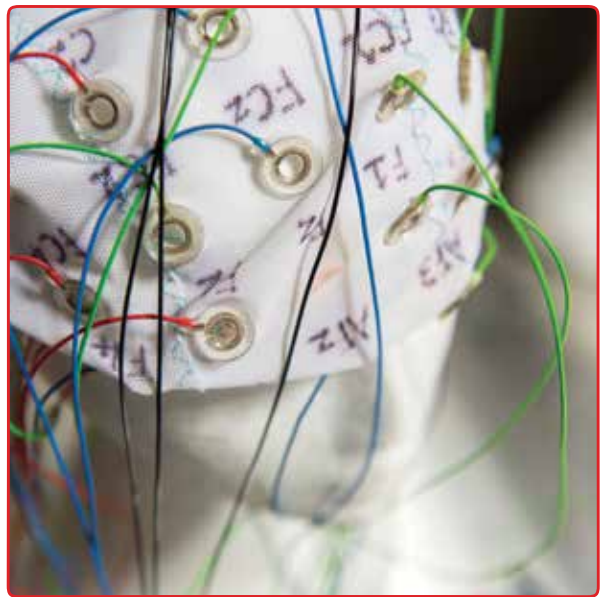
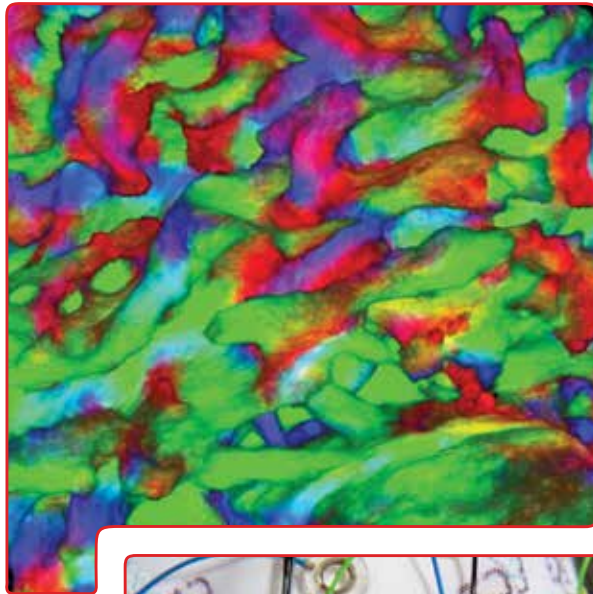


2015 ANNUAL REPORT

MONASH ALFRED PSYCHIATRY
RESEARCH CENTRE
(MAPrc)





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DIRECTOR'S REPORT



Neuroscience" which was held at Monash University in August 2015. The workshop was very well attended by scientists from diverse disciplines such as Materials Engineering, Biophysics, Immunology, Stem Cell Research, Robotics and Nanotechnology as well as psychiatrists, psychologists and other mental health professionals. In a very stimulating environment, we discussed the potential to translate discoveries from many different areas into psychiatry and therefore produce new understanding and treatments for conditions such as schizophrenia, depression and other devastating illnesses. This workshop again highlighted that true innovation in any field, particularly in mental health, can really only be achieved by reaching out and collaborating with experts in other areas. We hope to capitalise on the many excellent potential new research areas and new collaborations that the Innovation Workshop, sponsored by the Monash Partners Academic Health Science Centre, brought forward.

Dissemination of our information continues to occur through a number of different media. Training and teaching other medical practitioners about our research and clinical findings occurred through the several transcranial magnetic stimulation (TMS) training workshops run by Professor Fitzgerald and his group, as

It is my great pleasure and privilege to invite you to read the Monash Alfred Psychiatry research centre's Annual Report for 2015.

MAPrc strives to innovate the understanding and treatment of a number of different mental health conditions. We aim to rapidly translate these findings into state-of-the-art psychiatric service provision.

In 2015, we held several workshops, conferences and teaching initiatives to enhance our goals of innovation. Importantly, at MAPrc we work very hard to involve researchers and clinicians from many different and disparate areas. This was highlighted at a conference titled "Innovating Psychiatry through

well as in the workshops and conferences held about women's mental health throughout the year.

In October 2015, MAPrc was honoured by the presence of Dame Quentin Bryce at a public lecture given by me for the Central clinical school. Dame Quentin formally launched the Australian Consortium for Women's Mental Health at this public lecture. The aim of this consortium, directed by me and run through MAPrc, is to bring together researchers, clinicians and other advocates of women's mental health in order to recognise women's mental health as a national priority and hence improve outcomes for women.

MAPrc continues to be a centre that encourages innovation, provides a great platform for testing new ideas as well as being an excellent translational nexus between research and clinical practice.

Thank you for your continuing support.

Professor Jayashri Kulkarni
Director, The Monash Alfred Psychiatry research centre

DEPUTY DIRECTOR'S REPORT



In the MAPrc annual report for 2014 I described how I had at the time been reviewing data from clinical trials we have been conducting with TMS in the 10 years leading up to that time. I was struck by both the number of patients we had included in clinical trials of TMS in depression over this period of time and how this has translated into a large number of these patients having substantially improved lives. As I was reflecting for this report, I realised that the data from that analysis has just recently been accepted for publication, at least 12 months since we commenced looking at that information.

What struck me most from that observation was not how long it took from initially seeing the data until it was published but how this length of time is

by no means unusual. Generally speaking, conducting research is a slow and usually quite drawn-out process. From the time when one first comes up with a good idea, to developing a protocol, to obtaining funding, to getting ethics approval, establishing administrative structures and staffing, actually doing the research itself and then analysing the data and writing it up — this is a process that usually stretches over many years. The actual conduct of the research itself can be lengthy, but sometimes takes up a relatively small proportion of the overall time it takes from the conception of an idea to publication. The publication process itself is frequently drawn-out and often a painful one. Manuscripts submitted to journals are reviewed over at least several months and not uncommonly rejected, only for the process to start again. If you are overly ambitious in the journals that you approach, or your research is somewhat unusual and doesn't fit easily into the way reviewers like to see things, this process can become extremely prolonged and often leads to articles being filed in the bottom drawer, as it becomes all a little bit too hard.

Having the persistence to navigate these processes and the commitment to see them through is a critical aspect of being a successful researcher. Most importantly, however, is that one needs to be surrounded by a motivated and supportive

team. The people that you work directly with, and the broader institutional environment, need to be sympathetic to the ups and downs that this process inevitably produces, both practically and emotionally.

I believe we are fortunate at MAPrc in that we have a great team of people. We have a team of people who are both personally and professionally supportive and this is an absolutely critical element of successful research. It is easy to be caught up in the stress of day-to-day work (I am certainly guilty of this frequently enough) and we forget about, or lose focus on, the great things that are being done by people around us. Getting the day-to-day work of research done, grinding it out at times, is critical to the development of new knowledge, new treatments and new hope for people with medical conditions, especially in troubling areas such as the psychiatric disorders that we focus on. These efforts should be constantly acknowledged and recognised.

Professor Paul Fitzgerald
Deputy Director
Monash Alfred Psychiatry research centre

ABOUT MAPrc

Monash Alfred Psychiatry research centre



We are privileged to have as our patron His Excellency General the Honourable Sir Peter Cosgrove AK MC (Retd). We are grateful for his continued patronage and support of our centre, and were delighted when, accompanied by Her Excellency, Lady Cosgrove, he visited our centre and met with our team in September 2014.

MAPrc is the Monash Alfred Psychiatry research centre. Our name reflects our position within two major institutions – Monash University's Central Clinical School, and the Alfred Hospital's Department of Psychiatry.

Our focus is on world class, translational, clinical research. The location of our centre within the Alfred Hospital Precinct in Melbourne provides a vital impetus, connecting our work with the real issues facing people with mental illness.

We have many national and international collaborative partners including consumers & carers, advocacy organisations,

biotechnology companies and researchers from a number of diverse fields.

Our goal is to improve the lives of people suffering with serious mental health illnesses such as schizophrenia, bipolar affective disorder, major depression and major anxiety. These severe mental illnesses impact hugely on the quality of a sufferer's life, and impose a huge cost on families and on our wider community.

Research at MAPrc is extraordinarily diverse. Our projects include experimental neuroscience studies which are recognised around the world for the breakthrough insights they provide into brain structure and function, in health and illness. In addition, new and effective treatment approaches are being developed at MAPrc. These include Transcranial Magnetic Stimulation as a treatment for depression, and Estrogen as a treatment for schizophrenia.

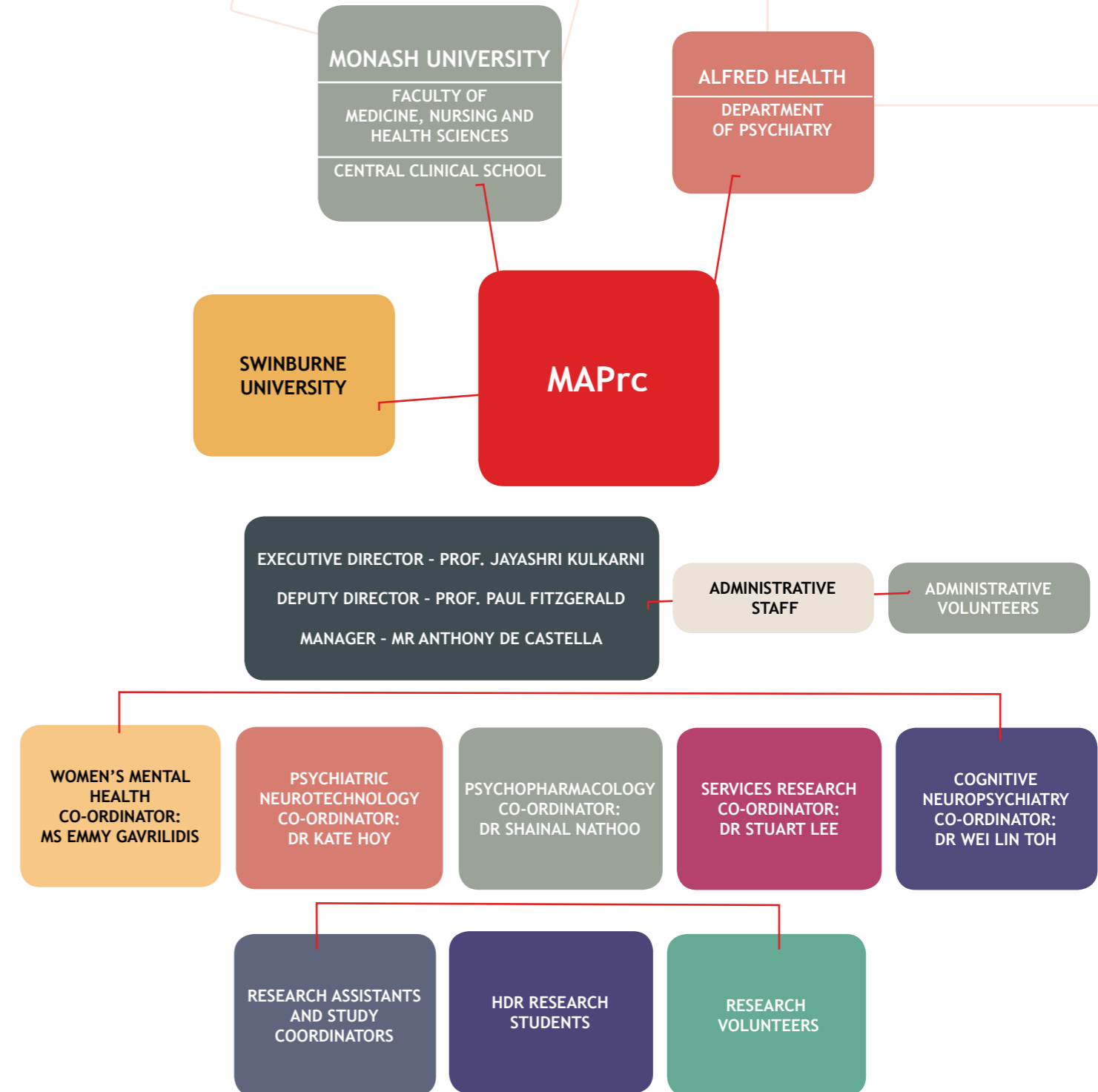
Our team of over one hundred researchers is a multidisciplinary team from various backgrounds including medicine, nursing, psychology, engineering, allied health, neuroscience, and health information services.

Our research is funded by independent competitive grants and a range of other philanthropic funding bodies. These grants typically provide only a portion of the funds required to fully cover the total cost of each individual research study or trial. Therefore we also rely on donations, and on our own fund raising events to ensure that we can continue to undertake valuable and innovative research in our pursuit of improving the outcomes and quality of life of people living with mental illness.

MAPrc's Executive team is supported by our Research Fellows, Clinical Research Assistants, our teaching staff, our post-graduate and under-graduate students, our enthusiastic team of volunteers and our dedicated administrative staff.

ABOUT MAPrc

MAPrc ORGANISATIONAL CHART



**TEAM LEADER/CHIEF INVESTIGATOR**

Professor Jayashri Kulkarni

TEAM COORDINATOR

Ms Emmy Gavrilidis

RESEARCHERS

Dr Roisin Worsley
 Ms Heather Gilbert
 Dr Jasmin Grigg
 Dr Shainal Nathoo
 Dr Arie Sebastian
 Dr Caroline Gurvich
 Mr Anthony de Castella

STUDENT RESEARCHERS

Ms Heather Gilbert – PhD
 Dr Roisin Worsley – PhD
 Ashima Soni
 Alexia Palacin
 Ayushi Gupta
 Vivian Monitto
 Cindy Yu
 Evelyn Chenchen Bian
 Jacqui Bell
 Karin Utami
 Lucinda Miller
 Peter Richard
 Joshua John
 Tess Marinelli
 Muhammad Nassier Lim
 Gurpreet Singh
 Waradana Lahiruni
 Catherine Ngan
 Ashwin Parthasarathy
 Roth Trisno
 Renato Assini

The Women's Mental Health team at MAPrc focusses on developing new approaches for women with a number of different mental illnesses. We utilise a broad range of methodologies and collaborate with researchers in basic, preclinical science areas, clinicians from many different disciplines, anthropologists and sociologists, as well as consumers and carers. Our broad aim is to highlight the special needs of women with mental ill health across the life cycle and develop new treatments, better understanding of mental health conditions in women, and to provide new services tailored for women.

This year, we have begun a study into the poorly understood condition of "Borderline Personality Disorder". We prefer to call this condition "Complex Trauma Disorder" and in many cases there is a link between early life trauma and the development of symptoms such as very poor self-esteem, suicidal thinking and actions, poor self-identity, rage, mood swings and even psychosis symptoms. We are conducting a clinical trial with a medication - Memantine- that is a cognitive enhancer, aiming to improve the symptoms of this disabling condition that affects nearly 6% of the population, mainly women.

Our earlier work into the impact of reproductive hormones on mental health remains both a research and clinical focus for us. Conditions such as perimenopausal depression, premenstrual depression and postnatal disorders are all real entities due to hormone changes. Different oral contraceptives can also affect mood. Another important, ongoing project is NRAMP, the National Register of Antipsychotic Medications in Pregnancy. This is the first register of its kind worldwide. NRAMP is a large database of information about the effects of antipsychotic medications, taken during pregnancy and the postnatal period, on mother and baby. This is a precious resource, and clinicians worldwide ask our advice about optimal and safe antipsychotic drug management during pregnancy.

Our Women's Mental Health Clinic is an active clinical translation of our research findings and continues to be a very highly sought after service for women seeking new approaches for mental illnesses. Many women who attend the Clinic choose to participate in our research studies and in this way there is an important nexus between research and clinical practice.

Professor Kulkarni gave evidence at the Victorian Royal commission into Violence Against Women in 2015. This is an example of our advocacy work, which is an important role for our team.

Women's Mental Health is not a national priority, which is not good enough. We urge you to help us make women's mental health everyone's business.

RESEARCH

WOMEN'S MENTAL HEALTH TEAM

OUR HIGHLIGHTS

Australian Consortium for Women's Mental Health Foundation Members

- Prof Jayashri Kulkarni** Chair and Director of MAPrc, Melbourne, VIC
- Ms Emmy Gavrilidis** Women's Mental Health Team Coordinator; MAPrc, Melbourne, VIC
- Dr Roisin Worsley** Endocrinologist, MAPrc; Women's Mental Health Team, Melbourne, VIC Dr
- Jasmin Grigg** Post Doctoral Researcher, MAPrc; Women's Mental Health Team, Melbourne, VIC
- Ms Heather Gilbert** Senior Clinical Research Nurse, MAPrc; Women's Mental Health Team, Melbourne, VIC
- Dr Deborah Bateman** Director of Family Planning, NSW
- Prof Jane Fisher & Janet Michelmore** – Jean Hailes for Women's Health, VIC
- Ms Rosemary Calder** – Director, Australian Health Policy Collaboration, Melbourne, VIC
- Dame Quentin Bryce** University of Queensland, QLD
- Prof Anne Sved Williams** President, Australian Marce Society, Adelaide, SA
- Dr Sally Cockburn** Media and Primary Health, Melbourne, VIC
- Ms Susan Armstrong** Consumer Advocate, Women Only Wards, Melbourne, VIC
- Dr Felice Watt** Director of Psychiatry, Womens Health Clinical Care Unit, Women and Newborn Health Service, WA
- Kathy Blitz-Cokis** Manager, Womens Health Clinical Care Unit, WA
- Jenny O'Callaghan** Director, Womens Health Clinical Care Unit, WA
- Leanda Verrier** State Co-ordinator, Womens Health Clinical Care Unit, WA



Launch of the Australian Consortium for Women's Mental Health, October 9th 2015

The Australian Consortium for Women's Mental Health was founded by Professor Jayashri Kulkarni, Professor of Psychiatry and Director of the Monash Alfred Psychiatry research centre (MAPrc).

The Consortium aims to address the lack of awareness, support, treatments, services and translational research which currently surround women's mental health by developing a national agenda focused specifically on this area of healthcare. It will establish integrated physical and mental health strategies and approaches

to care as a national focus, putting women's mental health on the map and ultimately optimising robust outcomes.

The Australian Consortium for Women's Mental Health is the collaboration of a number of expert individuals and organisations who are leading the way in advocating for women's mental health in Australia. This multidisciplinary team has expertise in women's mental health research, evaluation and clinical practice, primary care and policy.

RESEARCH

WOMEN'S MENTAL HEALTH TEAM

HIGHLIGHTS

Women, Mental Health, and Hormones on ABC Radio National's "All in the Mind" programme

Professor Jayashri Kulkarni and her team at the Monash Alfred Psychiatry Research Centre (MAPrc) were interviewed by Lynne Malcom on the ABC Radio National's All in the Mind program, which aired on Sunday 22nd November 2015. The team discussed a number of facets of women's mental health, particularly focusing on the impact of hormones on mental health throughout a woman's lifespan.

The key topics covered included:

- Understanding Women's Mental Health and Making it a Priority: Prof Jayashri Kulkarni (Professor of Psychiatry and Director of MAPrc)
- A Personal Story: Mariska Meldrum (Participant and Patron of the National Register of Anti-psychotic Medication in Pregnancy - NRAMP)
- Premenstrual Dysphoric Disorder and Menopause and Mental Health: Dr Roisin Worsley (Endocrinologist)
- Perimenopausal Depression: Ms Emmy Gavrilidis (Women's Mental Health Team Coordinator)
- Hormones and Schizophrenia: Dr Jasmin Grigg (Post Doctorate Researcher)

The team also discussed current hormone treatment trials at MAPrc which may provide effective relief to women who are struggling with these disorders.



