



Institiúid Mercer  
um Aosú Bisiúil

Mercer's Institute  
for Successful Ageing  
(MISA)

# Annual Report 2019



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# Executive Summary

Mercer's Institute for successful ageing (MISA) was launched in 2016. Since the launch we have continued to develop the four principal pillars of the institute - clinical services, education and training, creativity and research. Mercer's Institute for Research on Ageing (MIRA) is the research pillar within MISA.

MISA is Ireland's largest clinical research facility, dedicated to developing new models of clinical care, technological innovations and highest quality research, education and training for healthcare for older adults.

As such it is the most advanced clinical research institute dedicated to ageing on these islands. This report details highlights in MISA over the past year - 2019. All of the clinical activities are underpinned by strong research support from national and international funding agencies.

MISA's clinical service spans a thriving ambulatory care service which operates a one-site-one-stop model for up to 30,000 attendees per year, in addition to avant-garde rehabilitation facilities and cutting edge inpatient care delivered in single room occupancy.

Ambulatory care services include Falls & Syncope, Memory Clinic, Bone Health, Stroke, and a busy General Outpatient Clinic. We are planning a new Parkinson's Disease ambulatory care service for 2020.

MISA was honoured to be cited by the Transforming the Future of Ageing in Europe EU Commission report in 2019 as a model example of a cutting edge purpose built health care environment for others to replicate.

The Falls and Syncope Unit is the largest such facility in Europe and during the past year FASU developed a new model of service delivery in the Emergency Department which has enabled access to quality care for patients of all ages who present with falls or loss of unconsciousness- one of the single commonest presentations to emergency departments; the new model provides a same-day, day case assessment and management, with consequent significant reduction in hospital admissions, bed days and length of stay.

The Memory Clinic is the largest such facility in Ireland providing dedicated neuropsychological and multidisciplinary support to patients of all ages with cognitive symptoms.



The Memory Clinic jointly hosts a popular national education and training day in collaboration with the Dementia Services Information and Development Centre (DSIDC).

The Bone Clinic is the largest such facility in Ireland and has two dedicated DEXA scanners providing a service for St James's hospital inpatients and outpatients from all disciplines. A novel research study, by the bone clinic researcher group, exploring vitamin D deficiency in vulnerable at risk cohorts was supported by the Mercers Foundation and has received much global media attention.

The stroke service for the hospital is based in MISA and continues to improve quality of care, survival and rehabilitation for stroke survivors.

One of our recent exciting developments has been the social prescribing program which is now embedded into, not only clinics for older patients, but also general medical clinics throughout the hospital.

We are fortunate to have a strong clinical and research group of Medical Physics and Bioengineering within MISA who provide exemplar services and collaborate in technology research and education in the Day Case facilities and throughout the inpatient hub.

We have delivered a number of national and international education and training programs throughout the year to over 700 health care workers at the education hub and continue to expand education activities for the public in addition to health care professionals.

Our unique Creative Life hub has provided wellbeing initiatives in creativity for staff during these trying COVID-19 times coupled with novel creative arts programmes for patients and carers in partnership with Creative Ireland and the Arts Council.

Our research spans basic science, through to clinical research studies, population health and other community cohort studies, work on new technologies in ageing and new models of service delivery. We have repurposed some of our research to address older persons' experience of COVID-19 and research immune biomarkers to understand the disease in ageing.

We hope that you enjoy learning of our activities in 2019 and early 2020 and will continue to support our aspiration to ensure successful ageing for all, and grow research and development in this important rising demographic.

# 1.

## Excerpt from the EU

# “Transforming the future of ageing”

## SAPEA report June 2019

MISA has been cited as the exemplar model for future age friendly hospital designs.

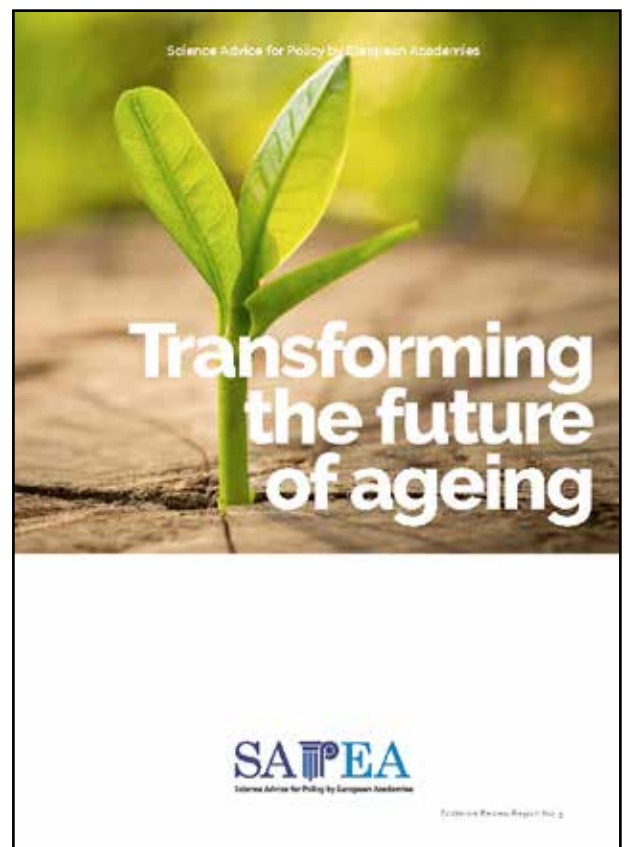
Excerpt from Chapter 3 Optimising health and social care

### Section 3E Developing care facilities to suit all ages

#### Problem area

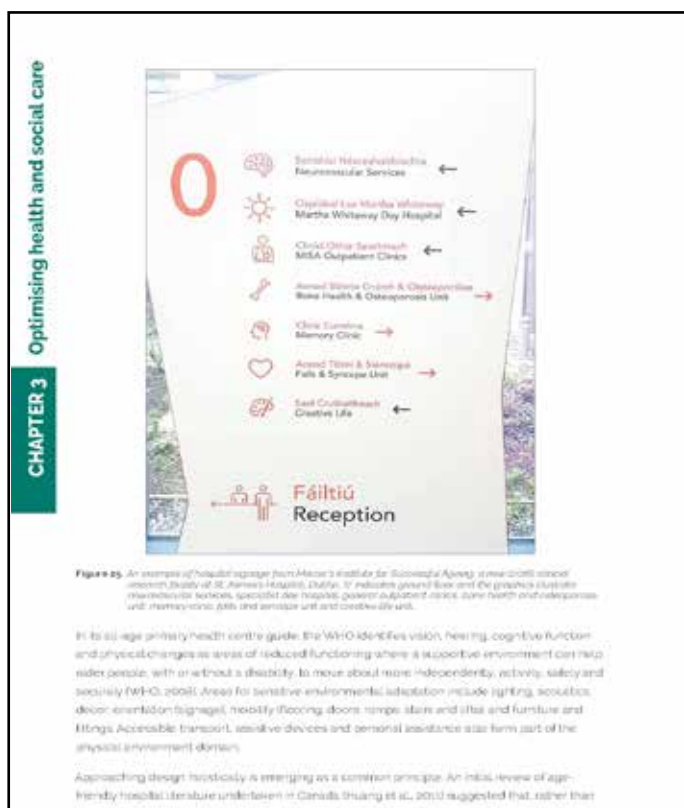
With older patients accounting for an increasing proportion of hospital use in terms of outpatient visits, inpatient days and hospital discharges, there is a growing need to transform the physical design of hospitals so that they can provide a more supportive and therapeutic environment for patients, families and staff of all ages. The physical design of hospitals has recognized links to patient and staff outcomes in areas such as reduced staff stress and fatigue, increased effectiveness in delivering care, improved patient safety, and improved overall health care quality. (Ulrich et al, 2004)

Studies on the positive impact of the design of the built environment on older people with dementia have tended to focus on long-term care settings. (Marquardet et al, 2014) These highlight the differential impacts that environmental design factors (e.g. sensory ambience, visual connectivity, small-scale home-like personalization and specialist care units) have upon patients’ behaviours, cognition, functional abilities in daily activities, wellbeing and quality of life, social abilities, orientation and care outcomes.



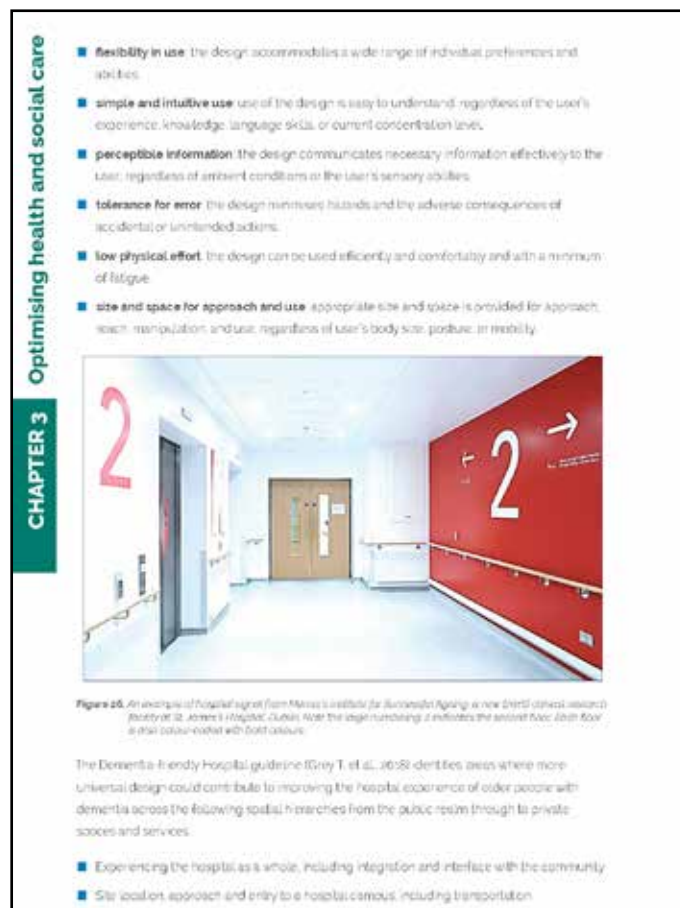
However, it should be noted that due to the medical and organizational complexity of hospitals, there are limits to the transferability of some of these findings across these settings. (Butler, 2014) Future age-friendly hospital design may benefit from more systematic guidelines and tools based on the fusion of good inclusive hospital design with responsive design characteristics of newer care facilities for people with dementia, informed by inclusive principles, innovative practices, and end-user participatory approaches. (Hignett, 2012)

In its all-age primary health centre guide, the WHO identifies vision, hearing, cognitive function and physical changes as areas of reduced functioning where a supportive environment can help older people, with or without a disability, to move about more independently, actively, safely and securely (WHO, 2008). Areas for sensitive environmental adaptation include lighting, acoustics, décor, orientation (signage), mobility (flooring, doors, ramps, stairs and lifts), and furniture and fittings. Accessible transport, assistive devices and personal assistance also form part of the physical environment domain.



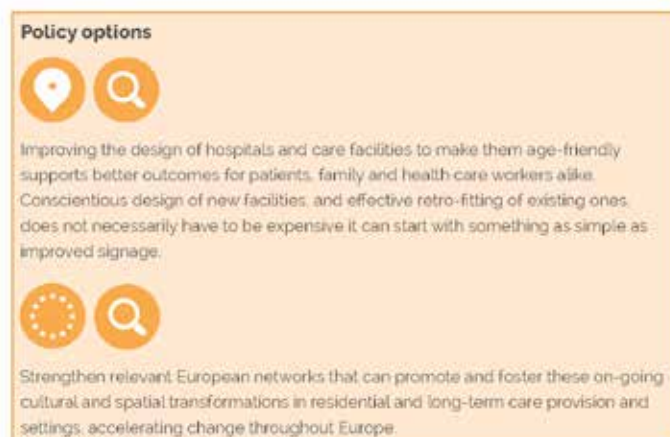
While the development and commissioning of new hospitals can provide unique opportunities for innovation, architectural design to make existing hospitals more age-friendly requires transdisciplinary working in a complex operational environment, where improvements may span retrofit, refurbishment or minor works. Interventions may be as low-

cost as labelling, signage, painting and art installations, through to high-cost spatial reorganisation and structural alterations.



At its core are the needs for:

- A paradigm shift in re-imagining hospitals as age-inclusive urban places intimately related to the neighbourhoods and communities they serve.
- Patient-group, community, and staff engagement in processes of co-design to inform and guide the smooth spatial transformation of hospitals towards more inclusive, empowering and age-friendly places.



# 2. Clinical Services Pillar



# 2.1. Inpatient wards

## Teams

All wards are under the management of the MedEl Directorate management team which comprises of a Clinical Director, Operations Manager, Assistant Director of Nursing. On the ward the nurses are allocated to a patient group on a 24-hour basis and are under the management of the Clinical Nurse Managers (CNM's). The nurses work extensively with the rest of the multidisciplinary team in order to create an inclusive, supportive, patient-centred environment. This includes doctors, physiotherapists, occupational therapists, speech and language therapists, medical social workers, clinical nutritionists, pharmacists, clinical nurse specialists, supported by administrative, ward catering and environmental cleaning staff.

### 2.1.1. George Frederic Handel Ward

George Frederic Handel Ward is a 29-bedded neurovascular rehabilitation and geriatric ward for those persons who have suffered from a stroke. As a multidisciplinary team, we strive to enable patients to achieve all the goals and objectives needed to maintain the highest levels of independence and physical and emotional wellbeing in a safe and friendly environment. We are committed to providing holistic, person-centred care and believe that to achieve the best possible outcomes for patients we must work together as a team with their families, friends and carers as appropriate. We make every effort to maintain dignity and also to promote autonomy for all patients.





## **2.1.2. Patrick Kavanagh Ward**

Patrick Kavanagh ward is a dynamic, 29 bedded admissions and assessment unit. Our cohort of patients usually present with an acute medical condition with pre-existing or multiple comorbidities.

On Patrick Kavanagh ward we are a motivated, united, enthusiastic and hardworking team. As a multidisciplinary team, we strive to enable patients in achieving all the goals and objectives needed to maintain the highest levels of physical and emotional wellbeing in a safe and friendly environment. We work to provide holistic, thoughtful, sensitive, empathic and respectful care that places the patient at the centre of all we do. Patient experience, patient safety and efficiency of patient care is paramount to our work, and something we as a team take great pride in.

## **2.1.3. Rialto Ward**

Rialto ward is a dynamic, 29 bedded geriatric rehabilitation ward. On Rialto ward we are a motivated, united, enthusiastic and hardworking team. Patients transferred for rehabilitation are assessed and treated by the multidisciplinary team that include detailed goal setting that is meaningful to the patient. All therapeutic services are provided either in the therapeutic suites situated on the first floor of MISA or are ward based. The care is structured around person centered care model. Patient experience, patient safety and efficiency of patient care is paramount to our work, and something we as a team take great pride in.

## **2.1.4. Kilmainham Ward**

Kilmainham ward is a dynamic, 29 bedded transitional care ward. On Kilmainham ward we are a motivated, united, enthusiastic and hardworking team. Patients transferred for transitional care have completed their acute phase of care and are awaiting long term care placement or discharge home with home care supports. These patients have a structured discharge plan in place and planned discharge date.

As a multidisciplinary team, we strive towards a common goal of promoting patients' welfare and actively encourage participation from both patients and their families to achieve their level of independence. We work to provide holistic, thoughtful, sensitive, empathic and respectful care that places the patient at the centre of all we do. Patient experience, patient safety and efficiency of patient care is paramount to our work, and something we as a team take great pride in.

## **2.1.5. Mary Mercers Ward**

Mary Mercers Ward is a 31-bedded acute medical assessment unit for persons over the age of 65. Patients from the Emergency Department, MedEl Out Patient Clinics and the Robert Mayne Day Hospital who are assessed and require further acute treatment are admitted directly to Mary Mercers' Ward. The assessment, diagnosis and treatment of these patients are carried out by our multidisciplinary team. Based on the assessment, patients are either discharged home or transferred to the rehabilitation ward where possible arrangements are made to support home discharge. As a multidisciplinary team, we strive to enable patient-centred care in a safe and friendly environment.

We are committed to providing a person-centred approach to professional practice which requires professional courage, a commitment to lifelong learning that is demonstrated by involving patients and families in service design and delivery, ensuring patients have fair access to health services, responding to patient and family feedback, shared decision-making, informed consent procedures, respecting privacy and dignity, promoting a culture of kindness, consideration and respect towards a better health and wellbeing. Our commitment is further demonstrated by a work ethic that is underpinned by passion and drive for professionalism.

## 2.2. SCOPE

SCOPE Health & Social Care Professions (HSCP) Directorate (Clinical Nutrition, Medical Social Work, Occupational Therapy, Physiotherapy & Speech & Language) provides a multidisciplinary client centred holistic inpatient and outpatient service to patients throughout MedEL including providing a service to Hollybrook N.H. Currently there are 31 HSCPs and 4 Assistants. SCOPE Staff facilitate student undergraduate and postgraduate training from Trinity, UCD, UCC and many other third level colleges. All SCOPE staff undertake research & development and facilitate quarterly presentations of quality improvement and development projects.



### MedEL/SCOPE Inpatient and Outpatient activity per department for 2018 and 2019

All wards are under the management of the MedEL Directorate management team which comprises of a Clinical Director, Operations Manager, Assistant Director of Nursing. On the ward the nurses are allocated to a patient group on a 24-hour basis and are under the management of the Clinical Nurse Managers (CNM's). The nurses work extensively with the rest of the multidisciplinary team in order to create an inclusive, supportive, patient-centred environment. This includes doctors, physiotherapists, occupational therapists, speech and language therapists, medical social workers, clinical nutritionists, pharmacists, clinical nurse specialists, supported by administrative, ward catering and environmental cleaning staff.

	Dietetics		Medical Social Work		Occupational Therapy		Physiotherapy		Speech & Language Therapy	
	New	Return	New	Return	New	Return	New	Return	New	Return
2018										
Inpatients	493	2398	488	1066	979	5397	1272	11,839	429	2672
Out patients	139	172	448	333	301	211	573	3157	65	118
2018 totals	632	2570	936	1399	1280	5608	1845	14,996	494	2790
2019										
Inpatients	472	2179	439	945	1020	6326	1312	14,355	472	2009
Out patients	153	218	201	122	510	410	500	2411	86	179
2019 totals	625	2397	640	1067	1530	6736	1812	16,766	558	2188

## **Home FIRsT:**

### **Poster presentations**

- ‘Revisiting Comprehensive Geriatric Assessment in the Emergency Department’ at Irish Gerontological Society Conference 27-28 September 2019, Lucinda Edge
- ‘Think Home FIRsT – New Pathways from Hospital to Home, thinking outside the Emergency Department’ awarded 2nd prize for poster presentation at Nursing & Midwifery Planning & Development Unit Dublin South, Kildare and Wicklow 6th Annual Regional Conference September 2019, Aoife Dillon

### **Oral presentations**

- Health & Social Care Professionals (HSCP) conference  
‘Home FIRsT – Pathways, Partnerships, Possibilities’ 1 October 2019

### **Speaking engagements**

- ‘Identifying Frailty in the Emergency Department’ at MISA Frailty, Falls, Polypharmacy, Sarcopenia conference 1 Feb 2019
- ‘Identifying Frailty in the Emergency Department – what’s new?’ Chartered Physiotherapists in Neurology & Gerontology (CPNG) ‘Frail Talk’ day 13 April 2019

### **Virtual Reality**

- With input from all SCOPE disciplines, a virtual reality project commenced in 2019. This initiative is in collaboration with Creative Life and VR Ireland. A bespoke application has been developed, focusing on preparing older patients for community re-integration after discharge from hospital. Its use is currently being piloted with MISA inpatients.

## **2.2.1. Clinical Nutrition**

- Training received and international Nutrition Focused Physical Findings approach implemented to diagnose malnutrition in Medicine for the Elderly patients and monitor impact of dietetic intervention.
- Development of a Dementia and Nutrition resource for all patients diagnosed with dementia and their carers.

## **2.2.2. Medical Social Work**

- Practice guidelines developed for Social Work in OPD setting
- SOP completed for respite service to Hollybrook Lodge
- Awareness training provided for MedEl Staff re Adult Safeguarding
- Stand in Concourse to mark ‘World Elder Protection day’ June 2019.
- MSW Champion for LGBT awareness SJH
- Clinical Skills fair Sept ’19, MISA MSW stand focusing on issue of carer stress and self-care.

## 2.2.3. Occupational Therapy (OT)

- The OT department was awarded a 25,000 grant by the National Dementia Office to deliver the OT designed “Specialised Memory and Attention Rehabilitation Therapy” (SMART) programme. This is a seven-week cognitive rehabilitation programme for people with mild dementia and their carers. In 2019, 49 people with mild dementia and 38 carers successfully completed the programme in MISA. Outcome measures demonstrated clinically meaningful and statistically significant results for functional performance, cognitive abilities and quality of life. Qualitative feedback included “I loved speaking with other people with dementia and getting tips”, “taking part in the programme has made me more understanding of the problem of memory loss”.
- Therapeutic group-work continues to be developed and modified in MISA Occupational Therapy rehabilitation programmes with three groups running weekly; Homeward Bound, Extend Chair Exercises and the Breakfast Group.
- An evidence-based OT clinical pathway for driving assessment and intervention was established in MISA and the Robert Mayne Day Hospital.



## 2.2.4. Physiotherapy

- Kate Devenney completed a PhD with TCD supported by Prof B. Lawlor: ‘The Effects of an Extensive Exercise Programme on the Progression of Mild Cognitive Impairment (MCI)’
- Sinead Coleman completed a MSc by research with RCSI: ‘Progressive resistance training in a post-acute, older, inpatient population: A Feasibility Randomised Controlled Trial’
- Bronagh Conroy completed part-time MSc by research with RCSI: ‘Examining the variables associated with community ambulation in an elderly day hospital population.’
- A number of RCSI Physiotherapy Summer Students worked with MedEl to complete research projects, including the following:
  - Revisiting Comprehensive Geriatric Assessment in the Emergency Department September 2019, Age and Ageing 48 (Supplement 3): iii17-iii65  
Lucinda Edge, Brian O’Rourke, Conal Cunningham Frances Horgan
  - Pilot Study Profiling Frailty and Ageing in a Population of Older Adults Living with Human Immunodeficiency Virus (HIV) September 2018, Age and Ageing 47, (suppl 5): v13-v60 Chiara Reddin, Rose Galvin, Frances Horgan, Colm Bergin
  - Does the Shoe Really Fit? Characterising Ill-Fitting Footwear among Community Dwelling Older Adults September 2018, Age and Ageing 47, (suppl 5): v13-v60  
Brian O Rourke, Rachael Brophy, Shanice Vallely, Frances Horgan

## 2.2.5. Speech & Language Therapy

- 2018-19: Participation in “Come Dine with Me”, an MDT quality improvement project targeting meal-time experiences for MISA patients
- Jan – March 2019: 4 students from TCD completed their practice placement with clinical exams taking place in MISA.
- Feb 2019: Ailis Brunton, SLT presented on the role of the SLT at the SJH Stroke Study Day.
- May 2019: In collaboration with Creative Life and Outlandish Theatre Platform a theatre engagement group for MISA patients with significant communication impairments was successfully piloted.
- Oct 2019: Attainment of competency of Videofluoroscopy assessment by 2 staff grades.
- Dec 2019: Facilitation of Conversation group to meet the communication needs of specific MISA patients
- SLT have supported various Creative Life projects including the Age and Opportunity Artist in Residence in a Care Setting initiative and NCAD Student placements.
- Initiation of stakeholder engagement to identify areas for increased SLT involvement in dementia care within the hospital.

