mixed Martial Arts (MMA) fighters after sustaining head impacts.

The Intellectual Property (IP) protection process surrounding the technology has been started with the first patent application filed in August. The technology has started on a pathway to commercialisation through the TCD spin out process. The commercialisation effort is being led by Mr. David Van Zuydam, a business expert who joined the project from Enterprise Ireland mentor panel.

## Local Asset Mapping Project (LAMP)

Technical Development of the LAMP portal was completed in December 2018, under funding received from eHealth Ireland. The portal provides a mechanism for clinical staff to generate 'social prescriptions' of local non- medical services to support patient health and wellness. A governance group has been convened to oversee testing of the platform in clinical scenarios at SJH.

## Cerebral Perfusion in Disorders of Ageing

The introduction of NIRS technology into MISA has enabled several research avenues to be explored in understanding how changes in brain blood flow as measured by near infrared spectroscopy can be used in the management of disorders related to ageing e.g. falls, stroke. Currently analytical methods are being developed to capture and process the signals acquired during clinical tests with a PhD (Laura Perez Denia) and Masters (Ailbhe O'Reilly) projects ongoing in this area (See FASU section of report).

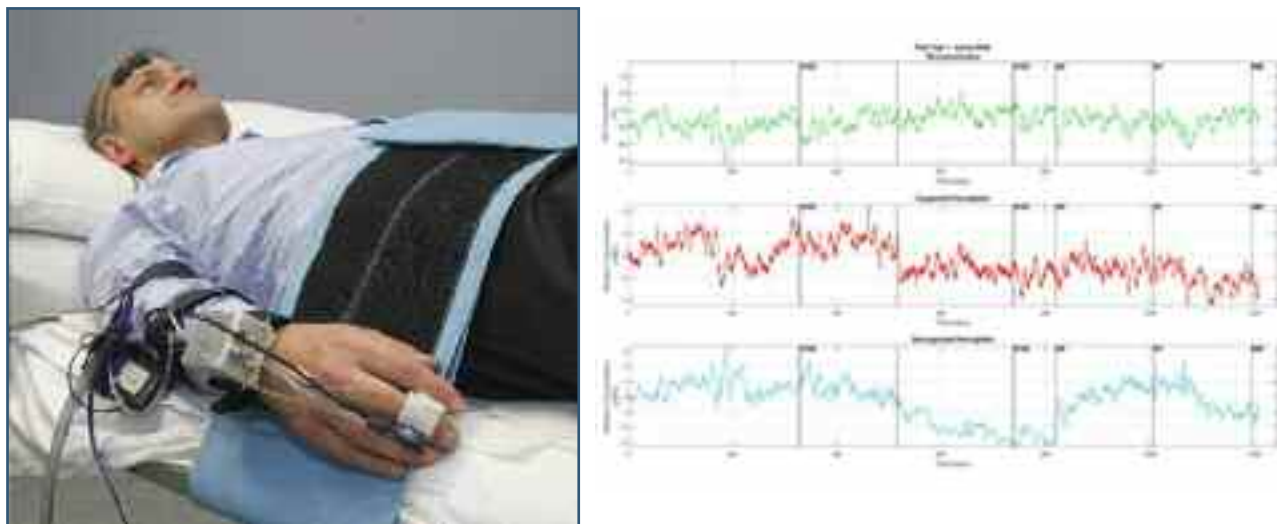


Figure: Cerebral Perfusion NIRs forehead Sensor (left). Typical Patterns of Cerebral Oxygenation (right).

We'd like to congratulate Laura who was awarded two prestigious grants from the Irish Research Council (€98k) and from the Agustí Pedro i Pons Foundation (€11k), Universitat de Barcelona to support her PhD based in School of Medical Gerontology and MISA. This research focuses on understanding how changes in brain blood flow as measured by near-infrared spectroscopy can be used in the management of disorders related to ageing e.g. falls, orthostatic hypotension, and syncope. Laura was also awarded a rapporteur role at the international 'Schrödinger at 75—The Future of Biology' conference held at the NCH in 2018 (<https://vimeo.com/296020199> - time 29:34).

## Falls and Syncope Service

The Medical Physics and Bioengineering team have a long-standing partnership with the Falls and Syncope Unit, since the opening of the original FASU in 2006. This partnership has continued to grow with MPBE involved in a number of ongoing initiatives spanning clinical service, research and innovation. 2018 has been a particularly successful year with new staff and student projects initiated, grants awarded, and publications and presentations on both national and international stages (see FASU section of this report for more details).

## Neurocardiovascular Research

The team continues to collaborate with Prof Rose Anne Kenny, the TILDA Longitudinal Study on Ageing, and FASU on translational neuro-cardiovascular projects. The aim of this collaboration is to further explore insights into physiological mechanisms that lead to falls, faints, cognitive impairment and other age-related issues. The location of the Engineering Lab within the MISA building facilitates a translational activity that has seen population validated measures applied in clinical cohorts in FASU (e.g. delayed recovery).

## **Redefining Initial Orthostatic Hypotension in Older Adults**

In collaboration with researchers from TILDA, the MPBE team has been examining the clinical importance of initial orthostatic hypotension as a risk factors for clinical outcomes in older adults. Our results suggest that contrary to current evidence, very large initial BP drops are not useful clinical biomarkers for unexplained falls or injurious falls in older adults. This would suggest that current definitions of IOH may require refinement when applied to older adults. This work was recently presented at the British Geriatric Society Autumn meeting with colleagues from TILDA with a paper currently in preparation.

## **Falls and Bone Health Research**

A validation study exploring Mandible Ultrasound as a Novel Screening Approach for Osteoporosis suggest that ultrasound of the mandible can differentiate between subjects with osteoporosis and an age matched healthy control group, demonstrating its potential as a novel screening tool for osteoporosis in the community. The study was led by Dr. Anna Beattie and Prof Stassen (School of Dentistry), with findings recently presented at the IGS.

## **International Collaborations**

### ***Amsterdam Medical School Collaboration***

As part of our ongoing collaborative work with our European partners led by Prof Wouter Wieling and colleagues from the Amsterdam Medical Centre, Dr Finucane recently co-authored an article examining the hemodynamic mechanisms of orthostatic hypotension and its variants in a clinical setting. A further paper with this group, coauthored by Dr. Finucane, Dr Soraghan and Prof Kenny is now in review with Clinical Autonomic Research.

