

A Proposed National Guideline On the Practice Of Clinical Neuropsychology In
Malaysia

2019

Society of Clinical Neuropsychology, Malaysia

1.0 Introduction: Clinical Neuropsychology

Clinical neuropsychology is the study of brain anatomy and functioning especially with regards to neurocognitive performance (e.g. memory, attention, planning, organising, visual perception, language and speech), neurobehavioral functioning (e.g. mood, personality, emotion) and other psychological processes. It is also defined as *an applied science that examines the impact of both normal and abnormal brain functioning on a broad range of cognitive, emotional and behavioural functions.*¹

2.0 Objectives:

The aims of this task force in developing this proposal are to:

- develop standards for Clinical Neuropsychology practise in Malaysia
- formulate and regulate entry to the Clinical Neuropsychology specialist/ subspecialist practise
- objectively create a Malaysian specialist registry for Clinical Neuropsychology and any future statutory registration
- broadly identify expected competencies, training and qualifications for the practitioner of Clinical Neuropsychology

3.0 Clinical Neuropsychologist: Definition

Clinical neuropsychologists are trained in diagnostic neurocognitive and neurobehavioral assessments and neurorehabilitation. A neuropsychologist generally possesses skills beyond simple test administration, with unique competence to conceptualize assessment results within the brain-behaviour framework² Neuropsychologists are specialists who have received explicit training in psychology, neuroscience and neurological bases of cognition and behaviour.

Conditions or diseases that are usually treated by clinical neuropsychologists along with their psychiatric and neuromedical colleagues are (but are not limited to) brain tumours, brain injuries, stroke, movement disorders, seizures and epilepsy, dementias, memory disorders, multiple sclerosis, disorders of consciousness (vegetative state, minimally conscious state), metabolic disorders, and other psychiatric, neurosurgical and neurological conditions. Baseline neuropsychological assessments of these patients typically involve non-invasive, in-depth evaluation of various domains of

¹ Board of Directors, 2007. American Academy of Clinical Neuropsychology (AACN) practice guidelines for neuropsychological assessment and consultation. *The Clinical Neuropsychologist*, 21(2), pp.209-231.

² Kane, R. L., Goldstein, G., & Parsons, O. A. (1989). A response to Mapou. *J Clin Exp Neuropsychol*. 11:4, 589-595, DOI: [10.1080/01688638908400916](https://doi.org/10.1080/01688638908400916)

cognitive functions including intellectual abilities, attention span and concentration, executive functioning, learning and memory, visuo-spatial and perceptual functioning, gross and fine motor skills, language, speech and psychological symptoms.

These cognitive assessments can either be preceded or followed by other investigations including radiological (CT, MRI, fMRI, PET), blood and medical, and neurological examinations or tests. The results from these investigations and assessments are then used to document patients' current level of cognitive functioning, patterns of cognitive alteration, and its severity. Appropriate cognitive remediation (restorative vs. compensatory), pharmacological interventions and rehabilitation, and psychological interventions are then drawn collectively with other medical and allied health professionals.

A smaller group of clinical neuropsychologists are trained in multisensory stimulations, pre-surgical and intraoperative brain mapping during awake brain surgeries, making them an integral part of advanced brain surgery team.

5.0 Difference between Clinical Psychologists versus Clinical Neuropsychologist (Non- Exhaustive)

There are some distinctions between Clinical Neuropsychologists and Clinical Psychologists. The following descriptions on the difference between these two specialisations of psychology are not exhaustive in nature.

Clinical Psychologists generally provide psychological and behavioral assessments, formulations and interventions to improve the mental health and wellbeing of the clients or patients with emotional or psychological distress, acute or chronic medical illness, disability, and psychiatric illness. Their services usually comprise the assessment, diagnosis and psychotherapeutic treatment of mental health disorders arising as a consequence of (or exacerbated by) life stressors or medical illness, or disability and/or psychiatric illness. Clinical Psychologists are trained to administer various psychological tests (e.g., intelligence tests, personality tests). They are not specifically trained in brain-behavior relationships and have not received specialised training in evaluating complex and often subtle cognitive deficits.

Clinical Psychologists in Malaysia are required to have a minimum Masters level qualification in Clinical Psychology and completion of an internship (minimum of 1500-2000 hours supervised psychological practise). In recent years, an increasing number of local practitioners have pursued doctoral level training in Clinical Psychology.

