Director’s Message: Prof Vicki Anderson

"Welcome to the first edition of the Child Neuropsychology research group Newsletter. We aim to publish the e-newsletter every three months to give a snapshot of what's happening within our research team, including new and current initiatives, outcomes from our completed research, new collaborations, words and presentations, and staff news. The newsletter will be edited by Nikita Tuli and Edith Botchway.

Child Neuropsychology is a research group that sits within the Clinical Neurosciences theme at the Murdoch Childrens Research Institute. Our work focuses on research that contributes knowledge about childhood conditions that involve the developing brain, such as traumatic brain injury, stroke, attention deficit disorder, autism, and chronic illness. We aim to increase knowledge of how cognitive and psychosocial skills impact the lives of children and their family and to develop interventions that can improve outcomes.

Our team includes researchers, postdoctoral fellows, doctoral students and our administrative team. We also rely on children and families participating in our research who generously give their time and insights."

Feature Project: Neurofibromatosis Research Team

The neurofibromatosis research team probably holds the title of the youngest team associated with the Child Neuropsychology group. Despite moving to MCRI in early 2015, the team has a long history at The Children’s Hospital at Westmead in Sydney, from where the core members Prof Kathryn North and Dr Jonathan Payne recently relocated. The team has since grown to include local talents.

The team is overseeing a multi-faceted research program centred on translating innovative scientific discoveries to improved care for individuals with the single gene disorder neurofibromatosis type 1 (NF1). Dedicated to making major research contributions in key areas of clinical need, the team is actively conducting research across a number of areas including defining the neurocognitive burden of NF1, identifying early risk factors of future learning and behavioural impairments, conducting clinical trials and identifying neuroradiological markers of cognitive impairment, and tumor growth.

One of the current studies aims to shed light on the association between NF1 and autism spectrum disorder (ASD). Recent evidence suggests an ASD prevalence rate of 18-25% in children with NF1. The study will look at the brain networks involved in the development of autism in NF1, and how these neurobiological markers compare to children with autism in the general population. Exploring the autism phenotype in children with NF1 may provide insights into a complex problem in a group of children with a well-defined molecular abnormality – an abnormality that is potentially reversible.

Indeed, we hope that our research will generate new ideas about the biological mechanisms involved in ASD which in turn may lead to the development of new treatments and have broader implications for children with autism from the general population. By studying the emergence of ASD in young children with NF1, we also anticipate this study will inform on NF1 patient management guidelines and clinical health surveillance programs." – Jonathan Payne.

Team members: Prof Kathryn North and Dr Jonathan Payne (Lead researchers); Dr Gabriel Daboscheck (Pediatric Neurologist); Natalie McLean (Study coordinator); Drs Stephanie Malati and Felicity Hopper (Research Officers); and Anita Chisholm (PhD Student).

Feature Interview: Jake Wilkinson (Research Intern, Cardiff University)

† What were your first impressions of MCRI?
J: Everyone at MCRI and particularly within the Child Neuropsychology group was helpful and kind to me from day one. I found the diversity of research groups very thrilling and inspiring. The infrastructural facilities here were also quite exceptional. And really, my first impressions of this place in general and of people in particular have stayed the same.

† What value have the projects you worked on added to your academic experiences?
J: Calling participants for screening on the Mild TBI project has given me confidence in my inter-personal skills. Also, I have learnt essential team working skills and acquired hands on clinical experience through the Take CARe project. All these experiences have cultivated my interest and aptitude for research in the future. I also had the opportunity to learn about the dynamics of working in a hospital and the integrative nature of activities within the hospital work environment.

† What is the next step from here?
J: In the short term, I am looking at submitting two papers and going back to complete my University graduation. I think the writing experience gained from this internship will be of great value during my final year project at the University. After I graduate, I see myself pursuing research. Without my experiences at MCRI I would not have known my career inclination and plans. Every moment has been a favourite one wrapped with opportunities to learn and grow. I am grateful to Vicki and the entire group for having me on board.
Key Staff Members of the Child Neuropsychology Group

Mary Illiadis (Personal Assistant to Vicki Anderson)

Mary has been working in MCRI since 2007 as a Personal Assistant to Prof Vicki Anderson, with whom she has worked for the most of her career life. “It is inspiring to see researchers within our team striving to make a difference in children’s lives. I am very lucky and feel honoured to work in this research group” — Mary.

Josette Vadala (Administrative Assistant)

Josette has been on board the Child Neuropsychology Group for the past 6 years. Describing her experience here, she says: “It’s a pleasure working with so many talented people, including students and volunteers. Keep up the amazing work you do, and it’s great coming into work, and working with a wonderful group of people.”

Stephen Hearps (Data Co-ordinator)

Stephen has been with the group for the past four years and he finds it acceptable.

Take CARE (Concussion Assessment and Recovery Research)

The Take CARE (Concussion Assessment and Recovery Research) project is a clinical and research collaboration between MCRI and RCH. It aims to provide a comprehensive description of recovery trajectories following a concussion in the 3 months post-injury. By identifying factors associated with prolonged recovery, the findings will be translated into clinical guidelines and community practice.

Since its inception in 2013, this study has grown significantly with over 300 participants enrolled in the study to date. The study incorporates neuroimaging, blood biomarkers and cognitive assessment with measures of pre-injury and injury characteristics, and other child and family related factors such as quality of life and mental health.

Acquired Brain Injury (ABI)

Mardee Greenham’s ABI group has been conducting research on discovery of myriad causes of insult and subsequent consequences to a child’s brain.