### ***Schlegel Research Institute for Ageing, Ontario, Canada***

Collaborative work between members of FASU and Schlegel Research Institute for Ageing in Waterloo continued in 2018 with a team from FASU including Prof Kenny, Dr. Finucane and Dr. Claffey invited as speakers to the 1st International Cerebral Hypoperfusion Summit in Ontario, Canada in 2018. Professor Richard Hughson (Senior Director of Research, Res. Institute for Ageing, and Chair in Vascular Ageing and Brain Health) and Professor George Heckman (Chair in Geriatric Medicine, University of Waterloo) made a return visit to MISA and FASU later in November 2018 to further promote links between MISA and the Canadian centres.

### ***Industrial Collaborations***

Discussions were opened in 2018 with a number of potential industrial partners, with a view to establishing collaborations on the clinical investigation of specific technologies with applications in falls and syncope and stroke assessment (MPBE leads: Dr C Finucane; Dr G Boyle).

### FASU 3D Gait Laboratory

Dr. Tim Foran in conjunction with SJH Physiotherapy Dept. (Ms. Blathnaid Mealy) continued work in the 3D gait laboratory to establish normative data from a healthy control group. This valuable training and familiarisation with the technology and lab environment has enabled 3D gait assessment to be carried out on specific MISA patients.



Figure: 3D assessment of gait in healthy control group.

### Design Activities

‘Design Week’ is an annual event run by staff at MISA/MPBE that promotes the application of engineering design to the solution of real clinical problems identified by SJH staff. The HSE committed €3,000 from the National Doctors Training and Planning program (NDTP) to help translate the best ideas from Design Week into practice.

The 3D printer at MISA was a very active design resource in 2018. The printer was used experimentally for the first time at SJH in creating a cosmetic prosthesis, a process traditionally done by hand. Using the 3D printer in this application and has the potential to significantly improve the patient experience by reducing the number of visits necessary.

MPBE collaborated with Occupational Therapy (Bronagh Flynn) in hosting a 12-week 3D printing project with bioengineering undergraduate students from TCD. Students had to create 3D printed designs to solve design issues put forward by Occupational Therapy in MISA. Students presented their final designs to Occupational Therapists and engineers in the MISA seminar room in April 2018. Designs ranged from improving eating practice for patients with reduced mobility and dexterity, to devices to improve patient comfort for patients in the late stages of dementia.

### **SJH Campus Guide App**

The App was officially launched in March 2018 to help with wayfinding, of particular interest for navigating around our organic campus. It includes a number of videos for getting from A to B and was developed between Clinical Photography and MPBE based in MISA.



SJH Campus Guide App.

### **Bio engineering student projects**

As part of our ongoing collaboration with Trinity Centre for Bioengineering, we welcomed Ms Ailbhe O'Reilly (supervisors: Dr Ciarán Finucane; Dr Tim Foran) and Mr Seán McGrath (supervisor: Dr Ciarán Finucane), both Biomedical Engineering interns from Trinity College Dublin in 2018. Seán's project focused on the design of a novel implantable blood pressure regulation device for the treatment of syncope and falls, with Ailbhe conducting a study on ambulatory measurements of cerebral perfusion and gait in older fallers. Ailbhe has since continued to develop this project in part fulfilment of her Master's degree in Bioengineering co-supervised by Dr Ciarán Finucane, Dr Tim Foran, Prof Kenny and Ms Ciara Rice.

Caitlin McFeely (DCU Physics with Biomedical Sciences student) completed a 4-month placement in MPBE in MISA to further develop a non-intrusive falls sensor, supervised by Dr. Chris Soraghan and Dr. Tim Foran (Feb-June 2018).

### **Falls Technology Awareness**

MPBE took part in promoting vigilance and management of falls during Falls Awareness Week at SJH in November 2018. During the week MPBE also presented and demonstrated falls-related technology used in MISA and other wards to staff across the hospital.

### **National Stroke Nursing Conference 9th November**

This national conference provided registered nurses with an overview of acute stroke management and the care and management of a person with a stroke. This event provided an overview of: the anatomy & physiology of stroke and stroke syndromes, acute stroke management, Thrombectomy, sexuality post stroke, smoking cessation, carotid disease, atrial fibrillation, oral hygiene, stroke support groups and the National Stroke Programme.

There were 107 attendees – all of whom were registered nurses from across Ireland.

### **Local Asset Mapping Project (LAMP)**

LAMP has continued to promote social prescribing in Ireland in 2018, hosting a regional meeting of the Social Prescribing Network of the UK and Ireland at MISA in March 2019.

LAMP's strategy will be to integrate with the governance of St James' Hospital in 2019 and use the online directory of services as a clinical tool at point of care in St James' Hospital clinics.

The next Watts Fellow will research the area of social prescribing in Ireland, and its impact on older people.

### **The Dementia Services Information and Development Centre (DSIDC)**

A national organisation committed to best practice in all aspects of dementia care. Our mission is to improve the quality of life and care for all those affected by dementia.

In January 2018 Matthew Gibb and the DemPath Team were the proud recipients of an award for a European Foundation Initiative on Dementia (EFID) for the St James's Hospital Wayfinding project. The award ceremony took place in Sofia, Bulgaria on 22nd and 23rd January 2018.

Early in 2018 the DSIDC was commissioned by the National Dementia Office (NDO) to develop a guidance document to assist Health and Social Care Professionals establish post-diagnostic psychoeducational interventions for people diagnosed with a dementia and their care partners. The document was submitted to the NDO late 2018 and the launch of the guidelines will take place on 18th January 2019.

In April 2018 the DSIDC, jointly with MISA and the Memory Clinic, organised and facilitated "Medicine, Law and the Older Person" training day. In June MISA and the DSIDC co-hosted the 8th Annual Memory Clinic conference. The theme of the conference was "Strategies for Preventing Dementia" and explored ways in which we could potentially improve outcomes for the person with dementia and those at risk.

In November the DSIDC and MISA, Creative Life, in association with the National Gallery of Ireland presented "One Thursday at the Gallery". The event brought together expert speakers and practitioners who explored the extraordinary impact that the arts can have on the lives of those people who are living with a dementia. Throughout the year DSIDC staff presented at the Alzheimer Europe conference in Barcelona, the Sonas annual dementia conference and attended several national events including, the IGS in Cavan and the launch of the Dementia Friendly Hospitals

Design Guidelines at the National Disability Authority in Dublin. Towards the end of 2018 staff from the Centre took part in an Interdisciplinary Skills Fair hosted by MISA, a Cognitive Rehabilitation master class and a Round Table discussion on Advocacy at Croke Park. In November the St James's Hospital DemPath project and the DSIDC launched *"Supporting the Person with Dementia in Hospital"*.