In the majority of developed nations, to qualify as a **Clinical Neuropsychologist**, one has to have a minimum doctoral level qualification (this may include a PhD, or a Psy.D specialising in Clinical Neuropsychology) and/or post-doctoral supervised

training. Those trained in clinical psychology or educational psychology seeking qualification in Clinical Neuropsychology are required to pursue additional training and supervision in clinical neuropsychology.

Clinical Neuropsychologists use models of brain-behavior relationships to determine whether current neurocognitive or neurobehavioral function is different from normal, or has changed to a degree that is consistent with impairment in the context of psychological, developmental or neurological diseases. Extensive knowledge of the central nervous system, predominantly the brain and its function, sets a Clinical Neuropsychologist apart from a Clinical Psychologist. Clinical Neuropsychologists generally have good understanding of key areas including functional neuroanatomy, neurobiology, neuroimaging, neuropharmacology, genetics and neurological diseases and disorders. They also have extensive knowledge of and experience with neuropsychological test administration and interpretation. Their expertise in understanding cognitive, emotional and behavioral alterations arising from both organic (neurological or medical conditions) and non-organic causes, as well as the management, treatment, and rehabilitation of these alterations are unique to their training as Clinical Neuropsychologists.

6.0 Core Competencies of Clinical Neuropsychologist (Adult and Pediatrics) : Knowledge and Skills, Clinical Work, Communication, Personal and Professional Practise

The core competencies of a Clinical Neuropsychologist can be outlined in four main areas, namely; **knowledge, clinical skills, communication skills, and personal and professional practise**. A detailed list of the Core Competence in Clinical Neuropsychology, mainly adapted from the **BPS Competency Framework for the UK Clinical Neuropsychology Profession³, Houston Conference Guidelines, and APA Division 40 Guidelines**, can be found in the Appendix of this document. These core competencies are illustrative and are not necessarily comprehensive or exhaustive.

7.0 Speciality Specific Academic Requirements in Clinical Neuropsychology

In the absence of local guidelines on the qualifying competencies of a clinical neuropsychologist, the training pathways and competency requirements as outlined by international psychological organisations and regulatory bodies such as the British Psychological Society (BPS; Division of Neuropsychology)⁴, American Board of Professional Psychology (ABPP)⁵, American Board of Clinical Neuropsychology

³ BPS Qualification in Clinical Neuropsychology: Candidate Handbook 2017, pg 7

⁴ Competency framework for the UK Clinical Neuropsychology profession, 2012, British Psychological Society

⁵ American Board of Professional Psychology, 2017, Board Certification Guideline and Procedures...

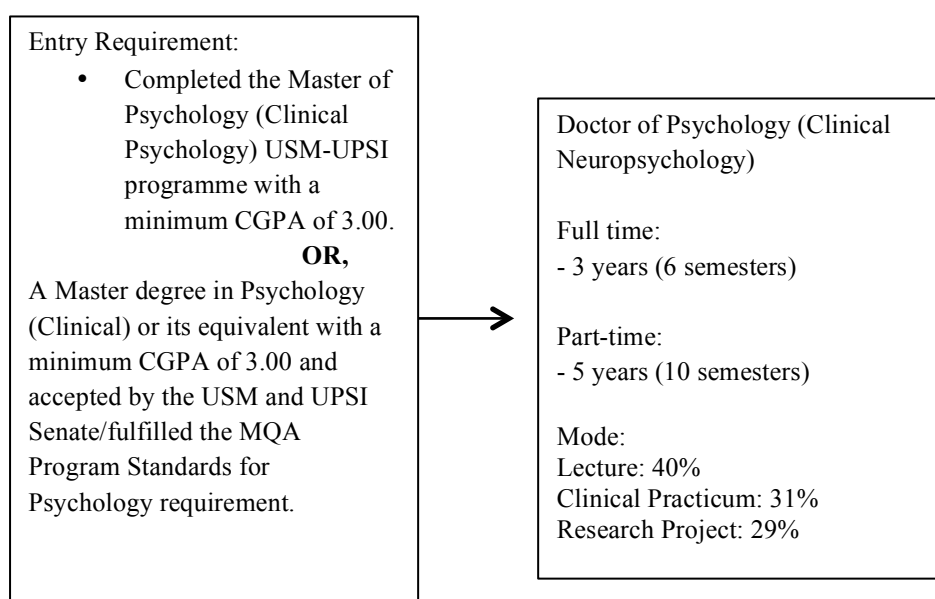
(ABCN)⁶, and the American Academy of Clinical Neuropsychology (AACN)⁷ have been adopted in this guideline. The newly available information from the Malaysian Qualification Agency on psychology doctoral programs will be integrated, where applicable..