In Her Shoes: Women's Mental Health Conference, 19th September 2015

The Monash Alfred Psychiatry Research Centre (MAPrc) together with Servier Pharmaceuticals hosted its 1st Annual Conference titled "In her Shoes" on the 19th September 2015 at the Stamford Plaza, Melbourne.

The one day conference was attended by 100 general practitioners from both metropolitan and rural areas all over Australia.

In her opening address Prof Jayashri Kulkarni said "Women's Mental Health needs to be made a national priority and is everyone's business"

The Women's Mental Health team from MAPrc presented the latest research and understanding about key issues impacting on women's mental health.

The areas covered included:

- Polycystic ovary syndrome (PCOS)
- Premenstrual dysphoric disorder (PMDD)
- Understanding and Managing Borderline Personality Disorder (BPD)
- Motherhood and Mental Health
- Perimenopause/Menopause – Endocrine Aspects, Anxiety and Depression
- Assessment of Violence against Women

RESEARCH

WOMEN'S MENTAL HEALTH TEAM

OUR RESEARCH Selected Projects

Adjunctive Hormone Therapy for Treatment Resistant Depression in Peri and Post menopausal Women

RESEARCHERS

Ms Emmy Gavrilidis
Dr Roisin Worsley

CHIEF INVESTIGATOR

Prof Jayashri Kulkarni

FUNDING

\$599,514.44 — NHMRC Project Grant.

AIM OF PROJECT

To investigate the effectiveness of a hormone treatment (Tibolone) for women with depression related to menopause.

PARTICIPANTS

Women with depression aged between 45- 65.

START AND END DATES

2013 -2016

METHODOLOGY

The study employs a 12 week, double blind, randomised, placebo-controlled, adjunctive treatment trial design. Participants are tested fortnightly and them monthly in regards to depression and monitored for any medication effects.

Currently recruiting.

Memantine in the Treatment of Borderline Personality Disorder

RESEARCHERS

Ms Emmy Gavrilidis
Dr Jasmin Grigg
Dr Roisin Worsley

CHIEF INVESTIGATOR

Prof Jayashri Kulkarni

AIM OF PROJECT

To investigate the effectiveness of adjunctive memantine, a cognitive enhancing agent, in improving symptoms of Borderline Personality Disorder.

PARTICIPANTS

Men and Women with Borderline Personality Disorder aged 18-65.

START AND END DATES

2015 -2017

METHODOLOGY

This is a double-blind, placebo-controlled, randomised pilot study conducted over an 8 week period. Participants are tested fortnightly in regards to BPR symptoms, cognition and medication effects.

Currently recruiting.

Selective Estrogen Receptor Modulators - A New Adjunctive Treatment for Men with Schizophrenia

RESEARCHERS

Dr Jasmin Grigg
Ms Emmy Gavrilidis
Dr Roisin Worsley

CHIEF INVESTIGATOR A

Prof Jayashri Kulkarni

CHIEF INVESTIGATOR B

Prof DA Barton,

CHIEF INVESTIGATOR C

Dr C Gurvich

FUNDING

\$788,419.13 — NHMRC Project Grant.

AIM OF PROJECT

To examine the impact of adjunctive SERM treatment (Raloxifene) on the psychopathology and cognitive functioning of men with schizophrenia.

PARTICIPANTS

Men with schizophrenia aged between 18 and 60.

START AND END DATES

2013 — 2016

METHODOLOGY

The study employs a 12 week, double blind, randomised, placebo-controlled, adjunctive treatment trial design. Participants are tested fortnightly in regards to psychopathology, cognition and monitored for any medication effects.

Currently recruiting.

RESEARCH

PSYCHIATRIC NEUROTECHNOLOGY

OUR TEAM 2015



TEAM LEADER

Prof Paul Fitzgerald

GROUP LEADER — COGNITIVE NEUROTECHNOLOGY RESEARCH GROUP

Dr Kate Hoy

RESEARCH FELLOWS

Dr Bernadette Fitzgibbon
Dr Jerome Maller
Dr Richard Thomson
Dr Rebecca Segrave
Dr Neil Bailey

RESEARCH REGISTRARS

Dr Katie Bourke
Dr Alison Taylor

RESEARCH NURSES

David Elliott
Susan McQueen
Lenore Wambeek

RESEARCH ASSISTANTS

Caley Sullivan
Hannah Coyle
Cassandra Thomson

STUDENT RESEARCHERS

Mr Aron Hill
Mr Phillip Hall
Mr Rod Anderson
Mr Sung Wook Chung
Mr Xianwei Che
Ms Kim Meates
Ms Melissa Kirkovski
Ms Tingting Cao
Mr Oscar Murphy
Ms Karyn Richardson
Ms Melanie Emonson
Mrs Amity Green
Mr Nikolay Kozlov
Ms Katerina Lau
Miss Bridget Pianta
Ms Gabrielle Freedman

Psychiatric Neurotechnology research uses advanced neuroscience technology to investigate brain function and to develop innovative treatments for Depression, Schizophrenia, Autism and Asperger's syndrome, Bipolar disorder, Obsessive Compulsive Disorder (OCD), Fibromyalgia, Traumatic Brain Injury, Dementia and Mild Cognitive Impairment.

Our novel treatments include the following Brain Stimulation techniques, which are being increasingly used as effective non-invasive ways of studying and modifying

brain function: Transcranial Magnetic Stimulation (TMS), Transcranial Direct Current Stimulation (tDCS), Transcranial Alternating Current Stimulation (tACS), Transcranial Random Noise Stimulation (tRNS), Magnetic Seizure Therapy (MST) and Deep Brain Stimulation (DBS). We also use advanced imaging techniques, including Electroencephalography (EEG), Near infra-red spectroscopy (NIRS), Magnetic resonance imaging (MRI), Diffusion tensor imaging (DTI) and Positron emission tomography (PET) to study the effect of these new treatments on brain function.

In 2015 we conducted 11 separate clinical trials across depression, autism, fibromyalgia, head injury, schizophrenia and OCD. We did over 1400 individual TMS treatments and over 500 clinical reviews and interviews. We also conducted 13 experimental studies, published 43 papers, ran four clinical and experimental training courses and were successful in applications for 13 grants. In addition, we had six students complete their degrees.

AWARDS AND DISTINCTIONS

PROFESSOR PAUL FITZGERALD

- Monash University Interdisciplinary Research (IDR) program grant for Design and Testing of a Highly Novel Implantable Magnetic Nerve and Brain Stimulation Device
- NHMRC Practitioner Fellowship for 'Advancing Brain Stimulation Treatments for Depression'
- NHMRC Project Grant 'Deep brain stimulation in the treatment of severe depression'.

DR KATE HOY

- Promoted to Associate Professor, effective Jan 1, 2016;
- NHMRC Excellence Award for the top ranked Career Development Fellowship — Biomedical Level 1
- Mason Foundation National Medical Program Grant for "A randomized controlled pilot trial of Theta Burst Stimulation for the treatment of cognitive impairment in mild to moderate Alzheimer's disease."
- NHMRC Equipment Grant for a Brain Stimulation Suite.

DR BERNADETTE FITZGIBBON

- Founding Vice-President, Australasian Social and Affective Neuroscience Society.
- Arthritis Australia National Research Program; The ARA Project Grant funded by the Australian Rheumatology Association for "Interventional repetitive transcranial magnetic stimulation treatment for fibromyalgia"
- Advancing Women's Research Success Grant Program, Monash University.

DR REBECCA SEGRAVE

Most Outstanding Young Investigator Poster Presentation, Monash Partners Translational Research Symposium (Oct, 2015)

OVERALL TEAM

TMS Courses

- Held the first ever Australian TMS and tDCS Course for Researchers, March 2015
- Held the first ever Australian TMS Psychiatrist Masterclass, July 2015
- Held two TMS Certification Courses, May and November 2015.

Repetitive transcranial magnetic stimulation for the treatment of fibromyalgia

PRINCIPAL INVESTIGATORS

Dr Bernadette Fitzgibbon
Professor Paul Fitzgerald
Dr Kate Hoy
A/Professor Geoffrey Littlejohn
Dr Emma Guymner

ASSOCIATE INVESTIGATORS

Dr David Elliot
Ms Susan McQueen
Ms Lenore Wambeek

FUNDING

NHMRC early career research fellowship (\$303,000)
Arthritis Australia (\$10,000)
Monash University Advancing Women's Grant Scheme (\$11,000).

AIM OF PROJECT

To investigate the clinical efficacy of a 4-week rTMS treatment course applied to the left dorsolateral prefrontal cortex (DLPFC) in patients with fibromyalgia.

BACKGROUND

Fibromyalgia is a complex chronic disorder with current treatments limited in their efficacy. One promising new treatment option is repetitive Transcranial Magnetic Stimulation (rTMS); a non-invasive technique that can change the activity of neurons in the brain. Preliminary studies support the use of rTMS for pain relief in people who suffer from fibromyalgia, however treatment courses have been brief (~two weeks) therefore potentially limiting the therapeutic benefit.

METHODOLOGY

In this double-blind, randomised, placebo-controlled trial, participants undertake a four-week (Monday to Friday) treatment course of high-frequency (10Hz) left-hemisphere DLPFC rTMS. The primary outcome measure is average pain intensity and unpleasantness over the last 24 hours. Secondary outcome measures are taken to assess the impact of the treatment on broader symptoms.

PRELIMINARY FINDINGS

In a preliminary analysis of 11 participants, eight underwent active treatment. Within this group, we observed a significant reduction in pain unpleasantness from baseline to final treatment, as well as an improvement in a number of secondary measures including pain interference and impact, anxiety, and pain catastrophisation. This was not observed in the three participants who underwent sham rTMS.

CONCLUSIONS

The results of our preliminary analysis demonstrate a four-week rTMS treatment course applied to the DLPFC to significantly reduce symptomatology in a small sample of patients with fibromyalgia. These results support the potential role of a 4 week rTMS course as a pain management option for fibromyalgia.

CURRENT STATUS

Recruitment ongoing.

RESEARCH

PSYCHIATRIC NEUROTECHNOLOGY TEAM

OUR RESEARCH Selected Projects

Investigating a novel approach for improving cognition in schizophrenia

PRINCIPAL INVESTIGATOR

Dr Kate Hoy

ASSOCIATE INVESTIGATORS

Ms Hannah Coyle
Ms Caitlyn Rogers
Prof. Paul Fitzgerald

FUNDING

NHMRC Career Development Fellowship (\$411,768)
NHMRC Equipment Grant (\$95,000).

AIM OF PROJECT

To investigate the clinical efficacy of a 5 session course of tDCS for the treatment of cognitive impairment in schizophrenia. We are also examining brain changes underlying any improvements.

BACKGROUND

People with schizophrenia can experience difficulties with attention, memory and problem solving; these are referred to as cognitive symptoms. There are currently no effective treatments for these symptoms.

METHODOLOGY

In this double-blind, randomised, placebo-controlled trial, participants undertake a five-session course of tDCS treatment over a single week. The primary outcome measure is cognitive performance 24 hours and one month following treatment. Secondary outcome measures include neurobiological and functional outcomes of treatment.

PRELIMINARY FINDINGS

In a preliminary analysis of 14 participants, seven in active treatment, seven in sham, we found a greater improvement in cognitive performance at 24 hours post treatment in the active group (Choen's $d = 1.07$). This improvement was maintained at the one month follow up ($n = 6$, 4 in active, 2 in sham).

CONCLUSIONS

The results of our preliminary analysis indicate that tDCS may be a promising treatment for cognitive impairment in schizophrenia.

CURRENT STATUS

Recruitment ongoing.

A2: Accelerated rTMS in the treatment of depression

RESEARCHERS

Prof Paul Fitzgerald (PI)
Dr Kate Hoy
Ms Susan McQueen
Mr David Elliot
Ms Julia Quirk
Mr Rodney Anderson
Ms Melissa Kirkovski
Ms Hannah Coyle
Ms Cassandra Thomson

FUNDING

NHMRC Project Grant, \$470,000, 2013-2016

AIM

To investigate whether accelerated rTMS has efficacy in the treatment of patients with a major depressive disorder.

PARTICIPANTS

Persons with treatment resistant depression between the ages of 18 and 75.

METHODS

It is a randomised control trial where participants have a 50/50 chance of being in either a standard treatment arm (single treatments, Monday to Friday, for four weeks) or to the accelerated treatment arm (three treatments per day on six days spread over three weeks).

PROJECT STATUS

Recruitment is complete.
119 participants have consented, with a recruitment target of 120.

RESEARCH

PSYCHIATRIC NEUROTECHNOLOGY

COGNITIVE THERAPEUTICS GROUP



The Cognitive Therapeutics Group, led by Dr Hoy, is focused on the development of novel biological treatments for cognitive impairment, in both psychiatric and neurological illnesses. Specifically, the group investigates the cognitive and neurobiological effects of brain stimulation techniques such as transcranial Direct Current Stimulation (tDCS), transcranial Alternating Current Stimulation (tACS), transcranial Random Noise Stimulation (tRNS), Transcranial Magnetic Stimulation (TMS), and Theta-Burst Stimulation (TBS).

Current Clinical Trials

1. Investigating Transcranial Direct Current Stimulation for treating cognition symptoms in people with schizophrenia.
2. Investigating Theta-burst Stimulation to treat the cognitive symptoms of mild to moderate Alzheimer's Disease.
3. Investigating transcranial direct current stimulation and cognitive training to improve memory and attention in people who have had a mild to moderate traumatic brain injury.

Selected Current Experimental Research Projects

1. Exploring the neurobiological correlates of cognitive performance in healthy young adults, healthy older adults and people with mild cognitive impairment.
2. Investigating optimal methods of enhancing plasticity and working memory using transcranial direct current stimulation.





Left to right: Susan Rossell, Francesca Beilharz, Toni Pikoos, Michelle Robertson, Caitlin Yolland, Phil Sumner, Lizzie Thomas, Ratu Lucky Nitibaskara, Maree Reser, Sally Grace, Sarah Lancaster, Natalia Contreras, Eric Tan, Wei Lin Toh, Stephanie Louise, Amy Malcolm

TEAM LEADER

Prof Susan Rossell

TEAM COORDINATOR

Dr Wei Lin Toh

SENIOR RESEARCHERS

Dr Neil Thomas
Dr Caroline Gurvich
Dr Erica Neill
Dr Rachel Batty
Dr Eric Tan

STUDENT RESEARCHERS

Imogen Bell (PhD)
Rachel Brand (PhD)
Shayden Bryce (D.NeuroPsych)
Sean Carruthers (PhD)
Natalia Contreras (PhD)
Sarah Lancaster (PhD)
Stephanie Louise (PhD)
Maree Reser (D.ClinPsych)
Jacqueline Riddiford (PhD)
Monique Scott (D.ClinPsych)
Phillip Sumner (PhD)
Lizzie Thomas (PhD)
Nicole Brownfield (Honours)
Daniela Calafiore (Honours)
Riana D'Netto (Honours)
Elleni Lysikatos (Honours)
Andrew McCann (Honours)
Ellen West-Dawson (Honours)

TEAM LEADER: PROF SUSAN ROSSELL

Susan Rossell is a Professorial Research Fellow at Brain and Psychological Sciences Research Centre, Swinburne University and holds adjunct positions at the Monash Alfred Psychiatry research centre and Psychiatry within St Vincent's Health. Her research has focused on understanding the cognitive and neurobiological processes involved in psychosis and related disorders. Prior to coming to Australia, Susan studied at the University of Manchester, the Institute of Psychiatry (part of Kings College London) and Oxford University. She gained experience in neuroimaging whilst undertaking a position at the world renowned Functional Imaging Lab, Queens Square, London, UK. In 2000, she was awarded a prestigious International Wellcome Post-doctoral Fellowship during which she spent part of her time at Macquarie University in Sydney. From 2004 to 2007, she was Head of the Cognitive Neuropsychiatry Department at the Mental Health Research Institute in Melbourne. In 2008, she moved to Monash Alfred Psychiatry Research Centre, and in 2010 joined Swinburne University. Susan has published extensively and has received the International and European awards for Young Investigator in schizophrenia.

OUR RESEARCH

In the Cognitive Neuropsychiatry lab group, focus is placed on a large-scale research program, with a series of smaller studies subsumed under the umbrella of this project. These individual studies are often run by students to fulfil the research component toward attaining their postgraduate qualifications (see Figure 1). Our large-scale research program 'Genes and Cognition' requires participants to complete a set battery of tasks designed to evaluate clinical symptomatology, cognitive function and eye movements. The majority of participants assessed by our research group will complete this battery. Thereafter, they may wish to further participate in specific projects, for instance neuroimaging sessions conducted at Swinburne University, or therapies aimed at strengthening specific thinking skills, such as attention, memory and organisation.

2015 HIGHLIGHTS/ AWARDS/DISTINCTIONS

AWARDS

Prof Rossell was bestowed the International Women's Day Award, selected as Swinburne's Significant Woman, and was a keynote speaker at the International Women's Day celebration in March. Dr Tamsyn Van Rheenen (early career researcher and ex-student of Prof Rossell) was also recently awarded the 2015 Victorian Young Tall Poppy Science Award in November.

PUBLICATIONS

To date in 2015, the Cognitive Neuropsychiatry team has had a large number of publications accepted in prominent academic and scientific journals, spanning various areas of mental health research. These include schizophrenia and related psychotic disorders (eight publications), mood disorders (four publications), genes and cognition (five publications), neuroimaging (two publications), body image and eating disorders (six publications), anxiety disorders (1 publication) as well as research involving non-clinical populations (six publications). Furthermore, Dr Gurvich hosted the research topic for Frontiers in Psychiatry that was turned into an e-book, "Cognition across the psychiatric disorder spectrum: From mental health to clinical diagnosis".

STUDENTS COMPLETED IN 2015

Four doctoral students completed their degrees supervised/co-supervised by Prof Rossell.

- Peter Goodin, "Immunological responses in depression and psychophysiological correlates", PhD (Swinburne University).
- Chris Groot, "Are auditory verbal hallucinations related to auditory processing deficits and prosodic impairment in schizophrenia?", PhD (University of Melbourne).
- Andrea Phillipou, "Investigating the neurobiological and cognitive features of anorexia nervosa", PhD (University of Melbourne).
- Eric Tan, "Neurocognition and language in the causes and consequences of formal thought disorder in schizophrenia", PhD (Monash University).

In addition, Honours students Nicole Brownfield, Riana Dnetto, Elleni Lysikatos, Andrew McCann, and Ellen West-Dawson completed their undergraduate degrees at Swinburne University, with Prof Rossell as their primary supervisor.