This handbook, officially launched by CEO Lorcan Birthistle and Anna deSiún of the NDO, was written to provide practical information and advice to staff working in clinical settings caring for people who have a cognitive impairment, dementia or delirium.

DSIDC staff continued to provide education to healthcare professionals nationwide which included an in house programme of dementia specific workshops. In January the DSIDC played an active role in planning and participating in the Gerontological Foundation Day. In June staff from the DSIDC were involved in the launch of the DemPath online dementia education programme and are collaborating with the National Dementia Office and the PREPARED project, a national GP and primary care initiative, in developing an online education programme for allied health care professionals. During 2018 staff from the Centre attended the facilitators training for the new 'Understanding Dementia: Homecare Education Programme. This programme has been designed by Dublin City University and the HSE for home helps/homecare workers and homecare managers and coordinators. DSIDC will be delivering this training alongside our own education programme.

The DSIDC continue to play an active role on the Dementia Friendly Hospital Guidelines Committee, the Post-diagnostic Support Pathways Steering Committee and the National Dementia Strategy Monitoring Group. Towards the end of 2018 the DSIDC was invited to join the Dementia Understand Together campaign to examine ways in which Libraries Ireland can encourage local libraries to become more dementia inclusive. A focus group of library staff has already met and pilot training schemes for library staff have been planned for 2019.

# Dementia Pathways Programme (DemPath)

## Overview of the DemPath Project

The DemPath Project is a pan-hospital project led by Professor Lawlor. The Project commenced April 2014 with funding granted by the Genio Trust with the support of Atlantic Philanthropies and the HSE.

## Key project aims

Integrated Cognitive impairment Pathway (ICP). Create and implement an effective Integrated Cognitive Impairment Pathway (ICP) for people with cognitive impairment and dementia who are admitted to and discharged from St James's Hospital. (ICP's are structured multidisciplinary care plans which detail essential steps in the care of patients with a specific clinical problem).

## Education and Training

Increase Awareness of dementia and the associated care needs through education and training for staff and the public.

## Environment Adaptations

Improve the care environment through promoting and creating dementia inclusive design throughout St James's Hospital.

## Summary of Key Achievements in 2018

### Integrated Cognitive impairment Pathway (ICP)

As part of the project, cognitive impairment and delirium screening with the 4AT screening tool has been introduced as standard for all  $\geq 65$  year olds attending ED and Pre-Ax clinic since 2015/2016. (The 4AT is a rapid clinical instrument for delirium detection. It is a short and practical tool designed for use in busy areas where assessment for delirium is needed. The 4AT is among the most widely-used clinical tests for delirium internationally).

During 2018 ongoing implementation of SJH cognitive impairment ICP was carried out in the following areas:

- Emergency Department (ED)
- Inpatient setting
- Pre-Assessment Clinic

Since June 2018, patients being admitted to SJH now have a 4AT screening completed within 24 hours of admission on the Electronic Patient Record (EPR) system. During 2018 optimisation projects were carried out in ED and the Pre-Assessment Clinic to improve awareness, knowledge and resources for staff and patients around cognitive impairment and Delirium. DemPath Intranet information and resource page for SJH Staff launched during 2018. A DemPath committee working group, in consultation with key stakeholders from around the hospital, compiled the cognitive impairment ICP policy and SOP documents. These are in final draft and awaiting registration with SJH Quality Department.

# Education & Training

During the course of the 2018 many staff training events have been organised in addition to the production of new resources.

These include the following:

- 4 E-Learning Modules on Dementia developed and launched for SJH
- staffDementia Awareness
- Communication
- Environmental design
- ICP

Ongoing Level 1 Dementia Awareness programme for all new staff at Corporate Induction.

Six new DemPath Facilitators trained in 2018.

(DemPath Facilitator is an individual trained by the project to deliver the level one programme within their own areas using pre-prepared material and who may also have developed or become involved in dementia-related projects within their area of work.) 'Pop-up' teaching on the wards for staff on Delirium and 4AT screening.



June 2018, 15 minute 'pop-up' teaching sessions started on the wards. Approximately 440 staff attended to date. Staff booklet on Dementia 'Supporting the person with Dementia in Hospital' launched on the 23rd of November 2018. The short guide was developed in partnership with the Dementia Services Information and Development Centre (DSIDC) and has been written to provide practical information and advice to all staff working in clinical settings caring for people who have cognitive impairment, dementia or delirium. The handbook is available nationally and internationally to other hospitals, healthcare providers and for the general public through the HSE Understand Together Campaign Website and DSIDC website.

[www.understandtogether.ie](http://www.understandtogether.ie)

[www.dementia.ie](http://www.dementia.ie)

### DemPath Education day

Lecture series day held in SJH on the 11th of April 2018. 6 lectures on Dementia provided free to SJH staff, community staff and the public. Approximately 80 hours of teaching delivered on the day.

Staff and Public Awareness events in 2018

*- World Delirium Day 14th of March 2018*

Information stands for staff and the public and an expert panel discussion for staff were held to raise awareness for staff and the general public of the high prevalence of Delirium in acute settings and the adverse impacts on patients who experience episodes of delirium.

### Three events in September to mark World Alzheimer's Month

*12th September Launch Event in SJH main concourse*

A Choral performance by the MISA and Forget Me Nots choirs (over 50 performers present) was held in the SJH main concourse. Deputy Mary Butler who co-convenes the All-party Oireachtas Working Group on Dementia, spoke to the staff and public about the work of the All-party Oireachtas group and what they are working to achieve through the group. The Alzheimer Society of Ireland Information Bus also provided information to the public that day and was located in the CEO square.



Forget Me Knot Choir.

*21st of September World Alzheimer's Day*

SJH held its inaugural 'Pop-up' Alzheimer's Café for persons living with dementia, carers, general public, PCCC staff and SJH staff in the Creative Life area of MISA.



R Nevin, Deputy M Butler, Prof B Lawlor,  
A Dalton & M O'Neill.

*28th of September Brain health lectures and Reminiscence workshop event for staff and public.*

For this event the following lectures and workshop for staff took place

- Lecture on Music and Brain Health by GBHI fellow Dr. Catherine Jordan
- Lecture on Nutrition and Brain Health by TILDA researcher Dr. Eamon Laird
- Reminiscence Theatre Workshop for staff by Making Hay Theatre

## Environment Adaptations

Throughout the course of the project a number of dementia inclusive environmental adaptations and improvements were implemented such as the ED DemPath cubicles, input with the MISA way finding and Mary Mercer's Ward Day room refurbishment. In 2018 work was commenced to create a viewing garden for patients on Mary Mercer's ward. Further work in Connolly Norman Unit is pending for early 2019.