Please also refer to the original documents from the respective institutions available online for more detailed information. A copy of these documents will be submitted to the Director of Allied Health Services, Ministry of Health (Malaysia).

7.4 Proposed Malaysian Qualifying Route:

The Society of Clinical Neuropsychology (Malaysia; SCN) recommends the following integrated training model and pathways towards qualifying as a Clinical Neuropsychologist in Malaysia. In the absence of an official model, SCN proposes the following models, which, has taken into account Universiti Sains Malaysia (USM) Doctor of Psychology (Clinical Neuropsychology) program as well as Universiti Malaya (UM)'s PhD in Clinical Neuropsychology (Neurosurgery) and other recognised training pathways internationally.

7.4.1 University Sains Malaysia Training Pathway (Commencement: 2018/ 2019)



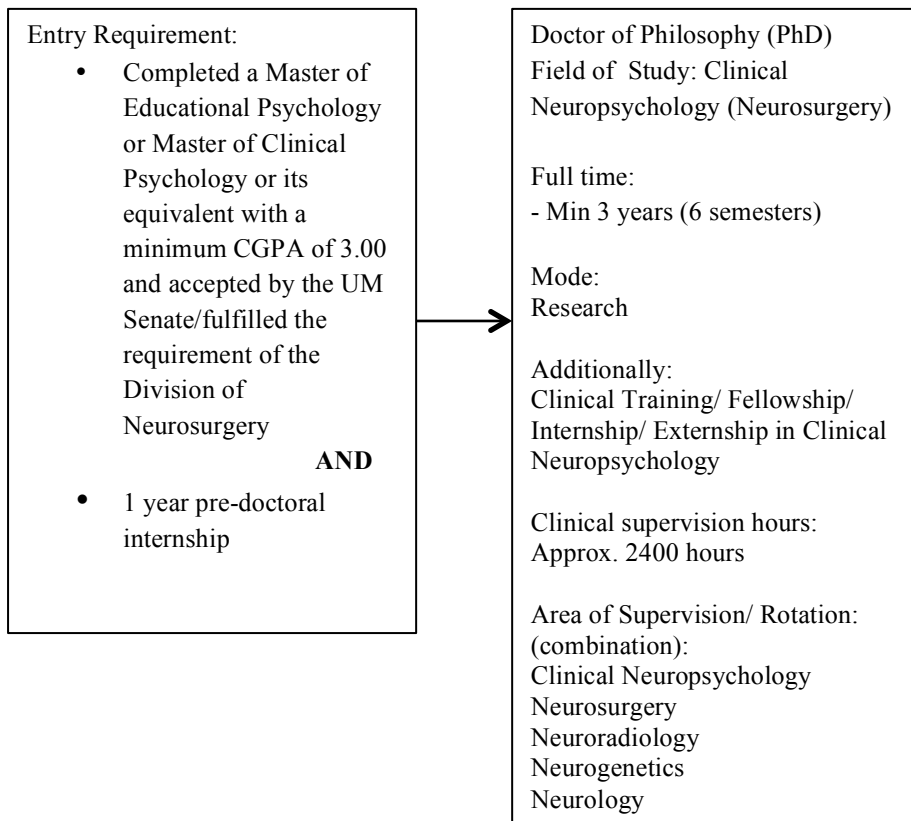
More detailed information on the program can be found online:

http://www.medic.usm.my/neurosciences/index.php?option=com_content&view=article&id=398&Itemid=930