RESEARCH
COGNITIVE
NEUROPSYCHIATRY

TEAM STRUCTURE

COGNITIVE
NEUROPSYCHIATRY
Susan Rossell

GENES &
COGNITION
Caroline Gurvich
Wei Lin Toh
Erica Neill, Eric Tan

VOICES CLINIC
Neil Thomas
Lauren Ban
Maria Light
Stephanie Louise

COGNITION &
NEUROIMAGING

AUDITORY
HALLUCINATIONS

CLINICAL
INTERVENTIONS

FUNCTIONAL &
STRUCTURAL MRI
PHILLIP SUMNER
Examining genetic and neurobiological underpinnings of semantic memory deficits associated with thought disorder
SEAN CARRUTHERS
Exploring links between cognitive symptoms and muscarinic system, based on connectomics

PHENOMENOLOGY &
MRI/MEG
WEI LIN TOH/
MONIQUE SCOTT
Documenting the phenomenology of auditory verbal hallucinations in relation to mood
SARAH LANCASTER
Studying brain areas associated with auditory verbal hallucinations

COGNITIVE
REMEDATION
THERAPY (CRT)
& MINDFULNESS
NATALIA CONTRERAS
Evaluating whether visual processing training influences outcomes in CRT
SHAYDEN BRYCE
Studying the efficacy of CRT compared to an active control activity
MAREE RESER
Examining specific factors influencing the efficacy of CRT
STEPHANIE LOUISE
Investigating the influence of mindfulness therapy on brain function

Cognitive Neuropsychiatry team structure

RESEARCH
COGNITIVE
NEUROPSYCHIATRY

OUR RESEARCH

Cognition and neuroimaging studies
CHIEF INVESTIGATOR
Prof Susan Rossell

ASSOCIATE INVESTIGATORS
Dr Caroline Gurvich
Dr Wei Lin Toh
Dr Erica Neill,
Dr Rachel Batty
Dr Eric Tan
Sean Carruthers
Sarah Lancaster
Phillip Sumner
Lizzie Thomas

FUNDING
NHMRC; Barbara Dicker Brain Sciences Foundation

BACKGROUND
Psychotic disorders, involving schizophrenia, schizoaffective disorder, and bipolar disorder, are characterised by a broad range of symptoms, including hallucinations, delusions, and thought disorder. People who experience psychosis are also likely to exhibit noted cognitive difficulties, specifically in the areas of language, memory and executive function. There is a need to further investigate how these cognitive deficits are linked to particular psychotic symptoms, such as 'hearing voices', unusual beliefs or impaired thinking patterns. In some cases, the cognitive deficits have also been coupled with specific brain abnormalities. In a similar way, multiple genes have been found to be related to the presence of certain observed symptoms. Our hope is that a better understanding of cognition, neurobiology and genetic contributions underlying these disorders will spur the development of effective and novel pharmacological and psychological interventions.

AIMS
Study 1 aims to examine the genetic and functional magnetic resonance imaging (fMRI) underpinnings of semantic memory deficits associated with thought disorder in schizophrenia. Study 2 aims to specifically investigate the influence of a genetic polymorphism of the M1 receptor gene on cognition as well as structural networks connecting key brain regions involved in cognitive function in schizophrenia.

METHOD
Participant groups are individuals with schizophrenia (n=50; including those with thought disorder) as well as age-, sex-, and IQ-matched healthy controls (n=50). Participants are asked to undergo a standard clinical and cognitive assessment battery, blood-taking for genetic testing, followed by a two-hour non-invasive functional and structural magnetic resonance imaging (MRI) session.

CURRENT STATUS
Ongoing until end 2018.

Auditory verbal
hallucination studies
CHIEF INVESTIGATOR
Prof Susan Rossell

ASSOCIATE INVESTIGATORS
Dr Neil Thomas
Dr Wei Lin Toh
Sarah Lancaster
Monique Scott

FUNDING
NHMRC; Barbara Dicker Brain Sciences Foundation

BACKGROUND
Auditory verbal hallucinations, also known as 'hearing voices', refer to the perception of verbal utterances in the absence of corresponding external stimuli. Whilst auditory verbal hallucinations are regarded as a hallmark indicator of psychosis, they are encountered in various diagnoses. Yet only limited research has considered them in the presence of bipolar disorder and major depressive disorder, despite recognition of their frequency in these conditions. These gaps in knowledge therefore need to be addressed, and it is imperative to identify how voice characteristics differ in the mood disorders, and also fluctuate according to diagnostic subtype or illness phase.

Whilst the phenomenology of auditory verbal hallucinations has been well-documented in schizophrenia, its specific neurobiological mechanisms and genetic underpinnings remain unknown. Emerging research indicates that individuals with auditory verbal hallucinations show auditory and cortical abnormalities not present in other individuals with psychosis who do not 'hear voices'. As such, neuroimaging techniques involving MRI and magnetoencephalography (MEG; with millisecond 'real-time' resolution) will be employed to elucidate the specific neuroanatomical brain regions as well as cerebral activation patterns implicated in 'voice-hearing' experiences.

continued over

continued

AIMS

Study 1 aims to explore the phenomenology of auditory verbal hallucinations in relation to mood in bipolar disorder and major depressive disorder. Study 2 aims to discover activations associated with 'voice-hearing' in schizophrenia, as well as determine the roles that the anterior cingulate, primary auditory cortex and superior temporal gyrus play in these experiences.

METHOD

For Study 1, participant groups are individuals who experience auditory verbal hallucinations, and have a diagnosis of bipolar disorder (n=60), major depressive disorder (n=30) or schizophrenia (n=60), OR who do not have a significant mental health history (n=30). Participants are asked to undergo a standard clinical assessment battery, followed by a focused interview on the phenomenology of their 'voice-hearing' experiences.

For Study 2, participant groups are schizophrenia 'voice-hearers' (n=50), schizophrenia 'non-voice-hearers' (n=50) and healthy controls (n=50). Participants are asked to undergo a standard clinical and cognitive assessment battery, blood-taking for genetic testing, followed by a two-hour non-invasive MRI and MEG session, and auditory tasks.

CURRENT STATUS

Ongoing until end 2017.

Clinical intervention studies

CHIEF INVESTIGATOR

Prof Susan Rossell

ASSOCIATE INVESTIGATORS

Dr Neil Thomas
Shayden Bryce
Natalia Contreras
Stephanie Louise
Maree Reser

FUNDING

MAZDA; St Vincent's Hospital Research Endowment Fund

BACKGROUND

Cognitive Remediation Therapy (CRT) comprises a set of cognitive drills or compensatory interventions designed to improve cognitive abilities such as attention, working and verbal memory, flexibility and planning, and executive function, which in turn lead to improved social functioning. There is increasing empirical support regarding the benefits of CRT for people with schizophrenia. These positive effects on cognitive performance are noted to persist, even after the interventions have ceased. In fact, these cognitive gains have been linked to advances in securing and maintaining gainful employment. There is wide variation in existing CRT programs in terms of their focus (e.g. psychosocial vs. vocational), frequency/duration of sessions, or appropriate outcome measures. Ongoing research has tried to identify the 'active ingredients' promoting a positive treatment response as well as motivational enhancements indicative of intervention success.

Mindfulness-based therapy seeks to interrupt automatic cognitive processes and teach individuals to focus less on reacting to incoming thoughts and feelings, but instead become aware of, observe and accept them without attachment or judgment. This mindfulness practice allows one to notice when these involuntary responses are occurring

and to alter their reaction to form more of a reflection. There has been scant neuroimaging research in this area, but preliminary fMRI data has shown increased activation in the prefrontal cortex, signifying a greater degree of self-control.

AIMS

Studies 1, 2 and 3 all seek to evaluate various aspects pertaining to the efficacy of CRT in individuals with schizophrenia or schizoaffective disorder. Study 1 aims to evaluate whether visual processing training influences outcomes in CRT. Study 2 aims to examine the efficacy of a top-down cognitive remediation program (COGPACK) relative to an active video-game control. Study 3 aims to identify specific factors influencing the efficacy of CRT outcomes. Study 4 is a mindfulness-based treatment for people who experience auditory verbal hallucinations, and comprises a group therapy program designed to help people cope better with these experiences.

METHOD

For Studies 1, 2 and 3, participants are asked to attend a set number of hour-long group CRT sessions per week for a pre-determined number of weeks. Baseline, mid-intervention, end-intervention, and follow-up assessments will be conducted, with cognitive performance (MATRICS) and self-reported independent living skills as the main outcome measures.

For Study 4, participants attend a mindfulness-based group therapy program targeted at 'voice-hearers'. Prior to and following this intervention, they are asked to undergo a neuroimaging session to explore whether such therapy can lead to brain changes.

CURRENT STATUS

Study 1 has been completed. Studies 2, 3 and 4 are ongoing until end 2018.

COLLABORATIONS

LIST OF ASSOCIATE INVESTIGATORS

Prof Jennie Ponsford Monash University
Dr Greg Yelland Monash University
Dr Yitz Hollander Alfred Hospital
Dr Kiymet Bozaoglu, Baker IDI
A/Prof Mal Hopwood Austin Health
Dr John Farhall La Trobe University
Dr Ellie Fossey La Trobe University
Prof Pat Michie University of Newcastle
A/Prof Carol Harvey University of Melbourne
Prof David Castle St Vincent's Health Swinburne University Neuroimaging Facility
Prof Tony David Institute of Psychiatry, UK
Dr Rachel Mitchell Institute of Psychiatry, UK
Prof Val Curran University College London, UK
Prof Celia Morgan University of Exeter, UK
Dr Philip Grant University of Giessen, Germany
Prof Iris Sommer University of Utrecht, Netherlands

CONFERENCES & WORKSHOPS

Over the course of the year, Prof Rossell and the Cognitive Neuropsychiatry team of researchers attended and presented at numerous national and overseas conferences and workshops.

Dr Thomas was an invited speaker at numerous seminars, including the Australian National University Psychology Colloquium, Black Dog Institute eMental Health in Practice Webinar Series, VICSERV/Mind Australia Colloquium, and Mind Australia Community Conference.

Prof Rossell gave multiple presentations at the International Society for Bipolar Disorders (ISBD), Toronto, Canada, in May, including a symposium on "Socio-emotional cognition in bipolar disorder". Prof Rossell also presented at the World Federation of Societies of Biological Psychiatry (WFSBP), Athens, Greece, in June, incorporating Dr Rachel Batty's work on psychosis following traumatic brain injury.

Prof Rossell and Dr Toh presented (as part of a symposium on "Psychosis dimensions across the categories of mental illness") at the Australasian Schizophrenia Conference (ASC) in Melbourne in September.

Dr Gurvich, Dr Tan and Lizzie Thomas also contributed to poster presentations at this event.

In October, Prof Rossell and Dr Thomas hosted a three-day International Consortium of Hallucination Research (ICHR) meeting at St Vincent's Hospital and Swinburne University. This open seminar and working group series comprised interesting talks and collaborative panel discussions, involving local and international contributors and spanning scientific research, clinical practice, and lived experience perspectives.



PRINCIPAL INVESTIGATOR
Professor Jayashri Kulkarni

MANAGER
Mr Anthony de Castella

TEAM COORDINATOR
Vicky Tilley

SUB-INVESTIGATOR
Dr Arie Sebastian

RESEARCHERS
Natalia Contreras
Mirjana Stojkovic
Gayan De Mel

VOLUNTEER
Leng Ng

The Psychopharmacology team at the Monash Alfred Psychiatry research centre (MAPrc) provides high quality clinical trials in adults with mental health issues. The team is led by Professor Jayashri Kulkarni, who is the Director of MAPrc and an internationally renowned expert in the field of clinical psychiatry and research. We have a dedicated group of highly experienced doctors and researchers who have extensive knowledge of Good Clinical Practice (GCP), Case Report Form (CRF) management and patient recruitment and retention. Our outstanding track record of industry-sponsored research has led to significant contributions to new and innovative treatments for people suffering from mental health issues.

MAPrc is in a unique position as it is part of both Alfred Health and Monash University. These internationally renowned institutions provide access to world class clinical and academic staff. We have a dedicated Human Research Ethics Committee that supports our researchers in conducting ethical, safe and high quality research.

Patients who have participated in our clinical trials often comment on the personable, caring, non-judgemental and kind nature of the team and are surprised at the team's ability to go above and beyond to make them feel supported throughout their patient journey in a clinical trial.

Consequently, the Psychopharmacology team at MAPrc is at the cutting edge of researching new and innovative treatments for mental health and wellbeing. The team offers hope to patients who have frequently exhausted all commercially available treatment options.

Our vision is to continue to provide high quality research outputs within psychopharmacology, and to offer clinicians new and innovative treatment options for their patients.

2015 HIGHLIGHTS/ AWARDS/DISTINCTIONS

2015 was an exciting year for the MAPrc Psychopharmacology Team. We were praised for our performance as the top recruiting site in Australia, and the top global recruiting site during active recruitment, for a new study in depression. In addition to this, the team randomised the first subjects in Australia for two of our studies one looking at new treatments for social anxiety disorder, and one looking at treatment resistant depression. With some exciting studies in the pipeline for 2016 we were the first site to open recruitment for the Social Anxiety study, for which we are currently screening our first subjects.

Our team is looking forward to the opening of two new studies in early 2016.

The AMARANTH study will be looking at a treatment for early Alzheimer's, while an additional new trial will investigate the safety and efficacy of intranasal esketamine. In preparation for the intranasal esketamine study, members of the team travelled to Taiwan for training on the ESKETINTRD3004 study protocol and procedures.

In 2015 the Psychopharmacology team was awarded a \$200,000 VicHealth grant, with the aim of decreasing cigarette smoking in people with severe persistent mental illness. The study will investigate the use of vaporised nicotine replacement products, including nicotine e-cigarettes, as a harm reduction intervention. This study is due to start recruitment in early 2016.

RESEARCH
**PSYCHOPHARMACOLOGY
TEAM**

OUR RESEARCH
Selected Projects

ONDANSETRON

A Double-blind, Placebo Controlled, Randomized Investigation of Ondansetron in Chronic Residual Schizophrenia

RATIONALE

Ondansetron, a serotonin 5HT₃ receptor antagonist, has shown promising results in the treatment of schizophrenia symptoms in a number of small scale studies. In particular, ondansetron has shown benefits in reducing the persistent cognitive and other symptoms experienced by many patients with schizophrenia.

OBJECTIVE

To evaluate the effectiveness of ondansetron as an adjunct to antipsychotic medication, in the treatment of positive, negative and cognitive schizophrenia symptoms.

Stanley Medical Research Institute (US) – Research Grants (\$998,405)

DURATION OF STUDY

This study consists of five patient visits over 12 weeks.

MAIN INCLUSION CRITERIA

- Ability to provide informed consent
- Men and women aged between 18 and 65 years
- Current DSM-IVTR diagnosis of schizophrenia, schizoaffective or schizophreniform disorder
- Current treatment with a stable and standard dose of an antipsychotic medication, oral or intramuscular (minimum 8 weeks)

MAIN EXCLUSION CRITERIA

- Currently pregnant or breastfeeding
- Unstable medical condition, neurological disorder or unstable seizure disorder
- Current DSM-IV-TR diagnosis of substance abuse or dependence disorder or another Axis I disorder
- Regular use of another 5HT₃ antagonist (e.g. Cocaine)

STUDY STATUS

This study is currently recruiting participants.

STUDY COORDINATORS

Dr Arie Sebastian and Natalia Contreras

ALK5461-208

A Phase 3 Multicenter Study of the Long-term Safety and Tolerability of ALKS 5461 for the Adjunctive Treatment of Major Depressive Disorder in Adults who Have an Inadequate Response to Antidepressant Therapy (the FORWARD-2 Study)

OBJECTIVE

To assess the long-term safety and tolerability of ALKS 5461 for use as an adjunctive therapy to antidepressants for the treatment of major depressive disorder.

DURATION OF STUDY

This study runs for up to 56 weeks, consisting of 52 weeks of dosing and a 4 week follow-up period.

STUDY STATUS

This is a follow-up study from the FORWARD-4 study which is now closed and therefore recruitment for this study is no longer active. We currently have participants receiving treatment in this trial, which is due to close at the end of 2016.

STUDY COORDINATOR

Vicky Tilley

SOCIAL ANXIETY STUDY

Phase 2a Randomized, Double-blind, Placebo-Controlled, Parallel-Group, Multi-center Study Investigating the Efficacy, Safety, and Tolerability of JNJ-42165279 in Subjects with Social Anxiety Disorder

OBJECTIVE

To investigate the efficacy of JNJ-42165279 for treatment in subjects with Social Anxiety Disorder (SAD).
Duration of Study
This study runs for up to 20 weeks, consisting of 12 weeks of study treatment.

MAIN INCLUSION CRITERIA

- Men or women aged between 18 and 64 years
- Primary DSM-5 diagnosis of SAD
- BMI between 18 and 35 kg/m²
- Women who are not able to bear children

MAIN EXCLUSION CRITERIA

- History of more than two unsuccessful adequate pharmacological treatment trials for SAD
- Concurrent use of psychotropic medications
- Untreated thyroid disease or dysfunction

STUDY STATUS

This study is currently recruiting participants.

STUDY COORDINATOR

Mirjana Stojkovic

RESEARCH
**THE NEUROPSYCHIATRY
TEAM**

OUR TEAM 2015



TEAM LEADER

Professor David Barton

RESEARCH ASSISTANTS

Amy Lingard
Dr Allan Davey
Tom Neal-Williams

The Neuropsychiatry team specialises in neuropsychiatry, old age psychiatry, acquired brain injuries, and comorbidities with mental illness, in particular cardiovascular disease. Our current research is directed towards understanding the pathophysiological mechanisms underlying depression, and their relation to cardiovascular disease and sleep apnoea. Our overall aim is to improve the survival rate of those who experience psychiatric illness through pioneering new and effective treatment. In addition, we wish to improve prognosis methods and quality of life for people with acquired brain injuries

RESEARCH

THE NEUROPSYCHIATRY TEAM

OUR RESEARCH Selected Projects

A randomised trial examining the effectiveness of sympathetic nervous inhibition in alleviating the metabolic side effects of antipsychotic medications in patients with schizophrenia

PRINCIPAL INVESTIGATOR
Professor Gavin Lambert

ASSOCIATE INVESTIGATORS
Professor David Barton
J Dixon
N Straznicky

FUNDING
NHMRC Project Grant- \$461,250

AIM

This study aims to explore the role of the sympathetic nervous system and its association with cardiovascular and metabolic risk factors. It also aims to determine the efficacy of moxonidine in reducing the metabolic side-effects of antipsychotic medications. Research has shown a link between antipsychotic medications and obesity, with patients with schizophrenia having increased risk of cardiovascular disease. Moxonidine is designed to treat hypertension and is an experimental treatment for the side-effects of antipsychotics.

Interactions between the serotonin transporter and sympathetic nervous system activity in patients with major depressive disorder- understanding the link between the brain and the heart

PRINCIPAL INVESTIGATOR
Professor Gavin Lambert

ASSOCIATE INVESTIGATORS
Professor David Barton

FUNDING
NHMRC Project Grant - \$509,250

AIM

There is strong evidence suggesting that patients with major depressive disorder (MDD) are at increased risk of developing coronary heart disease. This has been associated with increased sympathetic nervous system activation as seen in one third of untreated MDD patients. A gene, known as the serotonin transporter (5-HTT) gene, is thought to be involved in this. This projects aims to identify the role of the 5-HTT gene on cardiovascular risk factors associated with increased sympathetic activity in patients with MDD. In addition, we aim to assess the effect of selective serotonin reuptake inhibitors in these patients.