## Creative Life Pillar

The Creative life (CL) pillar of MISA (program lead Roisin Nevin) was established in 2017. It has blossomed into an integral component of engagement and creative activities within, not just MISA, but the hospital as a whole; enabling patients, carers and families, staff and community to take part in the creative elements underpinned by the theme - art, drama, literature, music, film etc.

The Creative Life Programme is an arts and health social engagement programme that encompasses a person centred approach, creating value to the importance of the arts as we age. It involves arts participation, engagement, education, art making, appreciation and performances throughout its programme which is inclusive to all.

Examples of the engagements include a partnership with the National College of Art and Design, NCAD, whereby students from NCAD are based in the hospital for a three month rotation, and educated about health care, illness in ageing and life experiences of patients. This learning is translated into artistic outputs and public performances and art showcases.

In partnership with Dublin Culture Connect we established the MISA choir, which now meets regularly under the baton of Norah Walsh and provides entertainment not only for participants but also for the general public and hospital staff. The choir has had a number of performances, including Culture Night in the Digital Hub at the request of Dublin International Film Festival. The choir featured in an RTE TV production and "Inside St. James's" on Virgin Media 1.

Research is planned to evaluate the psychosocial and physical health benefits of choir participation. The choir can be sustained for a further year, after which time resources will be required to support the conductor, transport for frail participants and performances. The MISA choir is one of the most remarkable successes of creative life in MISA.

The hugely successful junior hospital doctor's choir-'The Bleeping Interns Choir' rehearses for one hour each Monday in CL under the baton of Dr Anne-Marie O'Dwyer. The choir as a means of social engagement for junior doctors, has been shown through research studies conducted by AMOD, to reduce stress and improve well being and positivity, the choir has performed for many staff and patient events. A recent IRISH TIMES article lauded this novel initiative.

MISA CL has partnered with Bealtaine and Dublin Film Festival to provide creativity and well being initiatives on the wards and in outpatients- including an afternoon at the movies on Kilmainham Ward, launched by Brenda Fricker and was featured on RTE news.

A book club ran over 8 weeks, finishing with a book reading from Sebastian Barry who read excerpts from his book 'The secret scripture' in the CL area, which was one of a number of locations selected nationally as part of the Laureate of Irish Fiction and partnered with Inchicore Library.



St. James's Hospital 2018 – MISA Choir. Image by Brid Ryan

CL also will complete its first series of arts/culture workshops with Dublin Castle.

This creative arts programme connects onto the wards with music, song and art participation, traditional to opera, also weekly Irish therapy dogs' visits (one outcome from this was a research presentation of the benefits to stroke patients at the 4th European Stroke conference).

In collaboration with the dementia services (DSIDC) CL hosted a full day conference of public engagement lectures on the arts and brain health at The National Gallery of Ireland which was full to capacity, known as "One Thursday at The Gallery".

The centre hosts regular workshops and lectures in collaboration with IMMA including from the artist Brian Maguire, who also donated art to the CL centre. Also in partnership with IMMA, CL facilitated a number of hosted educational tours to IMMA for patients, families and for MISA staff including research staff- to broaden the experience of creativity and afford a better understanding of the overlap between wellbeing and the arts.

Feedback from people who have experienced the CL programme is positive as it continues to develop and promotes our hospital in a positive way. Patients and their carers have expressed that it has made a difference to their experience of their hospital stay. Community have experienced visiting a hospital through the empowerment of participation of a choir.

MISA CL has hosted a number of public lectures and debates on health and well being in ageing to create a public awareness around many areas of health promotions, for example collaborating with DemPath, World Alzheimer's Month in our hospital.

The Creative Life programme is ever evolving as a pillar of MISA and an innovative component to healthcare.

# Partnerships

## **St. James's Hospital:**

Medicine for the Elderly  
Psychiatry for the Elderly  
Clinical Biochemistry  
Clinical Medicine Palliative Care  
Infectious Diseases  
Rheumatology  
Orthopaedics  
Gastroenterology  
Hepatology  
Haematology  
Renal Medicine  
Endocrinology  
Histopathology  
Dementia Services Information and Development Centre

## **Trinity College Dublin:**

Department of Medical Gerontology  
Department of Psychiatry  
Department of Old Age Psychiatry  
Department of Psychology Department of Bioengineering  
Department of Mechanical Engineering  
Department of Statistics  
Department of Sociology  
Department of Anatomy  
Trinity College Institute for Neurosciences Global Brain Health Institute (GBHI)

## **Tallaght Hospital:**

Adelaide & Meath Hospital incorporating The National Children's Hospital (AMiNCH):  
Age Related Health Care  
Department of Psychiatry of Later Life

## **Royal College of Surgeons in Ireland (RCSI)**

Department of Anatomy

## **St. Patrick's Hospital**

## **University College Dublin**

## **Conway Institute Department of Veterinary Medicine**

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Soraghan C, Geary U, O'Dowd E, Boyle G. *Where good ideas take shape*. SJH Design Week 2018: Design Sprinting.

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### **Published Abstracts:**

Finucane C, O'Connell M, Fan CW, Kenny RA. *Are Systolic or Diastolic Orthostatic Blood Pressure Drops More Important For Assessing Falls Risk?* 66th Annual & Scientific Meeting of the Irish Gerontological Society Transforming Ageing Across 27 - 29 September 2018. *Age and Ageing* Volume 47, 5, 2018.

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McNicholas T, Tobin K, Newman L, Claffey P, Briggs R, Kenny RA. *Cerebral perfusion in atrial fibrillation*, *European Heart Journal*, Volume 39, Issue suppl\_1, August 2018 ehy563.P3835, <https://doi.org/10.1093/eurheartj/ehy563.P3835>

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McNicholas T, Tobin K, Carey D, Claffey P, Kenny RA. *Atrial Fibrillation and Cognition at Four Year Follow Up – Data from The Irish Longitudinal Study on Ageing (TILDA)*, *Age and Ageing*, Volume 47, Issue suppl\_5, 1 September 2018, Pages v13– v60, <https://doi.org/10.1093/ageing/afy140.79>

Moola R, Claffey P, Perez-Denia L, Briggs R, Kenny RA. *The Use of Near –Infrared Spectroscopy in the Diagnosis of Cough Syncope*. 66th Annual & Scientific Meeting of the Irish Gerontological Society Transforming Ageing Across Borders. *Age and Ageing* Volume 47, 5, 2018.