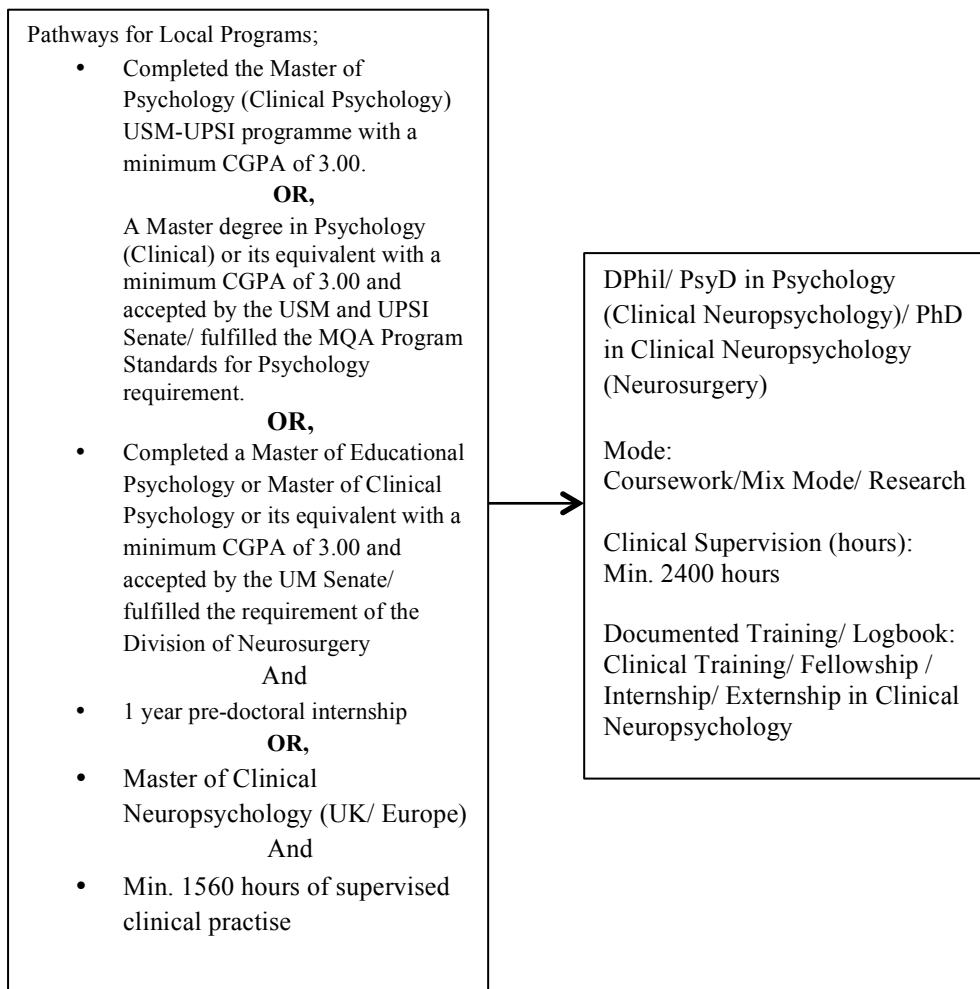
⁶ American Board of clinical Neuropsychology, 2017

⁷ American Board of Clinical Neuropsychology, 2017

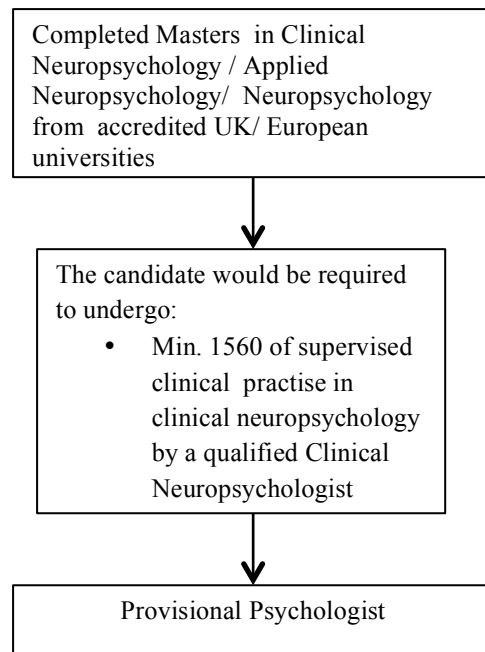
7.4.2 University of Malaya Training Pathway (Commenced: 2012/13)



7.4.3. Integrated Pathway (for Admittance as Full Member to Society for Clinical Neuropsychology) - Pathway A (Doctoral)



7.4.4. Integrated Pathway (Provisional Registration) –UK/ European Masters in Clinical/ Applied Neuropsychology



To be admitted as a Full Member to SCN, it is mandatory for the provisionally registered member to complete doctoral training in Clinical Neuropsychology, either locally or the ABPP/APA, BPS, APS accredited programs.