COLLABORATIONS

Professor Jayashri Kulkarni MAPrc
Professor Paul Fitzgerald MAPrc
Professor Gavin Lambert Baker IDI
Heart and Diabetes Institute
Professor Markus Schlaich Baker IDI
Heart and Diabetes Institute
Professor Murray Esler Baker IDI Heart
and Diabetes Institute
Dr Mitchu Palit Acquired Brain Injury
Unit, Caulfield Hospital, Alfred Health

2015 HIGHLIGHTS/ AWARDS/DISTINCTIONS

Professor Barton's ABI unit at Caulfield Hospital (where he is a Senior Psychiatric Consultant) has completed its first twelve months of operation. Our team has been accepted to present a snapshot of this first year at the 2016 International Royal Australian and New Zealand Psychiatry Congress in Hong Kong.

RESEARCH

MENTAL HEALTH SERVICE RESEARCH TEAM

TEAM OVERVIEW



TEAM LEADERS

Associate Professor Simon Stafrace
Ms Sandra Keppich-Arnold

TEAM RESEARCH COORDINATOR

Dr Stuart Lee

RESEARCHERS

Professor Jayashri Kulkarni
Ms Phillipa Thomas
Dr Liza Hopkins
Associate Professor Steve Ellen
Associate Professor Yitzchak Hollander
Ms Kathryn Henderson
Ms Lynda Katona
Dr Birgit Pfitzer
Ms Susanne Birks
Ms Sharon Sutherland
Ms Glenda Pedwell
Ms Emily Scammell
Mr Anthony de Castella

STUDENT RESEARCHERS

Mr Shayden Bryce
Mr Ross Anderson
Mrs Elizabeth Pattison

Operating as a partnership between Monash Alfred Psychiatry research centre (MAPrc) and The Alfred Department of Psychiatry, the Mental Health Service Research Team operates to contribute to the measurement of the effectiveness of local practice and promote evidence-informed practice innovation.

This is achieved through three primary mechanisms: 1) Quantitatively and qualitatively measure whether current practice is efficient, effective or meeting the needs of stakeholders of The Alfred Department of Psychiatry and other allied mental health services; 2) Use research and evaluation to inform practice improvement or service redesign and measure whether practice changes have resulted in improved effectiveness, efficiency or experience of provided care; and 3) Enhance the understanding of service, staff, consumer and carer / family member factors that contribute to better outcomes for individuals with a mental illness as well as service performance.

The Mental Health Service Research Team is led by Simon Stafrace (Director – Alfred Psychiatry) and Sandra Keppich-Arnold (Associate Director of Nursing and Operations – Alfred Psychiatry), with expert academic input from Professor Jayashri Kulkarni (Director – MAPrc). The team works collaboratively with the Consultation Liaison and Emergency Psychiatry Services, Adult Acute and Community Programs and Child and Youth Mental Health Services of Alfred Psychiatry in developing and conducting research.

Delivered or newly commencing projects have focused on: exploring how consumers and carers have experienced the operation of a joint police-mental health clinician mobile response unit, state-wide review of the operation of high dependence units for Victorian inpatient psychiatry services, implementation and evaluation of single session family intervention approaches in child and youth and adult community mental health settings, measuring the psychosocial outcomes following a burn injury, implementation of a pilot providing screening and access to a physical health nurse for case-managed consumers of two mental health services, and exploring the prevalence and impact of homelessness in people presenting to the Emergency Department of The Alfred.

Members of the team had 12 new papers accepted for publication in peer-review journals in 2015, and gave four conference or invited research presentations. At TheMHS Conference 2015, Alfred PACER was presented with the *Assessment and/or Treatment Program or Service* award based on the research data collection collaborative between MAPrc, Alfred Psychiatry and Bayside Medicare Local. Dr Stuart Lee was also awarded a National Health and Medical Research Council Early Career Fellowship to conduct projects aimed at addressing barriers to social inclusion for people with a psychotic illness.



Assoc Prof Stafrace (right) and Anne Lyon from Bayside Medicare Local (left) accepting the Assessment and/or Treatment Service award for Alfred PACER at TheMHS Conference 2015 from Dr Kay Patterson (centre).

2015 RESEARCH COLLABORATIONS

School of Social Sciences, Monash University.

Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University.

School of Nursing and Midwifery, Deakin University.

Victorian Adult Burns Service, Alfred Health.

Malignant Haematology and Stem Cell Transplantation, Alfred Health.

Centre for Forensic Behavioural Science, Swinburne University of Technology.

Bayside Medicare Local.

Inner South Community Health Service.

Headspace the National Youth Mental Health Foundation.

2015 HIGHLIGHTS/ AWARDS/DISTINCTIONS

Alfred Psychiatry and Bayside Medicare Local won the award for the Assessment and/or Treatment Program or Service at the 2015 TheMHS Conference.

Piloting the effectiveness of physical health nurses in community based mental health services

CHIEF INVESTIGATOR

Dr Stuart Lee

RESEARCHERS

Mr Troy Macris
Ms Susanne Birks
Mr Kent Burgess
Ms Jessica Fyshe
Ms Anna Thomas
Mr Alan Murnane

FUNDING

Funding from the Victorian Department of Health.

AIM OF PROJECT

To assess whether a physical health intervention led by a physical health nurse for case managed community mental health consumers produced greater improvements in physical health indicators compared to support as usual, and whether staff encountering the physical health nurse had experienced benefits from this project.

PARTICIPANTS

Individuals with a mental illness, case managed by Alfred Psychiatry and Inner South Community Health Service, who completed a developed physical health screen pre-intervention and at 6 month follow-up, and staff working in the intervention teams.

START AND END DATES

2013-2015

METHODOLOGY

After implementing the use by case managers of a 1-page physical health screen with associated referral options, one case management team of Alfred Psychiatry and Inner South Community Health service had access to a physical health nurse for 4 hours per week to promote assessment and management of physical health issues for consumers. Completed physical health screens pre and 6 months post-intervention were assessed for consumers in intervention and support as usual teams. Staff completed a questionnaire exploring their contact with and use of project resources.

PROJECT STATUS

This project was completed in 2015.

State-wide High Dependence Unit Project

CHIEF INVESTIGATOR

Dr Stuart Lee

RESEARCHERS

Ms Phillipa Thomas
Ms Sandra Keppich-Arnold
Associate Professor Simon Stafrace

FUNDING

\$49,632 – Victorian Department of Health and Human Services.

AIM OF PROJECT

To explore how high dependence unit care is operated, processes governing this practice, demand and usage patterns, and the environments within which high dependence care is offered.

PARTICIPANTS

People with a mental illness who commenced a period of high dependence unit care during a 28 day audit period in participating services.

START AND END DATES

2015-2016

METHODOLOGY

Within participating Victorian public inpatient psychiatry services, an observation occurred of the high dependence unit environments along with collection of information relating to new episodes of high dependence unit care in a 28 day period. The high dependence unit staffing profiles and suite of practice guidelines or support documents were also assessed more broadly across Victorian public inpatient psychiatry services.

PROJECT STATUS

This project will be completed in 2016.

RESEARCH

MENTAL HEALTH SERVICE RESEARCH TEAM

OUR RESEARCH Selected Projects

Crisis averted: The experience of consumers and carers to a Police and Clinical Early Response (PACER) unit responding to a mental health crisis

CHIEF INVESTIGATOR
Dr Elizabeth Deveny

RESEARCHERS

Ms Eloisa Evangelista
Dr Stuart Lee
Ms Sandra Keppich-Arnold
Ms Angela Gallagher
Ms Violeta Peterson
Ms Jo James

FUNDING

In-kind support from Bayside Medicare Local and Alfred Psychiatry.

AIM OF PROJECT

To explore how mental health consumers and carers have experienced the support provided by a joint, mobile police officer and mental health clinician mobile response team.

PARTICIPANTS

People with a mental illness who had contact with the Alfred Police and Clinical Early Response unit and their carers.

START AND END DATES

2014-2015

METHODOLOGY

This study used a qualitative interview method to explore in people with a mental illness who had contact with Alfred PACER in 2013-2015 and their carers, how they had experienced their PACER contact, how this was different to previous crisis responses, and how PACER could be improved.

PROJECT STATUS

This project was completed in 2015.

RESEARCH

PERCEPTUAL & CLINICAL NEUROSCIENCE LABORATORY RESEARCH TEAM

OUR TEAM 2015

TEAM LEADER/CHIEF INVESTIGATOR

Dr Steven Miller

RESEARCHER

Mr Phillip Law

The Perceptual and Clinical Neuroscience Laboratory Research Team is headed by Dr Steven Miller, a clinician in occupational and pain medicine, and a researcher in clinical neuroscience, visual neuroscience and consciousness science. The lab is engaged in basic science and clinical research and has also recently entered the virtual research environment, with wide national and international collaboration for its new Binocular Rivalry Online (BRO) project.

In preparation for the BRO project, the lab has recently concluded a large study (by PhD candidate, Phillip Law) on the psychophysics of binocular rivalry in controls and subjects with bipolar disorder. An additional arm of this work was eye movement research in control and bipolar subjects. Other clinical work of the lab includes examination of vestibular neuromodulation as a novel, safe, and inexpensive therapy, to treat persistent pain conditions (and other clinical disorders). Finally, Dr Miller has performed detailed analyses of empirical and conceptual foundations of consciousness science, recently proposing new foundations for this nascent discipline.

2015 HIGHLIGHTS/ AWARDS/DISTINCTIONS

Dr Miller was awarded two grants from Monash Institute of Medical Engineering and a Defence Health Foundation Booster Grant. This year also saw (i) publication of a book on the science and philosophy of consciousness, edited by Dr Miller, with contributions from international scientists and philosophers (cited prominently in a 2016 Nature Reviews of Neuroscience article on consciousness science), and (ii) completion of a NARSAD Young Investigator Grant awarded to Dr Miller (2013-2015).

RESEARCH COLLABORATIONS

Collaborating centres for the Binocular Rivalry Online project include Monash Faculty of Information Technology (K. Ellis), QIMR Berghofer Medical Research Institute (N. Martin, T. Ngo), Queensland Brain Institute (M. Wright), Black Dog Institute (P. Mitchell), Bipolar Disorder Research Network (N. Craddock/X. Caseras; UK) and Institute of Psychiatric Phenomics and Genomics (T. Schulze; Germany). Eye movement research is in collaboration with C. Gurvich.

Current collaborators for the CVS work include Monash Arts Design and Architecture (D. Flynn) and Monash Engineering (A. Nunn), and for the completed CVS study included T. Ngo, W. Barsdell, C. Arnold, M. Chou, P. New, S. Hill, A. Nunn, D. Brown and S. Gibson

RESEARCH
PERCEPTUAL & CLINICAL
NEUROSCIENCE
LABORATORY RESEARCH TEAM

OUR RESEARCH
Selected Projects

Investigating binocular rivalry in healthy individuals and bipolar disorder: Excluding confounds and optimising methods for large-scale endophenotype studies

RESEARCHERS
P. Law, T. Ngo, C. Gurchich, B. Paton, Dr Steven Miller

FUNDING
Narsad Young Investigator Grant \$60,000 over 2 years (2013-2015)

AIM
This project aimed to examine binocular rivalry in healthy individuals and subjects with bipolar disorder to ascertain which stimuli are most suitable for subsequent use in large-scale clinical and genetic endophenotype studies.

BACKGROUND
The project builds on earlier work by Miller and colleagues showing the rate of binocular rivalry to be slow in bipolar disorder. The project also determined that eye movements do not confound the slow binocular rivalry rate trait. Sixty control subjects and 20 subjects with bipolar disorder were assessed.

CURRENT STATUS
The project is now complete and generated a data paper in 2015, with three further data papers to be submitted for publication in 2016.

Genetics of binocular rivalry
RESEARCHERS
S. Miller, T. Ngo, P. Law, M. Wright, N. Martin

COLLABORATORS
P. Fitzgerald, M. Berk, P. Mitchell, X. Caseras, T. Schulze, N. Craddock

FUNDING
Narsad Young Investigator Grant \$60,000 over 2 years (2013-2015)

AIM
This long-running project based at QIMR Berghofer in Queensland (since 2000) aims to examine the genetics of the binocular rivalry trait, having previously shown the trait to be substantially heritable. Data collection now includes over 1100 twins and analysis of associations between binocular rivalry rate and various phenotypic characteristics is now underway, as well as of the genetic basis of the trait.

CURRENT STATUS
Publications are expected from this work in 2016 and the project is continuing.

Binocular rivalry online
RESEARCHERS
S. Miller, P. Law, K. Ellis

COLLABORATORS
T. Ngo, M. Wright, N. Martin

FUNDING
Defence Health Foundation (\$25,000)
Monash Institute of Medical Engineering (\$20,000)

AIM
This project aims to move the testing of binocular rivalry to the online environment so as to facilitate the very large sample sizes (N=1000's to 10,000's) required to assess the clinical and genetic endophenotype utility of the trait.

BACKGROUND
The project builds on the two projects listed above and, with funding secured in 2015, has commenced building of the prototype website for this work.

CURRENT STATUS
Roll-out and quality assurance of the online test is expected in 2016.

RESEARCH
PERCEPTUAL & CLINICAL
NEUROSCIENCE
LABORATORY RESEARCH TEAM

OUR RESEARCH
Selected Projects

The constitution of phenomenal consciousness: Toward a science and theory
RESEARCHER
S. Miller

FUNDING
Nil

BACKGROUND
This project ran over several years and aimed to examine the theoretical and empirical foundations of consciousness science. This was achieved by garnering a large number of national and international authors to contribute papers on such issues to a volume edited, and contributed to, by Miller which was published in 2015.

Vestibular neuromodulation in persistent pain and other clinical conditions

Initial stage
RESEARCHERS
S. Miller, T. Ngo, W. Barsdell

COLLABORATORS
C. Arnold, M. Chou, P. New, S. Hill, A. Nunn, D. Brown and S. Gibson

FUNDING
Victorian Neurotrauma Initiative

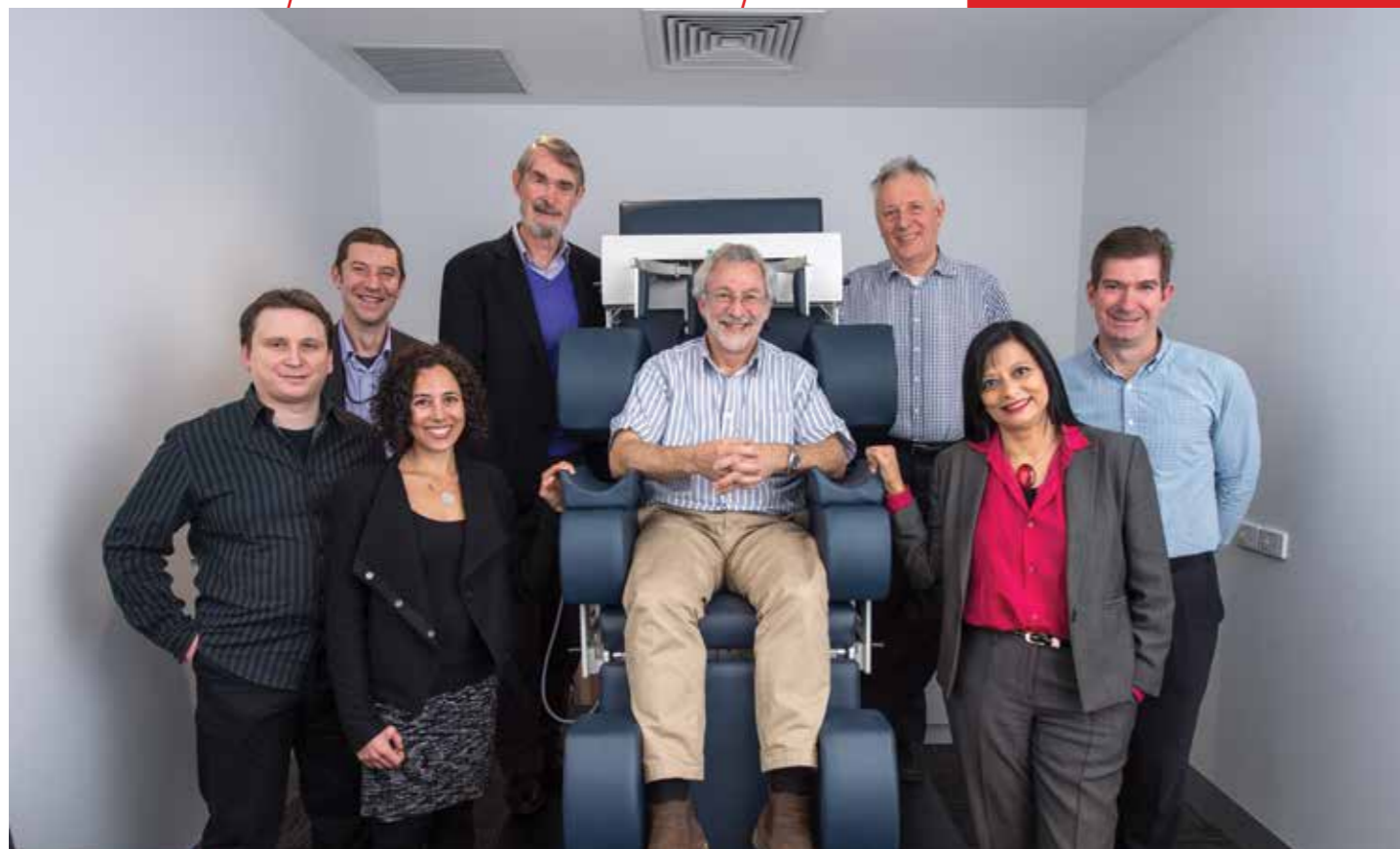
Second stage
RESEARCHERS
S. Miller, D. Flynn, A. Nunn

FUNDING
Monash Institute of Medical Engineering

AIM
This long running project (since 2007) aims to examine the therapeutic efficacy of caloric vestibular stimulation, a simple, safe and inexpensive neuromodulation technique.

The initial focus has been on neuromodulation of persistent neuropathic pain conditions and the first effectiveness trial of the technique in 34 patients has been completed with promising results. The trial will be submitted for publication in 2016.

CURRENT STATUS
The second stage of this work has commenced and is seeking to develop a self-administration device to assess the therapeutic efficacy of daily treatments over a number of weeks. This new work is in collaboration with Monash Arts Design and Architecture. Application of this device in further clinical trials of pain conditions, and in other clinical conditions, will follow device development.

**CHIEF INVESTIGATORS**

Adj. Professor Brian Lithgow [Technology]
Professor Jayashri Kulkarni/Professor Paul Fitzgerald [Clinical]

ASSOCIATE INVESTIGATORS

Professor Zahra Moussavi
Dr Roger Edwards
Mr Anthony de Castella
Ms Meg Bumpstead
Ms Natalie Boosong

FUNDING

NHMRC Career Development Award
Fellowship [Jerome Maller] \$240,000 -
2011 to 2015
Commercialisation Australia Grant
\$350,000 – 2010

MAPrc's EVestG™ team is a collaborative Research and Development group led by bio-engineering Adjunct Professor Brian Lithgow (a founder of the Monash University Centre for Biomedical Engineering), and Professor Jayashri Kulkarni, Director of MAPrc. It is supported by Melbourne-based start-up Neural Diagnostics Pty Ltd (NDPL). Various disciplines including Psychiatry, Bio-engineering, Neurophysiology, Psychology, Electronic and Computer Engineering as well as Biostatistics are applied in this research.