Moola R, Claffey P, Perez-Denia L, Briggs R, Kenny RA. *The Use of Near – Infrared Spectroscopy in the Diagnosis of Cough Syncope* 66th Annual & Scientific Meeting of the Irish Gerontological Society Transforming Ageing Across Borders *Age and Ageing* Volume 47, 5, 2018.

Rafferty M, Mulpeter R, Maher N, Steen G, Fallon N, M, Walsh JB, McCarroll K, Lannon R. *Discontinuing Denosumab: Safety & Experience from a Specialist Bone Health and Osteoporosis Clinic Age and Ageing*, Volume 47, Issue suppl\_5, 1 September 2018, Pages v13–v60, <https://doi.org/10.1093/ageing/afy140.194>

## Conference Presentations [2018]

Carey D, Knight S, Nolan H, Kenny RA, Meaney J. (2018) '*Memory performance and hippocampal subfield volume: data from The Irish Longitudinal Study on Ageing*' Presented at Longitudinal Studies (2018) conference – Cambridge, England on 30 May – 1 June 2018.

Carey D, Nolan H, Kenny RA, O'Connell M. (2018) Poster. '*Adverse change in sleep duration is associated with a decline in cognition at two-year follow up*' Presented at Irish Gerontological Society, Annual Scientific Meeting Cavan, Ireland on 27-29 September 2018.

Donoghue O, Dooley C, Kenny RA. (2018) '*Usual and dual task walking speed in communitydwelling adults: Implications for crossing the road*' Presented at Road Safety Authority Annual Lecture, Dublin, Ireland on 1 October 2018.

Feeney, J. (2018) '*Xanthophyll Carotenoids and Cognitive Function in Healthy Older Adults: Insights from a Longitudinal Population Ageing Study*' Presented at Brain and Ocular Nutrition Conference (2018) Cambridge, UK on 11 -13 July 2018.

Kenny, R. (2018) '*Syncope and Frailty: Unhappy Bedfellows*' Presented at HRC Birmingham, UK on 7 October v.

Kenny, R. (2018) '*Syncope and Frailty*' Presented at HRC Birmingham, UK 8 October 2018.

Kenny, RA. (2018) '*Arterial stiffness, syncope unit; carotid hypersensitivity*' Presented at Cerebral Perfusion Summit 4th & 5th April, Waterloo, Canada on 4 April 2018.

Kenny, RA. (2018) '*Economics of Biogerontology*' Presented at Biogerontology for Clinicians onference, MISA, St. James's Hospital, Dublin on 16 February 2018.

Kenny, RA. (2018) '*Epidemiology and Risk Stratification*' Presented at ECS - European Heart Rhythm Association (2018), Barcelona, Spain on 19 March 2018.

Kenny, RA. (2018) '*Frailty and the Irish Longitudinal Study on Ageing*' Presented at Framing Frailty Summit Dublin Castle, Dublin on 6 December 2018.

Kenny, RA. (2018) '*How longitudinal studies inform clinical practice - lessons from TILDA*' Presented at Longitudinal Studies conference, Hinxton, UK on 1 June 2018.

Kenny, RA. (2018) '*How to set up a Syncope Unit*' Presented at ECS - European Heart Rhythm Association (2018), Barcelona, Spain on 19 March 2018.

Kenny, RA. (2018) '*Management in Emergency Department and in Syncope Unit*' Presented at ESC Congress Munich (2018) Munich, Germany on 27 August 2018.

Kenny, RA. (2018) '*Novel cardiovascular risk factors for mental health: lessons from TILDA*'. Presented at the New Horizons in Mental Healthcare Conference, Clontarf Castle, Dublin 2 February 2018.

Kenny, RA. (2018) '*Patients with Unexplained falls, unproven epilepsy or at risk of SCD*' Presented at ESC Congress Munich (2018) Munich, Germany on 26 August 2018.

Kenny, RA. (2018) '*Towards a worldwide consensus on Syncope Units*' Presented at GIMSI DoloMeeting Arrhythmias, Bolzano, Italy on 23 February 2018.

Kenny, RA. (2018) '*Vascular biology and ageing, lessons from The Irish Longitudinal study on Ageing*' Presented at Plenary Lecture: Irish Centre Vascular Biology (2018) RCSI, Dublin, Ireland on 17 July 2018.

Kenny, RA. (2018) '*What do the new EHRA guidelines suggest?*' Presented at ESC Congress Munich (2018) Munich, Germany on 27 August 2018.

Finucane C, Fitzgibbon-Collins L, Brar I, Heckman G, Hughson R. *Awareness of Cerebral Hypoperfusion in Older Adults*. Cerebral Hypoperfusion Summit, Schlegel Research Institute for Successful Ageing, Ontario, Canada, 2018 and SJH Grand Rounds, March 2018.

Finucane C, Kenny RA. *Epidemiology of blood pressure regulation: Findings from The Irish Longitudinal Study on Ageing*. Cerebral Hypoperfusion Summit, Schlegel Research Institute for Successful Ageing, Ontario, Canada, 2018.

Finucane C, Fan CW, Kenny RA. *Time to Redefine Initial OH* British Geriatric Society, London, November 2018.

Foran T, O'Meara J, Devine M, O'Reilly G. *Engineering the future of clinical engineering quality assurance*. Medical Physics & Engineering Conference (MPEC), York, Sept 2018.

Foran T, Sheahan K, Gormley J, Kenny RA, Reilly R. *A comparison of the Rosenstein and Wolf algorithms for the nonlinear analysis of normal and perturbed gait*. 8th World Congress of Biomechanics, Dublin, 4th – 8th July, 2018 and Biomedical Engineering Association of Ireland, October 2018: 'ISO9001: The route to certification.

May P, Normand C. (2018) '*End-of-life experience and health care use among older adults in Ireland: results from The Irish Longitudinal Study on Ageing (TILDA)*' Presented at European Association of Palliative Care, Bern, Switzerland on 24- 26 May 2018.

McCrory C, Ni Cheallaigh C, Layte R, Kenny RA. (2018) '*Allostatic load is associated with epigenetic age acceleration in men, but not in women*' Presented at Wellcome Longitudinal Studies Conference, Cambridge on 31 May – 1 June 2018.

McCrory, C. (2018) *'The Social Environment and Health'* Presented at Biogerontology for Clinicians Conference, MISA, St. James's Hospital, Dublin on 16 -17 February 2018.