## 2.3. Ambulatory Care:

### 2.3.1. Falls and Syncope Unit (FASU)

#### Summary

Falls and Syncope Unit (FASU) is a dedicated facility with a skilled multidisciplinary team who assess and manage patients with symptoms relevant to transient loss of consciousness, syncope, gait and balance instability, falls, lightheaded and dizziness. Whereas these symptoms are more common as people get older, they occur at all ages. Consequently, FASU run a service for patients aged 16 upwards. FASU is the largest such facility in Europe (5700 attendees 2018) and as such is engaged in national and international education and training programs. In the past year there have been a number of new developments: New Pilot Falls and Syncope dedicated service in the Emergency Department (ED FASU) set up in March 2019 with Dr Robert Briggs appointed as Locum Consultant Geriatrician to lead ED FASU; 8th International Syncope Conference Research and development of new technologies (see below); Extensive published research from the clinical team (see publication list); Additional Clinical Nurse Specialist appointed to accommodate service developments; new research collaborations with University of Florence, Italy; new MISA -lead Certified Syncope Course; new All Island Nurse lead Syncope training network.

Consultant	NCHD	Nursing Staff	Physiotherapy	Administrative
Professor Roseanne Kenny (Director)	Dr Paul Claffey (Lecturer in Medical Gerontology)	Ms Ciara Rice CNM 3	Ms Blathnaid Mealy	Grade V post: Fiona Moloney Grade V
Professor Conal Cunningham (Co-Director)	Dr Kevin Mc Carthy (Research Fellow) commenced June 2019	Ms Dymphna Hade CNS	Ms Sheila Mc Carthy	Grade IV: Ms Tamara Hand – commenced post November 2019
Professor Roman Romero	Dr David Moloney (Davis Coakley Research Fellow) commenced July 2019	Ms Lisa Byrne CNS		
Dr Susie O'Callaghan	Dr Cunningham Registrar Clinic Registrar (rotated)	Ms Louise Clerkin CNS		
Dr Robert Briggs (locum) – newly appointed January 2019	Dr Richard Armstrong (cardiology research fellow)	Ms Deirdre Kelly CNS (commenced January 2019)		
	CRU registrar – (rotated)	Ms Andrea Kelly – clinical research nurse (commenced November 2019)		

#### Clinical Service

FASU is a day case assessment clinic which runs daily, 5 days /week; 8-5pm. Patients with unexplained falls, syncope or dizziness are investigated by skilled staff and state of the art neurocardiovascular technologies. FASU operates a one stop assessment and treatment model and allows for a detailed investigation work-up. This affords best treatment and negates unnecessary hospital admission.

<b>Consultant led clinics</b>	Clinic attendees	2922	↑ 22.8% compared with 2018
<b>Nurse led clinics</b>	Ambulatory monitoring	2480	↑ 17.4% compared with 2018
	Ambulatory monitoring ED FASU (from 25th March 2019)	419	new activity
	Remote loop recorder monitoring	4222	no previous data to compare
	Autonomic function testing	21	↓ (29 in 2018)
<b>Physiotherapy</b>	New and return patients	61	

## **Nurse-led Clinics:**

Clinical Nurse Specialists (CNS) act as a direct line of contact for patients, who can phone in from 07.30-16.30 daily. There are 16 nurse-led clinics per week.

## **Remote monitoring:**

Our remote monitoring capacity provides a service whereby patients can send heart recordings by telephone/ blue tooth for immediate review by CNS and medical staff, thereby improving efficiency and safety. To date over 600 patients in Ireland have availed of this service. The service allows for immediate review of heart rate activity thereby reducing the number of hospital visits required by 75%.

<b>Investigations performed in FASU</b>
Electrocardiogram
Active standing
Head up tilt test
Carotid Sinus Massage
24 hour ambulatory blood pressure monitoring
External cardiac event monitoring
Holter monitoring
Internal loop recorder monitoring
Vestibular diagnostic investigations
Autonomic function test
Gait assessments
Blood testing
24 hour urine collection

## **Physiotherapy Service in FASU:**

A Physiotherapy service was introduced to FASU in December 2016. This currently involves a Physiotherapist attending Professor Kenny's clinic every Wednesday and Professor Cunningham's clinic every Friday for 2 hours. Physiotherapy assessment includes a subjective assessment of falls history, baseline mobility and physical activity levels, and an objective assessment which includes the analysis of strength, range of movement, gait, posture and balance. Physiotherapy intervention consists of advice and education in falls prevention and appropriate levels of physical activity, design and provision of an individually-tailored home exercise programme and referral onwards as required.

## **Medical Physics and Bioengineering - FASU collaboration**

The Medical Physics and Bioengineering team have a long standing partnership with FASU, since 2006. This partnership has continued to grow with MPBE involved in a number of ongoing initiatives spanning clinical service, research and innovation (see p.31, p.61).

## **Near-Infrared Spectroscopy (NIRs), Artificial Intelligence and Clinical Decision Support in Falls and Syncope Management**

Ms Laura Pérez Denia continues her Irish Research Council funded PhD in biomedical engineering under supervision of Dr C Finucane and Prof Kenny. This collaborative project is conducted in collaboration with Dr Paul Claffey. It is focused on understanding how changes in NIRs based cerebral perfusion measures can be combined with machine learning (AI) approaches to develop clinical decision support tools to assist in falls and syncope management.

Since 2017, Laura has been facilitating the integration of novel measures of cerebral perfusion into FASU workflow. This appointment is a first dedicated to integrating biomedical engineering directly into a FASU internationally. Significant progress to date has been made with NIRs data collected in almost 1000 patients in 2018/2019 and novel frailty assessment protocols introduced into FASU in 2019 for the first time.

As part of this project, we also welcomed both Ms Maria Delgado Ortet and Ms Maryla Oshodi to the FASU/MPBE team in 2019. Maryla worked as a Biomedical Engineering intern and completed a 3-month project focused on the development of noise detection and filtering methods for NIRs analysis. This work is aimed at enhancing our suite of analysis tools for NIRs signals, a critical step in ensuring the quality of physiological data used to inform clinical decisions.



While working as a research assistant and data scientist Maria has developed a comprehensive clinical data base of over 750 patients with Dr Claffey. This valuable resource couples clinical data and the high resolution physiological information gleaned from NIRs and other neurocardiovascular measurements made in the clinic and paves the way for future developments in this area. We would also like to congratulate Maria who was recently accepted onto a PhD program in Cambridge Biomedical Engineering. Best of luck Maria!

Using this database, Laura is now applying novel tools such as advanced machine learning approaches (A.I.) and mathematical modelling to further our understanding of NIRs in falls and syncope and develop clinical decision support tools. Data from NIRS technology is proving to complement existing clinical tests and holds potential added value in the diagnosis and further understanding of falls and syncope.

Dr Claffey and Ms Pérez have recently published a paper in QJM detailing the novel use of NIRs in assessing patients with suspected Pseudosyncope and have recently presented their findings to international audiences at the European Society of Cardiology Annual Meeting in 2019. Ms Pérez has also presented her novel work detailing novel insights into the effects of Ageing on Cerebral Autoregulation at the British Geriatric Society recently.



## Ambulatory Monitoring of Cerebral Perfusion, Blood Pressure and Gait

As part of our ongoing collaboration with Trinity Centre for Bioengineering, Ms Ailbhe O'Reilly (supervisors: Dr Ciarán Finucane; Dr Tim Foran) successfully completed her MSc project in 2019. Ailbhe conducted a study on novel ambulatory measurements of cerebral perfusion and gait, creating a normative database of these responses in healthy younger and older adults. It is hoped that this work will form the basis of novel diagnostics tests for older adults at risk of falls due to cardiovascular causes since it allows us to understand the interaction between blood pressure, cerebral perfusion and gait. Ms Linette Hartzell is now continuing this work as part of her MAI in Biomedical Engineering to understand these responses in older adults at risk of falls.

### Novel Blood Pressure Monitoring Device

We welcomed Mr Sumir Ramesh Mukkunda (supervisor: Dr Ciarán Finucane) to our team in 2019 who will carry out a project focused on validating a novel system for measuring dynamic changes in blood pressure and heart rate in young and older adults. The overarching goal of this project is to develop a device that is intended to be cheaper and more convenient than current technologies for continuous blood pressure assessment used in the management of falls and syncope. This project is being conducted in part fulfilment of his MSc thesis in Biomedical Engineering based in Trinity College Dublin (TCD).

### International Collaborations

#### Harvard Medical School, Boston, United States

Collaborative work between Dr Finucane, Prof Kenny and Prof Stephen Juraschek from Harvard Medical School and members of the broader SPRINT study team in the US continued in 2018/2019. This work has led to a journal paper published in the American Heart Association Journal Hypertension led by Prof Juraschek entitled "Orthostatic Hypotension, Cardiovascular Outcomes, and Adverse Events: Results from SPRINT. This paper is a contribution to the debate on blood pressure management in older adults at risk of falls and OH.



## **Amsterdam International Syncope Group**

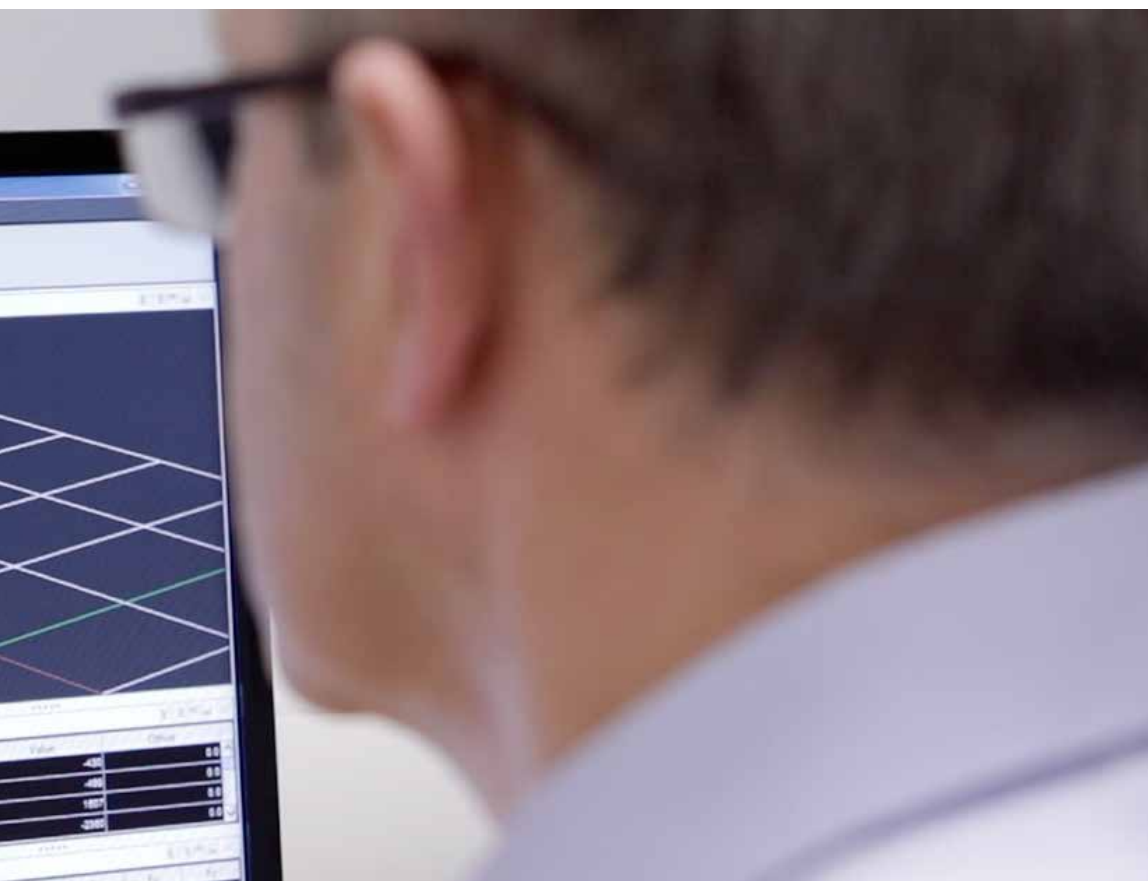
As part of our ongoing collaborative work with our European partners, led by Prof Wouter Wieling and colleagues from the Amsterdam Medical Centre, Dr Finucane recently led an international team of syncope, blood pressure measurement and autonomic function experts from Europe and the US on a project focused on the standardisation of diagnostic tests and their analysis for the assessment of falls and syncope. This work has concluded with a recent publication in Clinical Autonomic Research entitled: “A practical guide to active stand testing and analysis using continuous beat-to-beat non-invasive blood pressure monitoring”.

## **3D Gait Laboratory**

The FASU 3D gait laboratory houses a state of the art Codamotion marker based gait analysis system. Dr Tim Foran in collaboration with SJH Physiotherapy Department continued work in the 3D gait laboratory to establish normative data from a healthy control group. In addition, 3D gait assessments were carried out on specific MISA patients requiring stroke rehabilitation, to assess and quantify gait deficits, and target further therapy.

## **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.



## **Example of innovation in service delivery during 2019: ED FASU**

ED FASU is a joint collaboration with the staff of the Emergency Department in St James Hospital and the Falls and Syncope Service. A Monday to Friday service is provided to the Emergency Department to review all patients attending with falls, syncope or dizziness. This service commenced 25th March 2019 and to date has been a great success. The service was extended by 12 months and the next goal is to make the service permanent.

The aim of this new ED-FASU service was to provide 'front door' specialist assessment of patients presenting with falls/syncope/dizziness to:

- Expedite the diagnosis and provide earlier specialist management
- Reduce unnecessary admissions by directing patients to more appropriate ambulatory care pathways in FASU
- Reduce length of stay (LOS) of patients who need admission
- Direct appropriate investigation: reduce unnecessary tests, provide better access to essential testing

### **Key Findings:**

- Admissions of patients presenting with falls/syncope/dizziness during normal working hours have reduced by one third since the introduction of the ED-FASU Service.
- The ED-FASU Service discharges one quarter of patients presenting to the Emergency Department with falls/syncope/dizziness directly without requiring an ED physician review
- After accounting for age, sex and type of presentation, patients seen in the ED with falls/syncope/dizziness have a 40% higher likelihood of discharge home since introduction of the ED-FASU Service.
- On average, patients admitted with falls/syncope/dizziness stay in hospital 3 days less than before the introduction of the ED-FASU Service.
- Admission of patients with falls/syncope/dizziness under the medical service has been reduced by almost 30% since the ED-FASU service commenced.
- 1,004 bed days were used to care for patients with falls/syncope/dizziness in the 60 working day period from 25/3/19 to 20/6/19, compared to 2,019 bed days for the same period in 2018. If projected over the full year (261 working days), this equates to a bed day saving of 4,415 bed days or 12 beds.

### **Electronic ICP**

Lead by Ciara Rice the clinic has developed and introduced an electronic patient record for all patients that are reviewed by the ED FASU team; this has been piloted for 3 months and is currently undergoing changes. This will be rolled out to all FASU patients in 2020.



## 2.3.2. Memory Clinic

### Introduction

The Memory Clinic is a specialised service for people with memory loss, changes in cognitive function and dementia. Diagnosis and treatments are provided for those concerned about changes in their memory and memory disorders, including dementia. The Memory Clinic offers the following services:

**Assessment Clinic:** Providing an assessment and diagnostic service to patients with cognitive deficits.

**Feedback Clinic:** Providing patients and families with feedback on diagnosis and assessment findings.

**Social Work Support Service:** Designed to advise and support patients with cognitive impairment and their family and carers.

Led by Dr David Robinson, the Memory Clinic draws upon a range of specialist skills and is run collaboratively between professionals from the Department of Medicine for the Elderly and Psychiatry of Later Life. The Memory Clinic team is trained to diagnose memory problems and to provide people who are concerned about cognitive and memory problems with a diagnosis, information, treatment (when necessary) and advice.

The Memory Clinic provides information, advice and practical support about living with dementia for patients, carers and family members. The Social Work Service plays an active part in the multi-disciplinary team at the Memory Clinic.



## Memory Clinic - Teams

The Memory Clinic team is multi-disciplinary with support from:

- Medicine for the Elderly: Dr David Robinson Director of the Memory Clinic
- Psychiatry of Later Life: Prof Elaine Greene, Dr Catriona Crowe, Prof Iracema Leroi
- Neurology: Dr Siobhan Hutchinson
- Senior Clinical Neuropsychologists: Dr Robert Coen, Dr Marie McCarthy
- Clinical Nurse Specialist: Irene Bruce
- Medical Social Worker: Diana Burgui
- Research Fellows: Dr Rachel Wallace, Dr Mary Buckley

### Clinical Activity:

All patients are seen for at least two visits one for assessment and a second visit for results of assessment. Patients who receive a diagnosis of dementia are again contacted by phone six weeks post disclosure of diagnosis for review.

(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>	<b>484</b>
Total number of patient visits	968
Total number of patients contacted for 6 week post diagnosis review	34
<b>Breakdown of patients by diagnosis:</b>	
Alzheimer's Dementia/Alzheimer's mixed	80
Frontal Temporal Dementia	7
Mild Cognitive Impairment	108
Vascular Cognitive Impairment	39
Dementia with Lewy Body	2
Subjective Memory Complaints	93
Functional illness	7
Miscellaneous diagnosis	27
DX Unclear	22

## **Service Development:**

### **Appointment of Prof Iracema Leroi: Mind and Movement Clinic**

In 2019 we welcomed Dr Iracema Leroi to the Memory Clinic. Dr Leroi is an academic geriatric psychiatrist with The Global Brain Health Institute, and Trinity College Dublin. She has a special interest in the neuropsychiatry of neurodegenerative movement disorders, including Parkinson's disease (PD), undertaking evaluations of drug and non-drug therapies for PD dementia. Iracema developed and led the Greater Manchester clinical trials' programme for dementia for several years as principal investigator. She is Chief Investigator for EU-funded SENSE-Cog programme. She is also building collaborations for dementia research in Bangladesh, Pakistan and India. Dr Leroi commenced a specialised PD dementia clinic via the Memory Clinic in late 2019.

## **Audiometry Screening Evaluation:**

Research has shown that hearing loss may be associated with increased risk of developing dementia in later life (Maturitas 2018) and hearing loss is a modifiable risk factor. During 2019 we introduced hearing screening for all patients attending the clinic who do not already have a diagnosis of hearing loss. To date we have found that over 50% of the patients tested for hearing loss failed the hearing screening test. These patients are then referred to have a full hearing assessment.

## **Irish National Audit of Dementia:**

The second Irish National Audit of Dementia (INAD-2) was completed in 2019. The Memory Clinic facilitated the hospital wide audit, which aimed to provide an overview of current dementia care in acute hospitals. The results of this audit will be compared with the findings of the original Irish National Audit of Dementia completed in 2013. The results will be used to inform future local and national education plans, as well as staffing and resource allocation.

## **Medical Social Work:**

During 2019, a virtual clinic started where patients have been followed up 6 to 8 weeks after diagnosis with a phone call and a visit if necessary, to see how patients and families are coping with the diagnosis.

The social worker also coordinates the referrals to the OT SMART (memory rehabilitation) programme. Thirty-two referrals were made throughout 2019.

The Memory Clinic also has links to the Cognitive Stimulation Therapy programme in Harold's Cross.

## **Lumbar Puncture Clinic:**

In 2015 a joint initiative with the Neurology service was developed to obtain lumbar punctures for patients in the Memory Clinic, which has been successfully continued to present. Dr Siobhan Hutchinson, Consultant Neurologist, together with Clinical Nurse Irene Bruce, run a monthly Lumbar Puncture Clinic. This procedure is performed on patients for the purpose of obtaining CSF for biomarkers to aid the diagnosis of dementia. This successful clinic continues to date.

### 2.3.3. Bone Health Clinic

Osteoporosis is a world-wide health issue and the most common skeletal disorder today, an estimated 300,000 people in Ireland currently suffer from it. Osteoporosis occurs when there is accelerated bone loss due to an imbalance between the rate of new bone formation and the normal breakdown and removal of bone through resorption. After the age of 50, 20% of men and 50% of women will develop a fracture due to Osteoporosis — yet most people are unaware of declining bone health until a fracture occurs.

The Bone Health and Osteoporosis team is led by Dr Rosaleen Lannon and Dr Kevin McCarroll. There are more than 7,500 patient attendances annually. The Unit receives referrals from consultant hospital colleagues and general practitioners throughout Ireland. It is currently equipped with two state-of-the-art high resolution Hologic Horizon type A DXA scanners and, together with the department of Clinical Biochemistry in St James's Hospital, it has access to the most up to date bone biochemistry and bone turnover markers as well as a modern tandem mass spectrometer for accurate measurement of serum vitamin D levels. All new patients have an ultrasound of heel and vertebral fracture assessment and we also provided intravenous therapy to over 650 who were diagnosed with osteoporosis last year. A key part of our service is also the identification of fragility fractures through are dedicated fracture liaison which are bone health nurses are actively involved in and which has greatly expanded year on year.

We are committed to provide person centered approach to professional practice which requires professional courage, a commitment to lifelong learning that is demonstrated by intellectual engagement. Our commitment is further demonstrated by a work ethic that is underpinned by passion and drive for professionalism.



#### Team

Our team has a designated medical, nursing, and administrative team that works extensively with the wider Multi-Disciplinary Team in order to deliver integrated patient-centred care. Our specialist team work closely with each other and collaborate to ensure best possible care is delivered.

- Professor JB Walsh (Honorary Consultant Physician in Geriatric Medicine)
- Dr Kevin McCarroll (Consultant Physician in Geriatric Medicine)
- Dr Rosaleen Lannon (Consultant Physician in Geriatric Medicine)
- Niamh Maher (Clinical Nurse Specialist)
- Georgina Steen (Clinical Nurse Specialist)
- Nessa Fallon (Clinical Nurse Specialist)
- Claire O Carroll (Clinical Nurse Specialist)

#### Administrative Staff:

- Deirdre Cummins
- Sarah O’Gorman
- Caroline Armstrong

## 2.3.4. Stroke Service

The stroke service is under the supervision of Professor Joe Harbison who is also Director of Undergraduate Teaching and Learning. The service provides acute interventions such as thrombolysis and thrombectomy. The National Health Care Quality Survey showed that St James's adjusted mortality rate for ischaemic stroke was the lowest in the country at 4.99%. This is an outcome comparable with the best international centres. The service, led by Professor Harbison, is also delivered by clinical consultants in MISA.