Adjunct Professor Lithgow developed EVestG™ to measure brainwaves, evoked and extracted from the balance organ [the vestibular system] from a simple, non-invasive test. His advanced signal processing software has shown that extracted brainwave signals have unique signature patterns for sufferers of a number of brain-related disorders. Brian has been collaborating with Professor Kulkarni and Professor

Paul Fitzgerald from MAPrc, as well as internationally with Professor Zahra Moussavi, Canadian Chair of Bioengineering at the University of Manitoba, and others, to conduct further research into the areas of psychiatry and neurology; not least in studying major depression and bipolar disorders, dementia, and Parkinson's disease. The early results on depression were published in the World Journal of Biological Psychiatry in April 2015. One in four people will suffer from a serious brain disorder such as Alzheimer's, Parkinson's, depression, bipolar disorder or schizophrenia. Yet, unlike other physical conditions, there has been, up till now, no low-cost, non-invasive, convenient and objective way of measuring brain function that facilitates the fast and accurate diagnosis of brain and nervous system disorders.

It can take 12 years to diagnose a mental illness such as bipolar disorder, and Alzheimer's can only be definitively

diagnosed after death. Delays like these create suffering for patients and their families as they wait for a diagnosis. At the same time, the advantages of early treatment are lost. Delays also frustrate clinicians and significantly contribute to the \$2 trillion dollars per year spent on managing the impact of brain disorders.

EVestG™ is a unique proprietary technology that sensitively measures neural and brain function via a new window into the brain. EVestG™ promises to be able to objectively diagnose a broad range of neurological and psychiatric disorders to an accuracy greater than 90% on measurement. When successfully commercialised, it will provide the world's clinicians with the first ever quick, painless, low-cost, and objective diagnostic tool.

Over the past ten years, Monash University, with Brian Lithgow, has collaborated with NDPL to commercialise EVestG™. Over this period, NDPL has raised over \$7 million from both government grants and incentives, and from angel investors, all of whom have experienced the impacts of sub-optimal diagnosis and therapy of mental illness in their families. This investment has allowed clinical R&D, intellectual property protection, and prototyping development. NDPL has plans over the next few months to be listed on the ASX so as to raise the necessary funds for controlled multi-centre clinical trials to validate EVestG™'s use in routine clinical practice for the differential diagnosis of major depression from bipolar disorder.

**EVestG — A New Window to the Mind
CHIEF INVESTIGATORS**

Adj. Professor Brian Lithgow [Technology]
Professor Jayashri Kulkarni/Professor Paul Fitzgerald [Clinical]

INVESTIGATORS

Associate Professor Jerome Maller
Dr Caroline Gurvich

ASSOCIATE INVESTIGATORS

Professor Zahra Moussavi
Dr Roger Edwards
Mr Anthony de Castella
Ms Meg Bumpstead
Ms Natalie Boosong

FUNDING

NHMRC Career Development Award
Fellowship [Jerome Maller] \$240,000 —
2011 to 2015
Commercialisation Australia Grant
\$350,000 – 2010

AIM OF PROJECT

To research, develop and validate Electrovestibulography as an electrophysiological measurement instrument for biomarkers that facilitate the classification and detection of symptoms of mental illness [Major Depression, Bipolar Affective Disorder and Schizophrenia], as well as mild Traumatic Brain Injury.

START DATE

2008

PROJECTED END DATE

2020

METHODOLOGY

Recruitment of Subjects using current DSM-5 / ICD10 Assessment Rating Scales and clinical treatment History, followed by EVestG Measurement and associated signal processing. Then using classification and statistical signal processing techniques to develop statistically robust signal classifier algorithms of electrophysiological biomarkers of brain function that allow the separation of well controlled cohorts from each other.

PRELIMINARY FINDINGS

An unbiased classification accuracy of 85%, 87% and 77% was achieved for separating Control from Sufferers of Major Depression [MDD] with Symptoms, Control from MDD [symptomatic [S] and reduced[R] symptoms], and MDD-S from MDD-R groups respectively. Features used showed low but significant correlations ($P > 0.05$) with MADRS and CORE assessments.

CONCLUSIONS

The results support the use of separate features for measuring MDD symptomatology versus diagnosing MDD, representing plausible different mechanisms of brain function in MDD-S and MDD-R. The first evidence of the successful application of sensory oto-acoustic features toward diagnosing and measuring the symptomatology of MDD is presented.

CURRENT STATUS

This "New Windows to the Mind" Project is at an exciting phase of having peer-reviewed evidence, from working prototype equipment at MAPrc that EVestG appears to measure objective electrophysiological biomarkers of brain function.

The peer-reviewed evidence referred to can be seen in the publications reported in this year's report. In addition, and partly as a result of achieving this evidence, the Research Team was nominated as a Finalist in the prestigious 2015 Australian Museum's "EUREKA" Awards for Excellence in Interdisciplinary Scientific Research. The team was entered and sponsored by the University of New South Wales.

The Team is continuing with its recent efforts to publish similar results for detection of Biomarkers for Bipolar Disorder, and to raise research funds to clinically validate the ability of EVestG to classify those suffering from either Bipolar or Major Depression in randomised blinded studies using a simpler yet more sensitive measurement technology.

CLINICS

WOMEN'S MENTAL HEALTH CLINIC

CLINIC STAFF

Professor Jayashri Kulkarni
Dr Rosie Worsley
Dr Shainal Nathoo

CLINIC COORDINATOR

Mr Gayan deMel

The Women's Mental Health Clinic provides a tertiary medical, psychiatric, and endocrine consultation service. We advise on new treatment approaches for women experiencing a range of mental illnesses, including schizophrenia, schizoaffective disorder, bipolar affective disorder, borderline personality disorder, menopause and menstrual-related depression and anxiety.

The clinic operates on the principle of empowerment of our women clients, and we combine physical health examinations with mental health assessments. We also provide an information and education service for the treating clinicians involved with our clients. Importantly, an assessment letter with new management suggestions is sent to the referring doctor and the woman herself, to further her central role in her own management. We also encourage her to bring family members/friends to the consultation so that an education process is undertaken, not only with our client but also with her loved ones.

CLINICS

THE VOICES CLINIC



CLINIC STAFF

The clinic is led by Dr Neil Thomas, an expert on psychological therapy for voices, as part of the Cognitive Neuropsychiatry Lab headed by Professor Susan Rossell.

The Voices Clinic is a specialist psychological treatment and research clinic for people who hear voices or have similar experiences. The clinic provides consultation to people who experience persisting hallucinatory experiences such as hearing voices, and offers courses of sessions of psychological therapy approaches to help people self-manage these experiences as effectively as possible. Provision is integrated with training of postgraduate clinical psychology students from Swinburne University of Technology, and with research to develop new therapeutic approaches. As part of a program of research into developing more targeted interventions for persisting

hallucinations, we support five PhD students conducting research on processes and intervention approaches that will advance treatment.

As well as researching psychological therapies, the clinic conducts research on the experience of voices, on adaptation to hearing voices, and on their causes and mechanisms. Our team has been collaborating with researchers internationally to develop a better understanding of what voices are like across different clinical and nonclinical groups, and to develop better assessments. Our international collaborations include some of the world's leading hallucination research centres including the University of Durham, Sussex University, University of Bergen, and University Medical Centre Utrecht, as well as with the voice hearer-led International Hearing Voices Network. We are also part of the International Consortium on Hallucinations Research.

WMH clinic patient testimonials 2015

"Professor Kulkarni is exceptional. Her approach and understanding of mental health and how to balance issues with everyday life is brilliant."

"I was treated with respect and dignity. I felt like I was treated as a person who happens to have a reoccurring mental illness and not treated as a result of research statistics. The information given to me was up to date and relevant to my lifestyle."

"I have found the service provided by MAPrc's [Women's Mental Health Clinic] to be exceptional. I have been treated with the utmost respect and the staff in general have been extremely helpful, positive and committed. I respect enormously the work being undertaken at MAPrc."

"It made me feel safe about the anti-anxiety drugs I was taking during my pregnancy"

"The support and clinical staff were extremely helpful, compassionate and genuinely caring. The service made a dramatic difference and helped [me and my family] function and maintain a normal life."

"[The best part of the Women's Mental Health clinic is that] it provided me with a whole new perspective on treating my symptoms, all of which were very progressive and helpful."

"I suffered severely for seven years not finding the right help, until I found [the Women's Mental Health clinic] with Prof Kulkarni and Dr Rosie Worsley. They saved my life."

"[The best part of the Women's Mental Health clinic is] the expertise and decisive recommendations of Dr Kulkarni as well as her sympathetic handling of my case."

"Thorough examination and an exceptional knowledge of PMDD"

"Welcoming, supportive, approachable, friendly staff and doctors"

"All staff members were exceptionally friendly and compassionate"

"Real people helping real women in need"



BRAIN STIMULATION

Training programs at MAPrc

Brain Stimulation Training Programs at MAPrc

www.tmscourse.com

The Psychiatric Neurotechnology Team has been providing comprehensive clinical and research training in brain stimulation techniques since 2013. Our training programs have been developed to cater for both researchers and clinicians.

The Brain Stimulation Course for Researchers has been designed for research students and post-doctoral researchers who are new to techniques such as TMS and tDCS, as well as for those with more experience who wish to use advanced brain stimulation methodologies such as integrating TMS with EEG.

The Clinical TMS Certification Course provides training in the provision of TMS for the treatment of Major Depression. This course has been designed for medical and nursing graduates, with options for those new to TMS as well as those with previous TMS experience.

In 2015 we conducted five training courses.

These comprehensive and intensive courses included a series of didactic lectures given by experts in the use of TMS for clinical and research purposes, as well as hands-on training and assessment.

These courses were attended by clinicians and researchers from Australia, Hong Kong, Singapore, Thailand, New Zealand and the USA.

Demand for the courses has been growing over the years from both clinicians and researchers, in line with the expansion of TMS treatment services and interest in TMS research.

Undergraduate Medical Teaching:
Monash University MBBS Year 4
Medicine of the Mind MED4091
CLINICAL SITE CO-ORDINATOR
Professor Paul Fitzgerald

ASSISTANT CLINICAL SITE CO-ORDINATOR
Dr Leo Chen

CLINICAL SITE ADMINISTRATOR
Ms Anne Crawford

The MAPrc Medicine of the Mind team is responsible for teaching psychiatry and psychological medicine into the Monash University MBBS course at Monash University's Central Clinical School which is located at the Alfred Hospital.

We direct the MBBS Year 4 students' clinical placements with Alfred Health for the Year 4 Psychological Medicine teaching program and our team provides the interface between the clinical teaching of the host hospital and the university course administration. Our mission is to deliver a seamless education in psychiatry and related disciplines to the undergraduate medical course.

Over the course of 2015 we had 72 Year 4 MBBS students on clinical placement with the various clinics of the Alfred Hospital Psychiatry department, the Victoria Clinic, and the Aged Psychiatry Department at Caulfield Hospital.

The clinical placement program is comprised of:-

A continuous 9-week clinical placement program that emphasises clinically based learning and teaching. Students are embedded in a team and expected to play an active role. All clinical staff and students are provided with clear guidelines about the students' roles and responsibilities. Medicine of the Mind also involves psychiatry registrars in its teaching program to foster peer learning.

A didactic teaching program which utilises the extensive knowledge and teaching expertise of senior academics within Alfred Psychiatry to conduct topic-based tutorials which familiarize students with critical concepts and disorders. Our program also includes specialist Community Health teaching sessions.

A series of PEERLS tutorial sessions which have replaced traditional case-study-based workshops. PEERLS (Professionalism, Ethics, Evidence-base, Roles, Legal issues, Systemic issues) tutorials are patient-based and have been developed to help students integrate clinical experiences with theory. They are led by a clinician or visiting expert, rather than a generic tutor, and involve the tutor sharing his/her knowledge and experience.

The current structure of the program reflects a review and remodelling process which aims to achieve several things: to research new and vibrant models for teaching psychiatry; to encourage, recruit and reward vibrant teachers; to use staff and materials more efficiently; and to smooth the process by which students acquire the psychology and psychiatry knowledge they will need to be doctors.

Medicine of the Mind continues to identify opportunities to improve students' learning experience. Student feedback and assessment indicates that these initiatives are having dramatic effects in increasing satisfaction with the course and quality of learning.

In late 2015 we were very pleased to announce the establishment of an agreement with Malvern Private Hospital for our Year 4 MBBS students to attend clinical placements at the residential Drug and Alcohol Addiction Recovery Treatment program. This is a valuable addition to our teaching program and our students will begin clinical placements at Malvern Private Hospital in 2016.

EDUCATION AND TRAINING
MBBS TEACHING

Monash University MBBS Year 5 Advanced Clinical Practice 1- Psychiatry Selective/Specialty MED5091

CLINICAL SUPERVISOR

Prof Jayashri Kulkarni

Monash University Year 5 MBBS medical students are required to complete a final year Advanced Clinical Practice 1 unit. The aim of this unit is to broaden their knowledge and skills in areas of clinical practice of their own choosing in a series of six-week clinical placements.

Students nominating to undertake a Year 5 Psychiatry Specialty or Selective at the Alfred Hospital have their time split between shadowing Professor Kulkarni at her clinical work (particularly the MAPrc Women's Mental Health Clinic), and supervision under a Consultant and a Registrar on the Alfred Hospital Psychiatry Inpatient Unit.

Under Prof. Kulkarni's supervision the students give a weekly case presentation, attend the Women's Mental Health team weekly case meeting, and assist the team by following up pathology test results.

In 2015 we had ten students complete their MED5091 Psychiatry selective or specialty with Professor Kulkarni. Three of these students subsequently published papers in peer-reviewed journals.



Bachelor of Medical Science (Honours)

The Monash University Bachelor of Medical Science (Honours) is a twelve month degree programme for MBBS students and graduates. The programme embeds students in a research setting with Australian and internationally recognised researchers. This introduces them to research practice. Students learn skills relating to data analysis and the communication of scientific ideas in oral

presentations and a written thesis. The Bachelor of Medical Science (Honours) programme offers candidates a range of projects across an array of research streams, matching student interests to projects respectively.

MAPrc offers BMedSci students a broad array of research projects to choose from. In 2015 our senior researchers supervised nine Bachelor of Medical Science (Honours) students at our centre.

FUNDRAISING & COMMUNITY
FUNDRAISING EVENTS

As a not for profit research and teaching centre, MAPrc increasingly relies on donations and fundraising to generate funds to help us achieve our goals and outcomes. We are extremely grateful to all those who have donated to MAPrc either directly or via one of our fund raising events. While these donations make up a relatively small proportion of our total annual budget, they are critical funds that support a wide range of activities which would otherwise be unfunded. Some of these include;

- Supporting our many post graduate research students and their projects
- Generation of pilot data (from small versions of a full study) which is required for submission to most competitive research grant schemes
- Top up funding for MAPrc funded projects where the amount awarded in a grant might not cover the full cost of completing a project or trial
- Dissemination of research findings at conferences and in refereed journals.
- MAPrc special projects and events

We gratefully acknowledge all those who donated to MAPrc during 2015. Our donors are listed in the back of this report.

2015 ACQUIRE LEARNING DE CASTELLA RUN 2 MEND MINDS

MAPrc is proud to be the exclusive charity partner to this iconic Melbourne running event. Held continuously since 1981 when it was first held as a tribute to Australian Marathon Champion Robert de Castella, MAPrc has partnered and helped to organise and grow the event over the last 6 years. We were extremely excited in 2015 to welcome on board our event naming sponsor, Acquire Learning. The event now also aims to raise awareness about mental illness and the work being conducted at MAPrc to develop new treatments. It also raises invaluable funds to support our ongoing research.

Held in Kew on **Sunday 28th August, 2015** another big field of just over 1900 runners and walkers assembled to take on one of;

1. **The Elk at Falls Creek 5km Walk/Run**
2. **The Runners World 10km**
3. **The Mizuno 15km** or
4. **Run Ready** Kids Activity Program for kids under 10 years.

In addition to the run and walk events, a growing feature of this event is the accompanying **Mind and Body Expo** on the oval surrounding the finish area which was buzzing with something for everyone including; our MAPrc mental health information stand, petting zoo, jumping castle, face painting, food stalls, clothing stalls, physio, osteopathy, podiatry treatments and a recovery yoga station to name just a few! We were overwhelmed by the generosity from all our event sponsors, partners and local traders who supported in various ways, from raising funds in store, to donating prizes for our raffle and our event winners, as well as spot prizes.

Without the wonderful support and enthusiasm from sponsors, donors and volunteers, we wouldn't be able to hold such an event. We are thrilled to announce that in 2015, upwards of **\$85,000** was raised. These funds will go directly to funding a new PhD Scholarship, allowing the important research here at MAPrc to continue.





2015 MAPRC TRIVIA NIGHT

In May 2015 MAPrc held our inaugural fund raising trivia night, entitled "The A to Z of MAPrc" with the magnificent venue at the North Melbourne Meat Markets being donated via a community grant from the City of North Melbourne. It was a great night with a splendid turn out of more than 60 supporters. With our trivia savvy MC Louise Crawford entertaining the audience, each table, dressed in the theme of a nominated letter, fought it out for the trivia title and raised almost \$5,000 to support MAPrc research.



Fundraising Trivia Night

A to Z
of
MAPRC

Dress up, inspired by your table's "secret letter"!
Table prizes, spot prizes, raffle, online auction and three rounds of trivia and games.

Friday 24th April, 7pm

Meat Market Pavilion
5 Blackwood St, Nth Melbourne

Adults \$25-, Students \$20-

Tables of 8—10 encouraged but not essential.

For bookings please visit [here](#)
For more info please call (03) 9076 5654

Or email tiffany.davis@monash.edu



Letter
Lights





Cindy Yu

We are forever grateful to all the wonderful people who volunteer their time to support MAPrc, both at our many external community events, and on-site at MAPrc, assisting with the day to day operations of the Centre. As a not-for-profit organisation, volunteers provide MAPrc with the ability to achieve more and therefore make a bigger impact on the lives of people living with mental illness. Our volunteers come from a wide range of backgrounds, and range from members of the general community to undergraduate medical, and other students. Whether it be the one

volunteer who assists us with entering the backlog of data for a current research project, or the 150+ volunteers who enable us to hold an event as big as the *Acquire Learning de Castella Run 2 Mend Minds*, we couldn't do it without you!

MAPrc is also proud of the work of our large number of Research Affiliates who, although not employed by us, are a critical part of our research team. Our Affiliates include health professionals employed in clinical roles within the Alfred Health Service who choose to become involved

in supporting a particular research project of interest, as well as researchers from other organisations. We are able to acknowledge them as valuable members of our wonderful research team with a Monash University Affiliate appointment. Other affiliates have input into MAPrc teaching activities and again often perform these roles in addition to their paid appointments in departments outside MAPrc.

To all our volunteers and affiliates, we thank you for helping to mend minds.