McGarrigle CA, Leahy S, Kenny RA. (2018) *'Investigating the health of older carers within different social care systems in Ireland and England: evidence from the Irish longitudinal Study on Ageing (TILDA) and the English Longitudinal Study of Ageing (ELSA)'* Presented at Society for Social Medicine, Glasgow, UK on 5 -7 September 2018.

McNicholas T, Briggs R, Claffey P, Newman L, Tobin K, Kenny RA. (2018) *'Symptoms of orthostatic intolerance and cerebral perfusion – Data from the Irish Longitudinal Study on Ageing'* Presented at British and Irish Hypertension Society, Annual Scientific Meeting, Cambridge on 24-26 September 2018.

McNicholas T, Tobin K, Carey D, Claffey P, Kenny RA. (2018) *'Atrial Fibrillation and cognition at four year follow up – Data from The Irish Longitudinal Study on Ageing (TILDA)'* Presented at Irish Gerontological Society, Annual Scientific Meeting Cavan, Ireland on 27 September 2018.

McNicholas T, Ward M, Kenny RA, Laird E. (2018) *'Vitamin D and all-cause mortality in an Irish population of adults over the age of 50'* Presented at Jacqueline Horgan Bronze Medal Meeting, Royal College of Physicians Ireland on 22 November 2018.

Mohan G, Nolan A, Lyons S. (2018) *'Examining access to GP services in Ireland – investigating the supply side'* Presented at Health Research Board Steering Group Meeting at the ESRI, Dublin on 10 April 2018.

Mohan G, Nolan A, Lyons S. (2018) *'Examining access to GP services in Ireland – investigating the supply side'* Presented at Meeting with Professor Jim Smith ahead of TILDA Scientific Advisory Board Meeting Dublin on 9 May 2018.

Mohan G, Nolan A, Lyons S. (2018) *'Examining access to GP services in Ireland – investigating the supply side'* Presented at 12th European Conference on Health Economics - EUHEA (2018), Maastricht on 9 July 2018.

Mohan G, Nolan A, Lyons S. (2018) *'Expanding the Irish longitudinal dataset on ageing to assess the influence of supply-side factors on utilisation of primary healthcare services and health outcomes'* Presented at Society of Lifecourse and Longitudinal Studies Conference Milan, Italy on 11 July 2018.

Newman L, Nolan H, Carey D, Kenny RA. (2018) *'Resting-state cerebral haemodynamics in an older population, and associations with cardiovascular risk factors'* Presented at British and Irish Hypertension Society Annual Scientific Meeting, Cambridge on 24-26 September 2018.

Newman L, Nolan H, Carey D, Kenny RA. (2018) *'Sex differences in cerebral haemodynamics during active stand in an older population'* Presented at British and Irish Hypertension Society Annual Scientific Meeting, Cambridge on 24-26 September 2018.

Newman L, Nolan H, Carey D, Reilly R, Kenny RA. (2018) '*Resting-state cerebral haemodynamics in an older population, and associations with cardiovascular risk factors*' Presented at Longitudinal Studies (2018) conference – Cambridge, England on 30 May – 1 June 2018.

Newman, L, Nolan H, Carey D, Reilly R, Kenny RA. (2018) '*Cerebral Oxygenation: Insights from the Irish Longitudinal Study on Ageing*' Presented at Cerebral Perfusion Summit 4th & 5th April, Waterloo, Canada on 4 April 2018.

O'Connor, D. (2018) '*Variations in B-vitamins and associations with cognitive function: Evidence from TILDA*' Presented at Nutrition Society Meeting (2018) Ulster University, Coleraine ,N. Ireland on 20 June 2018.

Peeters G, Feeney J, Carey D, Kennelly S, Kenny RA. (2018) '*Is fear of falling associated with decline in memory, processing speed and executive function in older adults: the Irish Longitudinal Study on Ageing*' Presented at Longitudinal Studies (2018) conference – Cambridge, England on 30 May – 1 June 2018.

Rafferty M, Gannon E, Fallon N, Steen G, Maher N, Reynolds A, McMahon G, Casey M, Lannon R, McCarroll K. *St James Hospital, Dublin, Ireland* 17 September 2018 Fragility Fracture Network.

Robertson DA, Savva GM, King-Kallimanis BL, Kenny RA. (2018) '*Frailty beyond geriatrics: applicability of the concept of frailty in diverse healthcare settings*' Presented at 24th congress of the Catalan Geriatrics Society, Barcelona on 19 October 2018.

Roe L, Normand C, Browne J, Wren MA, O'Halloran A. (2018) '*Caring for frail older people in the Irish healthcare system*' Presented at Translating Health and Social Care Professionals: Research into policy and practice Dublin, Ireland on 14 November 2018.

Roe L, Normand C, Browne J, Wren MA, O'Halloran A. (2018) '*Frailty-related Outcomes and Health Care Use (FOCUS): Evidence from The Irish Longitudinal Study on Ageing*' Presented at Irish Gerontological Society, Annual Scientific Meeting Cavan, Ireland on 27-29 September 2018.

Romero-Ortuno, R.(2018). The concept and importance of frailty. GBHI seminar. 28 November 2018.

Scarlett S, Nolan H, Carey D, Kenny RA, O'Connell M. (2018) '*An increase in habitual sleep duration is associated with a decline in cognition at two-year follow up*' Presented at Longitudinal Studies (2018) conference – Cambridge, England on 30 May – 1 June 2018.

Trepel D, Hunter R. (2018) '*Economic perspectives on ME/CFS*' Presented at UK CFS/ME Research Collaborative Conference (CMRC) Bristol, UK on 20 September 2018.

Ward, M. (2018) '*Formal and informal social participation among middle-aged men: Findings from The Longitudinal Study on Ageing*' Presented at HSE Men's Health Symposium (2018) Dublin on 15 March 2018.

## Other Presentations

Donoghue O, McGarrigle CA, Foley M, Fagan A, Meaney J, Kenny RA. (2018). Cohort Profile Update: The Irish Longitudinal Study on Ageing (TILDA). *International Journal of Epidemiology* (47);5:1398–1398. 1 October 2018.

Donoghue, O. (2018) '*Opportunities for SMART Ageing: Falls in Older Adults*' Presented at Smart Ageing Bootcamp, Dublin, Ireland on 4 September 2018.

Donoghue, O. (2018) '*What do we know about Ireland's Adult Population aged 50 years and over? Insights from The Irish Longitudinal Study on Ageing (TILDA)*' Presented at Cork County Library, Ireland on 4 December 2018.