Ongoing projects include: “Cognitive, Behavioural and social skills in childhood-onset multiple sclerosis and childhood demyelination.”

“Health and Development following paediatric arterial ischaemic stroke (Stroke Recovery),” and “Biomarkers for Outcome from Childhood Traumatic Brain Injury (BTBI).”

Paediatric Evaluation of Emotions, Relationships, and Socialisation (PEERS)

This is an exciting project with the potential to totally transform the detection and evaluation of social and emotional abilities at an early age. The PEERS iPad application will be the first clinically validated assessment tool available to health professionals and teachers to assess social and emotional skills in children. This project is aimed at standardizing the iPad version of PEERS in children and adolescents (4.0 – 11.11 years) using a population-based sample of approximately 1,500 participants. The project will also provide individualized norms (based on age and gender) for the diagnosis of social impairment.

The PEERS standardization team includes: Prof Vicki Anderson, Prof David Darby, Dr Miriam Beauchamp, Sarva Thurai, Simone Hearps, Stephen Hearps, Dr Amy Brown, Louise Crossley, and Emma Thompson.

Take a Breath

The Take a Breath project is a randomised controlled trial evaluating the effectiveness of an intervention to support parents of children with serious illness. The group has recently had the protocol paper for the study published in BMC Psychiatry, and has another couple of papers in submission. The pilot study within Developmental Medicine, with parents of children with severe cerebral palsy is almost complete, with data analysis commencing soon. The new interns, Robyn Molyneaux, Natalie Ward and Michal Chalk, who will be with the team for a number of months, as it looks toward the wind up of recruitment for the project in August. Finally, one of their fantastic RA Laura McMillan has recently commenced her Graduate Diploma in psychology. Good luck!

Traumatic Brain Injury Research Team

This team is probably the oldest research team within the MCRI Child Neuropsychology group, led by Prof Vicki Anderson, A/Prof Cathy Catroppa, and Dr Celia Godfrey. Since its inception, this team has been dedicated to understanding the consequences of childhood acquired brain injury (ABI), and partnering with families of affected children to not only cope but improve outcomes.

Here are some ongoing projects in the TBI group:

• Signposts for Building Better Behaviour-to prevent difficult behaviour in children with acquired brain injury: Feasibility and efficacy with a Mexican population.
• Managing challenging behaviour in young children post-TBI: Online clinician support.
• Treating attention, speed of processing, decision-making and working memory deficits in children following TBI: Implementation of an attention and working memory intervention to improve adaptability and functional outcomes.
• Assessing sleep disturbances, and their relationship with fatigue, depression and quality of life in adults with childhood TBI.
A pilot intervention program for attention and memory difficulties following acquired brain injury (ABI) in childhood and adolescence - online clinician support.

Mental health in adolescents with mild TBI.

**Chronic Fatigue Syndrome Research Program**

Paediatric chronic fatigue syndrome (CFS) is a common, debilitating and poorly understood condition which affects up to 2% of children and adolescents. It causes an adverse functional impact on not only physical and mental health, but also schooling during a critical phase of development (typically adolescence). The overall aim of this research program is to improve understanding of paediatric CFS using a systematic interdisciplinary national and translational research approach to ultimately improve quality of care and outcomes for these patients.

**Genetic Studies**

This group is involved in investigating a diverse range of rare genetic disorders, metabolic and neuromuscular disorders explained below:

- Dr Louise Crowe is currently investigating the cognitive and behavioural outcomes in Duchenne and Becker Muscular Dystrophy and Friedreich Ataxia.

- In collaboration with Professor Ingrid Scheffer, Dr Amy Brown is assessing the cognitive and behavioural functioning of Dravet Syndrome.

- Marta Arpino (PhD Student), A/Prof Lesley Bretherton, and Ms Emma Baker, in collaboration with Dr Godler, and Dr Marc Seal are conducting the Free FX study - Developing new tests for fragile X and chromosome 15 imprinting disorders. The main objective of this study is to trial a number of new highly accurate laboratory methods targeting novel methylation specific biomarkers which can tell us about a person’s level of the FMR1 and SNRPN gene activity and have potential to be applied as improved diagnostic and newborn screening tests.

**White matter organisation and neuropsychological outcomes after treatment for paediatric acute lymphoblastic leukaemia (ALL): A diffusion tensor imaging study**

The ALLaboard study is being carried out in the Psycho-oncology group (Social and Mental Health Aspects), which focuses on psychosocial outcomes within the context of paediatric cancer. One collaborative initiative of this group involves a project with Simone Hearps, a PhD student of the Child Neuropsychology group. This project is focused on utilizing sensitive neuroimaging and neuropsychological methods to investigate the relationship and the factors mediating the relationship between cognitive skills (attention, working memory, and processing speed), brain morphometry, and structural connectivity in paediatric survivors of Acute Lymphoblastic Leukaemia (ALL). Potentially, this study will lead to the development of targeted interventions to reduce the impact of cognitive deficits on children and maximize academic, social and vocational success for these patients in the years after treatment.

This project is supervised by Dr Marc Seal (Developmental Imaging), Dr Cinzia De Luca (Psycho-oncology), Dr Maria McCarthy (Psycho-oncology), and Prof Vicki Anderson.

**Annual Child Neuropsychology Retreat**

Group members at the retreat held in June 2016

Fancy having a cool work-desk? Look below for ideas!

![Celia Godfrey](image)

![Emma Thompson](image)

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For Questions and Feedback, Contact Us