FINANCIAL STATEMENT

JANUARY 1 – DECEMBER 31
2014 & 2015

INCOME	CATEGORY	2014	2015
	Higher Degree Supervision & Teaching	\$625,300	\$446,093
	Competitive Research Grant Funding	\$1,740,780	\$1,775,151
	Commercial Research Funding	\$597,700	\$405,068
	Government / Institutional Grants	\$1,779,610	\$1,588,017
	Short Courses / Conferences	\$98,140	\$140,753
	MAPrc Clinics Revenue	\$71,510	\$71,060
	Fund Raising & Donations	\$101,920	\$113,035
	Partnerships	-	\$175,000
TOTAL		\$5,014,260	\$4,364,117
EXPENDITURE	CATEGORY	2014	2015
	Salary Related Costs	\$2,906,200	\$2,794,551
	Infrastructure / Administration	\$415,720	\$340,780
	Direct Research Costs	\$590,380	\$663,908
	Depreciation	\$5,230	\$16,683
	Institutional Overheads & Charges	\$1,043,820	\$723,874
TOTAL		\$4,962,070	\$4,539,797
NET SURPLUS / (DEFICIT)		\$52,900	\$175,680

Notes

1. Surplus for the calendar year 2015 is carry forwarded into 2016 and beyond for ongoing projects grants.
2. Competitive research grant funding includes NH&MRC, ARC and other government and philanthropic grants
3. Commercial income includes industry related research contracts
4. Government / Institutional grants include the Victorian Department of Health funding for academic positions at Alfred Health and other operating / infrastructure funding, as well as Monash University dispersed federal government funding generated on the basis of i) category one competitive research dollars ii) HDR supervision and iii) MBBS undergraduate teaching activities by MAPrc
5. Institutional Overheads and Charges refers to Monash University central, faculty and school charges for central support and services provided to MAPrc.

2015 RESEARCH GRANTS & FUNDING

NHMRC		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Women's Mental Health Research Team	Adjunctive Hormone Therapy for Treatment Resistant Depression in Menopausal Women. NHMRC (APP1049041), Project Grant.	Kulkarni J.	N/A	2013–2016 \$599,514	Monash University
	Selective Estrogen Receptor Modulators – A New Adjunctive Treatment for Men with Schizophrenia? NHMRC (APP1042429), Project Grant.	Kulkarni, J.Barton, D.Gurvich, C.	N/A	2013-2016 \$788,419	Monash University
Psychiatric Neurotechnology Research Team	Advancing novel brain stimulation treatment for severe depression. NHMRC, Practitioner Fellowship.	Fitzgerald, P.B.		2015-2019 \$551,435	Monash University
	Deep brain stimulation in the treatment of severe depression. NHMRC, Project grant.	Fitzgerald, P.B.Segrave, R.		2015–2019 \$961,353	Monash University
	Accelerated rTMS in depression	PB Fitzgerald K Hoy		2015–2019 \$961,353	Monash University
	Brain Stimulation Suite. NHMRC, Equipment Grant.	Hoy, K. Fitzgerald, P.B. Segrave, R. Fitzgibbon, B. Maller, J.J.		2013 - 2015 \$471,252.60	Monash University
	Fibromyalgia: Investigating the prefrontal cortex and its role in novel treatment approaches. NHMRC, Peter Doherty Biomedical ECR Fellowship.	Fitzgibbon, B.		2014–2018 \$303,000	Monash University
	Restoring Cognitive Function Using Brain Stimulation. NHMRC, Career Development Fellowship.	Hoy, K.		Jan 2015–Jan 2019 \$411,768	Monash University
	Neuropsychiatry Research Team	A randomised trial examining the effectiveness of sympathetic nervous inhibition in alleviating the metabolic side effects of antipsychotic medications in patients with schizophrenia. NHMRC (APP1022794), Project Grant.	Lambert. G., Barton, D., Dixon, J., Straznicky, N.	N/A	2012–2015 \$461,250
Interactions between the serotonin transporter and sympathetic nervous system activity in patients with major depressive disorder-understanding the link between the brain and the heart. NHMRC (APP1022791), Project Grant.		Lambert, G., Barton, D.	N/A	2012 to 2015 \$509,250	Baker IDI/Monash University
EVestG™	To research, develop and validate Electrovestibulography as an electrophysiological measurement instrument for biomarkers that facilitate the classification and detection of symptoms of mental illness [Major Depression, Bipolar Affective Disorder and Schizophrenia], as well as mild Traumatic Brain Injury. NHMRC, Career Development Award Fellowship.	Maller, J.J.	\$11,000	2011-2015 \$240,000	Monash University
AUSTRALIAN RESEARCH COUNCIL (ARC)		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Psychiatric Neurotechnology Research Team	The development and testing of a device to enhance the application of transcranial magnetic stimulation. ARC Linkage Grant:LP130100448	Fitzgerald PB.Partner Investigator: Warwick Fifield Grey Innovation	\$161,920	2013 - 2016 \$581,643	Australian Research Council

2015 RESEARCH GRANTS & FUNDING

MONASH UNIVERSITY GRANTS		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Psychiatric Neurotechnology Research Team	Design and Testing of a Highly Novel Implantable Magnetic Nerve and Brain Stimulation Device. Monash University, Interdisciplinary Research (IDR) program.	Fitzgerald. P.	\$60,000	2015 - 2016 \$250,000	Monash University
	Understanding individual differences in response to non-invasive brain stimulation: The influence of gender and sex hormones. Monash University, Central Clinical School, ECR Strategic Development Grant.	Segrave, R.Kulkarni, J.	\$49,978	2015 \$49,978	Monash University
	A Targeted Treatment for Cognitive Impairment Following Traumatic Brain Injury: Combining Transcranial Magnetic Stimulation with Cognitive Training. CCS Strategic Fund: NHMRC Near Miss Funding, Monash University.	Hoy, K.	\$100,000	Jan 2015-Jan 2016 \$100,000	Monash University
	1st International Brain Stimulation Conference; 15th International Congress on Schizophrenia Research. Central Clinical School, Monash University, Travel Grant.	Hoy, K.	\$3,000	2015 \$3,000	Monash University
	Monash University, Advancing Women's Research Success Grant Program.	Fitzgibbon, B.	\$11,000	2015 \$11,000	Monash University
	Does emotional regulation differ between individuals with chronic low back pain and healthy controls? A functional Magnetic Resonance Imaging (fMRI) study. Monash University, Platform Access Grant.	Fitzgibbon, B.	\$9,000	2015 \$9,000	Monash University
	Validation of real-time sensors for use in the assessment of head impact in Australian football – A Pilot Study. Monash University, Strategic Grant Scheme.	Maller, J.J.	\$48,271	2015 \$48,271	Monash University
	Ear wiggling locus of control and cortical projections to aid recovery from stroke and traumatic brain injury. Monash University, Platform Access Grant.	Maller, J.J. Bailey, N.	\$10,400	2015 \$10,400	Monash University
	OTHER UNIVERSITIES		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT
Psychiatric Neurotechnology Research Team	Cerebral Palsy and Developmental Coordination Disorder: A continuum of motor impairment or distinct motor disorders? Deakin University, Central Research Grants Scheme.	Maller, J.J.	\$20,000	2015 \$20,000	Deakin University
Cognitive Neuropsychiatry Research Team	International Consortium on Hallucinations Research. Swinburne University Faculty of Health Arts & Design International Engagement Scheme.	Rossell, S, Thomas, N.	\$12,000	2015 \$12,000	Swinburne University

2015 RESEARCH GRANTS & FUNDING

GOVERNMENT FUNDING		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Cognitive Neuropsychiatry Research Team	Mental Health Online. Australian Government Department of Health Teleweb Funding Scheme.	Thomas, N.		2015-2016 \$840,000	Swinburne University
	Reaching the groups where alcohol hits hardest: A peer modelling intervention to help young offenders reduce alcohol use. VicHealth Alcohol Innovation Challenge.	O'Mahony, B., Thomas, N., Ingham, J., Cornelius, L., Guriერი, L., Cherry, N.		2015-2016 \$99,436	Swinburne University
Neuropsychiatry Research Team	Proof of Concept Project for Pharmacogenomics Decision Support System. Victorian Department of Industry and Technology, Project Grant.	Winship, I., Sheffield, L., Barton, D.	No funding received by MAPrc in 2015	2012 to 2015 \$1,500,000	Baker IDI/Monash University
Mental Health Service Research Team	Statewide high dependence unit (HDU) project. Victorian Department of Health and Human Services, Project Grant.	Lee, S.	\$9,746	2015-2016 \$49,632	Alfred Hospital
	Problem gambling amongst people seeking treatment for mental illness.	Lubman, D.	\$5,000	2014-2016 \$10,000	Turning Point, Eastern Health

COMMERCIAL FUNDING		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Women's Mental Health Research Team	Servier Research Fellow in Women's Mental Health. Servier, Fellow Grant.	Kulkarni J.	\$30,000	2015 \$30,000	Monash University
	The National Register of Antipsychotic Medications in Pregnancy. Janssen-Cilag Pty Limited, Project Grant.	Kulkarni J.	\$50,000	2015 \$50,000	Monash University
Psychopharmacology Team	ALK5461-205 A Phase 3 Efficacy and Safety Study of ALKS 5461 for the Adjunctive Treatment of Major Depressive Disorder (the FORWARD-4 Study) Alkermes Inc.	Jayashri Kulkarni	\$74,361	2013 - 2016	Alfred Hospital
	ALK5461-208 A Phase 3 Multicenter Study of the Long-term Safety and Tolerability of ALKS 5461 for the Adjunctive Treatment of Major Depressive Disorder in Adults who Have an Inadequate Response to Antidepressant Therapy (the FORWARD-2 Study). Alkermes Inc.	Jayashri Kulkarni	\$21,592	2013 - 2016 Full Amount to be determined	Alfred Hospital
	Social Anxiety Study Phase 2a Randomized, Double-blind, Placebo-Controlled, Parallel-Group, Multi-center Study Investigating the Efficacy, Safety, and Tolerability of JNJ-42165279 in Subjects with Social Anxiety Disorder. Janssen-Cilag Pty. Limited.	Jayashri Kulkarni	\$27,077	2015 - 2016 Full Amount to be determined	Alfred Hospital
	A phase 4, Randomized, Double-blind, Active and Placebo-controlled, Multicenter Study Evaluating the Neuropsychiatric Safety and Efficacy of 12 weeks Varenicline Tartrate 1mg bid and Bupropion Hydrochloride 150mg bid for Smoking Cessation in Subjects With and Without a History of Psychiatric Disorders. Pfizer Australia Inc.	Jayashri Kulkarni	\$45,449	2011 - 2015 \$45,449	Alfred Hospital
	A Multicentre, Randomized, Double-blind Trial to Assess the Efficacy and Safety of ASC-01 in Patients with Major Depressive Disorder (MDD). Otsuka Pharmaceutical Co. Ltd.	Jayashri Kulkarni	\$74,391	2013-2015	Alfred Hospital
	Retrospective audit of people treated with Long-Acting Injectable Treatments (LAIs): Usage Patterns and Outcomes. Janssen-Cilag Pty Limited, Project Grant.	De Castella, A.	\$17,827	2015-2016 \$59,424	Alfred Hospital

2015 RESEARCH GRANTS & FUNDING

PRIVATE PHILANTHROPIC / NOT FOR PROFIT		CHIEF INVESTIGATOR/S	AMOUNT (\$) RECEIVED IN 2015	YEARS OF FUNDING & TOTAL FUNDING FOR DURATION OF GRANT	ADMINISTERING INSTITUTION
Psychiatric Neurotechnology Research Team	A new approach to depression treatment. Sir Edward Dunlop Medical Research Foundation.	Segrave, R. Fitzgerald, P.B.		2015 - 2016 \$20,000	Monash University
	Interventional repetitive transcranial magnetic stimulation treatment for fibromyalgia. Arthritis Australia National Research Program, The ARA Project Grant funded by the Australian Rheumatology Association.	Fitzgibbon, B. Fitzgerald, P.B., Hoy, K	\$10,000	2015 \$10,000	Monash University
	Thinkable award (social media category). Thinkable.org.	Bailey, N.	\$1,800	2015 \$1,800	Alfred Hospital
Cognitive Neuropsychiatry Research Team	Enhancing work place performance and employment outcomes by improving cognitive skills in people with psychiatric disability. State Trustees Foundation.	Rossell, S., Castle, D., Harvey, C., Fossey, E., Crosse, C., Morgain, D.	\$10,000	2015 \$10,000	St Vincent's Hospital
	Examining the temporal characteristics in the brain of eye movements using MEG to better understand anorexia nervosa. Research Development Grant Scheme.	Rossell, S., Hughes, M., Woods, W.	\$3,000	2015 \$3,000	Swinburne University
	A comprehensive investigation of neurocognitive, emotional and neurobiological processes in body dysmorphic disorder. Barbara Dicker Brain Sciences Foundation.	Grace, S., Rossell, S., Castle, D., Labuschagne, I., Hughes, M., Wescott-Dawson, E., Dnetto, R.	\$5,000	2015-2016 \$5,000	Swinburne University
	A pilot group intervention targeting loneliness in young people diagnosed with depression. Barbara Dicker Brain Sciences Foundation.	Lim, M., Thomas, N.	\$15,000	2015-2016 \$15,000	Swinburne University
	Identity in recovery from persisting mental health problems: Understanding a key therapeutic target. Barbara Dicker Brain Sciences Foundation.	Thomas, N. Jones, N., Read, J., McLeod, B.	\$15,000	2015-2016 \$15,000	Swinburne University
	Investigating factors that influence the efficacy of cognitive remediation therapy in people with schizophrenia. Barbara Dicker Brain Sciences Foundation.	Reser, M., Rossell, S., Thomas, N., Castle, D., Gurvich, C., Bozaoglu, K., Tan, E., Louise, S., Bryce, S.	\$5,000	2015-2016 \$5,000	Swinburne University
	Investigating the relationship between structural and functional neural networks implicated in emotion processing in bipolar disorder. Barbara Dicker Brain Sciences Foundation.	Van Rheenen, T. Rossell, S., Pantelis, C.	\$20,000	2015-2016 \$20,000	Swinburne University
	Monitoring and training heart rate variability using wearable technology: Scoping study for a mental well-being mobile app. Barbara Dicker Brain Sciences Foundation.	Thomas, N., Vasa, R., Theiler, S., Mouzakis, K.	\$3,000	2015 \$3,000	Swinburne University
	Nature's clocks and human mood: The neural basis of the 24-hour rhythm in reward motivation. Barbara Dicker Brain Sciences Foundation.	Murray, G., Rossell, S., Johnson, S., Byrne, J.	\$20,000	2015-2016 \$20,000	Swinburne University
	Neuromagnetic correlates of semantic memory processing in health and depression: A magnetoencephalographic (MEG) study of semantic priming. Barbara Dicker Brain Sciences Foundation.	Batty, R., Rossell, S., Cameron-Bradley, M., Woods, W.	\$5,000	2015-2016 \$5,000	Swinburne University
	The Impact of a mindfulness-based intervention for auditory hallucinations on localised brain activity, attention and subjective experience. Barbara Dicker Brain Sciences Foundation.	Louise, S., Thomas, N., Rossell, S.	\$5,000	2015-2016 \$5,000	Swinburne University
	The trajectory of trauma: an integrative approach. Barbara Dicker Brain Sciences Foundation.	Music, S., Ciorciari, J., Rossell, S.	\$5,000	2015-2016 \$5,000	Swinburne University
	Improving the cognitive abilities of young people following a first ever psychotic episode. The Angior Family Foundation.	March, E., Rossell, S.L., Castle, D.J.	\$13,319	2015-2016 \$13,319	St Vincent's Hospital

Psychopharmacology Team	Ondansetron A Double-blind, Placebo Controlled, Randomized Investigation of Ondansetron in Chronic Residual Schizophrenia. The Stanley Foundation.	Jayashri Kulkarni	\$43,200	2010 - 2017	Monash University
Mental Health Service Research Team	Peer education and resources to empower women distressed by a trauma history to ask for help. Victorian Women's Benevolent Trust, Project Grant.	Keppich-Arnold, S.	\$2,480	2015-2016 \$10,000	Alfred Hospital
Perceptual & Clinical Neuroscience Laboratory	1. Genetics of binocular rivalry. / 2. Investigating binocular rivalry in healthy individuals and bipolar disorder: Excluding confounds and optimising methods for large-scale endophenotype studies. Brain and Behaviour Research Foundation, Young Investigator Grant.	Miller, S.	US\$10,000	2013-2015 US\$60,000	Monash University

JOURNAL ARTICLES

WOMENS' MENTAL HEALTH RESEARCH TEAM

Arnou BA, Blasey C, Williams LM, Palmer DM, Rekshan W, Schatzberg AF, Etkin A, Kulkarni J, Luther JF, Rush AJ. Depression Subtypes in Predicting Antidepressant Response: A Report From the iSPOT — D Trial. *American Journal of Psychiatry*. 2015; 172(8): 743-750.

Donald F, Duff C, Lee S, Kroschel J, Kulkarni J. Consumer perspectives on the therapeutic value of a psychiatric environment. *Journal of Mental Health*. 2015; 24: 63-67.

Gilbert, H., Gurvich, C., Kulkarni, J. Special issues for pregnant women with mental illness. *Journal of Nursing and Care*. 2015; 4: 280.

Gleeson PC, Worsley R, Gavrilidis E, Nathoo S, Ng E, Lee S, Kulkarni J. Menstrual cycle characteristics in women with persistent schizophrenia. *Australian and New Zealand Journal of Psychiatry*. 2015.

Kulkarni J, Gavrilidis E, Wang W, Worsley R, Fitzgerald P, Gurvich C, Van Rheenen T, Berk M, Burger H. Estradiol for treatment-resistant schizophrenia: a large-scale randomized controlled trial in women of child-bearing age. *Molecular Psychiatry*. 2015; 20(6): 695-702.

Kulkarni J, Reeve-Parker K. Psychiatrists' awareness of partial- and non-adherence to antipsychotic medication in schizophrenia: results from the Australian ADHES survey. *Australasian Psychiatry*. 2015; 23(3): 258-64.

Kulkarni J, Storch A, Baraniuk A, Gilbert H, Gavrilidis E, Worsley R. Antipsychotic use in pregnancy. *Expert Opinion on Pharmacotherapy*. 2015; 16(9): 1335-45.

Weickert TW, Weinberg D, Lenroot R, Catts SV, Wells R, Vercammen A, O'Donnell M, Galletly C, Liu D, Balzan R, Short B, Pellen D, Curtis J, Carr VJ, Kulkarni J, Schofield PR, Weickert CS. Adjunctive raloxifene treatment improves attention and memory in men and women with schizophrenia. *Molecular Psychiatry*. 2015; 20: 685-694.

PSYCHIATRIC NEUROTECHNOLOGY RESEARCH TEAM

Anderson JF, Davis MC, Fitzgerald PB, Hoy KE. Individual differences in retrieval induced forgetting affect the impact of frontal dysfunction on retrieval induced forgetting. *Journal of Clinical and Experimental Neuropsychology*. 2015; 37(2): 140-51.

Andrews, S.C., Enticott, P.G., Hoy, K.E., Thomson, R.H., & Fitzgerald, P.B. No evidence for mirror system dysfunction in schizophrenia from a multimodal TMS/EEG study. *Psychiatry Research*. 2015; 228(3): 431-40.

Arns, M., Etkin, A., Hegerl, U., Williams, L.M., DeBattista, C., Palmer, D.M., Fitzgerald, P.B., Harris, A., deBeuss, R., Gordon, E. Frontal and rostral anterior cingulate (rACC) theta EEG in depression: Implications for treatment outcome? *European Neuropsychopharmacology*. 2015; 25(8): 1190-1200.