Farina F, Whelan R. (2018) '*The application of machine learning to older adult brain data*' Presented at GBHI-TILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 30 October 2018.

Feeney J, Williamson W, (2018) '*Physiological stress, psychological stress and brain health: a lifespan approach*' Presented at GBHI-TILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 2 October 2018.

Hernandez B, Setti A, Kenny RA, Newell FN. (2018) '*Cognitive, sex and fear of falling effects on multi sensory integration*' Presented at Longitudinal Studies (2018) conference – Cambridge, England on 30 May – 1 June 2018.

Hernandez, B. (2018) '*Introduction to Biostatistics*' Presented at Biostatistics for Healthcare Professionals MISA, St. James's Hospital, Dublin on 18 May 2018.

Kenny, R. (2018) '*Ageing Research in Trinity and St. James's Hospital*' Presented at GBHITILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 11 July 2018.

Kenny, RA. (2018) '*New insights into cardiovascular risk in adults*' Presented at Ulster Medical Society, Robinson Library, Armagh on 22 March 2018.

Kenny, RA. (2018) '*Overview: Wellbeing and Health in Irelands over 50s 2009-2016*' Presented at TILDA Wave 4 Glossy Report Launch Science Gallery, Trinity College Dublin, Ireland on 28 November 2018.

Kenny, RA. (2018) '*Public Lecture: How to age well, lessons from TILDA*' Presented Positive Ageing Week – Ireland Trinity College Dublin, Ireland on 3 October 2018.

Kenny, RA. (2018) '*Syncope, Lightheaded, Fall*' Presented on Joint EHRA/ACCA webinar on Live Webinar on 30 November 2018.

Kenny, RA. (2018) '*TILDA*' Presented at HRS Harmonization Group Meeting (2018) London, UK on 17 October 2018.

Kenny, RA. (2018) '*Trinity Ageing Research*' Presented at Research and Technology Site Visit –MISA, St. James's Hospital, Dublin on 1 February 2018.

Knapp, M. (2018) '*Dementia: Can Economics Support the Case for Better Policy, Treatment & Care?*' Presented at GBHI-TILDA seminar MISA, St. James Hospital, Dublin, Ireland on 13 November 2018.

McCorry C, (2018) '*The ALLOSTAT Project*' Presented at TILDA Research Seminar MISA, St. James's Hospital, Dublin in January 2018.

McCorry C, Ilinca S. (2018) '*Social inequalities and health: an integrative perspective*' Presented at GBHI-TILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 18 July 2018.

McGarrigle CA, (2018) '*Reviewer of multinational research projects on Health and Social Care for Neurodegenerative Diseases*' Presented at EU Joint Programme neurodegenerative disease Research, Utrecht, Netherlands on 10-11 September 2018.

McGarrigle CA, Scarlett S. (2018) '*Development of a sense of meaning scale*' Presented at TILDA Research Seminar MISA, St. James's Hospital, Dublin on 30 January 2018.

McGarrigle, CA. (2018) '*Wellbeing and health in Ireland's over 50s 2009-2016*' Presented on Radio Interview: Near FM, Michael Sullivan Lifeline, Dublin, Ireland on 29 November 2018.

McGarrigle, CA. (2018) '*Wellbeing and health in Ireland's over 50s 2009-2016*' Presented on Radio interview Shannonside Radio, Dublin, Ireland on 4 December 2018.

McGlinchey E, Leon Salas J, Farina F. (2018) '*Short presentations from GBHI and TILDA*' Presented at GBHI-TILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 11 December 2018.

Mohan G, Nolan A, Lyons S. (2018) '*Examining access to GP services in Ireland – investigating the supply side*' Presented at TILDA/MISA Research Seminar MISA, St. James's Hospital, Dublin on 17 April (2018).

Mohan G, Nolan A, Lyons S. (2018) '*Examining access to GP services in Ireland – investigating the supply side*' Presented at ESRI Lunchtime Seminar, Dublin on 23 May 2018.

Mohan G, Nolan A, Lyons S.(2018). An investigation of the effect of accessibility to General Practitioner services on healthcare utilisation among older people. *Social Science and Medicine*, 220pp. 254 - 263.16 November 2018.

O' Shea M, Donoghue O, McLoughlin S, Harkin M. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 22 November 2018.

O' Shea M, Donoghue O, O' Sullivan A. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 5 July 2018.

O' Shea M, Donoghue O, O' Sullivan A.(2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 21 June 2018.

O' Shea M, Donoghue O, O' Sullivan A.(2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 28 June 2018.

O' Shea M, Donoghue O, O' Sullivan A.(2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 5 July 2018.

O' Shea M, Lang D. (2018) '*National Frailty Programme & TILDA*' Presented at Scientific Advisory Board meeting. Chester Beatty Library Dublin on 11 May 2018.

O' Shea M, McGarrigle C, McLoughlin S. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 15 February 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 8 February 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 12 April 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 24 May 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 31 May 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 7 June 2018.

O' Shea M, McGarrigle C, Orr J. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA @ Trinity college to Inter-professional group, Dublin 25 January 2018.

O' Shea M, McGarrigle C, Orr J.(2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 19 April 2018.

O' Shea M, Turner N, Harkin M. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 13 December 2018.

O' Shea M, Turner N, McLoughlin S, Harkin M. (2018) '*Recognising Frailty: Insights from TILDA study day*' Presented on Study day in TILDA Trinity college to Inter-professional group, Dublin on 8 November 2018.

O' Shea M, Turner N, McLoughlin S.(2018) '*Recognising Frailty: Insights from TILDA study day*' Presented at Study day in TILDA Trinity college to Inter-professional group, Dublin on 11 October 2018.

O' Shea, M. (2018) '*Recognising Frailty: Insights from The Irish Longitudinal Study on Ageing Presentation*' Presented at Postgrad Dip/Masters in health Sciences: Public Health Nursing, NUI Galway, Ireland on 22 October 2018.

O'Connor, D. (2018) '*Variations in B-vitamins and associations with cognitive function: Evidence from TILDA*' Presented at TILDA Seminar MISA, St. James's Hospital, Dublin on 30 March 2018.

O'Connor, D. (2018) '*Variations in Vitamin B12 and Folate and global cognitive function – a cause for concern*' Presented at FASEB, Folic Acid, Vitamin B12 and One-Carbon Metabolism Nova Scotia, Canada on 29 July 2018.

O'Connor, D. (2018) Poster. '*An imbalance of Vitamin B12 and Folate and global cognitive function: Findings from TILDA*' Presented at IGS Annual Scientific Meeting, Slieve Russel Hotel, Cavan on 27-29 September 2018.

