Hello and Goodbye!

We welcomed a number of new faces to the FRONTIER team. Cassandra Kaizik has joined us in the role of research Occupational Therapist. Emma Flanagan and Jody Kamminga came on board as new research assistants. Sicong Tu, who completed his Masters degree with us last year, has stayed on to embark on a PhD. Stephanie Wong and neurologist, Dr Rebekah Ahmed, also commenced their PhDs with us. Sharpley and Cristian both welcomed little bundles of joy into their families during the year: a girl (Emily) and a boy (Lucas) respectively. Sharpley is currently on maternity leave. We hosted two international visitors this year: Professor Facundo Manes, from Favaloro University in Buenos Aires, Argentina and Sarah McGrory, from the University of Edinburgh, Scotland.

Congratulations!

Once again, the stellar efforts of our team were recognised with a number of prestigious awards and competitive grants. At the International Neuropsychological Society meeting in Hawaii, Muireann was presented with the Laird Cermak Award for Outstanding Research in Memory for her work on memory and imagination in dementia, and was further honoured with a Young Investigator Award for her presentation at that meeting. In addition, she won the Paxinos Prize for her recently published article in the journal Brain. James was awarded an NHMRC Early Career Fellowship to investigate language deficits in MND. Cristian has taken up a postdoctoral fellowship at the University of Sydney to continue investigating logopenic aphasia. Sharon won the highly contested UNSW Three Minute Thesis competition. Fiona completed her PhD this year, and she was awarded two ARC Centre of Excellence grants to study facial recognition in dementia. Sicong and Claire were awarded PhD scholarships from the NHMRC and Alzheimers Australia Dementia Research Foundation respectively. Publications by both Sharon and Fiona collected the UNSW School of Medical Sciences Paper of the Month award. Olivier received a UNSW Excellence in Postgraduate Research Supervision Award (pictured).

Thanks

Prof John Hodges, Assoc Prof Olivier Piquet and the FRONTIER team would like to extend their sincere thanks to all of the participants and their families for their continuing participation in our research projects during the year. Your generous time commitment and help with our research is an integral part of our ongoing success.
Research News

Research Progress

FRONTIER had another busy year which saw over 90 new participants involved in our research and many existing families welcomed back for annual reviews. We launched a number of new studies investigating various aspects of frontotemporal dementia and other related disorders. Some of our current research projects and their findings include:

Muireann is continuing her research into memory and imagination. She has demonstrated that episodic memory (memory for events) and semantic memory (general knowledge of the world) are both necessary to enable us to construct a picture of what the future might look like. In a series of studies, Muireann has revealed that individuals with Alzheimer’s disease and frontotemporal dementia show severe difficulties with imagination, stemming from damage to several important regions in the brain. Muireann is now exploring how these difficulties relate to lapses in prospective memory, such as when we forget to pick up the milk or to pay a bill. She hopes to shed further light on the brain structures that are necessary to help us function successfully in the world.

This year, Cristian has advanced our understanding of a certain type of dementia called logopenic aphasia. His research suggests that these patients experience specific linguistic deficits. In addition, logopenic patients seem to have a more rapid and widespread cognitive decline that resembles the changes seen in Alzheimer’s disease. Cristian aims to identify the factors involved in, as well as the role of, amyloid, a protein that is found in abnormal quantities in the brains of patients with Alzheimer’s disease and logopenic aphasia.

Fiona has been investigating how memory for emotional events, like weddings or funerals, is affected in dementia. She discovered that patients with frontotemporal dementia lose the emotional colour/content of their memories. This loss is due to shrinkage in a brain region known as the orbitofrontal cortex, which plays a key role in linking emotion and memories. Fiona’s findings received widespread media attention, including ABC Radio National, The Conversation and The Age.

Sharon’s word retraining program in semantic dementia has been growing in size, with now more than 14 participants engaged in word practice and very positive results. Sharon found that after practice word recall significantly improved, and that this could be maintained over a 6-month period with regular “refresher” sessions. Further, this re-learning training also extends to other related tasks which involve either thinking of or comprehending the trained words.

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Claire’s work has been exploring how people make decisions and control their behaviour, in order to determine how these processes might be affected in frontotemporal dementia. In particular, she has been focussing on the problems some frontotemporal dementia patients experience with impulse control and disinhibited behaviour. Her research has identified the key brain regions that contribute to these problems. An improved understanding of these symptoms will enable us to develop management strategies for these impulsive behaviours in the future.

Bonnie has been investigating changes in the white matter, which is the wiring of the brain. She found that each frontotemporal dementia subtype had distinct patterns of white matter alterations. She also found that changes in the white matter progressed faster than changes affecting the grey matter over a 1-year period. These findings help us to better understand the progression of brain changes in frontotemporal dementia, and suggest that white matter changes could potentially act as a biomarker for early detection of the disease.

In addition to understanding how frontotemporal dementia unfolds and evolves over time, we are also interested in understanding how it affects carers and family members. This is why a number of you have filled out various questionnaires asking you questions about your wellbeing, level of stress, etc. This important work has allowed us to identify the key aspects of the disease that are related to burden of care. This research will help us inform carers and family members about what to expect and how best to respond and adapt to changes in your loved one.

Conference Presentations and Other Activities

Our research findings have been presented at a range of national (Sydney, Brisbane) and international (San Diego, Hawaii, London, Dublin, Milan, Amsterdam) scientific conferences throughout the year. The number of published journal articles reporting our research findings has increased to over 40 this year. We also organised another meeting day for carers of patients with frontotemporal dementia which was very well received.