The major clinical developments in the last year have included the introduction of new CT perfusion software with automated interpretation, the cost of which was largely met by funding from the Stroke Fund in the St James's Foundation. The software enables us to identify people who may benefit from interventional treatment up to 24 hours following stroke. We have nearly completed a process of training for the new technique in the Department of Diagnostic Imaging. Training clinical staff in its interpretation is proceeding.

Over the course of the year we have been working on the capability of the Acute Stroke Unit to accept more complex patients. The staff are now competent in screening and management of cardiac diseases. They have also received additional training in management of patients with tracheostomy.

## 2.3.5. Local Area Mapping Project (LAMP)

LAMP is a novel social prescribing program. Under the leadership of Dr David Robinson, MISA in St James's Hospital was the first hospital in Ireland to introduce this project for extending patient care in to the community and outpatients attending hospital clinics.

### **LAMP progressed the state of Social Prescribing in Ireland with:**

- Audio-Visual presentation on Social Prescribing at Dáil Éireann - March 8th
- Invitation to reception hosted by Prince Charles at Clarence House, London - April 3rd
- Secured Sláintecare funding for Social Prescribing Co-coordinator for St James' Hospital, along with a database manager to update and curate the LAMP database. This will be the first project of its kind in Ireland, in a hospital setting.
- Formed new partnership with Irish Museum of Modern Art to introduce art as therapy to Robert Mayne Day Hospital Patients.

### **Education:**

- Teaching activity included annual Final Medical Year Lecture on the dementia and delirium; a scheduled tutorial rota with final medical year students on the older patient; ward supervision of medical students during term time, and supervision of Global Brain Health Initiative Fellows at the Memory Clinic.
- Invited to deliver talk on Capacity and Older People for RCPI Diploma in Medicine for the Elderly



## Research:

- Invited speaker at University of Westminster International Social Prescribing Conference 11-12th July 2019
- Co-chair and invited speaker of Social Prescribing Network of Ireland, Waterford, November 26th
- Co-Investigator on Renew Study - A Randomized Pivotal Study of Renew™ NCP-5 for the Treatment of Mild Cognitive Impairment due to Alzheimer's Disease or Mild Dementia of the Alzheimer's Type
- Co-principal investigator of effect of music in Mild Alzheimer's Disease



Meeting with Prince Charles, Clarence House, London, April 3rd, 2019 in recognition of Dr Robinson's innovative LAMP work.

## 2.3.6 Medical Physics and Bioengineering

### MISA collaboration

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

### Local Asset Mapping Project (LAMP)

MPBE/MISA collaborated with Dr David Robinson in securing over 100,000 from the Sláintecare Integration Fund to test the 'LAMP' social prescribing concept in St. James's.

### Design Week

'SJH Design Week', organised by Dr Chris Soraghan at MPBE/MISA in collaboration with NCAD, is an established event for promoting SJH staff ideas for improved patient care. Sinéad Coleman (Physiotherapy) in collaboration with Helen Kavanagh won the 3000 bursary provided by the NDTP (National Doctors Training and Planning program) to progress their idea for a cushion to improve patient comfort and function in stroke.



Judges and organisers at SJH Design Week 2019.  
 L-R: Prof Jim Meaney (SJH), Lorcan Birthistle (CEO SJH), Dr. Gerard Boyle (MPBE),  
 Dr. Christine Kiernan (NDTP HSE), Eithne McShane (Enterprise Ireland), Enda O'Dowd (NCAD),  
 Dr. Chris Soraghan (MPBE/SJH Design Week Coordinator), Jared Gormley (NDTP HSE).

## Memory Clinic HealthLink e-Referral

In 2019, GP referrals of patients to Memory Clinics went electronic for the first time, with the roll out of a pilot HealthLink e-referral system. The implementation of this national system has been driven from MISA, with Dr Chris Soraghan at MPBE/MISA managing the process locally with Matthew Gibb (Director DSIDC), in collaboration with Memory Clinic staff.

National Memory Clinic Specialist referral form developed at MISA.

## Campus App

The SJH Campus Guide App, designed at MISA/MPBE by Dr Chris Soraghan in collaboration with Anthony Edwards, Clinical Photographer reached 1600 downloads in 2019. The Campus App provides a mobile phone interface to help SJH staff and visitors navigate the hospital campus.

### **2.3.7. The Robert Mayne Day Hospital**

The Robert Mayne Day Hospital is a five-day unit providing comprehensive geriatric assessment, rehabilitation and acute medical care to elderly patients residing in the community. Our aim is to assist in restoring and improving general health, mobility and wellbeing for our patients. The day hospital provides access to a wide range of specialist support services such as medical care, nursing care, physiotherapy, occupational therapy, medical social work, clinical nutrition, and speech therapy for elderly patients under one roof.

As a multidisciplinary team, we strive towards a common goal of promoting patients' welfare and actively encourage participation from both patients and their families to achieve their level of independence. We work closely with our community colleagues to provide holistic, thoughtful, sensitive, empathic and respectful care that places the patient at the centre of all we do. Patient experience, patient safety and efficiency of patient care is paramount to our work, and something we as a team take great pride in.

#### **Team**

Robert Mayne Day Hospital is under the management of the MedEl Directorate Management Team. The team work extensively with the multidisciplinary team in order to create an inclusive, supportive, patient-centred environment. Clinical leadership is provided by the Lead Geriatric Consultant. Nursing leadership is provided by the Clinical Nurse Manager. The unit team consists of nurse managers, staff nurse, health care attendants, administrative support with continuous support from physiotherapist, occupational therapist, medical social worker, Speech and Language Therapist and Clinical Nutritionist. Administrative leadership is provided by the Directorate Service Manager. Support staff, including porters, cleaning staff and catering staff are under the management of General Support Services.

### **2.3.8. MISA Outpatient Services**

MISA outpatients provide comprehensive geriatric assessment and treatment to those aged 65 and over. This service is provided by a team of Consultant Physicians in Geriatric Medicine. Clinics are held in a state of the art outpatient area of in MISA located on the ground floor adjacent to the Institute's main entrance.

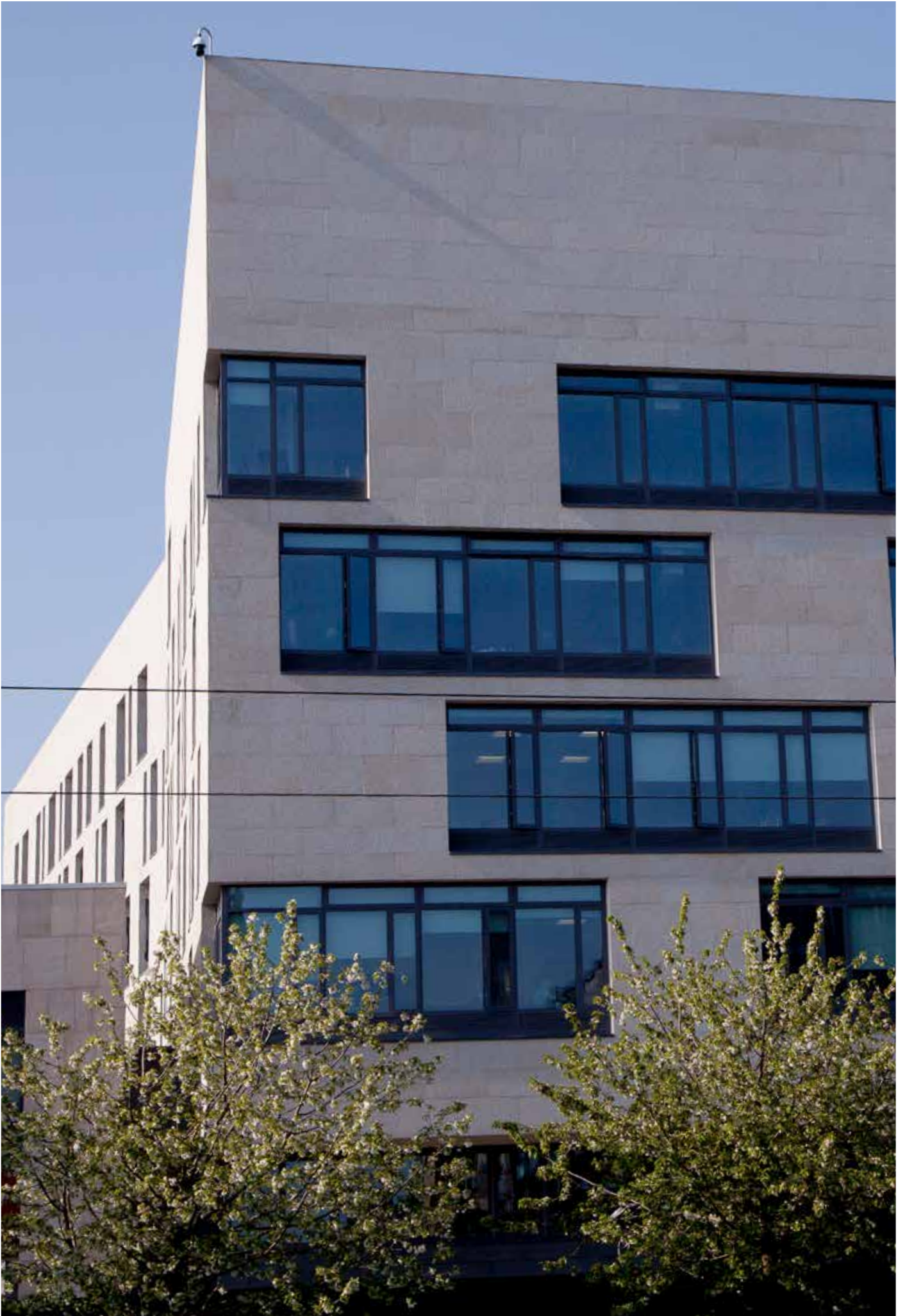
#### **Team**

Our team has a designated medical, nursing, and administrative staff that works extensively with a wider Multi-Disciplinary Team in order to deliver integrated patient-centred care between the hospital and the community.

#### **List of consultants**

- Prof Conal Cunningham Consultant Physician in Geriatric Medicine and Clinical Director
- Dr David Robinson Consultant Physician in Geriatric Medicine Specialist interest in Memory
- Dr. Kevin McCarroll Consultant Physician in Geriatric Medicine Specialist interest in Bone Health)
- Dr. Rosaleen Lannon Consultant Physician in Geriatric Medicine, Specialist interest in Bone Health
- Professor Roman Ortuno Consultant Physician in Geriatric Medicine
- Dr Róisín Purcell Consultant Physician in Geriatric Medicine St James's Hospital and Our Lady's Hospice Harold's Cross. Specialist interest in Rehabilitation and Parkinson's disease
- Dr Rory Nee Locum Consultant Physician in Geriatric Medicine and Community Geriatrician
- Dr Amanda Lavan Locum Consultant Physician in Geriatric Medicine
- Dr Robert Briggs Locum Consultant Physician in Geriatric Medicine

Dr David Bradley is a Consultant Neurologist who works with MISA and is the clinical lead specialist in movement disorders. He is establishing, with Professor Conal Cunningham, a new dedicated Parkinson Syndrome Clinic.



# 3.

## MISA

# Education and Training Pillar

### **Our vision:**

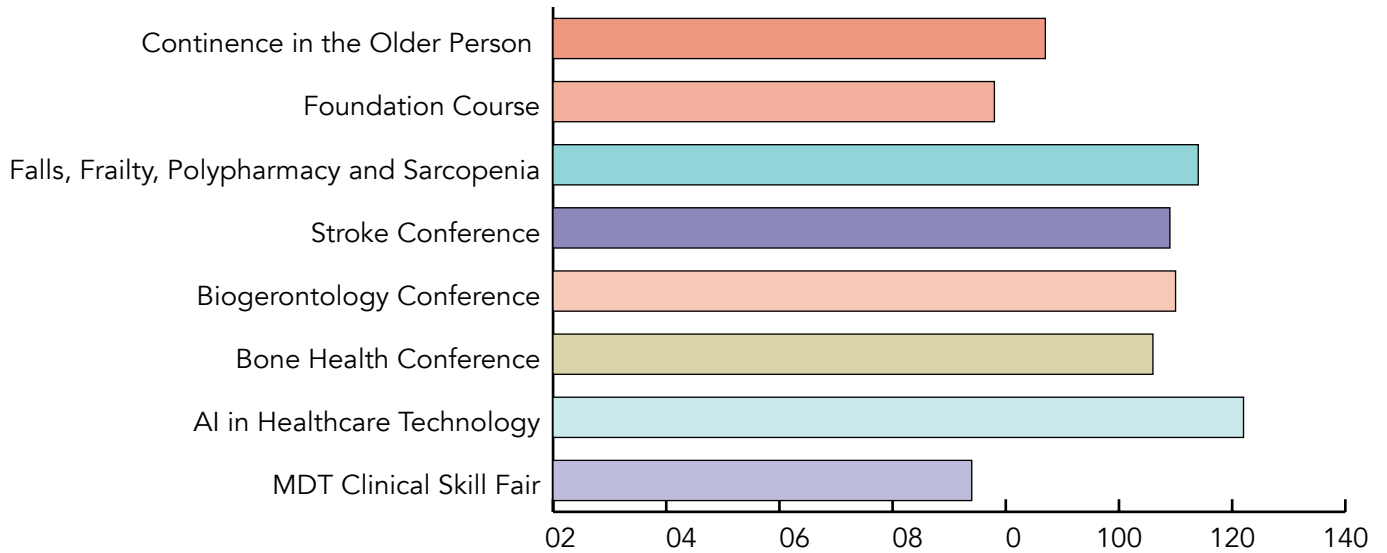
The MISA education and training pillar aims to lead learning through the delivery of high quality, inclusive, responsive and innovative education and training for health care professionals. Our mission is to provide a wide range of education and training programmes, certified courses, clinical programmes for doctors, nurses and allied health care workers nationally and internationally.



# Quick Facts

**8 Conferences**  
**800 Attendees**

## Attendees as per discipline



Prof. Roman Romero-Ortuno presenting at Artificial Intelligence in Healthcare Technology 2019.

## Committee Members:

- Prof Conal Cunningham, MedEl Clinical Director (Chairperson)
- Prof Rose Anne Kenny, Director of MISA
- Ms Carol Murphy, Operations Manager
- Ms Joe Donlon, Assistant Director of Nursing
- Ms Snehal Prabhukulskar, MISA Education and Training Coordinator
- Mr Matthew Gibb, Dementia Services Information and Development Centre
- Ms Ciara Rice, Clinical Nurse Manager
- Ms Niamh Murphy, SCOPE Manager
- Dr Emer Mallon, General Practitioner
- Dr Gerard Boyle, Medical Physics and Bioengineering
- Ms Róisín Nevin, Creative Life Co-coordinator
- Dr Ann Hever, TILDA
- Dr Paul Claffey, Lecturer in Gerontology
- Dr Rosaleen Lannon, Consultant Geriatrician
- Dr David Robinson, Consultant Geriatrician
- Clinical Nurse Manager/Clinical Nurse Specialist (Rotating)



## 3.1. Overview of Events

### **Foundation Course in Gerontological Nursing**

A 5-day Foundation course in Gerontological Nursing was held in MISA twice a year in January and October 2019. The course was fully subscribed and attended by 78 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.

### **Falls, Frailty, polypharmacy & Sarcopenia conference**

This international conference was held on 1st February 2019. The day was led by national and international experts on the topics of falls, frailty, polypharmacy & sarcopenia. The prominent speakers were chosen to reduce gaps in knowledge and improve clinical practice. The day was fully subscribed and attended by 114 Participants from multidisciplines such as a physiotherapist, dieticians, pharmacists. The conference aimed to allow participants to identify frailty, polypharmacy and sarcopenia when working in the clinical area.

### **Interdisciplinary team working with stroke**

This national conference was held in February 2019, provided a multidisciplinary team with an overview of acute stroke management and the care and management of a person with a stroke. This event provided an overview of topics such as 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. The day was fully subscribed with 109 attendees across the disciplines working with stroke.

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

The Inaugural Biogerontology for Clinicians International Conference was held on March 2019. The programme included twelve expert speakers across the day, to put recent advances in biology in context with the pathology of ageing. The conference was opened by Prof Rose Anne Kenny. The idea was to bring together leaders in ageing from various backgrounds, to generate meaningful collaborative, translational approaches with significant potential strategic value to service users. The conference speakers included Prof Tom Kirkwood (UK), Dr Claire Steves (UK), Prof James O'Donnell (IRE) and Ms Mary O'Shea (IRE). The day was fully subscribed and attended by 110 attendees.

### **Bone Health & Osteoporosis Conference**

This national conference was led by national experts on the topics of Bone Health and Osteoporosis. The prominent speakers were chosen to reduce gaps in knowledge and improve clinical practice. Participants were provided with up to date evidence-based information on osteoporosis treatment, vertebral & Colles fractures, falls, Paget's disease and parathyroid surgery. The day was subscribed by 106 attendees across the disciplines working with bone health and osteoporosis.



## **Artificial Intelligence in Healthcare Technology**

Mercer's Institute for Successful Aging (MISA) and the Department of Medical Physics and Bioengineering (MPBE), in collaboration with the Digital Hub, held a conference on Artificial Intelligence in Healthcare Technology on September 2020. Over a dozen international, national and SJH speakers provided an introduction to AI in healthcare, with Dr Pulkit Sharma from Oxford University's Computational Health Informatics (CHI) Lab providing an overview of the state of the art. Over 120 clinical, academic, research and industry delegates attended Artificial Intelligence in Healthcare Technology 2019. The conference was the start of a conversation on AI, and from the interest shown on the day, it's likely to be one that SJH will be becoming increasingly involved in the coming years.

## **MDT Clinical Skills Fair (Theme: Older Person Care)**

A multidisciplinary approach of clinical skills fair was held in September 2019. 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, 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. It was a 2-hour event with 74 attendees attending the event.

## **Continence in the Older Person Care**

A study day on Continence in the older person care was held in November 2019. The study day aimed to provide attendees with a comprehensive overview of continence issues and treatment. This informative day was attended by 87 attendees across the disciplines.

## **Falls & Syncope Unit Teaching and Audit**



Dr Gerard Boyle (MPBE), Dr Roman Romero-Ortuno (MISA), Fiach Mac Conghail (CEO, The Digital Hub), Alison Buick (BrainWaveBank), Lorcan Birthistle (CEO SJH), Prof. John Kelleher (ADAPT/TU Dublin) and Caroline Viguier (The Digital Hub) at the opening of Artificial Intelligence in Healthcare Technology 2019 in MISA.



Our LGBT champions Kara Fitzgerald and Aoife Dillon presenting LGBT stand at Clinical Skills Day

- 8th International Syncope Training Days
- Falls, Frailty, Polypharmacy and Sarcopenia (FFPS) study day.
- Monthly Clinical Case Conference under the leadership of Professor Roman Romero Ortuno.
- Emergency Department Falls and Syncope Education
- Training of both medical and nursing students
- Set up MISA lead Certified Syncope Course.
- Facilitated International visitors to the Falls and Syncope
- Audit occurs on an ongoing basis in the FASU, with particular focus on improving service provision.
- Dr Claffey involved in the delivery of undergraduate teaching within Medical Gerontology and Clinical Medicine.
- Provided education on the following:
  - Foundation medical/surgical nursing
  - Foundation gerontological nursing
  - MSc & Graduate diploma in cardiovascular nursing (TCD/SJH)
  - MSc & Graduate diploma in gerontological nursing (TCD/SJH)

## **Dr Paul Claffey, Assistant Professor, Dept. Medical Gerontology**

Paul prepared an undergraduate team of final medical students for participation in the Dr Jack Flanagan Medal Competition in Geriatric Medicine. This is an intervarsity Clinico-Pathological Case Presentation competition focusing on the care of older patients set up to encourage and foster interest in geriatric medicine among undergraduates. The Trinity team enjoyed success in 2018 winning the competition held at the RCSI in November. Paul went on to organize the competition in 2019 which took place at MISA on the 7th November. Once again, the Trinity team secured back-to-back success – the first time a university team achieved this since the inception of the competition. The team comprised Anna Coulter, Claudine Howard-James, Shriya Varghese and Max Waterstone.



Dr Paul Claffey, Professor Rose Anne Kenny, Professor Davis Coakley.



Dr Paul Claffey with the winning team:  
From L-R: Paul Claffey, Claudine Howard-James, Anna Coulter, Shriya Varghese, Max Waterstone

## Memory Clinic Conference

The 9th Annual Memory Clinic Conference took place in 2019. This meeting was organised by the Dementia Services Information & Development Centre and the Memory Clinic to provide a forum to discuss the future direction of memory assessment services in Ireland. Invitations were sent to the clinical leads of all memory assessment services in Ireland and relevant staff. The response was overwhelmingly positive leading to the attendance of fifty individuals, including over 90% of the clinical leads. Observers from the National Dementia Office, GBHI and the Dementia and Neurodegeneration Network Ireland were also in attendance. A report from this successful day is available from DSIDC on request.

## Medical Social Worker:

The social worker has provided information sessions and training to HSE National programmes on Dementia (Enabling and Enhancing and Understanding Dementia for Home Care Workers) St James's Hospital Medical and Surgical Nursing Course, NCAD Studio + students, has been actively involved with GBHI providing field placements and giving talks to the Atlantic fellows. The social worker also organised information stands for Alzheimer's Month and participated in the talks during World Mental Health Day.

## Trainee Clinical Psychologist placement:

Joanne Connolly, 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.

## Global Brain Health Institute:

The Memory Clinic continues to accept Fellows as part of their clinical rotation, and supported 12 Fellows in 2019.

## **MBPE/MISA Educational Activities**

### **Artificial Intelligence Conference**

On Sept. 20th 2019, MISA and MPBE jointly hosted the 'Artificial Technologies in Healthcare Technologies', conference in collaboration with the Digital Hub. The conference included contributions from Oxford University, Berlin Charité, INTEL, IBM and the ADAPT centre, as well as presentations from MISA/MPBE on work underway locally on AI.



Mr. Lorcan Birthistle (CEO, SJH) opening the Artificial Intelligence in Healthcare Technologies 2019 conference at MISA.

### **NCAD Medical Device Design Course**

MPBE/MISA engineering staff provided a module on the NCAD (National College of Art and Design) M.Sc. in Medical Device Design course, teaching students about electronics and signal processing in medical devices.