Bailey N, Hoy KE, Maller JJ, Upton DJ, Segrave RA, Fitzgibbon BM, Fitzgerald PB. Neural evidence that conscious awareness of errors is reduced in depression following a traumatic brain injury. *Biological*

Psychology. 2015; 106: 1-10.

Barnby J, Bailey N; Chambers R, Fitzgerald PB. How similar are the changes in neural activity resulting from mindfulness practice in contrast to spiritual practice? *Consciousness and Cognition*. 2015; 36: 219-32.

Chung SW, Hoy KE, Fitzgerald PB. Theta Burst Stimulation: a new form of TMS treatment for depression? *Depression and Anxiety*. 2015; 32(3): 182-92.

MAPRC Publications for 2015

Chung SW, Rogasch N, Hoy KE, Fitzgerald PB. Measuring brain stimulation induced changes in cortical properties using TMS-EEG. *Brain Stimulation*. 2015; 8(6): 1010-20.

Dinteren, R.v., Arns, M., Kenemans, L., Jongasma, M.L.A., Kessels, R.P.C., Fitzgerald, P., Fallahpour, K., DeBattista, C., Gordon, E., Williams, L.M. Utility of event-related potentials in predicting antidepressant treatment response: An iSPOT-D report. *European Neuropsychopharmacology*. 2015; 25(11): 1981-90.

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Fitzgibbon BM, Melita J Giummarra*, Jack Tsao, Stephen J Gibson, Anina Rich, Nellie Georgiou-Karistianis, Michael Chou, John Bradshaw, Aimee Alphonso, Monica Tung, Carol, Drastal, S. Hanling, Paul Pasquina, Peter Enticott. (*joint first author). Symptoms of post-traumatic stress disorder associated with painful and non-painful vicarious reactivity following amputation. *Journal of Traumatic Stress*. 2015; 28(4): 330-8.

Fontenelle LF, Coutinho ESF, Lins-Martins NM, Fitzgerald PB, Fujiwara H, Yücel M. Electroconvulsive therapy for obsessive-compulsive disorder: A systematic review. *Journal of Clinical Psychiatry*. 2015; 76(7): 949-57.

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COGNITIVE NEUROPSYCHIATRY RESEARCH TEAM

Batty, R., Francis, A., Thomas, N., Hopwood, M., Ponsford, J., Johnston, L., Rossell, S.L. Executive dysfunction in psychosis following traumatic brain injury (PFTBI). *Journal of Clinical and Experimental Neuropsychology*. 2015; 37(9): 917-30.

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NEUROPSYCHIATRY RESEARCH TEAM

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MENTAL HEALTH SERVICE RESEARCH TEAM

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PERCEPTUAL & CLINICAL NEUROSCIENCE LABORATORY RESEARCH TEAM

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EVESTG™

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Jayashri Kulkarni, Emmy Gavrilidis and Roisin Worsley. Hormones and Schizophrenia. In: Mikhail Pietnikov, John Waddington (Eds), Series Editor: Joseph P Huston, Modeling the Psychopathological Dimensions of Schizophrenia, Volume 23, 1st edition, Academic Press, 2015. Chapter 27, pp 463-80.

Major B, Maller J, Rogers M, Pearce A. Neuroimaging and electrophysiology efficacy in measuring acute effects and long-term sequelae following sports-related concussion. In: Andres Costa and Eugenio Villaiba (Eds). Horizons in Neuroscience, Vol 20. Nova Science Publishers. 2015. Chapter 4, pp 85-99.

Dhar AK, Lambert GW, Barton DA. Depression and cardiovascular disease: Psychobiological Mechanisms. In: Marlies Alvarenga & Don Byrne (Eds.), Handbook of Psychocardiology, pp 1-11, Springer, Singapore. 24 Dec 2015. Online ISBN978-981-4560-53-5. DOI 10.1007/978-981-4560-53-5_9-1

Miller SM (Ed.) (2015). The constitution of phenomenal consciousness: Toward a science and theory. *Advances in Consciousness Research* (Vol. 92). Amsterdam, The Netherlands: John Benjamins Publishing Company.

Miller SM (2015). The constitution of visual and phenomenal consciousness: An introduction. In S. M. Miller (Ed.), *The constitution of phenomenal consciousness: Toward a science and theory* (pp. 1-14). *Advances in Consciousness Research* (Vol. 92). Amsterdam, The Netherlands: John Benjamins Publishing Company.

Miller SM (2015). The correlation/constitution distinction problem: Foundations, limits and explanation in consciousness science. In S. M. Miller (Ed.), *The constitution of phenomenal consciousness: Toward a science and theory* (pp. 104-154). *Advances in Consciousness Research* (Vol. 92). Amsterdam, The Netherlands: John Benjamins Publishing Company.

WOMENS' MENTAL HEALTH RESEARCH TEAM PRESENTATIONS

Kulkarni J. Lecture Presentation: CCS Public Lecture "Women's mental health: It's getting tougher" – October 9th 2015

Kulkarni, J. Conference presentation : "The National Register of Antipsychotic Medication in Pregnancy (NRAMP): Healthy Mothers, Healthy Babies" – 6th World Congress on Women's Mental Health, Tokyo, Japan, 24th March 2015

Kulkarni, J. Conference Presentation: Biological Psychiatry Australia (BPA): Sydney, Australia 21st - 22nd September 2015

Kulkarni, J. Conference presentation: "Selective Estrogen Receptor Modulators Improve Outcomes for Women with Schizophrenia", 6th World Congress on Women's Mental Health, Tokyo, Japan, 25th March 2015

Kulkarni, J. Forum Presentation: "Mental Health and Domestic Violence" Domestic Violence & Interpreting: A National Forum, Monash University, Melbourne, Australia, 25th September 2015

Kulkarni, J. Invited Plenary Speaker: "Women's Mental Health - Still Not a Priority, Still Not Good Enough" Australasian Marce Society Conference Adelaide, Australia, 23rd October 2015

Kulkarni, J. Invited speaker: "Clinical Controversies Panel" RANZCP Congress 2015, Melbourne, Australia, 27th April 2015

Kulkarni, J. Invited Speaker: "An update on the management of depression" 37th John Murtagh Annual Update Course for General Practitioners Melbourne, Australia, 4th November 2015

Kulkarni, J. Invited Speaker: "Mood Disorders" – Health Ed Conference, Melbourne, Australia, 2nd May 2015

Kulkarni, J. Invited Speaker: "Special Issues for Women with Mental Illness" Melbourne, Australia, 15th November 2015

Kulkarni, J. Invited Speaker: "Women's Mental Health" – Yoga Conference, Melbourne, Australia – 21st June 2015

Kulkarni, J. Invited Speaker: "Women's Mental Health" Flinders Medical Centre Psychiatry Grand Round, Adelaide, Australia, 17th November 2015

Kulkarni, J. Invited Speaker: "Women's Mental Health" Monash Dean's Showcase Melbourne, Australia, 22nd October 2015

Kulkarni, J. Invited Speaker: "Women's Mental Health" Retired Pharmacists Group, Faculty of Pharmacy and Pharmaceutical Sciences, Melbourne, Australia, 24th November 2015

Kulkarni, J. Invited speaker: "Women's Mental Health – A Biopsychosocial Approach" Psychscene Medical Symposium, Melbourne, Australia, 18th April 2015

Kulkarni, J. Invited Speaker: Family Violence Workshop, Judicial College of Victoria, Melbourne CBD – "The Trauma Response – Female victims response to trauma", 19th February 2015

CONFERENCES

Kulkarni, J. Invited Speaker: NCD Luncheon, 12th April 2015

Kulkarni, J. Symposium Presentation: "Psychiatry in the 21st Century" Inaugural Translational Research Symposium, Monash University, Melbourne, Australia, 30th September 2015

Kulkarni, J., Gavrilidis, E., Worsley, R., Grigg, J., Gilbert, H. Workshop Organisers: Innovating Psychiatry Through Neurosciences Workshop, Melbourne, Australia, 19th August 2015

Kulkarni, J., Gavrilidis, E., Worsley, R., Grigg, J., Gilbert, H., Xiao, C. Conference Presentation and Conference Organisers: In Her Shoes – Servier sponsored Women's Mental Health workshop – Melbourne, Australia, 19th September 2015

Kulkarni, J., Gurvich, C., Worsley, R., Gilbert, H., Xiao, C. Conference Symposium: Women and Psychosis - Australasian Schizophrenia Conference (ASC): Melbourne, Australia, 23rd-25th September 2015

Gilbert, H. Conference presentation : ANMF Conference (Australian Nursing and Midwifery Federation), Melbourne, Australia, September 2015

Gilbert, H. Conference presentation : ASPOG Conference (Australasian Society for Psychosocial Obstetrics and Gynaecology), Melbourne, Australia, July 2015

POSTERS

Bell, J. Poster Presentation: "Does the progestin androgenicity of the combined oral contraceptive pill affect mood?" Biological Psychiatry Australia (BPA), Sydney, Australia, 21st - 22nd September 2015

Bian, E. Poster Presentation: "Metformin for cognition in women with co morbid depression and obesity" Biological Psychiatry Australia (BPA), Sydney, Australia, 21st-22nd September 2015

PSYCHIATRIC NEUROTECHNOLOGY RESEARCH TEAM

PRESENTATIONS

Fitzgerald, P.B. — Workshop, World federation of Societies of Biological Psychiatry, 12th World Congress Of Biological Psychiatry, Athens Greece June 2015

Fitzgerald, P.B. Keynote presentation: Advanced Education Program in Clinical Neurophysiology, Asian-Oceanic chapter of International Federation of Clinical Neurophysiology and the Taiwan Society of Clinical Neurophysiology, August 2015, Kaohsiung, Taiwan.

Hoy, Kate. Expert Panel Member: "Brain Dialogue and MAPrc Zap My Brain Public Forum." Melbourne Brain Centre auditorium, Melbourne, 13/05/2015

Hoy, Kate. Guest Speaker: "The Neuroscience of Psychiatry." Australian Medical Students Association Academy of the Mind, 01/07/2015

Hoy, Kate. Invited Speaker: "Brain Stimulation for Schizophrenia - Current Status and Next Steps."

[Workshop] 15th International Congress on Schizophrenia Research, Colorado Springs, Colorado, USA. 28 March — 1 April 2015

Hoy, Kate. Invited Speaker: "Enhanced Frontoparietal Connectivity and Improved Working Memory Following ITBS." 1st International Brain Stimulation Meeting, Singapore. 2nd — 4th March 2015

Hoy, Kate. Invited Speaker: "Restoring Cognitive Function Using Brain Stimulation." NHMRC Excellence Awards Dinner, ANU, Canberra. September 2015

Hoy, Kate. Invited Speaker: "Treating Cognitive Impairment in Psychiatry and Neurology: The emerging field of Cognitive Neurotechnology." Psychiatry Grand Round, Alfred Hospital, Melbourne. August 2015

Segrave, Rebecca. Invited Speaker: "Cognitive Neuroscience Approaches to Depression Treatment." Cognitive Neuroscience Unit, Deakin University, Melbourne. August 2015

Segrave, Rebecca. Invited Speaker: "Retraining the Brain to Beat Depression: Transcranial Direct Current Stimulation and Cognitive Control Training." Continuing Medical Education Program, The Adelaide Clinic, Adelaide. July 2015

Segrave, Rebecca. Invited Speaker: "RU OK: Having the Conversation." ROK Day, Alfred Hospital Melbourne. September 2015

Segrave, Rebecca. Invited Symposium Presentation: "Cognitive Control Training and tDCS: A New Approach to Treating Depression." Anxiety and Depression Association of America Conference, Miami, USA. April 2015

Fitzgibbon, Bernadette. Invited Speaker: "A Career in Social and Clinical Neuroscience." Quantum, Victoria. August 2015

Fitzgibbon, Bernadette. Invited Speaker: "Pain in the Brain: The overlap between physical pain, empathy for pain and social pain." Science Stars of Tomorrow, Australian Academy of Science, Canberra. June 2015

ABSTRACTS

Kaur M, Lee RSC, Fitzgerald PB, Duffy SL, Wong C, Scott EM, Hickie IB (2015). The relationship between treatment parameters and efficacy with repetitive transcranial magnetic stimulation in depression: a meta-analytic study. Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation, 8 (2) 423-424.

MENTAL HEALTH SERVICE RESEARCH TEAM

PRESENTATIONS

Larissa Fogden, Kerin Basil, Jason Webb, Stuart Lee, Phoebe Wright, Violeta Peterson, Sharon Sutherland. "Evaluating a social work single-session family consultation intervention in acute psychiatry." Allied Health Research Forum at Alfred Health Research Week, Melbourne, 2015.

Stuart Lee, Angela Gallagher, Jo James, Doug Bowles, Kathryn Henderson, Sandra Keppich-Arnold. Oral presentation: "Exploring the operation and effectiveness of a joint police-mental health mobile crisis response unit." The Mental Health Services Conference, Canberra, 2015.

Stuart Lee, Simon Stafrace. Invited Oral presentation: "Impact of Homelessness at The Alfred." Primary Care and Population Health Advisory Committee to the Alfred Health Board, Melbourne, 2015.

POSTERS

Tessa McGrane, Rachel Barbara-May, Liza Hopkins, Stuart Lee. Poster Presentation: "What about the rest of the family?" Alfred Health Research Week Poster Display, Melbourne, 2015.

PERCEPTUAL & CLINICAL NEUROSCIENCE LABORATORY

POSTERS

Ngo, T.T., Law, P.C.F., Miller, S.M. (2015, December) Investigating optimal stimuli for large-scale endophenotype studies of binocular rivalry in bipolar disorder. Poster presented at the Society for Mental Health Research Conference, Brisbane, Australia.

Miller, S.M., Law, P.C.F., & Ngo, T.T. (2015, October). Effects of drift speed and stimulus size on binocular rivalry rate and mixed percept duration in healthy individuals: Implications for endophenotype studies in clinical psychiatric groups. Poster presented at the 45th annual meeting of the Society for Neuroscience, Chicago, United States of America.

ABSTRACTS

Ngo TT, Barsdell WN, Arnold CA, Chou MJ, New PW, Hill ST, Nunn AK, Brown DJ, Gibson SJ, Miller SM. (2015) Bedside neuro modulation of persistent pain and allodynia using caloric vestibular stimulation: An effectiveness trial. J. Neurol. Sci. 357, Suppl 1, e91.

RESEARCH PROJECTS

WOMEN'S MENTAL HEALTH TEAM RESEARCH PROJECTS	CHIEF INVESTIGATOR/S	PROJECTED END DATE
Adjunctive Hormone Therapy for Treatment Resistant Depression in Peri and Post menopausal Women.	Jayashri Kulkarni	2016
An audit of clinical practice - eliciting a history of previous trauma in female psychiatric inpatients.	Jayashri Kulkarni	2015
Depression and the Pill.	Jayashri Kulkarni	2017
Family violence – understanding health practitioners' current practice, attitudes and beliefs.	Jayashri Kulkarni	2017
Memantine in the Treatment of Borderline Personality Disorder.	R Worsley & J Kulkarni	2015
Metformin for mind and metabolism- A Pilot Study.	Jayashri Kulkarni	2017
The National Register of Antipsychotic Medication in Pregnancy (NRAMP).	Jayashri Kulkarni	Ongoing
Selective Estrogen Receptor Modulators (SERMs) – A Potential Treatment for Child Bearing Age women with Schizophrenia?	Jayashri Kulkarni (A) David Barton (B) Caroline Gurvich C	2017

PSYCHIATRIC NEUROTECHNOLOGY TEAM RESEARCH PROJECTS	CHIEF INVESTIGATOR/S	PROJECTED END DATE
A2: Accelerated rTMS in the treatment of depression.	Paul Fitzgerald	2016
Bridging the gap between sensory and social impairments in Autism.	Bernadette Fitzgibbon	2016
CCT: Cognitive control training for depression: application, evaluation and augmentation.	Rebecca Segrave	2015
Cognitive enhancement: an investigation of non-invasive electrical brain stimulation methods.	Bernadette Fitzgibbon	2017
Connectivity & MDD.	Paul Fitzgerald	2016
Deep TMS: Deep rTMS for autism spectrum disorder.	Paul Fitzgerald and Peter Enticott	2016
Enhancing cognitive function/neuroplasticity using non-invasive brain stimulation.	Kate Hoy	2017
FIBROMYALGIA: rTMS for fibromyalgia.	Bernadette Fitzgibbon	Ongoing
How similar are the changes in neural activity resulting from mindfulness practice in contrast to spiritual belief?/How does tactile distraction interfere with cognitive attention in meditators compared with non-meditators?	Neil Bailey	2015
Investigating cortical inhibition as an endophenotype in schizophrenia.	Paul Fitzgerald and Kate Hoy	2016
Investigating cortical inhibition as an endophenotype in schizophrenia.	Paul Fitzgerald	2016
Investigating the effects of mindfulness on neural activity markers of inhibition of emotional distractors during working memory retention.	Neil Bailey	2015
investigating the potential for brain stimulation to treat mild cognitive impairment.	Kate Hoy	2017
Looking on the bright side: Can non-invasive brain stimulation enhance positive information processing bias? / Can tDCS enhance positive ABMT? An EEG investigation.	Rebecca Segrave	2015
MST/ECT: A randomised controlled trial of Magnetic Seizure Therapy in Major Depressive disorder.	Paul Fitzgerald	2015
Neural connectivity in autism spectrum disorders.	Paul Fitzgerald	2014
Neural correlates of brain stimulation enhanced second language learning/Can transcranial direct current stimulation enhance second language learning?	Kate Hoy	2015
Optimization of theta burst stimulation on depression.	Paul Fitzgerald	2016
PREDICT: Investigating predictors of response to TMS.	Paul Fitzgerald	2015
tDCS for Cognitive impairment in TBI: A 4 week RCT of tDCS and cognitive training in the treatment cognitive impairment following TBI.	Kate Hoy	Ongoing
tDCS in SCZ: A pilot clinical trial of 5 sessions of tDCS for the enhancement of cognition in SCZ.	Kate Hoy	Ongoing
The neuroeconomics of major depression.	Paul Fitzgerald	2016
The neurophysiological mechanisms underlying the therapeutic effects of transcranial magnetic stimulation for treatment resistant depression.	Paul Fitzgerald	2016
The role of social support in physical pain.	Bernadette Fitzgibbon	2019