Peeters G, Black I, Allen IE, Panizzutti R, McEcoy CE.(2018) '*Behaviour change techniques in computerized cognitive training for cognitive health older adults*' Presented at TILDA seminar MISA, St. James's Hospital, Dublin on 6 June 2018.

Peeters G, Carey D, Feeney J, Kennelly S, Kenny RA. (2018) '*Comparing five approaches to analyse differences between groups in change in cognitive function measured at two time points*' Presented at TILDA seminar MISA, St. James's Hospital, Dublin on 6 June 2018.

Peeters G, Kenny RA, Lawlor B. (2018) '*Late life education is associated with better cognitive functioning in older adults with low levels of education*' Presented at TILDA seminar MISA, St. James's Hospital, Dublin on 6 June 2018.

Rochford Brenan H, Haertsch M. (2018) '*The agenda for dementia inclusive communities - A conversation between pioneering advocate for those with dementia, Dr Helen Rochford Brenan and WHO*' Presented at GBHI-TILDA seminar, MISA, St. James Hospital, Dublin, Ireland on 27 November 2018.

Roe L, O'Halloran A, Normand C, Carey D.(2018) '*Types of service users within an at-risk older sample and their outcomes over time: A secondary analyses of TILDA data*' Presented at Centre for Health Policy and Management "Research Seminar", TCD. Dublin on 26 April 2018.

Romero-Ortuno, R. (2018) '*Falls, frailty and disturbances of gait*' Presented to Fifth year TCD Medical students lecture, St James's Hospital, Dublin, Ireland on 12 December 2018.

Romero-Ortuno, R. (2018) '*Frailty and end of life care: multidisciplinary education across care settings*' Presented at British Geriatrics Society East Anglia Region Summer Meeting (2018) incorporating the 11th SAFE Community-Hospital MDT Interface Meeting William Harvey Lecture Theatre, Clinical School, Addenbrooke's Hospital, Cambridge on 8 August 2018.

Romero-Ortuno, R. (2018) '*Frailty lecture*' Presented to Third year TCD Medical students, St James's Hospital, Dublin, Ireland on 9 November 2018.

Romero-Ortuno, R. (2018) '*Overview of frailty: theory, assessment and management*' Presented at MSc lecture, postgraduate programme for Physiotherapists and Occupational Therapists, RCSI, Ireland on 8 November 2018.

Romero-Ortuno, R. (2018) '*Patient experience: a hospital geriatrician's perspective*' Presented at Regional Meeting of the Heads of Patient Experience (HOPE) Network, Homerton College, Cambridge on 11 July 2018.

Romero-Ortuno, R. (2018). St James's Hospital Clinical Audit Policy. MedEL Journal Club. 23 November 2018.

Ward M, Gibney S, Shannon S. (2018) '*Healthy ageing among older adults Health status, behaviours, and access to care*' Presented at Healthy and Positive Ageing Initiative (HaPAI) Camden Court Hotel, Dublin 2 on 11 June 2018.

*Symptoms of orthostatic intolerance and cerebral perfusion – Data from the Irish Longitudinal Study on Ageing.* British and Irish Hypertension Society, Annual Scientific Meeting, Cambridge; September 2018:

*Cerebral perfusion in atrial fibrillation* European Society of Cardiology Congress, Munich, Germany; August 2018: *Atrial Fibrillation and cognition at four year follow up – Data from The Irish Longitudinal Study on Ageing (TILDA)* Irish Gerontological Society, Annual Scientific Meeting; September 2018:

*Vitamin D and all-cause mortality in an Irish population of adults over the age of 50* Best poster, British and Irish Hypertension Society Annual Scientific Meeting 2018. Jacqueline Horgan Bronze Medal Meeting, Royal Academy of Medicine Ireland, Royal College of Physicians Ireland; November 2018.

# Personnel

## **Steering Committee Members**

Prof Davis Coakley (Chairman)  
Prof J Bernard Walsh (Director)  
Prof Rose Anne Kenny  
Prof Brian Lawlor  
Dr Conal Cunningham  
Dr Miriam Casey  
Prof Joseph Harbison  
Dr Elaine Greene  
Dr David Robinson  
Dr Rosaleen Lannon  
Dr Kevin McCarroll  
Dr Gerard Boyle  
Mr Paul Gallagher  
Ms Carol Murphy (Administrator)

## **Trustees**

Prof Jim Malone  
Ms Miriam Keegan  
Dr Brendan McCarthy

## **Watt's Clinical Research Fellow**

Dr Oisín Hannigan

## **Memory Clinic Research Fellows**

Dr Rachel Wallace

## **Lecturer**

Dr Paul Claffey

## **Falls and Osteoporosis Unit Clinical Research Fellows**

Dr Marie Rafferty

## **Clinical Neuropsychologists**

Dr Robert Coen  
Dr Marie McCarthy

**Clinical Nurse Manager**

Ms Irene Bruce

**Senior Social Worker**

Ms Diana Burgui Murua

**Biostatistician**

Prof Cathal D. Walsh

**IT Consultant and Technology Adviser**

Mr Vincent Quinn

**Bone Health Clinical Nurse Specialists**

Ms Niamh Maher, Ms Nessa Fallon, Ms Georgina Steen, Ms Claire O'Carroll

**Falls and Osteoporosis Clinical Nurse Specialists**

Ms Ciara Rice, Ms Lisa Byrne, Ms Dynpna Hade, Ms Louise Clerkin

**Senior Radiographer**

Ms Eva Hendy

**Medical Physics and Bio-Engineering**

Dr Gerard Boyle, Dr Christopher Soraghan, Dr Ciaran Finucan

**The Irish Longitudinal Study of Ageing (TILDA)**

Principal Investigator: Prof RA Kenny

Research & Development: Dr Ann Hever

Medical Director: Dr Hilary Cronin

Operations Manager: Mr Niall Turner

Project Manager: Dr Orna Donoghue

Finance & HR Manager: Ms Lucy Doogan

Administrative Officer: Ms Anna Davies

Research Nurse: Ms Mary O'Shea

**The Trinity, University of Ulster and Department of Agriculture Study (TUDA)**

Principal Investigators: Dr Conal Cunningham, Dr Miriam Casey Prof JB Walsh, Prof Anne Molloy

Research Fellow: Dr Kevin McCarroll

Researcher: Dr Eamonn Laird



## MERCER'S INSTITUTE FOR RESEARCH ON AGEING

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