### **Successful Ageing Education**

Two initiatives were organised in 2019 focused on health and wellness as part of the National Health Ireland initiative. A 12-week 'Fun Run Training Group' initiative to help SJH staff members complete the annual SJH Liberties Run was designed and coordinated by members of the Dept. of Physiotherapy, Dept. of Clinical Nutrition, Dept. of Clinical Psychology, MISA Creative Life and MPBE (Dr Mindaugas Norkus, Dr Ciarán Finucane and Niall Lynch). MPBE staff in collaboration with colleagues from Physiotherapy and the Canal Run team also launched a 5km 'Parkrun' style series for SJH staff, with over 350 staff members taking part in 2019.



The Fun Run Training Group at MISA



Members of the Canal Run Team with SJH CEO Lorcan Birthistle at the Canal Run Launch 2019

## 3.2 Dementia Services Information and Development Centre (DSIDC)

The Dementia Services Information and Development Centre (DSIDC) works alongside health and social care professionals; people with dementia, their care partners, community organisations and national policy makers. The values that underpin the DSIDC are of dignity and respect; autonomy and choice; participation and empowerment.

### Education and Information

Throughout 2019 the DSIDC provided both in-house and bespoke dementia specific workshops and education packages to healthcare professionals and community personnel nationwide. Throughout the year a total of 181 health and social care professionals attended in-house workshops and 176 availed of our off site education service.

The DSIDC played a significant role in the teaching of third level courses including Trinity College's MSc in Gerontology, the MISA Foundation Programme in Gerontological Nursing and contributed to the St James's Hospital Induction Programme; helping to increase awareness of dementia throughout the hospital. During 2019 the DSIDC continued to provide training to SJH security personnel on different aspects of dementia. The DSIDC, as part of the DemPath project, was responsible for the installation of the 'Tovertafel' (or Magic Table) in Kilmainham Ward providing an opportunity for patients to engage in meaningful activity.

The DSIDC continues to be represented on a number of national committees including the National Dementia Strategy Monitoring Group, Dementia Diagnostic Project Steering Committee and the Young Onset Dementia Review Project.

### Research

2019 was a significant year for the DSIDC with the launch of two guidance documents for health and social care practitioners. In conjunction with the National Dementia Office (NDO) the DSIDC were delighted to announce the launch of "The Next Steps: Dementia Post-diagnostic support guidance". The document provides guidance on the development and ongoing facilitation of dementia post-diagnostic psychoeducational programmes for people with dementia and family care partners. The "Next Steps" forms part of the larger Dementia Post-Diagnostic Support Project and furthers the National Dementia Strategy's action area of Timely Diagnosis and Early Intervention. The document was launched at the Wood Quay venue on Friday 18th January 2019. Professor Richard Cheston was the keynote speaker at the event along with Kathy Ryan, Chair of the Irish Dementia Working Group; Una Caulfield, Dementia Carers Network; Dr Emer Begley, NDO and Matthew Gibb, DSIDC.

Early 2019 the NDO commissioned the DSIDC to develop a second guidance document for the use of non-pharmacological interventions for behavioural and psychological symptoms of dementia. This document, designed to be used as a companion guidance document to the National Clinical Guideline document (NCG) for appropriate prescribing of psychotropic medication, was launched at the Department of Health on 5th December 2019.

## Seminars and Conferences

In May 2019 MISA and the DSIDC co-hosted the National Memory Clinic Meeting which provided an excellent forum for information sharing and networking amongst experts working in memory clinics nationwide. Throughout the year DSIDC staff presented at the Royal College of Physicians and attended several national events including the Engaging Dementia Conference; Ageing Social Care and Social Justice symposium; the Irish Gerontological Society in Cork, and the European Foundation Initiatives for Dementia in Turin. Towards the end of 2019 staff from the Centre took part in an Interdisciplinary Skills Fair hosted by MISA and presented at an event organised to support World Mental Health Day.

The DSIDC continues to employ five staff members all of whom are based in the national centre in St James's Hospital. All professional activities undertaken by the DSIDC are overseen by a Steering Committee.



(L-R) Kathy Ryan, Vice Chair of the Irish Dementia Working Group, Una Caulfield, Dementia Carers Network, Professor Richard Cheston, Keynote Speaker, Dr Emer Begley, NDO and Matthew Gibb, Director, DSIDC. Pictured at the Launch of "The Next Steps".



(L-R) Diana Burgui, Bernie McGowan and Lorraine Lovely. Pictured at the MISA Skills Fair





# 4. Creative Life Pillar



Creative Life delivers and integrates an inclusive art and health programme in MISA, creating and developing new opportunities for participatory arts in healthy ageing in healthcare. The programme provides access to arts engagement through educational talks, participatory experiences, and performances for patients, carers, hospital staff and communities. Creative Life is coordinated by Róisín Nevin, who is responsible for development and management of the programme, supervision of educational activities involving creativity, recruitment of participants, collaborations with local and national partners and applications for funding awards. The programme is multidisciplinary and involves participation of artists, patients and healthcare professionals. The programme strives to critically evaluate and develop this new innovative area of arts integration into healthcare based on best international practice in arts and health.



# 4.1.Examples of activities in 2019:

NCAD – Studio + Group 1 – Public showcase in MISA

- Dublin Castle – end of workshop series – Invited showcase in Dublin Castle
- MISA Choir (Director Norah Walsh) rehearsals and public performances
- Irish Therapy Dog weekly visits
- NCAD and MISA guest public lunchtime art talks series -6 lectures
- Age of Arts and GBHI expert hub – concept, co planned and delivered in 2 locations at the one time in TCD and an online audience- MISA Choir 1st choir to perform in Paccar Theatre.
- Creative Life area – Tai Chi classes, and meetings.
- DIT-TU art workshop – students working with older people participating in arts
- Outlandish Theatre – artists working with SCOPE/SALT staff and Martha Whiteway with patients.
- Bealtaine festival
- Café BÁS with the Irish Hospice Foundation
- Bealtaine Discussion – National event – NCAD –IMMA –MISA CL
- IMMA - Collaboration with SCOPE Physio team - mark making workshop for patients
- Connect- Social Prescribing MISA with IMMA meetings.
- Cantando choir Director Orla Barry) performance in MISA
- MISA Choir performances for Alzheimer’s Society Ireland – Advocacy Group National Meeting and DCC Culture Night, St James’s Church.
- Age and Opportunity - national artists in residence.
- Age well art participatory workshop series, for patients and carers with a public art showcase (collaboration) TCD and HOPE
- Dublin International Film Screening – (Elvis) Film /Jail House Rock (collaboration) – for patients on MISA wards.
- “Poems and Piano in the key of Elsewhere” performance by Dr Anne Marie O’Dwyer and Maeve O Sullivan (public event)

## **Christmas events 2019**

- MISA Choir performance – SJH main concourse area
- CCMA Crumlin – Traditional Irish music and Christmas music – MISA wards
- Cantando choir – Christmas performance (public event)
- St. James’s Primary School choir
- NCAD students – interactive Christmas event

## **National Organisations –partners (collaborations)**

NCAD (on going) IMMA (on going), Age and Opportunity, Bealtaine, Dublin Castle, Arts Council, Dublin International Film Festival, TCD, GBHI, The Whelan lab.

## **SJH Hospital directorates (collaborations)**

- SCOPE team
- HOPE Nurses
- Martha Whiteway staff
- New Cancer institute

## Creative Life area - location

- Conference – receptions
- Arts Seminars/talks
- Choir rehearsals
- Wellbeing seminars
- Information Days
- Public events/performances
- Workshops
- Meetings
- Tai Chi classes for staff
- National Awareness days



Doctors in “Bleeping Interns” performance at MISA (Interns and supporting doctors):  
Drs. Kevin O’Rourke, Kate Kennedy, Ross Cullinane, Eleanor O’Riordan, Conor McCaughey, Karen Mc Mahon, Shane Toolan, Claudine O’Driscoll Greaney, Michael O’Shea

Mono printmaking workshop series for patients.  
(Left) Róisín Nevin, Coordinator of the Creative Life Programme with workshop participants



# 5. Research Pillar





# 5.1. Falls & Syncope Unit

**Professor Kenny** was awarded a life time achievement award in 2019 for her work on Falls and Syncope. She is PI for a new EIT award which uses data from the Reveal LINQ™ to evaluate heart rate, rhythm, movement and activity levels in prediction of unexplained falls together with machine learning and AI bioengineering experts at Medtronic Inc.

**Roman Romero Ortuno** received research funding by the Science Foundation Ireland under the 2018 President of Ireland Future Research Leaders Program for a new research program called FRAILMatics: Mathematical research and big data analytics towards the development of the next generation of transdisciplinary diagnostics for the assessment of physiological vulnerability in older adults: challenge-based disruptive technology initiative. The grant runs from 1 December 2019 to 30 November 2024 (60 Months). Prof. Ortuno is Faculty member of the Global Brain Health Institute (GBHI) where he brings clinical and academic expertise in frailty, dementia, delirium and comprehensive geriatric assessment. He coordinates the clinical rotations (including FASU) for the Atlantic Fellows for Equity in Brain Health at Trinity College Dublin.

For a 3-month period in 2019 **Dr. Giulia Rivasi**, Geriatric Resident, University of Florence completed a clinical attachment in the Falls & Syncope Unit, St. James's Hospital, under the supervision of Prof. Rose Anne Kenny and Prof. Roman Romero-Ortuno. The attachment was aimed at implementing her research in the field of syncope, falls and orthostatic hypotension, with a particular focus on older patients. Additionally, she wished to learn more about the management of syncope and falls in the largest Syncope Unit in Europe.

**Dr Robert Briggs** completed his PhD titled "The Association between Blood Pressure, Cerebral Perfusion and Late Life Depression" under the supervision of Professor Rose Anne Kenny and Dr Sean Kennelly.

**Ms. Gemma Foley** (Physiotherapy) commenced a master's project in the lab, to explore the gait performance in older adults with and without orthostatic hypotension under the supervision of Professor John Gormley and Dr Tim Foran.

**Dr Paul Claffey** is undertaking a PhD in Medical Gerontology at Trinity College Dublin, investigating the role of near infrared spectroscopy in the evaluation of patients presenting to the Falls and Syncope Clinic under the supervision of Professor Rose Anne Kenny and Dr Ciarán Finucane.

**Dr Richard Armstrong** is a Cardiology Research Fellow completing an MD to determine whether heart rate responses can be modified in cardiac rehabilitation patients. Dr Armstrong is the first cardiology fellow to provide service to FASU and has extended the capability of the service in particular because of his expertise in cardiac echo and cardiac pacing technologies under the supervision of Dr Andy Maree and Professor Rose Anne Kenny.

**Ms Laura Pérez** continues her PhD work, 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 under the supervision of Dr Ciarán Finucane.

**Dr Kevin Mc Carthy** is a research fellow undertaking a PhD and is examining potential associations between metabolic syndrome and altered neuro-cardiovascular physiology (from active stand data including NIRS), frailty and brain health (using cognitive markers and MRI data). He will also examine associations between metabolic syndrome and general background inflammation, accelerated ageing, morbidity and death under the supervision of Professor Rose Anne Kenny and Professor Roman Romero-Ortuno.

**Dr David Moloney** is the Davis Coakley research fellow, completing an MD, who is studying static and dynamic cardiovascular markers during the active stand exploring new patterns of early autonomic nervous system impairment under the supervision of Professor Roman Romero-Ortuno and Professor Rose Anne Kenny.

**Dr Triona McNicholas** was the Davis Coakley research fellow. She is undertaking a PhD under the supervision of Professor Kenny and her research focuses on cardiovascular ageing and autonomic function, and its impact on cognition and falls.

## 5.2.Memory Clinic

### **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. Prof Iracema Leroi is chief investigator and Principal Investigator is Prof 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 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.

### **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). Aims of this study included determining the prevalence and pattern of neurocognitive function in HCV-infected patients and investigating whether or not 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 all the Neuropsychological / cognitive aspects of this research. The Neuropsychological strand was researched by Orla Strahan with assistance from additional Psychology students and formed the basis for her PhD with joint supervision by Dr. Coen, and Dr. Paul Dockree TCD. The work has been completed and her PhD has just been submitted at end of 2019. Aspects of the work have been presented at international conferences (including the exercise component with published abstract) - see publications list. Several papers are now in preparation.

### **Prevent:**

This study (Lawlor/Naci PIs) is characterising people at mid-life with and without a family history of Alzheimer's disease (AD) to see if we can identify early risk markers for people who are more likely to develop AD later in life. We have recruited 100 people who are undergoing blood test, spinal taps, MRIs, cognitive and behavioural assessments at baseline and to be repeated at 2 years. This is a collaborative project that has recruited 700 subjects working with Oxford University, University of Cambridge, Edinburgh University and the INSERM at Montpellier and is funded through Alzheimer Association, Alzheimer Society UK and GBHI. Research staff: Lisa Crosby, Dawn Higgins



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

In collaboration with Principal Investigator Prof. John Nolan, Waterford IT, Dr. Coen has been 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). The latter work has been done by Rebecca Power forming the basis of her PhD with Supervision shared by Dr. Coen and Prof. Nolan. The work has been completed and successfully submitted with Rebecca's PhD awarded in November 2019. Papers have previously been published and another is now in preparation.

## **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 continues to consult on TILDA developments primarily through the Neurocognitive working group.

The effects of an extensive exercise program on the progression of mild cognitive impairment (MCI). Dr. Coen was involved in an advisory capacity regarding the cognitive assessment aspects of this multicenter study in 3 countries (PI Prof. Stefan Schneider, Institute for Movement and Neurosciences at the German Sport University in Cologne). Sub-studies were undertaken by Kate Devenney (TCD, Academic Supervisor Prof Brian Lawlor with input from Dr. Coen) and Kate successfully completed her PhD. A paper has been published with others in preparation - see publications list.

## **Dementia & Neurodegeneration Network Ireland:**

This is a network grant funded by the HRB (Lawlor PI) and hosted at TCD to support the running of this national research network. Research staff: Dr. Carol Rogan. The main activities of the network include providing online resources, publications, social media communications; managing a database of research projects and planned research; hosting conferences/seminars; relationship building with European/international agencies; policy & practitioner fora & public outreach events; assisting in the development of early-career researchers in the field and act as an advocate for researchers in the dementia/ND field; monitoring and report on research funding, highlighting gaps to funders, policy-makers and politicians; conducting research prioritisation; investigate alternative funding models for dementia/ND research; supporting the implementation of the National Dementia Strategy.

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

In collaboration with Dr. Fiadhnaid 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 Trinity, University of Ulster and Dept. of Agriculture (TUDA) Cohort Phenotype / Genotype database.**

Dr Coen in collaboration with Dr Kevin McCarroll 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 was involved in implementing that including study methodology and staff training. Data collection has been completed and a paper submitted with others in preparation - see publications list.

## **NeuroExercise:**

This randomised trial of exercise in MCI funded by JPND (Lawlor PI Ireland) conducted at 3 sites (Nijmegen, Cologne and Dublin) concluded in 2019. The study did not show a significant effect of aerobic exercise on slowing the progression and transition to dementia. The main paper has been submitted for publication. Kate Devenney was awarded her PhD in 2019 based on research work conducted as part of this study at the Dublin site

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

In collaboration with Dr Fiadhnaid O'Keeffe, 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.

## **Renew**

Site initiation has occurred for this industry sponsored device trial that aims to determine if external counter pulsation treatment (a device that increases cardiac output and potentially boosts cerebral blood flow) benefits people with MCI and mild AD (PI - Prof Lawlor, Dr Robinson). The study will commence in 2020. We plan to recruit 10-15 subjects into this trial.

Research staff: Lisa Crosby, JP Connelly

## **Global Brain Health Institute (Lawlor/Roberston PIs)**

GBHI is a collaborative venture between TCD and UCSF and is funded by Atlantic Philanthropies. Funding has been secured for this inter-professional leadership training program in brain health and dementia prevention for the next 12 years. Atlantic Fellows for Equity in Brain Health rotate through different experiences at MISA, including Creative Life, Memory Clinic, Old Age Psychiatry, FASU, Geriatrics to gain a better understanding of the lived experience of dementia. GBHI funding part supports Academic appointments in Old Age Psychiatry and Geriatrics and these appointments provide oversight for the clinical and lived experience rotations.

# 5.3. Bone Health

## Mercer's Foundation Research Bone Health Fellow

The Mercer's Board provided funding to the Mercers Institute for Research in Ageing - 60,000 in over two years to support research of Vitamin D deficiency in the large socioeconomically deprived catchment area cohort of St James Hospital. The research was conducted by a Mercer's Research Bone Health Fellow, also part sponsored by Glanbia who provided 80,000 to support the two- year study. It builds on the historic link between the Mercer's Institute and Premier dairies (now Glanbia) in the 1990's which proved that a method of fortifying milk with vitamin D could be used to improve vitamin D status in older adults. This paved the way for the development of vitamin D fortified milk in Ireland.

### Study 1

#### Geo- mapping vitamin D status in Dublin and surrounding areas.

**Background:** there have been an increasing number of requests by GP's for vitamin D testing at St James's hospital, Dublin in recent years. Despite this, it remains unclear whether the prevalence of deficiency has increased or changed over time. A previous study (Laird et al, 2017) also identified differences in vitamin D status by postal code areas surrounding the hospital, though sample size was relatively small and the findings were only at one point in time.

**Study population:** community dwelling adults (who had vitamin D levels tested by request of their GP) at St. James's hospital, Dublin between 2014-2018.

**Aims:** within the above population we aim to establish:

1. Prevalence of vitamin D deficiency/ insufficiency and replete status.
2. Vitamin D status by age, gender, season and geographical area.
3. Trends in vitamin D status by year (2014-2018).
4. Geomapping of vitamin D deficiency.
5. GP vitamin D requests - frequency of testing and re-testing.

#### Preliminary Results / Progress Report.

Vitamin D status was tested on 50,416 community dwelling adults between 2014-18. About 25% of all samples (n=13950) resulted from repeat testing and were excluded leaving our study with 36,466 subjects. The majority lived in the Dublin city area (63%) with 16% living in county Dublin and 18% in county Kildare. The prevalence of vitamin D deficiency (<30 nmmol/l) were 23% in winter, 20% in spring, 11% in autumn and 9% in summer. There was no overall change in vitamin D status over the study period. A "U" shaped relationship was identified with rates of deficiency greatest in those who were younger (<40) and older (>70) with males also having lower vitamin D levels. Vitamin D status varied significantly by geographical and Dublin postal code area and this was visually represented by a colour coded geomap. This is the largest study of its type in Europe to geomap vitamin D status. Preliminary results were presented as a platform presentation at the Nutrition Society Postgraduate meeting in Dublin in Feb 2020.

Study Goals (2020)

The findings are currently being written up for peer review and will be submitted to the Journal of Steroid Biochemistry & Molecular Biology later this March.

## Study 2.

### Determinants of vitamin D status in Irish adults.

**Background:** No studies in Ireland have comprehensively assessed in detail dietary and other factors influencing vitamin D status in adults. This is important as knowledge of vitamin D determinants helps to identify those at risk of deficiency and inform strategies aimed at optimising vitamin D status.

Study population: community dwelling adults (n=1000) who had vitamin D tested in 2019/2020 (by request of their GP) at St James's hospital, Dublin.

#### Aims:

1. To ascertain the relative importance of several factors (as outlined below) in determining vitamin D status in adults.
  - Dietary** - vitamin D intake (IU/day) including supplemental and non-supplemental sources and vitamin D fortified foods - calcium intake (mg/day) will also be estimated.
  - Biophysical** - body mass, skin type, medications and medical conditions (e.g. malabsorption syndromes).
  - Sun exposure** - season, sun holiday travel, sunscreen use, and time spent in sun.
  - Lifestyle** - smoking, alcohol, exercise
2. Identify reason(s) for vitamin D testing and evaluation of awareness of perceived importance of vitamin D status on bone health or other health outcomes.

#### Study Goals (April 2020 -Feb 2021)

1. Identify study population and inform their GP's.
2. Distribute study questionnaires (online and paper format).
3. Collect and collate study data.
4. Statistical analysis of study data.
5. Write and submit paper for peer review.

## 5.4. Stroke

In the Spring the Stroke Service won a best Poster Presentation at the European Stroke Organisation Conference in Milan for work on adapting a Stroke Unit to cater for pregnant patients. St James's Hospital, because of its proximity to The Coombe Hospital, receives a number of pregnant women with stroke or suspected stroke annually. Accordingly, the staff have been trained in the use of the nMEWS early warning score for the care of pregnant women.

We have continued to publish work from the research projects of Dr Anne Buckley (from TILDA) with Professor Rose Anne Kenny and Professor Jim Meaney and Dr Paul McElwaine (from the Irish National Audit of Stroke Care) who has now submitted his MD thesis for examination (supervisor Prof Joe Harbison).

We collaborate in Large National and International trials and collaborations. The EuroHYP 1 study of hypothermia for acute stroke has concluded as has the BIOVASC study and there have been recent publications in highly ranked journals from this. We recruit subjects to the CONVINCENCE trial of the anti-inflammatory drug Colchicine and are looking at other trials including AVERT DOSE of early rehabilitation following Stroke and ELAN of early anticoagulation for cardio embolic stroke.

We have recently been successful in a HRB Grant call and have received 700,000 to research the use of Transcranial Magnetic Stimulation as a predictor of outcome in stroke patients. The PI on this study is Dr Kathy Ruddy and it will be based and conducted in MISA.

Prof Harbison has been recently appointed Clinical Lead of the National of the Irish National Stroke Audit. This is an evolution of the Irish National Stroke Register which was established in 2011 whilst Prof Harbison was National Clinical Lead for Stroke. The register contains data on >40,000 individual stroke events and will be useful in directing care and policy and evaluating the effectiveness of interventions over the coming years.

We are continuing to pursue work on Vitamin D and Bone Biomarkers in disabled and non-disabled Stroke Survivors.

# 5.5. Medical Physics & Bioengineering/MISA

## **Neurocardiovascular Research**

The team continues to collaborate with Prof Rose Anne Kenny, TILDA and FASU on studies of the physiological mechanisms that lead to falls, faints, cognitive impairment and other age-related issues. Six related Biomedical Engineering projects supervised by Dr Finucane and colleagues are ongoing or were completed in 2018/2019: two Ph.D.'s (Laura Pérez Denia, Dr Paul Claffey), three Masters (Ailbhe O'Reilly, Sumir Ramesh Mukkunda, Amparo Zamora Mogollo), a research assistant (Maria Delgado Ortet) and three student interns (Seán Mc Grath, Maryla Oshodi and Linette Hartzell).

## **Cerebral Perfusion in Disorders of Ageing**

The introduction of NIRS (near infrared spectroscopy) technology to MISA has enabled several research avenues to be explored on the application of NIRS brain blood flow measurements in falls and stroke. Clinical decision support tools using NIRS data are currently being developed, with two Ph.D.'s (Dr Paul Claffey, Laura Pérez Denia) and Masters projects (Ailbhe O'Reilly, Linette Hartzell) ongoing.

## **Ambulatory Monitoring of Cerebral Perfusion, Blood Pressure and Gait**

Ms Ailbhe O'Reilly (supervisors: Dr Ciarán Finucane; Dr Tim Foran) successfully completed her TCD M.Sc. project in 2019 at MISA on novel ambulatory measurements of cerebral perfusion and gait. This work will form the basis of novel diagnostic tests for older adults at risk of falls due to cardiovascular causes.