RESEARCH PROJECTS

Understanding the role of negative beliefs and emotion regulation in chronic low back pain.	Bernadette Fitzgibbon	2019
Using brain stimulation enhanced second language learning/ Can transcranial direct current stimulation enhance second language learning?	Kate Hoy	2015
PSYCHOPHARMACOLOGY TEAM RESEARCH PROJECTS		
ALK5461-205 A Phase 3 Efficacy and Safety Study of ALKS 5461 for the Adjunctive Treatment of Major Depressive Disorder (the FORWARD-4 Study) Alkermes Inc.	Jayashri Kulkarni	2016
ALK5461-208 A Phase 3 Multicenter Study of the Long-term Safety and Tolerability of ALKS 5461 for the Adjunctive Treatment of Major Depressive Disorder in Adults who Have an Inadequate Response to Antidepressant Therapy (the FORWARD-2 Study).	Jayashri Kulkarni	2016
Ondansetron A Double-blind, Placebo Controlled, Randomized Investigation of Ondansetron in Chronic Residual Schizophrenia.	Jayashri Kulkarni	2016
Social Anxiety Study Phase 2a Randomized, Double-blind, Placebo-Controlled, Parallel-Group, Multi-center Study Investigating the Efficacy, Safety, and Tolerability of JNJ-42165279 in Subjects with Social Anxiety Disorder.	Jayashri Kulkarni	2015
A phase 4, randomized, double-blind, active and placebo-controlled, multicenter study evaluating the Neuropsychiatric safety and efficacy of 12 weeks Varenicline Tartrate 1mg bid and bupropion hydrochloride 150mg bid for Smoking cessation in subjects with and without a history of Psychiatric disorders.	Jayashri Kulkarni	2015
A Multicentre, Randomized, Double-blind Trial to Assess the Efficacy and Safety of ASC-01 in Patients with Major Depressive Disorder (MDD).	Jayashri Kulkarni	2015
COGNITIVE NEUROPSYCHIATRY TEAM RESEARCH PROJECTS		
A brain imaging study of auditory verbal hallucinations and inhibition in patients with schizophrenia.	Susan Rossell	2019
A multidimensional and clustering study of fluency performance in schizophrenia.	Susan Rossell	2015
Are auditory verbal hallucinations related to auditory processing deficits and prosodic impairment in schizophrenia?	Susan Rossell	2015
Cognitive remediation therapy in schizophrenia.	Susan Rossell	2015
Development and application of trauma-focused intervention for auditory verbal hallucinations.	Susan Rossell	2015
Does visual processing training enhance cognitive remediation therapy outcomes in people with schizophrenia?	Susan Rossell	2015
Ecological momentary assessment and intervention to enhance self management of persistent auditory verbal hallucinations.	Susan Rossell	2015
Exploring the unique benefits of cognitive remediation therapy (CRT) on neurocognitive and psychosocial outcomes relative to an active control.	Susan Rossell	2015
Immunological responses in depression and psychophysiological correlates.	Susan Rossell	2015
Investigating factors that influence the efficacy of cognitive remediation therapy in people with schizophrenia.	Susan Rossell	2015
Investigating ocular-motor correlates of abnormal mirror system functioning in autism.	Susan Rossell	2015
Investigating the neurobiological and cognitive features of anorexia nervosa.	Susan Rossell	2015
Neuroimaging correlates of dysfunctional semantic processes in schizophrenic formal thought disorder.	Susan Rossell	2015
Self, attachment and trauma in relation to voices.	Susan Rossell	2015
Semantic memory function in first degree relatives of those with schizophrenia.	Susan Rossell	2015
Speech disturbances and quality of life in schizophrenia.	Susan Rossell	2015
The impact of a mindfulness-based intervention for auditory hallucinations on localised brain activity, attention and subjective experience.	Susan Rossell	2015

RESEARCH PROJECTS

The muscarinic cholinergic system and cognition in schizophrenia.	Susan Rossell	2015
The role of the glutamatergic system in cognition across the schizotypy/schizophrenia continuum	Susan Rossell	2015
Understanding individual differences in response to non-invasive brain stimulation: the influence of ender and sex hormones/Impact of gender on cortical excitability	Susan Rossell	2015
NEUROPSYCHIATRY RESEARCH PROJECTS		
A randomised trial examining the effectiveness of sympathetic nervous inhibition in alleviating the metabolic side effects of antipsychotic medications in patients with schizophrenia.	Gavin Lambert	2015
Interactions between the serotonin transporter and sympathetic nervous system activity in patients with major depressive disorder- understanding the link between the brain and the heart.	Gavin Lambert	2015
Are auditory verbal hallucinations related to auditory processing deficits and prosodic impairment in schizophrenia?	See entry under Women's Mental Health research – joint project	
MENTAL HEALTH SERVICE RESEARCH PROJECTS		
Crisis averted: The experience of consumers and carers to a Police and Clinical Early Response (PACER) unit responding to a mental health crisis	Elizabeth Deveny	2015
Evaluating a Social Work single session family consultation intervention in Acute Psychiatry.	Sharon Sutherland	2015
Measuring employment stress and the correlates of employment stress at least 2 years post haemopoietic stem cell transplant.	Sharon Avery	2015
Measuring the benefits of Rel8 an 8-week social skills training program for people with a severe mental illness.	Bronwyn Wauchope	2015
Peer education and resources to empower women distressed by a trauma history to ask for help	Sandra Keppich-Arnold	2016
Piloting the effectiveness of physical health nurses in community based mental health services.	Stuart Lee	2015
Problem gambling amongst people seeking treatment for mental illness.	Dan Lubman	2016
Psychological wellbeing from the perspective of adolescents with vision impairment.	Narelle Warren	2016
Recovery nursing and advancing practice.	Bridget Hamilton	2015
Retrospective audit of people treated with Long-Acting Injectable Treatments (LAIs): Usage Patterns and Outcomes	Anthony De Castella	2016
Retrospective audit of service and patient factors contributing to unplanned psychiatric admission.	Natisha Sands	2016
Single Session Therapy (SST) evaluation.	Rachel Barbara-May, Teresa McGrane	2016
Statewide high dependence unit (HDU) project.	Stuart Lee	2016
The Mums 2B group pilot evaluation.	Rosalie Birkin	2016
PERCEPTUAL & CLINICAL NEUROSCIENCE LABORATORY RESEARCH PROJECTS		
Binocular rivalry online.	S. Miller	Continuing
Genetics of binocular rivalry.	S. Miller	Continuing
Investigating binocular rivalry in healthy individuals and bipolar disorder: Excluding confounds and optimising methods for large-scale endophenotype studies.	S. Miller	2016
The constitution of phenomenal consciousness: Toward a science and theory.	S. Miller	2015
Vestibular neuromodulation in persistent pain and other clinical conditions.	S. Miller	Continuing
EVESTG™		
EVestG™ – A New Window to the Mind	Adj. Professor Brian Lithgow [Technology] Professor Jayashri Kulkarni / Professor Paul Fitzgerald [Clinical]	2020

WOMEN'S MENTAL HEALTH RESEARCH TEAM

STUDENTS COMPLETED IN 2015				
DEGREE	NAME OF STUDENT	NAME OF UNIVERSITY	RESEARCH PROJECT/THESIS TITLE	SUPERVISOR/S
PhD	Ms Sacha Filia	Monash University	An investigation of smoking behaviours and treatments in people who experience severe mental illness.	Jayashri Kulkarni (55%), Amanda Baker (25%), Caroline Gurvich (20%).
Psychiatry Registrar	Dr Alexia Palacin	Parc Sanitari Sant Joan de Deu Hospital, Barcelona	Psychiatry Internship	Jayashri Kulkarni and Emmy Gavrilidis
Grad Dip in Counselling	Ms Cindy Yu	Deakin University	Counselling Placement	Jayashri Kulkarni and Emmy Gavrilidis
Grad Dip in Psychology	Ms Vivian Monitto	Deakin University	Understanding Factors that Increase the Risk of Anxiety in Perimenopausal Women	Jayashri Kulkarni and Emmy Gavrilidis
B Med Sci (Hons)	Ms Evelyn Chenchen Bian	Monash University	Metformin for Cognition in Women with Co morbid Depression and Obesity	Jayashri Kulkarni and Roisin Worsley
	Ms Jacqui Bell	Monash University	Does the Progestin Androgenicity of the Combined Oral Contraceptive Pill Affect Mood	Jayashri Kulkarni and Roisin Worsley
	Ms Karin Utami	Monash University	Maternal and Infant Health Outcomes following Exposure to Mood Stabiliser and Atypical Antipsychotic during Pregnancy: A Case Matched Study	Jayashri Kulkarni and Emmy Gavrilidis
	Ms Lucinda Miller	Monash University	Understanding Borderline Personality Disorder and the Role of Early Life Trauma	Jayashri Kulkarni and Jasmin Grigg
4th year B Arts (Psych)	Ms Maria Ugrcic	Monash University	Measuring the effect of progesterone-only and combined hormonal contraceptives on depressive symptoms in women	Jayashri Kulkarni and Emmy Gavrilidis
5th Year MBBS	Mr Ashwin Parthasarathy	Monash University	Clinical Elective Placement	Jayashri Kulkarni
	Mr Gurpreet Singh	Monash University	Clinical Specialty Placement	Jayashri Kulkarni
	Mr Joshua John	Monash University	Clinical Elective Placement	Jayashri Kulkarni
	Mr Peter Richard	Monash University	Clinical Specialty Placement	Jayashri Kulkarni
	Ms Catherine Ngan	Monash University	Clinical Specialty Placement	Jayashri Kulkarni
	Ms Muhammad Nassier Lim	Monash University	Clinical Elective Placement	Jayashri Kulkarni
	Ms Tess Marinelli	Monash University	Clinical Specialty Placement	Jayashri Kulkarni
	Renato Assini	Monash University	Clinical Elective Placement	Jayashri Kulkarni
	Roth Trisno	Monash University	Clinical Specialty Placement	Jayashri Kulkarni
Waradana Lahiruni	Monash University	Clinical Elective Placement	Jayashri Kulkarni	
3rd year B Med Sci	Ms Claudia Xiao	Monash University	Research Support Affiliate/Volunteer	Jayashri Kulkarni and Emmy Gavrilidis
3rd year Psych Undergrad	Ms Caitlin Bleeker	Monash University	Research Support Affiliate/Volunteer	Jayashri Kulkarni and Emmy Gavrilidis

ONGOING STUDENTS

PhD	Dr Roisin Worsley	Monash University	Metformin for Mind and Metabolism (The MMM Study)	Sue Davis (70%), Jayashri Kulkarni (20%), Robin Bell (10%)
	Ms Heather Gilbert	Monash University	Development of a New Model of Support and Advocacy for Pregnant Women & New Mothers with Mental Illness	Jayashri Kulkarni and Caroline Gurvich
	Ashima Soni	Monash University	Research Support Affiliate/Volunteer	Jayashri Kulkarni and Emmy Gavrilidis
Grad Dip in Psychology	Ms Ayushi Gupta	Monash University	Research Support Affiliate/Volunteer	Jayashri Kulkarni and Emmy Gavrilidis
Bachelor of Psychological Science	Ms Leah Smith	Australian Catholic University	Research Support Affiliate/Volunteer	Jayashri Kulkarni and Heather Gilbert

PSYCHIATRIC NEUROTECHNOLOGY RESEARCH TEAM

STUDENTS COMPLETED IN 2015				
DEGREE	NAME OF STUDENT	NAME OF UNIVERSITY	RESEARCH PROJECT/THESIS TITLE	SUPERVISOR/S
PhD	Ms Melissa Kirkovski	Monash University	Neural connectivity in autism spectrum disorders	Paul Fitzgerald (50%), Peter Enticott (50%)
Biomedical Sci (Hons)	Mr Nikolay Kozlov	Monash University	Using brain stimulation enhanced second language learning Can transcranial direct current stimulation enhance second language learning?	Kate Hoy, Neil Bailey
	Ms Katerina Lau	Monash University	Neural correlates of brain stimulation enhanced second language learning/Can transcranial direct current stimulation enhance second language learning?	Kate Hoy, Neil Bailey
BMedSci (Hons)	Ms Bridget Pianta	Monash University	Looking on the bright side: Can non-invasive brain stimulation enhance positive information processing bias? / Can tDCS enhance positive ABMT? An EEG investigation.	Rebecca Segrave (70%), Kate Hoy (30%)
	Ms Gabrielle Freedman	Monash University	Investigating the effects of mindfulness on neural activity markers of inhibition of emotional distractors during working memory retention.	Neil Bailey (75%), Rebecca Segrave (25%)

ONGOING STUDENTS

PhD	Mr Aron Hill	Monash University	Enhancing cognitive function/neuroplasticity using non-invasive brain stimulation	Kate Hoy (70%), Paul Fitzgerald (30%)
	Mr Phillip Hall	Monash University	The neuroeconomics of major depression.	R. Croft, Paul Fitzgerald
	Mr Rod Anderson	Monash University	The neurophysiological mechanisms underlying the therapeutic effects of transcranial magnetic stimulation for treatment resistant depression.	Paul Fitzgerald, Kate Hoy (40%)
	Mr Sung Wook Chung	Monash University	Optimization of theta burst stimulation on depression	Paul Fitzgerald, Kate Hoy (40%)
	Mr Xianwei Che	Monash University	The role of social support in physical pain	Paul Fitzgerald, Bernadette Fitzgibbon
	Ms Kim Meates	Monash University	Bridging the gap between sensory and social impairments in Autism	Bernadette Fitzgibbon (50%), Rebecca Segrave (40%), Paul Fitzgerald (10%)
DPsych	Ms Tingting Cao	Monash University	Connectivity & MDD	Paul Fitzgerald (50%), Richard Thomson (50%) Rebecca Segrave (%TBC)
	Mr Oscar Murphy	Monash University	Cognitive enhancement: an investigation of noninvasive electrical brain stimulation methods.	Rebecca Segrave (50%), Kate Hoy (40%) Dana Wong (10%)
	Ms Karyn Richardson	Monash University	investigating cortical inhibition as an endophenotype in schizophrenia	Paul Fitzgerald (50%), Kate Hoy (50%)
DPsych (Clin)	Ms Melanie Emonson	Monash University	investigating the potential for brain stimulation to treat mild cognitive impairment	Kate Hoy (70%), Paul Fitzgerald
	Mrs Amity Green	Monash University	Investigating the effects of adjunct glycine therapy on cognitive function in schizophrenia	Paul Fitzgerald, R Croft
Volunteer Student	Mr Joseph Barnaby	Monash University	How similar are the changes in neural activity resulting from mindfulness practice in contrast to spiritual belief? / How does tactile distraction interfere with cognitive attention in meditators compared with non-meditators?	Neil Bailey (80%), Paul Fitzgerald (10%) Richard Chambers (10%)

COGNITIVE NEUROPSYCHIATRY RESEARCH TEAM

STUDENTS COMPLETED IN 2015

DEGREE	NAME OF STUDENT	NAME OF UNIVERSITY	RESEARCH PROJECT/THESIS TITLE	SUPERVISOR/S
PhD	Mr Chris Groot	Swinburne University	Enhancing cognitive function/neuroplasticity using non-invasive brain stimulation	Susan Rossell (100%)
	Mr Eric Tan	Swinburne University	The neuroeconomics of major depression.	Susan Rossell (80%), Gregory Yelland (20%)
	Mr Peter Goodin	Swinburne University	The neurophysiological mechanisms underlying the therapeutic effects of transcranial magnetic stimulation for treatment resistant depression.	Susan Rossell (100%)
	Ms Andrea Phillipou	Swinburne University	Optimization of theta burst stimulation on depression	Susan Rossell (100%)
	Ms Andrea Wallace	Swinburne University	Voices Clinic (clinical placement)	Neil Thomas (100%)
	Ms Carlye Weiner	Swinburne University	Voices Clinic (clinical placement)	Neil Thomas (100%)
DPsych	Ms Lauren Ban	Swinburne University	Voices Clinic (clinical placement)	Neil Thomas (100%)
BMedSci (Hons)	Ms Susan Lee	Monash University	Understanding individual differences in response to non-invasive brain stimulation: the influence of ender and sex hormones/Impact of gender on cortical excitability	Rebecca Segrave (70%) Jayashri Kulkarni (30%)
Psychology (Honours)	Mr Andrew McCann	Swinburne University	Cognitive remediation therapy in schizophrenia	Susan Rossell (100%)
	Ms Elleni Lysikatos	Swinburne University	Semantic memory function in first degree relatives of those with schizophrenia	Susan Rossell (60%) Erica Neill (40%)
	Ms Nicole Brownfield	Swinburne University	A multidimensional and clustering study of fluency performance in schizophrenia	Susan Rossell Erica Neill (40%)

ONGOING STUDENTS

PhD	Dr Rachel Brand	Swinburne University	Development and application of trauma-focused intervention for auditory verbal hallucinations	Neil Thomas (70%), Susan Rossell (30%)
	Mr Phillip Sumner	Swinburne University	Neuroimaging correlates of dysfunctional semantic processes in schizophrenic formal thought disorder	Susan Rossell (70%), Matt Hughes (30%)
	Mr Sean Carruthers	Swinburne University	The muscarinic cholinergic system and cognition in schizophrenia	Susan Rossell (60%), Caroline Gurvich (40%)
	Ms Elizabeth Thomas	Monash University	The role of the glutamatergic system in cognition across the schizotypy/schizophrenia continuum	Caroline Gurvich (50%), Susan Rossell (30%), Kiyemt Bozaoglu (20%)
	Ms Imogen Bell	Swinburne University	Ecological momentary assessment and intervention to enhance self management of persistent auditory verbal hallucinations	Neil Thomas (70%), Susan Rossell (30%)
	Ms Natalia Contreras	Monash University	Does visual processing training enhance cognitive remediation therapy outcomes in people with schizophrenia?	Susan Rossell (100%)
	Ms Sarah Lancaster	Swinburne University	A brain imaging study of auditory verbal hallucinations and inhibition in patients with schizophrenia	Susan Rossell (70%), Matt Hughes (15%), Will Woods (15%)
	Ms Stephanie Louise	Swinburne University	The impact of a mindfulness-based intervention for auditory hallucinations on localised brain activity, attention and subjective experience	Neil Thomas, Susan Rossell
DNeuroPsych	Mr Shayden Bryce	Monash University	Exploring the unique benefits of cognitive remediation therapy (CRT) on neurocognitive and psychosocial outcomes relative to an active control	Jennie Ponsford (50%), Susan Rossell (30%), Stuart Lee (20%)
DPsych	Ms Jacqueline Riddiford	Monash University	Investigating ocular-motor correlates of abnormal mirror system functioning in autism	Jo Fielding (40%), Peter Enticott (30%), Caroline Gurvich (30%)
	Ms Monique Scott	Swinburne University	Self, attachment and trauma in relation to voices	Neil Thomas (70%), Susan Rossell (30%)
DPsych (Clin)	Ms Maree Reser	Swinburne University	Investigating factors that influence the efficacy of cognitive remediation therapy in people with schizophrenia	Susan Rossell, Neil Thomas
MPsych (Clin)	Ms Maria Light	Swinburne University	Voices Clinic (clinical placement)	Neil Thomas (100%)

MENTAL HEALTH SERVICE RESEARCH TEAM - STUDENTS COMPLETED IN 2015

STUDENT COMPLETED IN 2015

DEGREE	NAME OF STUDENT	NAME OF UNIVERSITY	RESEARCH PROJECT/THESIS TITLE	SUPERVISOR/S
Psychology (Honours)	Ms Elizabeth Pattison	Monash University	Factors associated with employment lost stem cell stem cell transplant	Stuart Lee (70%), Shaun Avery (30%)
STUDENT COMPLETED IN 2015				
PhD	Mr Ross Anderson	Monash University	Psychological wellbeing from the perspective of adolescents with vision impairment	Narelle Warren (50%), Roseanne Misajon (40%) Stuart Lee (10%)

PERCEPTUAL & CLINICAL NEUROSCIENCE LABORATORY RESEARCH TEAM

ONGOING STUDENT

PhD	Mr Phillip Law	Monash University	Investigating binocular rivalry in healthy individuals and bipolar disorder: Excluding confounds and optimising methods for large-scale endophenotype studies	Steve Miller (50%), Caroline Gurvich (25%), Trung Ngo (25%)
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