THE UNIVERSITY OF QUEENSLAND AUSTRALIA | RECOVER Injury Research Centre

NHMRC CENTRE OF RESEARCH EXCELLENCE IN RECOVERY FOLLOWING ROAD TRAFFIC INJURIES

MAIC Motor Accident Insurance Commission

RECOVER is a joint initiative of the Motor Accident Insurance Commision and The University of Queensland

RECOVER Injury Research Centre and the Centre of Research Excellence in Recovery Following Road Traffic Injuries (CRE) wish to invite you to an exciting workshop

Single-case methodology in health research

A two day hands-on, skills development workshop

9am to 5pm

Monday 26th and Tuesday 27th November 2018

Presented by

Professor Robyn Tate and Dr Michael Perdices (The University of Sydney)

With

Dr Suzanne McDonald (Newcastle University, U.K.) and

Associate Professor James McGree (QUT)

At Room 623 & 624 Building 84A, Therapies Building,

The University of Queensland, St Lucia

See https://recover.centre.uq.edu.au/event/session/751 for details and workshop program RSVP essential by 31 October 2018

For further information contact Dr Jane Nikles

uqjnikle@uq.edu.au or phone 0408 599 033

Program Day 1

Time	Topic	Presenter
9:00am to 10:30am	An overview of single-case methodology This introductory session covers three topics. First, the varieties of single-case designs are described, using examples from the health literature. Current standards of design and evidence are then presented. The final section demystifies issues of validity, highlighting how threats to internal and external validity relate to single-case methodology.	Robyn Tate
10:30am to 11:00am	Morning tea	
11:00 am to 12:30pm	Observing patterns and predictors in chronic symptoms using single-case observational designs This session will explore the role of single-case observational designs in health-related research and practice. Single-case observational designs involve the repeated measurement of an outcome(s) in an individual (or series of individuals) over time. Single-case observational designs do not involve the implementation of an intervention; the aim is to identify natural patterns and predictors of a particular outcome (e.g. pain or fatigue). Findings from a single-case observational study can be used to develop highly personalised interventions. This session will discuss the advantages of using single-case observational designs and outline the steps involved in designing studies. An illustrative example of a single-case observational study designed to explore fluctuations and predictors of fatigue symptoms will be described. The session will conclude with key challenges and opportunities for future single-case observational research.	Suzanne McDonald
12:30pm to 1:30pm	Lunch break	
1:30pm to 3:00pm	Evaluating single-case data Two complementary approaches for analysing SCED data will be described: traditional visual analysis and statistical analysis. The advantages and pitfalls of visual analysis will be discussed and systematic procedures for its implementation will be presented. An overview of common statistical methods will also be presented. In the workshop on Day 2, systematic visual analysis and statistical analysis will be illustrated using real data.	Michael Perdices

3:00pm to 3:30pm	Afternoon tea	
3:30pm to 4:00pm	Bayesian Statistics: concepts and application to Single-Case Methods This will be a layman's explanation of Bayesian statistics suitable for those with no detailed knowledge or experience of Bayesian concepts. An overview of the strengths of Bayesian statistics when applied to analysing Single Case Designs will be given, followed by examples of how this is done. The main focus will be on discussing general concepts rather than providing a detailed "how to" tutorial.	James McGree

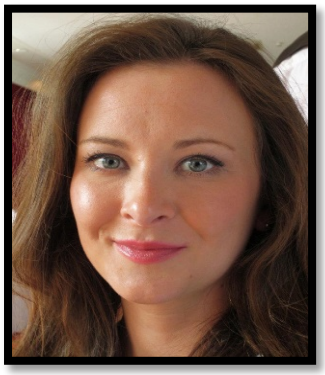
Program Day 2

Time	Topic	Presenter
9:00am to 10:30am	Getting the most out of your single-case trials and maximising their scientific rigour: This workshop will train participants in the acquisition of knowledge and practical skills in three areas: 1) How to select designs that are suitable for the research question and the intended intervention 2) Applying systematic visual analysis (Gast & Spriggs, 2014; Lane & Gast, 2014) and statistical techniques (Split-Middle trend Line, Cohen's d and Tau-U) using worked examples to illustrate procedure 3) Evaluating methodological robustness (internal and external validity) of single-case designs using the RoBiNT Scale	Robyn Tate and Michael Perdices
10:30am to 11:00am	Morning tea	
10:03 am to 1:00pm	Getting the most out of your single-case trials and maximising their scientific rigour *continued*.	Robyn Tate and Michael Perdices
12:30pm to 1:30pm	Lunch break	
1:30pm to 2:30pm	10-step procedure for implementing a single-case study This session integrates information presented in previous sessions to show the steps that need to be covered to implement a high-quality single-case study, both at the design and conduct stages. An example from the author's work is used to illustrate the 10-step procedure.	Robyn Tate

2:30pm to 3:00pm	Afternoon tea	
3:00pm to 4:00pm	Expressions of interest from participants and do small group SCED planning on specific topics with Robyn, Jane, Suzanne, Michael (and James?) each facilitating one group.	All presenters and participants
4:00pm to 5:00pm	Discussion and close	Robyn Tate

Biographies


Dr Robyn Tate and **Dr Michael Perdices. Dr Robyn Tate** is a research professor at the John Walsh Centre for Rehabilitation Research, Kolling Institute of Medical Research, located in the Sydney Medical School at the University of Sydney. Her background is in clinical and neuropsychology, and she has extensive clinical experience in the rehabilitation of traumatic brain injury. **Dr Michael Perdices** is a neuropsychologist with more than 30 years clinical and research experience. For the last 20 years he has been a Senior Clinical Neuropsychologist at Royal North Shore Hospital, Sydney. Over the past 15 years **Tate** and **Perdices** have worked as research collaborators on single-case methodology and they have published widely in the area. Together with their research teams, they have directed work in developing scales to assess the methodological quality of single-case research (the SCED Scale and the RoBiNT Scale), and led an international team in producing the SCRIBE 2016, a CONSORT-style reporting guideline for single-case experimental designs in the behavioural sciences. More recently, they have written a book on single-case methodology (*Single-case Experimental Designs for Clinical Research and Neurorehabilitation Settings*) which will be published this year.



Dr Suzanne McDonald is a research methodologist and health psychologist at the Institute of Health & Society at Newcastle University, UK. Suzanne's research focuses on the development and application of n-of-1 (single-case) methods in behavioural medicine and health psychology. Suzanne's work to date has focused on using n-of-1 methods to study and change health behaviours (e.g. physical activity, medication adherence, dietary intake) and chronic symptoms (e.g. fatigue and pain). Suzanne is the lead of the UK Network for N-of-1 Methods and the European Health Psychology Society N-of-1 Special Interest Group.

Associate Professor James McGree is Discipline Leader for Statistics and Operations Research in the School of Mathematical Sciences at QUT. He has expertise in the field of Bayesian statistics with interests in computational algorithms, design of experiments/clinical trials, big data, data analysis and modelling complex phenomena. Much of his research is focussed on methodological developments in statistics (particularly in Bayesian experimental design) and applied areas of statistics including medical research. He is statistician for a number of N-of-1 trials and has written a chapter on using Bayesian statistics for N-of-1 trials in *The Essential guide to N-of-1 trials in Health*.