Clinical Neurosciences
RESEARCH SHORT COURSES

POSTGRADUATE TRAINING IN CLINICAL NEUROSCIENCE RESEARCH

The courses have been specifically designed for people already in clinical practice, who want to understand and interpret the existing research, or to think about the research questions before embarking on clinical research studies. Experienced clinicians who are in their first years of conducting clinical research will also benefit by consolidating their research methods and skills.

The courses have been developed in partnership with the NHMRC funded Centre of Clinical Research Excellence in Neurosciences, the Brain Research Institute, and the Faculty of Medicine /Dentistry and Health Sciences.

ACADEMIC COORDINATOR

Professor Sam Berkovic AM
MD FAA FRACP FRS

Professor Sam Berkovic is a clinical neurologist with over 20 years experience. He is an internationally recognised clinical researcher, with a special interest in establishing close research links with basic scientists. He is Director of the Comprehensive Epilepsy Program at Austin Health, Director of the Epilepsy Research Centre and Scientific Director of the Brain Research Institute. He is laureate professor in the Department of Medicine Austin Health/Northern Health at The University of Melbourne, and is an adjunct Chair in the Department of Neurology and Neurosurgery at McGill University, Montreal, Canada. In 2007 he was awarded an Australia Fellowship.

PRESENTERS INCLUDE

Professor Sam Berkovic
Professor Graeme Jackson
Professor Fred Mendelsohn
Professor Trevor Kilkpatrick
Assoc. Professor Helen Dewey
Dr Steven Petrou
Dr Amanda Thrift
and other leading experts

Research Methodology Part 1 Outcomes

Developing a high level of competency in clinical research relies on two main capacities: 1) being able to read, understand and interpret the research literature and 2) asking the ‘right’ questions in order to formulate adequate research hypotheses and answer them appropriately. By exploring a range of specific research methodologies applicable to neurological disorders, you will develop the skills to pose the relevant questions to produce quality clinical research. Through stimulating discussions of the current research questions with expert researchers in clinical neuroscience and your peers, you will develop the ability to critically appraise the literature and formulate new research questions. You will build confidence to communicate your research and interact with basic neuroscientists, as well as researchers in other health disciplines. Areas covered here will be genetics, mechanisms of disease, clinical trials, epidemiology, health economics, rehabilitation and translation into clinical practice.

Research Methodology Part 2 (Neuroimaging) Outcomes

Developed in partnership with the Brain Research Institute headed by Professor Graeme Jackson, this more advanced subject builds on clinical research methodology and skills acquired in Part 1. A major emphasis is on cutting-edge human brain imaging techniques. Through face-to-face interaction with multi-disciplinary researchers, you will develop the understanding and confidence to design your own research project involving neuroimaging or other advanced techniques in clinical neuroscience. Through individual feedback, you will be able to write a good research proposal, an essential skill for preparing research projects and grant applications. Advanced neuroscience research techniques in brain imaging and neurophysiology will be discussed here in the context of current research in major functional disorders of the brain and mind.

SPECIALIST CERTIFICATE IN CLINICAL RESEARCH (NEUROSCIENCE)

TWO 4 DAY SHORT COURSES

ACADEMIC COORDINATOR

Professor Geoff Donnan
Professor Alan Connelly
Professor Ingrid Scheffer
Professor Mary Galea
Assoc. Professor David Howells
Assoc. Professor Chris Rowe
Assoc. Professor Richard Macdonell

ENROL - www.ccre.neurosciences.unimelb.edu.au

NEUROSCIENCES
Centre of Clinical Research Excellence

Centre of Clinical Research Excellence in Neurosciences, Austin Health, Banksia Street, West Heidelberg Victoria 3081
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Clinical Neuroscience Research Short Courses 2007 / 2008

FOR FURTHER INFORMATION AND REGISTRATIONS CONTACT:
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CLINICAL NEUROSCIENCE RESEARCH:
METHODOLOGY AND DISEASE APPLICATIONS PART 1

On completion of Part 1, you will:
• Have developed a high level of competency in clinical research methodologies applicable to neurological disorders
• Demonstrate an understanding of the current research questions in neuroscience and be able to discuss any clinical research topic or idea
• Have gained the essential skills to be able to formulate good research hypotheses and pose the ‘right’ questions in order to answer them appropriately
• Be able to read, understand and interpret the research literature critically
• Be able to generate new ideas and interact with experienced clinical researchers, as well as basic neuroscientists and research peers from other health disciplines
• Be able to communicate your research findings effectively

DAY 1
• Stroke: The current clinical research questions
• Clinical trials methods
• Genetics in clinical neurological research
• Of mice and men: meta-analysis and the interplay of basic and clinical research

DAY 2
• Frontiers in clinical neuroscience research
• Epilepsy: The current clinical research questions
• Interface of basic science with clinical research: from basic scientist perspective
• Critical appraisal and research literature review
• Developing neurorehabilitation research: an overview from the allied health perspective
• Neurorehabilitation research methodology

DAY 3
• Neuro-epidemiology: disease burden and measures
• Neuro-epidemiology: study types
• Neuro-epidemiology: disease causation and prevention
• An introduction to health economics
• Clinical neuropharmacology research methodology
• Neuro-epidemiology: study types

DAY 4
• Multiple sclerosis: The current clinical research questions
• Research methods of neuromuscular disorders
• Clinical research applications of TMS
• Translating clinical research findings into practice
• Group presentations

Award course assessment: Oral team presentation (20 %), literature review and new research questions to pursue (max. 5,000 words) (80 %)

CLINICAL NEUROSCIENCE RESEARCH:
NEUROIMAGING AND DISEASE APPLICATIONS PART 2

On completion of Part 2, you will:
• Achieve a high level of competency enabling you to create and conduct quality clinical research from the original concept through to submission of competitive research proposals in a neuroscience area
• Demonstrate a high level of understanding of advanced clinical research techniques in neuroimaging and neurophysiology, with broad applications in neuroscience
• Be able to design research projects using cutting-edge brain imaging techniques as a research tool or other advanced techniques
• Have developed the skills to write research proposals and prepare grant applications
• Be able to establish multi-disciplinary collaborations with experts in the field of clinical neuroscience to conduct innovative clinical research

DAY 1
• Current clinical research questions and methodology of autism and intellectual disability
• EEG/MEG and clinical research applications
• Cognitive functioning and behavioural research methods
• Neurodegenerative diseases: The current clinical research questions
• Schizophrenia and bipolar disorders: The current clinical research questions

DAY 2
• Frontiers of Neuroimaging
• Principles of MRI: How does it work?
• Principles of MRI: What can we see with MRI?
• Principles of MRI: How can we image brain function?
• Practical MR demonstration: Language fMRI, MR safety and MR demonstration questions
• Designing functional Neuroimaging paradigms
• Quantitative imaging in neuroscience research

DAY 3
• Clinical research methodology and applications of PET/SPECT imaging
• Simultaneous electrophysiology and Neuroimaging
• Measuring brain networks using functional MRI
• Diffusion imaging - How does it work and what can it tell us?
• Measuring tracts with diffusion fibre tracking
• Applying various imaging research methodologies to study disease: applications to stroke
• Measuring blood perfusion through brain tissue

DAY 4
• Research plan presentations
• Grantmanship workshop

Award course assessment: A short oral presentation of a proposed research plan (30 %), a comprehensive clinical neuroscience project proposal including potential multi-disciplinary collaborations and drawing on the course content (and previous professional experience, if relevant) (3,000 words) (70 %)