## **International Research Collaborations**

### **Harvard Medical School, Boston, United States**

Collaborative work between Dr Finucane, Prof Kenny and Prof Stephen Juraschek from Harvard Medical School and the SPRINT study team in the US led to publication of "Orthostatic Hypotension, Cardiovascular Outcomes, and Adverse Events: Results from SPRINT" in the American Heart Association Journal 'Hypertension'. This paper is a contribution to the debate on blood pressure management in older adults at risk of falls.

### **Amsterdam International Syncope Group**

Collaborating with Prof Wouter Wieling/Amsterdam Medical Centre, Dr Finucane led an international team of syncope, blood pressure and autonomic function experts on a project concerning standardisation of diagnostic tests for the assessment of falls and syncope, published in Clinical Autonomic Research as "A practical guide to active stand testing and analysis using continuous beat-to-beat non-invasive blood pressure monitoring".

## **MISA Gait Laboratory**

Research work continues in the 3D gait laboratory exploring the relationship between orthostatic hypotension and gait performance, led by Dr Tim Foran. A Masters project has been established by Ms. Gemma Foley (Physiotherapy), concerning the maintenance of gait stability in older patients. The MISA Physiotherapy team have been trained in the use of the 3D motion analysis system and have completed gait assessments on MISA stroke rehabilitation patients.

## MBPE/MISA Innovation Activities

### Eye Tremor

Dr Gerard Boyle and Dr Mindaugas Norkus continued development of technology at MISA/MPBE to measure eye tremor, an indicator of brain function, under Enterprise Ireland (EI) funding. In July, the project won 50,000 start-up funding through EIT Health (European Institute of Innovation and Technology). The commercialisation objective of the EI grant progressed with the creation of a 'spin out' at TCD, led by David Van Zuydam.



Left: circuit boards for eye tremor technology come off the production line at a contracted manufacturer and, right, creation of a spin out from TCD to develop eye tremor technology is marked at the 2019 Trinity Innovation Awards:

L-R, Dr Patrick Prendergast, Provost TCD, David Van Zuydam (CEO, Head Diagnostics), Dr Gerard Boyle (MPBE/MISA), Dr Mindaugas Norkus (MPBE/MISA).

### Novel Blood Pressure Monitoring Device

The group welcomed Mr Sumir Ramesh Mukkunda (M.Sc. student, TCD) to the team to carry out a project on validating a novel system for measuring dynamic changes in blood pressure and heart rate, with a view to developing lower cost and more convenient technologies for the assessment of falls and syncope.



Design concept for a novel blood pressure/HR monitoring device being developed in MISA.

## 5.6. SCOPe

### **Clinical Nutrition Current Research Projects 2018 & 2019**

- McMorrow, A et al. (2018) - Prevalence of Malnutrition and Sarcopenia Risk in Older Adults Referred to a Care of the Elderly Day Hospital via a newly established Frailty Intervention Response Team- awarded best poster at HSE Health and Social Care Professions (HSCP) Research conference 2018
- Waldron, T., Carroll, S., Lavan, S. Caraher, J & Cole, N. (2018) “Mealtimes & Me”: A multidisciplinary initiative for patients with dementia.
- 2018: Come Dine With Me project. Examined if patients who eat in a supervised dining room have an increased nutritional intake when compared with eating at their bedside (George Fredrick Handel ward). Best poster award, Irish Heart Foundation Conference 2019
- 2019: Audit of Vitamin D status and effect of supplementation in elderly patients resident in Hospital 4.

### **Medical Social Work Current Research Projects 2018 & 2019**

- Participation in working group on social work competencies for working with Older People under remit of National Programme for Clinical care of older people, HSCP-UCD joint research project 2019-2020.
- Participation in HSE’s National HSCP Office and the Office for Nursing and Midwifery Services Division, in partnership with other stakeholders, Focus Groups with frontline staff and service users to inform the design of a National *Get Up, Get Dressed, Get Moving Campaign* for Ireland.
- Participation in HSE working group on HSCP strategy

### **Occupational Therapy Current Research Projects 2018 & 2019**

- Griffin, A. (2019) Specialised Memory and Attention Rehabilitation Therapy (SMART). The International Dementia Conference, Dublin and The Irish Gerontological Society Annual Conference, Cork.
- Lavery, P, Smith, F and Peele, M (2019) Steps towards a more dementia friendly medicine for the older person acute admission ward
- Lavery, P and O’ Connor, S (2019) “Playing our part” – Are the Occupational Therapist completing a Comprehensive Geriatric Assessment? The Irish Gerontological Society Annual Conference, Cork.

### **Physiotherapy Current Research Projects 2018 & 2019**

- Lucinda Edge has enrolled in a part-time MSc by research with RCSI in Sept 2019, working title: ‘Revisiting Comprehensive Geriatric Assessment in the Emergency Department’
- Gemma Foley has commenced a part-time MSc by research with TCD: ‘An investigation of the impact of impaired orthostatic blood pressure responses on gait in an older population using gait laboratory analysis.’
- Kieron Connolly was awarded a grant from The Irish Research Council and is currently completing a fulltime research MSc with RCSI: ‘Prevalence of Sarcopenia and its effect on older adults attending a day hospital service in Ireland’

### **Speech & Language Therapy Current Research Projects 2018 & 2019**

- June 2019: Emer Foley, Senior SLT submitted her thesis “Fertile Ground: A Psychodynamic Exploration of an Art Class for Elderly Women in a Nursing Home” in completion of an MA degree in Psychotherapy.



# 5.7. Dementia Research Network Ireland (DRNI)

Dementia Research Network Ireland (formerly Dementia and Neurodegeneration Network Ireland) is an innovative, all-Ireland research initiative which supports and facilitates collaborative interdisciplinary research integrating the basic, clinical and social sciences. DRNI seeks to improve outcomes for people with dementia/ neurodegenerative disease (ND) through improving our understanding of the causes and mechanisms of dementia/ ND, the effectiveness of different models of care, and the policy changes required to improve individuals' quality of life.



**DEMENTIA RESEARCH NETWORK IRELAND**  
Prevention, Cure & Care for Neurodegenerative Diseases

There are over 90 members in the network, including leading Irish academics, clinicians, health & social care practitioners, early-career researchers, government representatives, community & voluntary sector members, people living with dementia and Parkinson's disease, and carers. Funding for the network is provided by the Health Research Board and current funding runs until August 2021.

## Projects and events include:

**Dementia Research Prioritisation:** This project is in partnership with the Alzheimer Society of Ireland and consists of a survey of professionals and facilitated workshops with people living with dementia and carers. A report of findings is currently being prepared.

**Research Database:** DRNI host a Research Database on their website which details dementia/ ND research conducted in Ireland over the last 10 years (work in progress).

**Conferences & Meetings:** Two academic conferences have been hosted by DRNI, namely 'Future Directions and Collective Strengths in Research' and 'Building Platforms for Sustainable Research in Dementia and Neurodegeneration'. This year our focus will be on Early Career Researchers, with a meeting planned for 18th May in Dublin.

**Public Outreach Events:** DRNI have hosted a number of successful public outreach events throughout Ireland and our next event will take place on Sat 20th June in UCC.

**Policy & Practitioner Fora:** Topics to date have included (i) the influence of modifiable lifestyle & health risk factors on dementia/ ND reduction and; (ii) consent in dementia research.

**Supporting the Research Community:** Two meetings have been held to address the issue of research funding in the dementia/ND field. There are plans to develop a research advocacy campaign in 2020.

For further details contact: Dr. Carol Rogan, DRNI Scientific Project Manager;  
E: [crogan@tcd.ie](mailto:crogan@tcd.ie); Tel: 086 145 1068; W: [www.dementianetwork.ie](http://www.dementianetwork.ie) Twitter: @DRNIre

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

### **TILDA and GAA: How to Age Well” Seminars**

In 2019, TILDA, the GAA, and Irish Life teamed up to host a series of regional seminars across Ireland, sharing health and nutritional advice in order to promote healthy ageing with a number of “How to Age Well” seminars. The nine seminars involved a series of roadshows that travelled around the country engaging communities in Cork, Kerry, Mayo, Wexford, Donegal, Limerick, and Longford. The GAA Community & Health Department sees the health and wellbeing of its community members as central to the core of all GAA activity, with a mission to empower the association and enrich its members in a healthy and active environment. This unique partnership enabled TILDA to tap into a vast network of individuals and communities who could learn about TILDA’s latest longitudinal research on ageing and hear advice on how to live a long and healthy life.

### **PPI Working Group**

Our team in TILDA value and encourage input from those who take part in the TILDA study. In September 2019, TILDA began recruitment of a new and diverse PPI working group (PPI WG) in order to hear the experiences of TILDA participants and to strengthen our relationship. The working group was formed to provide a voice to TILDA participants, to hear valuable insight on how TILDA can improve study design, and to gather more of the diverse experiences of those who take part in its longitudinal study. The first PPI Working Group meeting was held in October 2019. The group discussed a new study focusing on diabetes in Irish adults aged 50+, sought and shared opinions on microbiome research in the TILDA study; shared insight on how TILDA should disseminate and communicate research with participants; and considered ideas on what topic reports might be of interest in the near future.

### **Scientific Advisory Board meeting 2019**

The TILDA Scientific Advisory Board (SAB) met in Westport, Co. Mayo from 2nd – 3rd May 2019. This was the first time the SAB met outside of Dublin, as well as the first time a scientific meeting of this scale was held in Mayo. The TILDA SAB comprises an international team of eminent scientists, all leaders in their research fields, who have supported and developed TILDA since its inception. The SAB was preceded by a meeting of the global research “Network on the Harmonisation of International Aging Studies”, funded by the National Institutes of Aging. The SAB Chair, Professor James Smith of the RAND Corporation and PI of the Network, invited Principal Investigators from 26 international studies on ageing to engage with the Board. The event explored advances in ageing research, and applications of findings of longitudinal research studies to policy and practice, in Ireland and internationally. In attendance were leaders in research into the health and economics of ageing from the United States, Northern Ireland, Scotland, England, Brazil, China, Germany, South Africa, India and elsewhere. There was also strong representation from Irish third level institutions and research institutes including Trinity, UCD, NUIG, UL, UCC, RCSI, WIT, MU, ESRI and QUB. The meeting offered a unique opportunity to showcase Irish research in the field of ageing and for TILDA researchers and national collaborators to meet and engage with international academic leaders.

## TILDA Grants 2019

### Science Foundation Ireland FRAILMatics Project

Associate Professor Roman Romero-Ortuno was awarded funding from Science Foundation Ireland, under the prestigious President of Ireland Future Research Leaders Programme, for the project FRAILMatics: Mathematical research and big data analytics towards the development of the next generation of transdisciplinary diagnostics for the assessment of physiological vulnerability in older adults: challenge-based disruptive technology initiative. FRAILMatics' aim is to research and develop more accurate frailty tools that without expert input automatically identify subtle dysregulated responses to stressors across physiological systems. For this quest, FRAILMatics will have access to population and clinical cohorts that contain a vast amount of suitable cross-sectional and longitudinal data. The population cohort will be the vast and rich data resource contained in TILDA. Signals will later be validated in a small (n=100) clinical cohort recruited from ambulatory care clinics at the Mercer's Institute for Successful Ageing (MISA) in St James's Hospital, Dublin. Learn more at: <https://tilda.tcd.ie/frailmatics/>

### HRB Secondary Data Analysis Project

Led by Dr Peter May, the project "Palliative and end-of-life care data in Ireland: establishing the state of the nation, mapping future direction" was funded by the Health Research Board under its inaugural Secondary Data Analysis Project funding scheme, which promotes novel linkage of existing national healthcare datasets to address core issues in national health and social care.

The project collates data from the Central Statistics Office, the HSE Specialist Palliative Care Minimum Dataset, the National Cancer Registry and the Hospital In-Patient Enquiry (HIPE) dataset to build a 'state-of-the-nation' picture of dying and death in Ireland, and uses TILDA data to map the end-of-life phase in Ireland. It investigates where people die; what healthcare they use; how family and friends provide unpaid care; how palliative care shapes and influences these experiences; and how regional access to palliative services affects the experience at end-of-life. Partners in the project include the HSE, Healthcare Pricing Office, Irish Hospice Foundation and All Ireland Institute for Hospice and Palliative Care.



## **TILDA Reports**

### **Pet Ownership**

In August 2019, TILDA released a report which examined positive associations between pet ownership and its influence on positive health and wellbeing outcomes in adults aged 50 years and over in Ireland. This research found that almost half (45%) of adults aged 50 and over in Ireland own a pet. Dog owners (38%) were more likely to report high levels of physical activity and to have higher grip strength (a marker of muscle strength and frailty) compared to non-pet owners and those who own other pets. The report concludes to maintain wellbeing in older adults and to support independent living at home, it is important to consider the benefits of exposure to and interaction with pets, and produce innovative ways to facilitate older adults to keep pets to increase opportunities for health ageing. This report received coverage in a variety of news outlets including The Irish Times, The Irish Examiner, and The Times (UK).

The report “Associations of pet ownership with health and wellbeing in community-dwelling adults aged 50 years and over in Ireland.” can be found here: <https://www.doi.org/10.38018/TildaRe.2019-01>

### **TILDA Retirement Report**

In August 2019, TILDA with support from Irish Life published a report that investigated the impact of retirement on the lives of older adults. The “TILDA Irish Adults Transition to Retirement” report examined retirement patterns in Ireland and studied the connection between retirement and wellbeing, social participation, and health-related behaviours. TILDA research found that retirement is often perceived as simply an age-related event when the reality is that it is a more complex process that can occur at different ages, within a multitude of contexts and with a variety of different reasons. TILDA’s report showed that the most popular planned age at which to retire among men and women working in both the public and private is between the ages of 65 to 67 years of age. TILDA research showed that many older adults (almost 25%) had no plans to retire, while 14% did not know when they would retire from the workplace. Research highlighted that many older adults desire to keep working and contribute to the workforce and economy, while 60% of those who plan to retire have no private pension in place. Overall, the report highlights how retirement is associated with significant adjustments to financial, physical and mental wellbeing, daily activities, and health-related behaviours. The research was reported in The Irish Times.

The “TILDA Irish Adults Transition to Retirement” report can be found here. <https://www.doi.org/10.38018/TildaRe.2019-00>.

### **Loneliness and Social Isolation and their Discordance**

In December 2019, TILDA released a report which examined how loneliness and social isolation affects older adults, with evidence highlighting how these factors remain a growing public health concern. Researchers found that loneliness can be damaging to the health and wellbeing of older adults, with the loneliest adults having a poorer quality of life and poorer health overall. The report found that one in three adults aged 50 and older felt lonely and one in 10 were socially isolated. In contrast, researchers found that those who lived in rural areas were less likely than those from urban areas to be among the most isolated.

The research was featured in RTE News, The Irish Independent, The Irish Times, and The Irish Examiner.

### **Public Outreach**

In 2019, TILDA continued to conduct a variety of outreach activities to engage the public. Annual public lectures were delivered as part of Positive Ageing Week and the National Bealtaine Festival (which celebrates creativity in Ageing).

# 6.

## Publications





# Falls & Syncope Unit

Briggs R, Carey D, Claffey P, McNicholas T, Newman L, Nolan H, Kennelly SP, Kenny RA. The Association between Frontal Lobe Perfusion and Depressive Symptoms in Later Life. *Br J Psychiatry* 2019;214(4):230-236.

Briggs R, McCarroll K, O'Halloran A, Healy M, Kenny RA, Laird E. Vitamin D Deficiency Is Associated With an Increased Likelihood of Incident Depression in Community-Dwelling Older Adults. *J Am Med Dir Assoc* 2019;20(5):517-523.

Gannon J, Claffey P, Laird E, Newman L, Kenny RA, Briggs R. The cross-sectional association between diabetes and orthostatic hypotension in community-dwelling older people. *Diabet Med* 2019;26.

Briggs R, Carey D, Claffey P, McNicholas T, Donoghue O, Kennelly SP, Kenny RA. Do Differences in Spatiotemporal Gait Parameters Predict the Risk of Developing Depression in Later Life? *J Am Geriatr Soc* 2019;67(5):1050-1056.

Age and Ageing, Volume 48, Issue Supplement\_3, September 2019, Pages iii17–iii65 <https://doi.org/10.1093/ageing/afz103.101>

McNicholas T, Claffey P, O'Callaghan S, Briggs R, Newman L, Tobin K, Kenny RA. Atrial Fibrillation, Orthostatic Hypotension and Cerebral Perfusion – Data from The Irish Longitudinal Study on Ageing, *Age and Ageing*, 2019; 48(suppl\_3):1-16. (IGS 2019)

Claffey P, Pérez Denia L, Rivasi G, Finucane C, Kenny RA. Near-infrared Spectroscopy in Evaluating Psychogenic Pseudosyncope – A novel diagnostic approach. *QJM: An International Journal of Medicine*, 2019 Oct 9 (pii: hcz257) [doi:10.1093/qjmed/hcz257].

Gannon J, Claffey P, Laird E, Newman L, Kenny RA, Briggs R. The cross-sectional association between diabetes and orthostatic hypotension in community-dwelling older people. *Diabetic Med*. 2019 Nov 26. [doi: 10.1111/dme.14187]

Briggs R, Carey D, Claffey P, McNicholas T, Donoghue O, Kennelly SP, Kenny RA. Do Differences in Spatiotemporal Gait Parameters Predict the Risk of Developing Depression in Later Life? *Journal of the American Geriatrics Society*. 2019 Feb 5.

Briggs R, Carey D, Claffey P, McNicholas T, Newman L, Nolan H, Kennelly SP, Kenny RA. The association between frontal lobe perfusion and depressive symptoms in later life. *The British Journal of Psychiatry*. 2019 Jan 4:1-7.

Claffey P, Pérez Denia L, Rivasi G, Ungar A, Finucane C, Kenny RA. Near-infrared Spectroscopy (NIRS) in the evaluation of Psychogenic Pseudosyncope – Moving towards a simplified diagnostic pathway. *European Heart Journal*, Volume 40, Issue Supplement\_1, October 2019, ehz746.0620

Macdonald S H-F, Travers J, Ní Shé É, Bailey J, Romero-Ortuno R, Keyes M, O'Shea D, Cooney MT, Primary care interventions to address physical frailty among community-dwelling adults aged 60 years or older: A meta-analysis, *PLOS ONE*, 2020 Journal Article, 2020

McCarthy K, Ward M, Romero-Ortuno R, Kenny RA, Syncope, fear of falling and quality of life among older adults: findings from The Irish Longitudinal Study on Ageing (TILDA), *Frontiers in Cardiovascular Medicine*, 2020 Journal Article, 2020

Oscanoa TJ, Amado J, Vidal X, Romero-Ortuno R, Angiotensin-Receptor Blockers (ARBs) and risk of Alzheimer's Disease: A meta-analysis, *Current Clinical Pharmacology*, 2020 Journal Article, 2020

Evans NR, Wall J, To B, Wallis SJ, Romero-Ortuno R, Warburton EA, Clinical frailty independently predicts early mortality after ischaemic stroke, *Age and Ageing*, 2020 Journal Article, 2020

Romero-Ortuno R, Kenny RA, McManus R, Collagens and elastin genetic variations and their potential role in aging-related diseases and longevity in humans, *Experimental Gerontology*, 129, 2019, p110781 - Journal Article, 2019 DOI

Hartley P, Costello P, Fenner R, Gibbins N, Quinn E, Kuhn I, Keevil VL, Romero-Ortuno R, Change in skeletal muscle associated with unplanned hospital admissions in adult patients: a systematic review and meta-analysis, *PLOS One*, 2019 Journal Article, 2019

Frailty in older persons in, editor(s)O'Hanlon S, Smith M, *A Comprehensive Guide to Rehabilitation of the Older Patient 4e*, Elsevier, 2019, [Roe L, Williamson W, Romero-Ortuno R] Book Chapter, 2019

Mobility and Frailty in, editor(s)Gu D, Dupre M , *Encyclopedia of Gerontology and Population Aging*, Springer, Cham, 2019, [Hartley P, Romero-Ortuno R] Book Chapter, 2019

Pickard S, Lloyd L, Vanhoutte B, Danely J, Leon-Salas J, Laceulle H, Cluley V, Romero-Ortuno R, *New Horizons in Frailty: the contingent, the existential and the clinical*, *Age and Ageing*, 2019 Journal Article, 2019

Romero-Ortuno R, Scarlett S, O'Halloran A, Kenny RA, Is phenotypical prefrailty all the same? A longitudinal investigation of two prefrailty subtypes in The Irish Longitudinal Study of Ageing (TILDA), *Age and Ageing*, 2019 Journal Article, 2019

Rivasi G, Kenny RA, Ungar A, Romero-Ortuno R, Effects of benzodiazepines on orthostatic blood pressure in older people, *European Journal of Internal Medicine*, 2019 Journal Article, 2019

Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston J, *The Management of Frailty: Opportunities, Challenges, and Future Directions*, *The Lancet*, 2019 Journal Article, 2019

Lyons A, Romero-Ortuno R, Hartley P, *Functional Mobility Trajectories of Hospitalized Older Adults Admitted to the Acute Geriatric Wards: A Retrospective Observational Study in an English University Hospital*, *Geriatrics and Gerontology International*, 2019 Journal Article, 2019

Rivasi G, Kenny RA, Ungar A, Romero-Ortuno R, Predictors of incident fear of falling in community-dwelling older adults, *Journal of the American Medical Directors Association*, 2019 Journal Article, 2019

Martin F, Romero-Ortuno R, *Longitudinal studies of ageing: from insights to impacts: Commentary to accompany themed collection on longitudinal studies*, *Age and Ageing*, 2019 Journal Article, 2019

Duggan E, Romero-Ortuno R, Kenny RA, *Admissions for Orthostatic Hypotension: an Analysis of NHS England Hospital Episode Statistics Data*, *BMJ Open*, 2019 Journal Article, 2019

Moore K, Hughes CF, Hoey L, Wad M, Cunningham C, Molloy AM, Strain JJ, McCarroll K, Casey MC, Tracey F, Laird E, O'Kane M, McNulty H. B-vitamins in Relation to Depression in Older Adults Over 60 Years of Age: The Trinity Ulster Department of Agriculture (TUDA) Cohort Study. *J Am Med Dir Assoc*. 2019 May;20(5):551-557. PMID: 30692033

Porter KM, Ward M, Hughes CF, O'Kane M, Hoey L, McCann A, Molloy AM, Cunningham C, Casey MC, Tracey F, Strain S, McCarroll K, Laird E, Gallagher AM, McNulty H. Hyperglycemia and Metformin Use Are Associated With B Vitamin Deficiency and Cognitive Dysfunction in Older Adults. *J Clin Endocrinol Metab*. 2019 Oct 1;104(10):4837-4847



- Oliveira IM, Hernandez B, Kenny RA, Reilly RB. Automatic Disability Categorisation based on ADLs among Older Adults in a Nationally Representative Population using Data Mining Methods. *Conf Proc IEEE Eng Med Biol Soc.* 2019 Jul; 2019:2466-2469. doi: 10.1109/EMBC.2019.8856780. PubMed PMID: 31946397.
- Hirst RJ, Setti A, Kenny RA, Newell FN. Age-related sensory decline mediates the Sound-Induced Flash Illusion: Evidence for reliability weighting models of multisensory perception. *Sci Rep.* 2019 Dec 18;9(1):19347. doi:10.1038/s41598-019-55901-5. PubMed PMID: 31852954; PubMed Central PMCID PMC6920348.
- O'Connor JD, O'Connell MDL, Nolan H, Newman L, Knight SP, Kenny RA. Impact of Standing Speed on the Peripheral and Central Hemodynamic Response to Orthostasis: Evidence From the Irish Longitudinal Study on Ageing. *Hypertension.* 2020 Feb;75(2):524-531. doi: 0.1161/HYPERTENSIONAHA.119.14040. Epub 2019 Dec 16. PubMed PMID: 31838912.
- Peters R, Yasar S, Anderson CS, Andrews S, Antikainen R, Arima H, Beckett N, Beer JC, Bertens AS, Booth A, van Boxtel M, Brayne C, Brodaty H, Carlson MC, Chalmers J, Corrada M, DeKosky S, Derby C, Dixon RA, Forette F, Ganguli M, van Gool WA, Guaita A, Hever AM, Hogan DB, Jagger C, Katz M, Kawas C, Kehoe PG, Keinanen-Kiukaanniemi S, Kenny RA, Köhler S, Kunutsor SK, Laukkanen J, Maxwell C, McFall GP, van Middelaar T, Moll van Charante EP, Ng TP, Peters J, Rawtaer I, Richard E, Rockwood K, Rydén L, Sachdev PS, Skoog I, Skoog J, Staessen JA, Stephan BCM, Sebert S, Thijs L, Trompet S, Tully PJ, Tzourio C, Vaccaro R, Vaaramo E, Walsh E, Warwick J, Anstey KJ. Investigation of antihypertensive class, dementia, and cognitive decline: A meta-analysis. *Neurology.* 2020 Jan 21;94(3): e267-e281. doi: 10.1212/WNL.0000000000008732. Epub 2019 Dec 11. PubMed PMID: 31827004.
- Laird E, O'Halloran AM, Fedorowski A, Melander O, Hever A, Sjögren M, Carey D, Kenny RA. Orthostatic hypotension and novel blood pressure associated gene variants in older adults: data from the TILDA Study. *J Gerontol A Biol Sci Med Sci.* 2019 Dec 10. pii: glz286. doi: 10.1093/gerona/glz286. [Epub ahead of print] PubMed PMID: 31821404.
- Newman L, Nolan H, Carey D, Reilly RB, Kenny RA. Age and sex differences in frontal lobe cerebral oxygenation in older adults-Normative values using novel, scalable technology: Findings from the Irish Longitudinal Study on Ageing (TILDA). *Arch Gerontol Geriatr.* 2019 Nov 18;87:103988. doi: 10.1016/j.archger.2019.103988. [Epub ahead of print] PubMed PMID: 31775091.
- Donoghue OA, Briggs R, Moriarty F, Kenny RA. Association of Antidepressants With Recurrent, Injurious and Unexplained Falls is Not Explained by Reduced Gait Speed. *Am J Geriatr Psychiatry.* 2019 Oct 11. pii: S1064-7481(19)30529-9. doi: 10.1016/j.jagp.2019.10.004. [Epub ahead of print] PubMed PMID: 31727515.
- Donoghue OA, Savva GM, Börsch-Supan A, Kenny RA. Reliability, measurement error and minimum detectable change in mobility measures: a cohort study of community-dwelling adults aged 50 years and over in Ireland. *BMJ Open.* 2019 Nov 11;9(11): e030475. doi: 10.1136/bmjopen-2019-030475. PubMed PMID: 31719075; PubMed Central PMCID: PMC6858113.
- Moriarty F, Bennett K, Kenny RA, Fahey T, Cahir C. Comparing Potentially Inappropriate Prescribing Tools and Their Association With Patient Outcomes. *J Am Geriatr Soc.* 2019 Nov 1. doi: 10.1111/jgs.16239. [Epub ahead of print] PubMed PMID: 31675114.
- Hernández B, Setti A, Kenny RA, Newell FN. Individual differences in ageing, cognitive status, and sex on susceptibility to the sound-induced flash illusion: A large-scale study. *Psychol Aging.* 2019 Nov;34(7):978-990. doi:10.1037/pag0000396. Epub 2019 Oct 17. PubMed PMID: 31621358.
- Dyer AH, Murphy C, Lawlor B, Kennelly SP; NILVAD Study Group. Cognitive Outcomes of Long-term Benzodiazepine and Related Drug (BDZR) Use in People Living With Mild to Moderate Alzheimer's Disease: Results From NILVAD. *J Am Med Dir Assoc.* 2020 Feb;21(2):194-200. doi: 10.1016/j.jamda.2019.08.006. Epub 2019 Oct 8. PubMed PMID: 31604674.

McCrary C, Fiorito G, McLoughlin S, Polidoro S, Cheallaigh CN, Bourke N, Karisola P, Alenius H, Vineis P, Layte R, Kenny RA. Epigenetic Clocks and Allostatic Load Reveal Potential Sex-Specific Drivers of Biological Aging. *J Gerontol A Biol Sci Med Sci*. 2020 Feb 14;75(3):495-503. doi: 10.1093/gerona/glz241. PubMed PMID: 31603985.

Hernández B, Reilly RB, Kenny RA. Investigation of multimorbidity and prevalent disease combinations in older Irish adults using network analysis and association rules. *Sci Rep*. 2019 Oct 10;9(1):14567. doi: 10.1038/s41598-019-51135-7. PubMed PMID: 31601959; PubMed Central PMCID: PMC6787335.

Claffey P, Pérez-Denia L, Rivasi G, Finucane C, Kenny RA. Near-Infrared Spectroscopy in Evaluating Psychogenic Pseudosyncope - A novel diagnostic approach. *QJM*. 2019 Oct 9. pii: hcz257. doi: 10.1093/qjmed/hcz257. [Epub ahead of print] PubMed PMID: 31596496.

24: Scarlett S, Nolan H, Kenny RA, O'Connell MD. Objective Sleep Duration in Older Adults: Results From The Irish Longitudinal Study on Ageing. *J Am Geriatr Soc*. 2020 Jan;68(1):120-128. doi: 10.1111/jgs.16177. Epub 2019 Oct 3. PubMed PMID: 31579942.

Holton A, Boland F, Gallagher P, Fahey T, Moriarty F, Kenny RA, Cousins G. Potentially serious alcohol-medication interactions and falls in community-dwelling older adults: a prospective cohort study. *Age Ageing*. 2019 Nov 1;48(6):824-831. doi: 10.1093/ageing/afz112. PubMed PMID: 31579905; PubMed Central PMCID: PMC6814088.

Marron L, Segurado R, Kenny RA, McNicholas T. The association between benzodiazepine use and falls, and the impact of sleep quality on this association: Data from the TILDA study. *QJM*. 2019 Aug 19. pii: hcz217. doi: 10.1093/qjmed/hcz217. [Epub ahead of print] PubMed PMID: 31424520.

O'Halloran AM, Laird EJ, Feeney J, Healy M, Moran R, Beatty S, Nolan JM, Molloy AM, Kenny RA. Circulating Micronutrient Biomarkers Are Associated With 3 Measures of Frailty: Evidence From the Irish Longitudinal Study on Ageing. *J Am Med Dir Assoc*. 2019 Aug 7. pii: S1525-8610(19)30497-9. doi: 10.1016/j.jamda.2019.06.011. [Epub ahead of print] PubMed PMID: 31401047.

Carey D, Nolan H, Kenny RA, Meaney J. Dissociable age and memory relationships with hippocampal subfield volumes in vivo: Data from the Irish Longitudinal Study on Ageing (TILDA). *Sci Rep*. 2019 Jul 29;9(1):10981. doi: 10.1038/s41598-019-46481-5. PubMed PMID: 31358771; PubMed Central PMCID: PMC6662668.

Hase Y, Polvikoski TM, Firbank MJ, Craggs LJJ, Hawthorne E, Platten C, Stevenson W, Deramecourt V, Ballard C, Kenny RA, Perry RH, Ince P, Carare RO, Allan LM, Horsburgh K, Kalaria RN. Small vessel disease pathological changes in neurodegenerative and vascular dementias concomitant with autonomic dysfunction. *Brain Pathol*. 2019 Jul 29. doi: 10.1111/bpa.12769. [Epub ahead of print] PubMed PMID: 31357238.

Orr J, Tobin K, Carey D, Kenny RA, McGarrigle C. Religious Attendance, Religious Importance, and the Pathways to Depressive Symptoms in Men and Women Aged 50 and Over Living in Ireland. *Res Aging*. 2019 Jul 22:164027519860270. doi: 10.1177/0164027519860270. [Epub ahead of print] PubMed PMID: 31331248.

Laird EJ, McNicholas T, O'Halloran AM, Healy M, Molloy AM, Carey D, O'Connor D, McCarroll K, Kenny RA. Vitamin D Status Is Not Associated With Orthostatic Hypotension in Older Adults. *Hypertension*. 2019 Jul 22: HYPERTENSIONAHA11913064. doi: 10.1161/HYPERTENSIONAHA.119.13064. [Epub ahead of print] PubMed PMID: 31327261.

Peeters G, Cooper R, Tooth L, van Schoor NM, Kenny RA. A comprehensive assessment of risk factors for falls in middle-aged adults: co-ordinated analyses of cohort studies in four countries. *Osteoporos Int*. 2019 Jun 15. doi: 10.1007/s00198-019-05034-2. [Epub ahead of print] PubMed PMID: 31201482.

Peeters G, Feeney J, Carey D, Kennelly S, Kenny RA. Fear of falling: A manifestation of executive dysfunction? *Int J Geriatr Psychiatry*. 2019 Apr 29. doi: 10.1002/gps.5133. [Epub ahead of print] PubMed PMID: 31034696.

Fiorito G, McCrory C, Robinson O, Carmeli C, Rosales CO, Zhang Y, Colicino E, Dugué PA, Artaud F, McKay GJ, Jeong A, Mishra PP, Nøst TH, Krogh V, Panico S, Sacerdote C, Tumino R, Palli D, Matullo G, Guarrera S, Gandini M, Bochud M, Dermitzakis E, Muka T, Schwartz J, Vokonas PS, Just A, Hodge AM, Giles GG, Southey MC, Hurme MA, Young I, McKnight AJ, Kunze S, Waldenberger M, Peters A, Schwettmann L, Lund E, Baccarelli A, Milne RL, Kenny RA, Elbaz A, Brenner H, Kee F, Voortman T, Probst-Hensch N, Lehtimäki T, Elliot P, Stringhini S, Vineis P, Polidoro S; BIOS Consortium; Lifepath consortium. Socioeconomic position, lifestyle habits and biomarkers of epigenetic aging: a multi-cohort analysis. *Aging (Albany NY)*. 2019 Apr 14;11(7):2045-2070. doi: 10.18632/aging.101900. PubMed PMID: 31009935; PubMed Central PMCID: PMC6503871.

McHugh Power JE, Hannigan C, Carney S, Feeney J, Kenny RA, Kee F, Lawlor BA. Lonely SARTs: loneliness and sustained attention in the Irish longitudinal study of aging. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn*. 2019 Apr 18:1-10. doi:10.1080/13825585.2019.1602705. [Epub ahead of print] PubMed PMID: 30999806.

McHugh Power J, Tang J, Kenny RA, Lawlor BA, Kee F. Mediating the relationship between loneliness and cognitive function: the role of depressive and anxiety symptoms. *Aging Ment Health*. 2019 Apr 7:1-8. doi: 10.1080/13607863.2019.1599816. [Epub ahead of print] PubMed PMID: 30955348.

Power JEM, Sjöberg L, Kee F, Kenny RA, Lawlor B. Comparisons of the discrepancy between loneliness and social isolation across Ireland and Sweden: findings from TILDA and SNAC-K. *Soc Psychiatry Psychiatr Epidemiol*. 2019 Mar 12. doi: 10.1007/s00127-019-01679-w. [Epub ahead of print] PubMed PMID: 30863870.

McCrory C, Fiorito G, Ni Cheallaigh C, Polidoro S, Karisola P, Alenius H, Layte R, Seeman T, Vineis P, Kenny RA. How does socio-economic position (SEP) get biologically embedded? A comparison of allostatic load and the epigenetic clock(s). *Psychoneuroendocrinology*. 2019 Jun; 104:64-73. doi: 10.1016/j.psyneuen.2019.02.018. Epub 2019 Feb 16. PubMed PMID: 30818253.

Seppala LJ, van der Velde N, Masud T, Blain H, Petrovic M, van der Cammen TJ, Szczerbińska K, Hartikainen S, Kenny RA, Ryg J, Eklund P, Topinková E, Mair A, Laflamme L, Thaler H, Bahat G, Gutiérrez-Valencia M, Caballero-Mora MA, Landi F, Emmelot-Vonk MH; EuGMS Task and Finish Group on Fall-Risk-Increasing Drugs, Cherubini A, Baeyens JP, Correa-Pérez A, Gudmundsson A, Marengoni A, O'Mahony D, Parekh N, Pisa FE, Rajkumar C, Wehling M, Ziere G; EuGMS Special Interest Group on Pharmacology. EuGMS Task and Finish group on Fall-Risk-Increasing Drugs (FRIDs): Position on Knowledge Dissemination, Management, and Future Research. *Drugs Aging*. 2019 Apr;36(4):299-307. doi: 10.1007/s40266-018-0622-7. PubMed PMID:30741371; PubMed Central PMCID: PMC6435622.

Ní Bhuachalla B, McGarrigle CA, O'Leary N, Akuffo KO, Peto T, Beatty S, Kenny RA. Orthostatic blood pressure variability is associated with lower visual contrast sensitivity function: Findings from The Irish Longitudinal Study on Aging. *Exp Gerontol*. 2019 May; 119:14-24. doi: 10.1016/j.exger.2019.01.009. Epub 2019 Jan 22. PubMed PMID: 30677467.

Holton A, Boland F, Gallagher P, Fahey T, Kenny RA, Cousins G. Longitudinal prevalence of potentially serious alcohol-medication interactions in community-dwelling older adults: a prospective cohort study. *Eur J Clin Pharmacol*. 2019 Apr;75(4):569-575. doi: 10.1007/s00228-018-02608-7. Epub 2018 Dec 19. PubMed PMID: 30569283.

Carey D, Nolan H, Kenny RA, Meaney J. Cortical covariance networks in ageing: Cross-sectional data from the Irish Longitudinal Study on Ageing (TILDA). *Neuropsychologia*. 2019 Jan;122:51-61. doi: 10.1016/j.neuropsychologia.2018.11.013. Epub 2018 Nov 27. PubMed PMID: 30500662.

# Memory Clinic

Loughrey DG, Mihelj E, Lawlor BA. Age-related hearing loss associated with altered response efficiency and variability on a visual sustained attention task. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn*. 2019 Dec 23:1-25. doi:10.1080/13825585.2019.1704393. [Epub ahead of print] PubMed PMID: 31868123.

Walsh S, Pertl M, Gillespie P, Lawlor B, Brennan S, O'Shea E. Factors influencing the cost of care and admission to long-term care for people with dementia in Ireland. *Aging Ment Health*. 2019 Dec 17:1-9. doi:10.1080/13607863.2019.1699901. [Epub ahead of print] PubMed PMID: 31847539.

Loughrey DG, Pakhomov SVS, Lawlor BA. Altered verbal fluency processes in older adults with age-related hearing loss. *Exp Gerontol*. 2019 Nov 30; 130:110794. doi: 10.1016/j.exger.2019.110794. [Epub ahead of print] PubMed PMID: 31790801.

Aspell N, Laird E, Healy M, Lawlor B, O'Sullivan M. Vitamin D Deficiency Is Associated With Impaired Muscle Strength And Physical Performance In Community-Dwelling Older Adults: Findings From The English Longitudinal Study Of Ageing. *Clin Interv Aging*. 2019 Oct 15;14:1751-1761. doi: 10.2147/CIA.S222143. eCollection 2019. PubMed PMID: 31686797; PubMed Central PMCID: PMC6800555.

Power C, Duffy R, Mahon J, McCarroll K, Lawlor BA. Bones of Contention: A Comprehensive Literature Review of Non-SSRI Antidepressant Use and Bone Health. *J Geriatr Psychiatry Neurol*. 2019 Oct 30:891988719882091. doi:10.1177/0891988719882091. [Epub ahead of print] PubMed PMID: 31665962.

Dyer AH, Murphy C, Segurado R, Lawlor B, Kennelly SP; NILVAD Study Group. Is Ongoing Anticholinergic Burden Associated with Greater Cognitive Decline & Dementia Severity in Mild to Moderate Alzheimer Disease. *J Gerontol A Biol Sci Med Sci*. 2019 Oct 15. pii: glz244. doi: 10.1093/gerona/glz244. [Epub ahead of print] PubMed PMID: 31613323.

Dyer AH, Murphy C, Lawlor B, Kennelly SP; NILVAD Study Group. Cognitive Outcomes of Long-term Benzodiazepine and Related Drug (BDZR) Use in People Living With Mild to Moderate Alzheimer's Disease: Results From NILVAD. *J Am Med Dir Assoc*. 2019 Oct 8. pii: S1525-8610(19)30615-2. doi: 10.1016/j.jamda.2019.08.006. [Epub ahead of print] PubMed PMID: 31604674.

Walrath D, Lawlor B. Dementia: towards a new republic of hope. *Lancet*. 2019 Sep 21;394(10203):1002-1003. doi: 10.1016/S0140-6736(19)32099-9. PubMed PMID:31544739.

de Heus RAA, Olde Rikkert MGM, Tully PJ, Lawlor BA, Claassen JAHR; NILVAD Study Group. Blood Pressure Variability and Progression of Clinical Alzheimer Disease. *Hypertension*. 2019 Nov;74(5):1172-1180. doi: 10.1161/HYPERTENSIONAHA.119.13664. Epub 2019 Sep 23. PubMed PMID: 31542965.

Loughrey DG, Parra MA, Lawlor BA. Visual short-term memory binding deficit with age-related hearing loss in cognitively normal older adults. *Sci Rep*. 2019 Aug 29;9(1):12600. doi: 10.1038/s41598-019-49023-1. PubMed PMID: 31467387; PubMed Central PMCID: PMC6715732.

Pertl MM, Sooknarine-Rajpatty A, Brennan S, Robertson IH, Lawlor BA Caregiver Choice and Caregiver Outcomes: A Longitudinal Study of Irish Spousal Dementia Caregivers. *Front Psychol*. 2019 Aug 13; 10:1801. doi:10.3389/fpsyg.2019.01801. eCollection 2019. PubMed PMID: 31456713; PubMed Central PMCID: PMC6700469.

Glynn K, Coen R, Lawlor BA. Is the Quick Mild Cognitive Impairment Screen (QMCI) more accurate at detecting mild cognitive impairment than existing short cognitive screening tests? A systematic review of the current literature. *Int J Geriatr Psychiatry*. 2019 Dec;34(12):1739-1746. doi: 10.1002/gps.5201. Epub 2019 Aug 22. Review. PubMed PMID: 31418473.

- Kunkle BW, et al Author Correction: Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing. *Nat Genet.* 2019 Sep;51(9):1423-1424. doi: 10.1038/s41588-019-0495-7. PubMed PMID: 31417202.
- Bracken-Scally M, Keogh B, Daly L, Pittalis C, Kennelly B, Hynes G, Gibb M, Cole N, McMahon CG, Lawlor B, McCarron M, Brady AM. Assessing the impact of dementia inclusive environmental adjustment in the emergency department. *Dementia (London).* 2019 Jul 17;1471301219862942. doi: 10.1177/1471301219862942. [Epub ahead of print] PubMed PMID: 31315452.
- Devenney KE, Guinan EM, Kelly ÁM, Mota BC, Walsh C, Olde Rikkert M, Schneider S, Lawlor B. Acute high-intensity aerobic exercise affects brain-derived neurotrophic factor in mild cognitive impairment: a randomised controlled study. *BMJ Open Sport Exerc Med.* 2019 Jun 11;5(1): e000499. doi: 10.1136/bmjsem-2018-000499. eCollection 2019. PubMed PMID: 31258928; PubMed Central PMCID: PMC6563898.
- de Jong DLK, de Heus RAA, Rijpma A, Donders R, Olde Rikkert MGM, Günther M, Lawlor BA, van Osch MJP, Claassen JAHR. Effects of Nilvadipine on Cerebral Blood Flow in Patients With Alzheimer Disease. *Hypertension.* 2019 Aug;74(2):413-420. doi: 0.1161/HYPERTENSION.AHA.119.12892. Epub 2019 Jun 17. PubMed PMID: 31203725.
- Wilson L, Power C, Owens R, Lawlor B. Psychiatric consultation in the nursing home: reasons for referral and recognition of delirium. *Ir J Psychol Med.* 2019 Jun;36(2):121-127. doi: 10.1017/ipm.2017.71. PubMed PMID: 31187721.
- Kelly ME, Lawlor BA, Coen RF, Robertson IH, Brennan S. Cognitive rehabilitation for early stage Alzheimer's disease: a pilot study with an Irish population. *Ir J Psychol Med.* 2019 Jun;36(2):105-119. doi: 10.1017/ipm.2017.23. PubMed PMID: 31187720.
- Aspell N, Laird E, Healy M, Shannon T, Lawlor B, O'Sullivan M. The Prevalence and Determinants of Vitamin D Status in Community-Dwelling Older Adults: Results from the English Longitudinal Study of Ageing (ELSA). *Nutrients.* 2019 Jun 1;11(6). pii: E1253. doi: 10.3390/nu11061253. PubMed PMID: 31159411; PubMed Central PMCID: PMC6627050.
- de Heus RAA, Donders R, Santoso AMM, Olde Rikkert MGM, Lawlor BA, Claassen JAHR; Nilvad Study Group. Blood Pressure Lowering With Nilvadipine in Patients With Mild-to-Moderate Alzheimer Disease Does Not Increase the Prevalence of Orthostatic Hypotension. *J Am Heart Assoc.* 2019 May 21;8(10): e011938. doi:10.1161/JAHA.119.011938. PubMed PMID: 31088188; PubMed Central PMCID: PMC6585342.
- McHugh Power JE, Hannigan C, Carney S, Feeney J, Kenny RA, Kee F, Lawlor BA. Lonely SARTs: loneliness and sustained attention in the Irish longitudinal study of aging. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn.* 2019 Apr 18:1-10. doi: 10.1080/13825585.2019.1602705. [Epub ahead of print] PubMed PMID: 30999806.
- McHugh Power J, Tang J, Kenny RA, Lawlor BA, Kee F. Mediating the relationship between loneliness and cognitive function: the role of depressive and anxiety symptoms. *Aging Ment Health.* 2019 Apr 7:1-8. doi:10.1080/13607863.2019.1599816. [Epub ahead of print] PubMed PMID: 30955348.
- Power JEM, Sjöberg L, Kee F, Kenny RA, Lawlor B. Comparisons of the discrepancy between loneliness and social isolation across Ireland and Sweden: findings from TILDA and SNAC-K. *Soc Psychiatry Psychiatr Epidemiol.* 2019 Sep;54(9):1079-1088. doi: 10.1007/s00127-019-01679-w. Epub 2019 Mar 12. PubMed PMID: 30863870.
- Kunkle BW, et al. Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing. *Nat Genet.* 2019 Mar;51(3):414-430. doi: 10.1038/s41588-019-0358-2. Epub 2019 Feb 28. Erratum in: *Nat Genet.* 2019 Sep;51(9):1423-1424. PubMed PMID: 30820047; PubMed Central PMCID: PMC6463297.

Wolfe H, Mela V, Minogue AM, Miller AM, McGuigan C, Williams L, Lohan D, Lawlor BA, Lynch MA. Monocytes exposed to plasma from patients with Alzheimer's disease undergo metabolic reprogramming. *Neurosci Res.* 2019 Nov; 148:54-60. doi: 10.1016/j.neures.2019.01.001. Epub 2019 Jan 12. PubMed PMID: 30641113.

Doherty CP, O'Keeffe E, Keaney J, Lawlor B, Coen RF, Farrell M, Campbell M. Neuropathology as a result of severe traumatic brain injury? *Clin Neuropathol.* 2019 Jan/Feb;38(1):14-22. doi: 10.5414/NP301131. PubMed PMID:30336803.

Bilchick K, Moss T, Welch T, Levy W, Stukenborg G, Lawlor BT, Reigle J, Thomas SC, Brady C, Bergin JD, Kennedy JLW, Abuannadi M, Scully K, Mazimba S. Improving Heart Failure Readmission Costs and Outcomes With a Hospital-to-Home Readmission Intervention Program. *Am J Med Qual.* 2019 Mar/Apr;34(2):127-135. doi:10.1177/1062860618788436. Epub 2018 Jul 19. PubMed PMID: 30024279.

Bowe AK, Owens M, Codd MB, Lawlor BA, Glynn RW. Physical activity and mental health in an Irish population. *Ir J Med Sci.* 2019 May;188(2):625-631. doi:10.1007/s11845-018-1863-5. Epub 2018 Jul 17. PubMed PMID: 30019096.

Doherty, C.P., O'Keeffe, E., Keaney, J., Lawlor, B.A., Coen, R.F., Farrell, M., Campbell, M. (2019) Neuropathology as a result of severe traumatic brain injury? *Clinical Neuropathology*, 38(1), 14-22 doi: 10.5414/NP301131

Lombard Vance, R., Coen, R.F., O'Keeffe, F., Desmond, D., Ryall, N., Gallagher, P. (2019) Comprehensive Neuropsychological Assessment of cognitive functioning in adults with lower limb amputations in rehabilitation. *Archives of Physical Medicine and Rehabilitation*, 100(2), 278-288.e2 doi: 10.1016/j.apmr.2018.07.436

Glynn, K., Coen R.F., Lawlor, B.A. (2019) Is the Quick Mild Cognitive Impairment Screen (QMCI) more accurate at detecting mild cognitive impairment than existing short cognitive screening tests? A systematic review of the current literature. *International Journal of Geriatric Psychiatry*, 2019 Dec;34(12):1739-1746. <https://doi.org/10.1002/gps.5201> (early view)

Devenney K.E., Guinan, E.M., Kelly, Á.M., Mota, B.C., Walsh, C., Rikkert, M.O., Schneider, S., Lawlor, B.A., the NeuroExercise study group incl R.F. Coen. (2019) Acute high-intensity aerobic exercise affects brain-derived neurotrophic factor in mild cognitive impairment: a randomised controlled study, *BMJ Open Sport & Exercise Medicine*, 5, 1-8. e000499. doi:10.1136/bmjsem-2018-000499

Fitzgerald, M.C.C., Carton, S., O'Keeffe, F., Coen, R.F., Kelly, S., Dockree, P. (2019) Rehabilitation of Emergent Awareness of Errors Post Traumatic Brain Injury: A Pilot Intervention. *Neuropsychological Rehabilitation*, 29(6); 821-843. DOI: 10.1080/09602011.2017.1336102

Laird, E., Hoey, L., McCarroll, K., Hughes, C.F., Ward, M., Coen, R.F., Strain, J.J., Casey, M.C., Cunningham, C, McNulty, H, Molloy, A.M. Impaired cognition is associated with low vitamin B-12 status but is not exacerbated by combined high folate status in older adults living in a voluntary food-fortification setting. (Submitted to *American Journal of Clinical Nutrition*)

January – December 2019: conference presentations with published abstract

Presented (P.O'G., poster) at the International Liver Congress, Vienna, April 2019: O'Gorman, P., Ferguson, D., Strahan, O., Monaghan, A., Kennedy, M., Bergin, C., McKiernan, S., Coen, R.F., Doherty, C.P., Forde, C., Gormley, J., Norris, S. (2019) Improvement in cognitive impairment following 12 weeks of aerobic exercise in individuals with non-cirrhotic chronic hepatitis C. *Journal of Hepatology*, 70(1, Suppl), e501-e502. DOI 10.1016/S0168-8278(19)30990-9

# Bone Health

Vitamin D Status is Not Associated With Orthostatic Hypotension in Older Adults. Laird EJ, McNicholas T, O'Halloran AM, Healy M, Molloy AM, Carey D, O'Connor D, McCarroll K, Kenny RA. *Hypertension*. 2019 Sep;74(3):639-644.

Bone of Contention: A Comprehensive Literature Review of Non-SSRI Antidepressant Use and Bone Health. Power C, Duffy R, Mahon J, McCarroll K, Lawlor BA. *J Geriatr Psychiatry Neurol*. 2019

Vitamin D Deficiency Is Associated With Increased Likelihood of Incident Depression In Community Dwelling Older Adults Briggs R, McCarroll K, O'Halloran A, Healy M, Kenny RA, Laird E. *J Am Med Dir Assoc*. 2019 May;20(5):517-523.

Hyperglycemia and Metformin Use Are Associated With B Vitamin Deficiency and Cognitive Dysfunction in Older Adults Porter KM, Ward M, Hughes CF, O'Kane M, Hoey L, McCann A, Molloy AM, Cunningham C, Casey MC, Tracey F, Strain S, McCarroll K, Laird E, Gallagher AM, McNulty H. *J Clin Endocrinol Metab*. 2019 Oct 1;104(10):4837-4847

B-vitamins in Relation to Depression in Older Adults Over 60 Years of Age: The Trinity Ulster Department of Agriculture (TUDA) Cohort Study. Briggs R, McCarroll K, O'Halloran A, Healy M, Kenny RA, Laird E. *J Am Med Dir Assoc*. 2019 May;20(5):517-523.

# Stroke Service

Concannon E, Fitzgerald L, Canniff E, Birrane J, Harbison J, Shelley O. Neuroimaging provides relevant clinical information in patients with burn injuries. *Burns*. 2019 Nov 28. pii: S0305-4179(19)30423-1

Schnabel RB, Haeusler KG, Healey JS, Freedman B, Boriani G, Brachmann J, Brandes A, Bustamante A, Casadei B, Crijns HJGM, Doehner W, Engström G, Fauchier L, Friberg L, Gladstone DJ, Glotzer TV, Goto S, Hankey GJ, Harbison JA, Hobbs FDR, Johnson LSB, Kamel H, Kirchhof P, Korompoki E, Krieger DW, Lip GYH, Løchen ML, Mairesse GH, Montaner J, Neubeck L, Ntaios G, Piccini JP, Potpara TS, Quinn TJ, Reiffel JA, Ribeiro ALP, Rienstra M, Rosenqvist M, Sakis T, Sinner MF, Svendsen JH, Van Gelder IC, Wachter R, Wijeratne T, Yan B. Searching for Atrial Fibrillation Poststroke: A White Paper of the AF-SCREEN International Collaboration. *Circulation*. 2019 Nov 26;140(22):1834-1850.

Murphy SJ, Lim ST, Kinsella JA, Tierney S, Egan B, Feeley TM, Dooley C, Kelly J, Murphy SM, Walsh RA, Collins R, Coughlan T, O'Neill D, Harbison JA, Madhavan P, O'Neill SM, Colgan MP, Meaney JF, Hamilton G, McCabe DJ. Simultaneous assessment of plaque morphology, cerebral micro-embolic signal status and platelet biomarkers in patients with recently symptomatic and asymptomatic carotid stenosis. *J Cereb Blood Flow Metab*. 2019 Nov 11:271678X19884427.

Murphy SJX, Lim ST, Kinsella JA, Tierney S, Egan B, Feeley TM, Murphy SM, Walsh RA, Collins DR, Coughlan T, O'Neill D, Harbison JA, Madhavan P, O'Neill SM, Colgan MP, Cox D, Moran N, Hamilton G, Meaney JF, McCabe DJH. Relationship between 'on-treatment platelet reactivity', shear stress, and micro-embolic signals in asymptomatic and symptomatic carotid stenosis. *J Neurol*. 2019 Oct 12. Doi

Lowres N, Olivier J, Chao TF, Chen SA, Chen Y, Diederichsen A, Fitzmaurice DA, Gomez-Doblas JJ, Harbison J, Healey JS, Hobbs FDR, Kaasenbrood F, Keen W, Lee VW, Lindholt JS, Lip GYH, Mairesse GH, Mant J, Martin JW, Martín-Rioboó E, McManus DD, Muñiz J, Münzel T, Nakamya J, Neubeck L, Orchard JJ, Pérula de Torres LÁ, Proietti M, Quinn FR, Roalfe AK, Sandhu RK, Schnabel RB, Smyth B, Soni A, Tieleman R, Wang J, Wild PS, Yan BP, Freedman B. Estimated stroke risk, yield, and number needed to screen for atrial fibrillation detected through single time screening: a multicountry patient-level meta-analysis of 141,220 screened individuals. *PLoS Med.* 2019 Sep 25;16(9)

Kelly PJ, Camps-Renom P, Giannotti N, Martí-Fàbregas J, Murphy S, McNulty J, Barry M, Barry P, Calvet D, Coutts SB, Cronin S, Delgado-Mederos R, Dolan E, Fernández-León A, Foley S, Harbison J, Horgan G, Kavanagh E, Marnane M, McDonnell C, O'Donohoe M, Sharma V, Walsh C, Williams D, O'Connell M. Carotid Plaque Inflammation Imaged by 18F-Fluorodeoxyglucose Positron Emission Tomography and Risk of Early Recurrent Stroke. *Stroke.* 2019 Jul;50(7):1766-1773.

Murphy SJX, Lim ST, Kinsella JA, Tierney S, Egan B, Feeley TM, Murphy SM, Walsh RA, Collins DR, Coughlan T, O'Neill D, Harbison JA, Madhavan P, O'Neill SM, Colgan MP, Cox D, Moran N, Hamilton G, McCabe DJH. Increased Leucocyte-Platelet Complex Formation in Recently Symptomatic versus Asymptomatic Carotid Stenosis Patients and in Micro-emboli Negative Subgroups. *Thromb Haemost.* 2019 May;119(5):821-833.

Walsh ME, Galvin R, Williams DJP, Harbison JA, Murphy S, Collins R, McCabe DJH, Crowe M, Horgan NF. The experience of recurrent fallers in the first year after stroke. *Disabil Rehabil.* 2019 Jan;41(2):142-149

Coveney S, Murphy s, Belton O, Cassidy T, Crowe M, Dolan E, de Gaetano M, Fitzgibbon M, Harbison J, Horgan G, Marnane M, McCabe J, Merwick A, Noone I, Williams D, Kelly P, Inflammatory cytokines, CRP, and risk of 1-year vascular events and death after stroke and transient ischemic attack. In Press: *Stroke*

Loughrey DG, Mihelj E, Lawlor BA. Age-related hearing loss associated with altered response efficiency and variability on a visual sustained attention task. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn.* 2019 Dec 23:1-25. doi:10.1080/13825585.2019.1704393. [Epub ahead of print] PubMed PMID: 31868123.

Walsh S, Pertl M, Gillespie P, Lawlor B, Brennan S, O'Shea E. Factors influencing the cost of care and admission to long-term care for people with dementia in Ireland. *Aging Ment Health.* 2019 Dec 17:1-9. doi:10.1080/13607863.2019.1699901. [Epub ahead of print] PubMed PMID: 31847539.

Loughrey DG, Pakhomov SVS, Lawlor BA. Altered verbal fluency processes in older adults with age-related hearing loss. *Exp Gerontol.* 2019 Nov 30; 130:110794. doi: 10.1016/j.exger.2019.110794. [Epub ahead of print] PubMed PMID: 31790801.

Aspell N, Laird E, Healy M, Lawlor B, O'Sullivan M. Vitamin D Deficiency Is Associated With Impaired Muscle Strength And Physical Performance In Community-Dwelling Older Adults: Findings From The English Longitudinal Study Of Ageing. *Clin Interv Aging.* 2019 Oct 15;14:1751-1761. doi: 10.2147/CIA.S222143. eCollection 2019. PubMed PMID: 31686797; PubMed Central PMCID: PMC6800555.

Power C, Duffy R, Mahon J, McCarroll K, Lawlor BA. Bones of Contention: A Comprehensive Literature Review of Non-SSRI Antidepressant Use and Bone Health. *J Geriatr Psychiatry Neurol.* 2019 Oct 30:891988719882091. doi:10.1177/0891988719882091. [Epub ahead of print] PubMed PMID: 31665962.

Dyer AH, Murphy C, Segurado R, Lawlor B, Kennelly SP; NILVAD Study Group. Is Ongoing Anticholinergic Burden Associated with Greater Cognitive Decline & Dementia Severity in Mild to Moderate Alzheimer Disease? *J Gerontol A Biol Sci Med Sci.* 2019 Oct 15. pii: glz244. doi: 10.1093/gerona/glz244. [Epub ahead of print] PubMed PMID: 31613323.



Dyer AH, Murphy C, Lawlor B, Kennelly SP; NILVAD Study Group. Cognitive Outcomes of Long-term Benzodiazepine and Related Drug (BDZR) Use in People Living With Mild to Moderate Alzheimer's Disease: Results From NILVAD. *J Am Med Dir Assoc*. 2019 Oct 8. pii: S1525-8610(19)30615-2. doi: 10.1016/j.jamda.2019.08.006.[Epub ahead of print] PubMed PMID: 31604674.

Walrath D, Lawlor B. Dementia: towards a new republic of hope. *Lancet*. 2019 Sep 1;394(10203):1002-1003. doi: 10.1016/S0140-6736(19)32099-9. PubMed PMID:31544739.

de Heus RAA, Olde Rikkert MGM, Tully PJ, Lawlor BA, Claassen JAHR; NILVAD Study Group. Blood Pressure Variability and Progression of Clinical Alzheimer Disease. *Hypertension*. 2019 ov;74(5):1172-1180. doi: 10.1161/HYPERTENSIONAHA.119.13664. Epub 2019 Sep 23. PubMed PMID: 31542965.

Loughrey DG, Parra MA, Lawlor BA. Visual short-term memory binding deficit with age-related hearing loss in cognitively normal older adults. *Sci Rep*. 2019 Aug 29;9(1):12600. doi: 10.1038/s41598-019-49023-1. PubMed PMID: 31467387; PubMedCentral PMCID: PMC6715732.

Pertl MM, Sooknarine-Rajpatty A, Brennan S, Robertson IH, Lawlor BA. Caregiver Choice and Caregiver Outcomes: A Longitudinal Study of Irish Spousal Dementia Caregivers. *Front Psychol*. 2019 Aug 13;10:1801. doi:10.3389/fpsyg.2019.01801. eCollection 2019. PubMed PMID: 31456713; PubMed Central PMCID: PMC6700469.

Glynn K, Coen R, Lawlor BA. Is the Quick Mild Cognitive Impairment Screen (QMCI) more accurate at detecting mild cognitive impairment than existing short cognitive screening tests? A systematic review of the current literature. *Int J Geriatr Psychiatry*. 2019 Dec;34(12):1739-1746. doi: 10.1002/gps.5201. Epub 2019 Aug 22. Review. PubMed PMID: 31418473.

Kunkle BW, Grenier-Boley B, Sims R, Bis JC, Damotte V, Naj AC, Boland A, Vronskaya M, et al Author Correction: Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing. *Nat Genet*. 2019 Sep;51(9):1423-1424. doi: 10.1038/s41588-019-0495-7. PubMed PMID: 31417202.

Bracken-Scally M, Keogh B, Daly L, Pittalis C, Kennelly B, Hynes G, Gibb M, Cole N, McMahon CG, Lawlor B, McCarron M, Brady AM. Assessing the impact of dementia inclusive environmental adjustment in the emergency department. *Dementia (London)*. 2019 Jul 17:1471301219862942. doi: 10.1177/1471301219862942. [Epub ahead of print] PubMed PMID: 31315452.

Devenney KE, Guinan EM, Kelly ÁM, Mota BC, Walsh C, Olde Rikkert M, Schneider S, Lawlor B. Acute high-intensity aerobic exercise affects brain-derived neurotrophic factor in mild cognitive impairment: a randomised controlled study. *BMJ Open Sport Exerc Med*. 2019 Jun 11;5(1):e000499. doi:10.1136/bmjsem-2018-000499. eCollection 2019. PubMed PMID: 31258928; PubMed Central PMCID: PMC6563898.

de Jong DLK, de Heus RAA, Rijpma A, Donders R, Olde Rikkert MGM, Günther M, Lawlor BA, van Osch MJP, Claassen JAHR. Effects of Nilvadipine on Cerebral Blood Flow in Patients With Alzheimer Disease. *Hypertension*. 2019 Aug;74(2):413-420. doi: 10.1161/HYPERTENSIONAHA.119.12892. Epub 2019 Jun 17. PubMed PMID: 31203725.

Wilson L, Power C, Owens R, Lawlor B. Psychiatric consultation in the nursing home: reasons for referral and recognition of delirium. *Ir J Psychol Med*. 2019 Jun;36(2):121-127. doi: 0.1017/ipm.2017.71. PubMed PMID: 31187721.

Kelly ME, Lawlor BA, Coen RF, Robertson IH, Brennan S. Cognitive rehabilitation for early stage Alzheimer's disease: a pilot study with an Irish population. *Ir J Psychol Med*. 2019 Jun;36(2):105-119. doi: 10.1017/ipm.2017.23. PubMed PMID: 31187720.

Aspell N, Laird E, Healy M, Shannon T, Lawlor B, O'Sullivan M. The Prevalence and Determinants of Vitamin D Status in Community-Dwelling Older Adults: Results from the English Longitudinal Study of Ageing (ELSA). *Nutrients*. 2019 Jun 1;11(6). pii: E1253. doi: 10.3390/nu11061253. PubMed PMID: 31159411; PubMed Central PMCID: PMC6627050.

de Heus RAA, Donders R, Santoso AMM, Olde Rikkert MGM, Lawlor BA, Claassen JAHR; Nilvad Study Group. Blood Pressure Lowering With Nilvadipine in Patients With Mild-to-Moderate Alzheimer Disease Does Not Increase the Prevalence of Orthostatic Hypotension. *J Am Heart Assoc*. 2019 May 21;8(10):e011938. doi:10.1161/JAHA.119.011938. PubMed PMID: 31088188; PubMed Central PMCID: PMC6585342.

McHugh Power JE, Hannigan C, Carney S, Feeney J, Kenny RA, Kee F, Lawlor BA. Lonely SARTs: loneliness and sustained attention in the Irish longitudinal study of aging. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn*. 2019 Apr 18:1-10. doi:10.1080/13825585.2019.1602705. [Epub ahead of print] PubMed PMID: 30999806.

McHugh Power J, Tang J, Kenny RA, Lawlor BA, Kee F. Mediating the relationship between loneliness and cognitive function: the role of depressive and anxiety symptoms. *Aging Ment Health*. 2019 Apr 7:1-8. doi:10.1080/13607863.2019.1599816. [Epub ahead of print] PubMed PMID: 30955348.

Power JEM, Sjöberg L, Kee F, Kenny RA, Lawlor B. Comparisons of the discrepancy between loneliness and social isolation across Ireland and Sweden: findings from TILDA and SNAC-K. *Soc Psychiatry Psychiatr Epidemiol*. 2019 Sep;54(9):1079-1088. doi: 10.1007/s00127-019-01679-w. Epub 2019 Mar 12. PubMed PMID: 30863870.

Kunkle BW, Grenier-Boley B, Sims R, Bis JC, Damotte V, Naj AC, et al Alzheimer Disease Genetics Consortium (ADGC); European Alzheimer's Disease Initiative (EADI), Cohorts for Heart and Aging Research in Genomic Epidemiology Consortium (CHARGE), Genetic and Environmental Risk in AD/Defining Genetic, Polygenic and Environmental Risk for Alzheimer's Disease Consortium (GERAD/PERADES), Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing. *Nat Genet*. 2019 Mar;51(3):414-430. doi: 10.1038/s41588-019-0358-2. Epub 2019 Feb 28. Erratum in: *Nat Genet*. 2019 Sep;51(9):1423-1424. PubMed PMID: 30820047; PubMed Central PMCID: PMC6463297.

Wolfe H, Mela V, Minogue AM, Miller AM, McGuigan C, Williams L, Lohan D, Lawlor BA, Lynch MA. Monocytes exposed to plasma from patients with Alzheimer's disease undergo metabolic reprogramming. *Neurosci Res*. 2019 Nov; 148:54-60. doi: 10.1016/j.neures.2019.01.001. Epub 2019 Jan 12. PubMed PMID: 30641113.

Doherty CP, O'Keeffe E, Keaney J, Lawlor B, Coen RF, Farrell M, Campbell M. Neuropathology as a result of severe traumatic brain injury? *Clin Neuropathol*. 2019 Jan/Feb;38(1):14-22. doi: 10.5414/NP301131. PubMed PMID: 30336803.

Bilchick K, Moss T, Welch T, Levy W, Stukenborg G, Lawlor BT, Reigle J, Thomas SC, Brady C, Bergin JD, Kennedy JLW, Abuannadi M, Scully K, Mazimba S. Improving Heart Failure Readmission Costs and Outcomes With a Hospital-to-Home Readmission Intervention Program. *Am J Med Qual*. 2019 Mar/Apr;34(2):127-135. doi:10.1177/1062860618788436. Epub 2018 Jul 19. PubMed PMID: 30024279.

Bowe AK, Owens M, Codd MB, Lawlor BA, Glynn RW. Physical activity and mental health in an Irish population. *Ir J Med Sci*. 2019 May;188(2):625-631. doi:10.1007/s11845-018-1863-5. Epub 2018 Jul 17. PubMed PMID: 30019096.

- Claffey P, McNicholas T, Briggs R, et al. The Impact of Acute Specialised Geriatric Take in a Large Teaching Hospital over Three Years. *Age and Ageing*. 2018;47(suppl\_5).
- Coen R, Hannigan O, Glynn K, et al. Free and Cued Selective Reminding (FCSRT) and Delayed Word Recall (DWR) Concordance for Hippocampal Signature Amnesic Mild Cognitive Impairment (MCI). *Age and Ageing*. 2018;47(suppl\_5): v13-v60.
- Collins P, McDonough A, Robinson D. Fasting Before Cardiac Procedures Under Conscious Sedation Hunger Without Cause? Paper presented at: IRISH JOURNAL OF MEDICAL SCIENCE 2018.
- Hannigan O, McNicholas T, McCarroll K, Cunningham C, Robinson D. 208Life Expectancy and Place of Death of Patients Discharged from Hospital to Long Term Care. *Age and Ageing*. 2018;47(suppl\_5).
- McMahon CG, Foley MP, Robinson D, et al. High prevalence of frequent attendance in the over 65s. *European Journal of Emergency Medicine*. 2018;25(1):53-57.
- Prosopagnosia as a Type of Conversion Disorder.
- Power C, Hannigan O, Coen R, Bruce I, Gibb M, McCarthy M, Robinson D, Lawlor BA. Case Rep Psychiatry. 2018 Feb 13; 2018:5972954. PMID: 29666739

## Medical Physics and Bioengineering

- SP Juraschek, A Taylor, G W Evans, R Townsend, E Miller, T Plante, W Cushman, T Gure, W Haley, I Moinuddin, J Nord, S Oparil, C Pedley, C Roumie, J Whittle, A Wiggers, C Finucane, RA Kenny, LJ Appel, JT Wright. Orthostatic Hypotension, Cardiovascular Outcomes, and Adverse Events: Results from SPRINT, Hypertension, December 2019 (In press).
- Claffey P, Pérez-Denia L, Rivasi G, Finucane C, Kenny RA. Near-Infrared Spectroscopy in Evaluating Psychogenic Pseudosyncope - A novel diagnostic approach. *QJM*. 2019 Oct 9. pii: hcz257. doi: 10.1093/qjmed/hcz257. PMID: 31596496
- Finucane C, van Wijnen VK, Fan CW, Soraghan C, Byrne L, Westerhof BE, Freeman R, Fedorowski A, Harms MPM, Wieling W, Kenny R. A practical guide to active stand testing and analysis using continuous beat-to-beat non-invasive blood pressure monitoring. *Clin Auton Res*. 2019 Aug;29(4):427-441. doi: 10.1007/s10286-019-00606-y. Epub 2019 May 10. Review. PMID: 31076939
- L Pérez-Denia, P Claffey, RA Kenny, C Finucane 'Is cerebral autoregulation altered in ageing? A review'. BGS, Leicester, 6-8 November 2019.
- P Claffey, L Perez-Denia, G Rivasi, A Ungar, C Finucane, RA Kenny P5678 Near-infrared spectroscopy (NIRS) in the evaluation of psychogenic pseudosyncope-Moving towards a simplified diagnostic pathway. *European Heart Journal* 40 (Supplement\_1), ehz746. 0620
- C Finucane, R Kenny. Time to redefine initial orthostatic hypotension in older adults? *Age and Ageing*, Volume 48, Issue Supplement\_1, February 2019, Pages i24-i25, <https://doi.org/10.1093/ageing/afy200.01>
- D Moloney, L Perez Denia, R Kenny. Todd's Paresis following Vasovagal Syncope provoked by Tilt Table Testing. *BMJ Case Reports*, 2019 (In review).
- S. Naimimohasses, L Pérez Denia, C. Rice, C. Finucane, S. Norris, R. A. Kenny. A pilot study evaluating cerebral perfusion oxygenation and orthostatic blood pressure regulation in patients with advanced, non-cirrhotic Non-Alcoholic Fatty Liver Disease (NAFLD), the European Association for the Study of the Liver Annual Meeting, London, 2019.

- Briggs, R, Carey, D, Claffey, P, McNicholas, T, Newman, L, Nolan, H, Kennelly, SP, Kenny, RA. The association between frontal lobe perfusion and depressive symptoms in later life. *The British Journal of Psychiatry: The Journal of Mental Science*. 214(4):230-23.
- Briggs, R, Carey, D, Claffey, P, McNicholas, T, Donoghue, OA, Kennelly, SP, Kenny, RA. Do Differences in Spatiotemporal Gait Parameters Predict the Risk of Developing Depression in Later Life? *Journal of the American Geriatrics Society* 67(5):1050-1056.
- Briggs, R, McCarroll, K, O'Halloran, A, Healy, M, Kenny, RA, Laird, E. Vitamin D Deficiency Is Associated With an Increased Likelihood of Incident Depression in Community-Dwelling Older Adults. *JAMDA*. 20(5):517-523.
- Byrne, P, Cullinan, J, Gillespie, P, Perera, R and Smith, SM. Statins for primary prevention of cardiovascular disease: modelling guidelines and patient preferences based on an Irish cohort. *British Journal of Geriatric Practice*. 69(683):e373-e380.
- Carey, D, Nolan, H, Kenny, RA, Meaney, J. Cortical covariance networks in ageing: cross-sectional data from the Irish Longitudinal Study on Ageing (TILDA). *Neuropsychologia*. 122:51-61.
- Carey, D, Nolan, H, Kenny, RA, Meaney, J. Dissociable age and memory relationships with hippocampal subfield volumes in vivo: Data from the Irish Longitudinal Study on Ageing (TILDA). *Scientific Reports*. 9: 10981.
- Cattelani L, Belvederi Murri M, Chesani F, Chiari L, Bandinelli S, Palumbo. Risk Prediction Model for Late Life Depression: Development and Validation on Three Large European Datasets. *IEEE Journal of Biomedical and Health Informatics*. 23(5):2196-2204
- Connolly, S, Whyte, R. Uptake of cancer screening services among middle and older ages in Ireland: the role of healthcare eligibility. *Public Health*. 173:42-4.
- Corish CA, Bardon LA. Malnutrition in older adults: screening and determinants. *The Proceedings of the Nutrition Society*. 78(3):372-379
- Cruise, SM, Hughes, J, Bennett, K, Kouvonen, A, Kee, F. The Impact of Risk Factors for Coronary Heart Disease on Related Disability in Older Irish Adults. *J Aging Health*. 31(1):165-184.
- Curran E, Rosato M, Cooper J, McGarrigle CA, Leavey G. Symptom profiles of late-life anxiety and depression: The influence of migration, religion and loneliness. *Depression and Anxiety*. 36(9):824-833
- Domènech-Abella, J, Mundó, J, Maria Haro, J, Rubio-Valeraef, M. Anxiety, depression, loneliness and social network in the elderly: Longitudinal associations from The Irish Longitudinal Study on Ageing (TILDA). *Journal of Affective Disorders*. 246:82-88.
- Donati, L, Fongo, D, Cattelani, L, Chesani, F. Prediction of Decline in Activities of Daily Living Through Deep Artificial Neural Networks and Domain Adaptation. In: Alviano M., Greco G., Scarcello F. (eds) *AI\*IA 2019 – Advances in Artificial Intelligence*. Lecture Notes in Computer Science, vol 11946, pp 376-391. Available at: [https://link.springer.com/chapter/10.1007/978-3-030-35166-3\\_27](https://link.springer.com/chapter/10.1007/978-3-030-35166-3_27).
- Donoghue, OA, Savva, GM, Börsch-Supan, A, Kenny RA. Reliability, measurement error and minimum detectable change in mobility measures: a cohort study of community-dwelling adults aged 50 years and over in Ireland. *BMJ Open*. 9(11):e030475.
- Donoghue OA, McGarrigle CA, Kenny RA. The Irish Longitudinal Study on Ageing. In: Gu D., Dupre M. (eds) *Encyclopedia of Gerontology and Population Aging*. Springer, Cham. ISBN 978-3-319-69892-2. Available at: [https://link.springer.com/referenceworkentry/10.1007/978-3-319-69892-2\\_340-1](https://link.springer.com/referenceworkentry/10.1007/978-3-319-69892-2_340-1).

Donoghue OA, McGarrigle CA, Kenny RA. Who's in the driver's seat? Impact on social participation and psychosocial wellbeing in adults aged 50 and over. *Transportation Research Part F: Traffic Psychology and Behaviour*. 64:522-531.

Fiorito, G, McCrory, C, Robinson, O, Carmeli, C, Rosales,, CO, Zhang, Y, Colicino, E, Dugué, PA, Artaud, F, McKay, GJ, Jeong, A, Mishra, PP, Nøst, TH, Krogh, V, Panico, S, Sacerdote, C, Tumino, R, Palli, D, Matullo, G, Guarrera, S, Gandini, M, Bochud, M, Dermitzakis, E, Muka, T, Schwartz, J, Vokonas, PS, Just, A, Hodge, AM, Giles, GG, Southey, MC, Hurme, MA, Young, I, McKnight, AJ, Kunze, S, Waldenberger, M, Peters, A, Schwettmann, L, Lund, E, Baccarelli, A, Milne, RL, Kenny, RA, Elbaz, A, Brenner, H, Kee, F, Voortman, T, Probst-Hensch, N, Lehtimäki, T, Elliot, P, Stringhini, S, Vineis, P, Polidoro, S; BIOS Consortium; Lifepath consortium. Socioeconomic position, lifestyle habits and biomarkers of epigenetic aging: a multi-cohort analysis. *Aging*. 11(7):2045-2070.

Gordon, BR, McDowell, CP, Lyons, M, Herring, MP. Associations between grip strength and generalized anxiety disorder in older adults: Results from the Irish longitudinal study on ageing. *Journal of affective disorders*. 255:136-141.

Gormley, M, O'Neill, D. Driving as a Travel Option for Older Adults: Findings From the Irish Longitudinal Study on Aging. *Frontiers in Psychology*. 64:522-531.

Holton, A, Boland, F, Gallagher, P, Fahey, T, Kenny, R, Cousins, G. Life Course Transitions and Changes in Alcohol Consumption Among Older Irish Adults: Results From The Irish Longitudinal Study on Ageing (TILDA). *Journal of aging and health*. 31(9):1568-1588.

Hernández, B, Reilly, RB, Kenny, RA. Investigation of multimorbidity and prevalent disease combinations in older Irish adults using network analysis and association rules. *Scientific Reports*. 9, 14567.

Hernández, B, Setti, A, Kenny, RA, Newell, FN. Individual differences in ageing, cognitive status, and sex on susceptibility to the sound-induced flash illusion: A large-scale study. *Psychology and Aging*. 34(7):978-990.

Hirst, RJ, Setti, A, Kenny, RA, Newell, FN. Age-related sensory decline mediates the Sound-Induced Flash Illusion: Evidence for reliability weighting models of multisensory perception. *Scientific Reports*. 9, 19347.

Holton, A, Boland, F, Gallagher, P, Fahey, T, Kenny, R, Cousins, G. Longitudinal prevalence of potentially serious alcohol-medication interactions in community-dwelling older adults: a prospective cohort study. *European Journal of Clinical Pharmacology*. 75(4):569-575.

Huang, C, Sun, S, Tian, X, Wang, T, Wang, T, Duan, H, Wu, Y. Age modify the associations of obesity, physical activity, vision and grip strength with functional mobility in Irish aged 50 and older. *Archives of gerontology and geriatrics*. 84:103895.

Laird, EJ, McNicholas, T, O'Halloran, AM, Healy, M, Molloy, AM, Carey, D, O'Connor, D, McCarroll, K, Kenny, RA. Vitamin D Status Is Not Associated With Orthostatic Hypotension in Older Adults. *Hypertension*. 74(3):639-644).

Layte, R, McCrory, C, Ni Cheallaigh, C, Bourke, N, Kivimaki, M, Ribeiro, AI, Stringhini, S, Vineis, P. A Comparative Analysis of the Status Anxiety Hypothesis of Socio-economic Inequalities in Health Based on 18,349 individuals in Four Countries and Five Cohort Studies. *Scientific Reports*. 9(796).

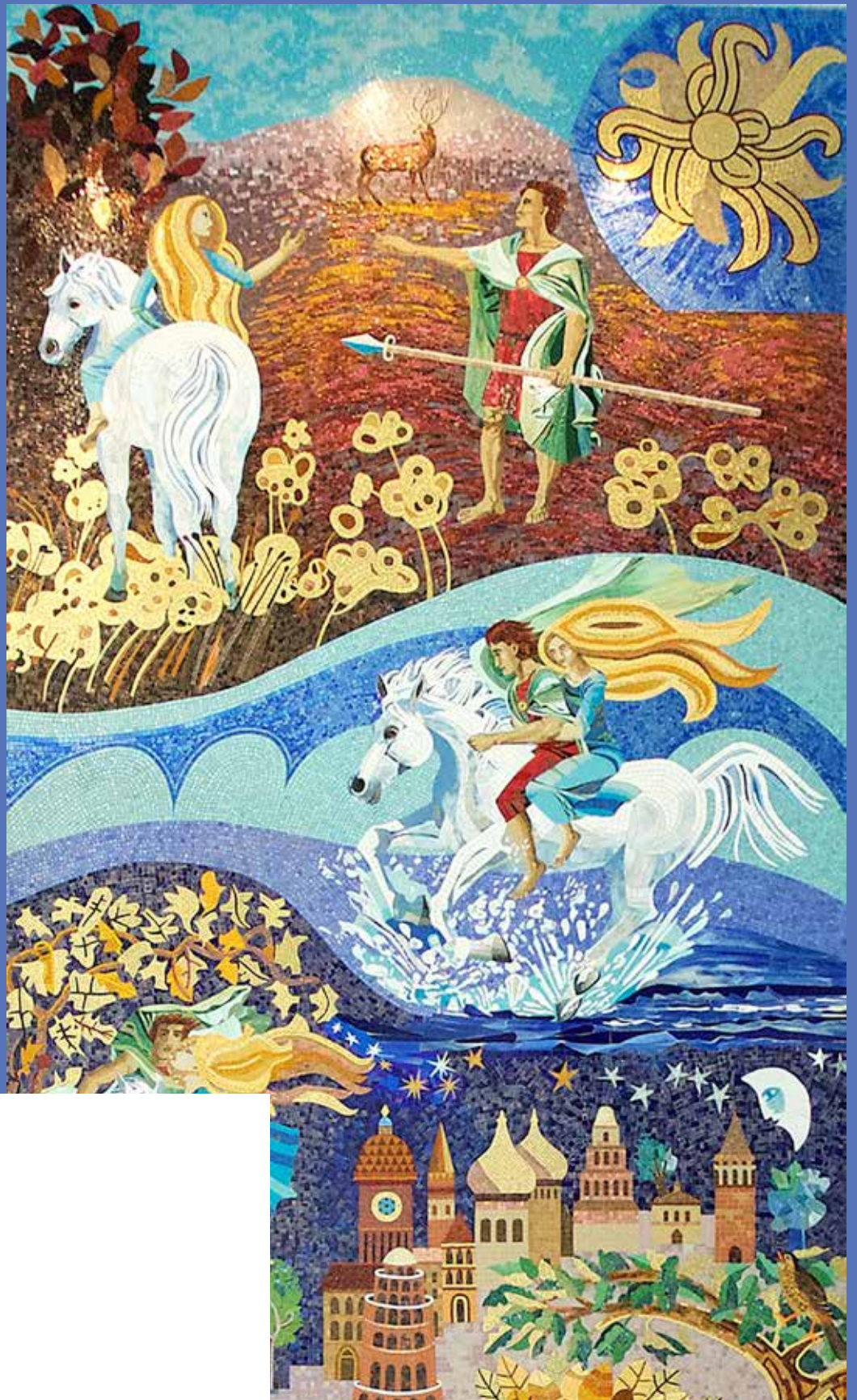
Lindsay, L, Coleman, SA, Kerr, D, Taylor, BJ, Moorhead, A. Classification of Health Risk Factors to Predict the Risk of Falling in Older Adults. *International Journal of Medical and Health Sciences*. 13(6):306-309.

May, P, Johnston, BM, Normand, C, Higginson, IJ, Kenny, RA, Ryan, K. Population-based palliative care planning in Ireland: how many people will live and die with serious illness to 2046?. *HRB Open Research*. 2:35.

Mayburd, AL, Baranova, A. Increased lifespan, decreased mortality, and delayed cognitive decline in osteoarthritis. *Scientific Reports*. 9(1):18639.

- McCrary C, Fiorito G, Ni Cheallaigh C, Polidoro S, Karisola P, Alenius H, Layte R, Seeman T, Vineis P, Kenny RA. How does socio-economic position (SEP) get biologically embedded? A comparison of allostatic load and the epigenetic clock(s). *Psychoneuroendocrinology*. 104:64-73.
- McDowell, CP, Gordon, BR, Andrews, KL, MacDonncha, C, Herring, MP. Associations of physical activity with anxiety symptoms and status: results from The Irish longitudinal study on ageing. *Epidemiology and psychiatric sciences*. 28(4):436-445.
- McDowell, CP, Gordon, BR, Herring, MP. Sex-related differences in the association between grip strength and depression: Results from the Irish Longitudinal Study on Ageing. *Experimental Gerontology*. 104:147-152.
- McDowell, CP, Gordon, BR, MacDonncha, C, Herring, MP. Physical activity correlates among older adults with probable generalized anxiety disorder: Results from The Irish Longitudinal Study on Ageing. *General Hospital Psychiatry*. 59:30-36.
- McGarrigle, L, Irving, K, van Boxtel, MPJ, Boran, L. Cognitive Reserve Capacity: Exploring and Validating a Theoretical Model in Healthy Ageing. *Journal of the International Neuropsychological Society*. 25(6):603-617.
- McMullan, I, Bunting, B, McDonough, S, Tully, M, Casson, K. Changes in physical activity predict changes in a comprehensive model of balance in older community-dwelling adults. A longitudinal analysis of the TILDA study. *Journal of Frailty, Sarcopenia and Falls*. 4(4):102-110.
- Mohan, G, Nolan, A, Lyons, S. An investigation of the effect of accessibility to General Practitioner services on healthcare utilisation among older people. *Social Science and Medicine*. 220:254-263.
- Ní Bhuachalla, B, McGarrigle, CA, O'Leary, N, Akuffo, KO, Peto, T, Beatty, S, Kenny, RA. Orthostatic blood pressure variability is associated with lower visual contrast sensitivity function: Findings from The Irish Longitudinal Study on Aging. *Experimental Gerontology*. 119:14-24.
- Nivakoski, S, Barrett, A. Estimating, and Interpreting, Retirement Income Replacement Rates. *Economic and Social Review*. 50(3):507-609.
- Nivakoski, S. Does the exchange motive influence intergenerational transfers? Evidence from Ireland. *Review of the Economics of the Household*. 17(3):1049-1079.
- Nolan, A, Barrett, A. The role of self-employment in Ireland's older workforce. *The Journal of the Economics of Ageing*. 14, 2019, 100201
- Nolan, A, Barrett, A. Working Beyond age 65 in Ireland. *Journal of Population Ageing*. 12(3):299-326
- Nolan, A, McCrary, C, Moore, P. Personality and preventive healthcare utilisation: Evidence from the Irish Longitudinal Study on Ageing. *Preventative Medicine*. 120:107-112
- O'Neill, KN, McHugh, SM, Kearney, PM. Cycle of Care for people with diabetes: an equitable initiative? . *HRB Open Research*. 2:3.
- O'Sullivan, M, Brennan, S, Lawlor, BA, Hannigan, C, Robertson, IH, Pertl, MM. Cognitive functioning among cognitively intact dementia caregivers compared to matched self-selected and population controls . *Ageing and Mental Health*. 23(5):566-573.
- Oliveira, IM, Hernández, B, Kenny, RA, Reilly, RB. Automatic Disability Categorisation based on ADLs among Older Adults in a Nationally Representative Population using Data Mining Methods. 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). 2466-2469.
- Orr, J, Layte, R, O'Leary, N. Sexual Activity and Relationship Quality in Middle and Older Age: Findings From The Irish Longitudinal Study on Ageing (TILDA). *J Gerontol B Psychol Sci Soc Sci*. 74(2):287-297.

- Orr, J, Tobin, K, Carey, D, Kenny, RA, McGarrigle, C. Religious Attendance, Religious Importance, and the Pathways to Depressive Symptoms in Men and Women Aged 50 and Over Living in Ireland. *Research on Aging*. 41(9):891-911.
- Peeters, G, Feeney, J, Carey, D, Kennelly, S, Kenny, RA. A comprehensive assessment of risk factors for falls in middle-aged adults: co-ordinated analyses of cohort studies in four countries. *Osteoporosis International* 30(10):2099-2117.
- Peeters, G, Feeney, J, Carey, D, Kennelly, S, Kenny, RA. Fear of falling: a manifestation of executive dysfunction?. *International journal of geriatric psychiatry*. 34(8):1275-1282.
- Power, JEM, Sjöberg, L, Kee, F, Kenny, RA, Lawlor, B. Comparisons of the discrepancy between loneliness and social isolation across Ireland and Sweden: findings from TILDA and SNAC-K. *Social psychiatry and psychiatric epidemiology*. 54(9):1079-1088.
- Santini, ZI, Joyangi, AI, Tyrovolas, S, Haro, JM, Koushede, V. The association of social support networks and loneliness with negative perceptions of ageing: evidence from the Irish Longitudinal Study on Ageing (TILDA). *Ageing and Society*. 39(5):1070-1090
- Scanlon, G, McCartney, D, Butler, JS, Loskutova, E, Loughman, J. Identification of Surrogate Biomarkers for the Prediction of Patients at Risk of Low Macular Pigment in Type 2 Diabetes. *Current Eye Research*. 44(12):1369-1380.
- Schuch, FB, Stubbs, B, Meyer, J, Heissel, A, Zech, P, Vancampfort, D, Rosenbaum, S, Deenik, J, Firth, J, Ward, PB, Carvalho, AF, Hiles, SA. Physical activity protects from incident anxiety: A meta-analysis of prospective cohort studies. *Depression and Anxiety*. 44(12):1369-1380.
- Walsh, CA, Cahir, C, Bennett, KE. Association between adherence to antihypertensive medications and health outcomes in middle and older aged community dwelling adults; results from the Irish longitudinal study on ageing. *European Journal of Clinical Pharmacology*. 75(9):1283-1292.
- Ward, M, McGarrigle, CA, Kenny, RA. More than health: quality of life trajectories among older adults-findings from The Irish Longitudinal Study on Ageing (TILDA). *Qual Life Res*. 28(2):429-439.



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