7.1 The British Model:

British Higher Education Institution (HEI)'s Model of Training in Clinical Neuropsychology⁸ and Qualification in Clinical Neuropsychology (QiCN)⁹ as outlined by the British Psychological Association (please refer to the next page):

Years (Min)	Model 1: Three-Stage Model of Training	Model 2: Fast-Track Training Model	Model 3: Fast Tract Integrated Training Model
1	BPS-accredited and Health and Care Professions Council (HCPC)-approved Doctorate	BPS-accredited Doctorate in Clinical Neuropsychology	BPS-accredited and HCPC-approved Dual Qualification in Clinical Neuropsychology
2			
3			

⁸https://www.bps.org.uk/sites/beta.bps.org.uk/files/Accreditation/Clinical%20Neuro%20Accreditation%20ADULT%202017_WEB.pdf

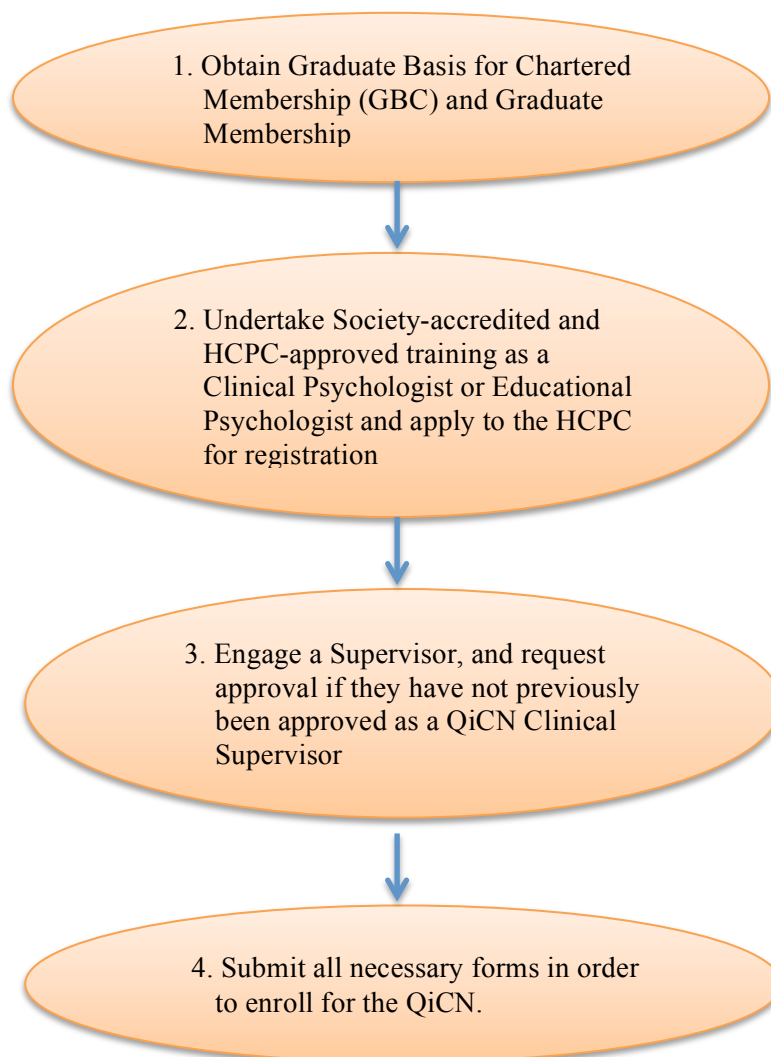
⁹ BPS Qualification in Clinical Neuropsychology: Candidate Handbook 2017, pg 7

	in Clinical or Educational Psychology		and Clinical or Educational Psychology
4	BPS-accredited PgDip/ MSc Clinical Neuropsychology (knowledge dimension)		
5	BPS-accredited Qualification in Clinical Neuropsychology Practise or BPS Qualification in Clinical Neuropsychology (practical dimension)		
6	BPS-accredited Qualification in Clinical Neuropsychology (practical dimension)		
Awards	2 or 3 separate qualification (2 if years 4 to 6 are all completed via QICN, or 3 if through a single HEI award)	Doctorate in Clinical Neuropsychology	i) Doctorate in Clinical Psychology and Clinical Adult <i>or</i> Pediatric Neuropsychology or (ii) Doctorate in Educational Psychology and Clinical Pediatric Neuropsychology

Table 1: British Higher Education Institution's (HEI) model of training in Clinical Neuropsychology (Fully adapted from the BPS "Standards for the Accreditation of Programmes in Adult Clinical Neuropsychology, 2015," pg. 18).

The following are the steps required based on BPS' postgraduate qualification outlined in the *Regulations*.

Figure 1: Steps required to enroll into QiCN. (Fully adapted from the BPS QiCN Candidate Handbook, 2017, pg.7).

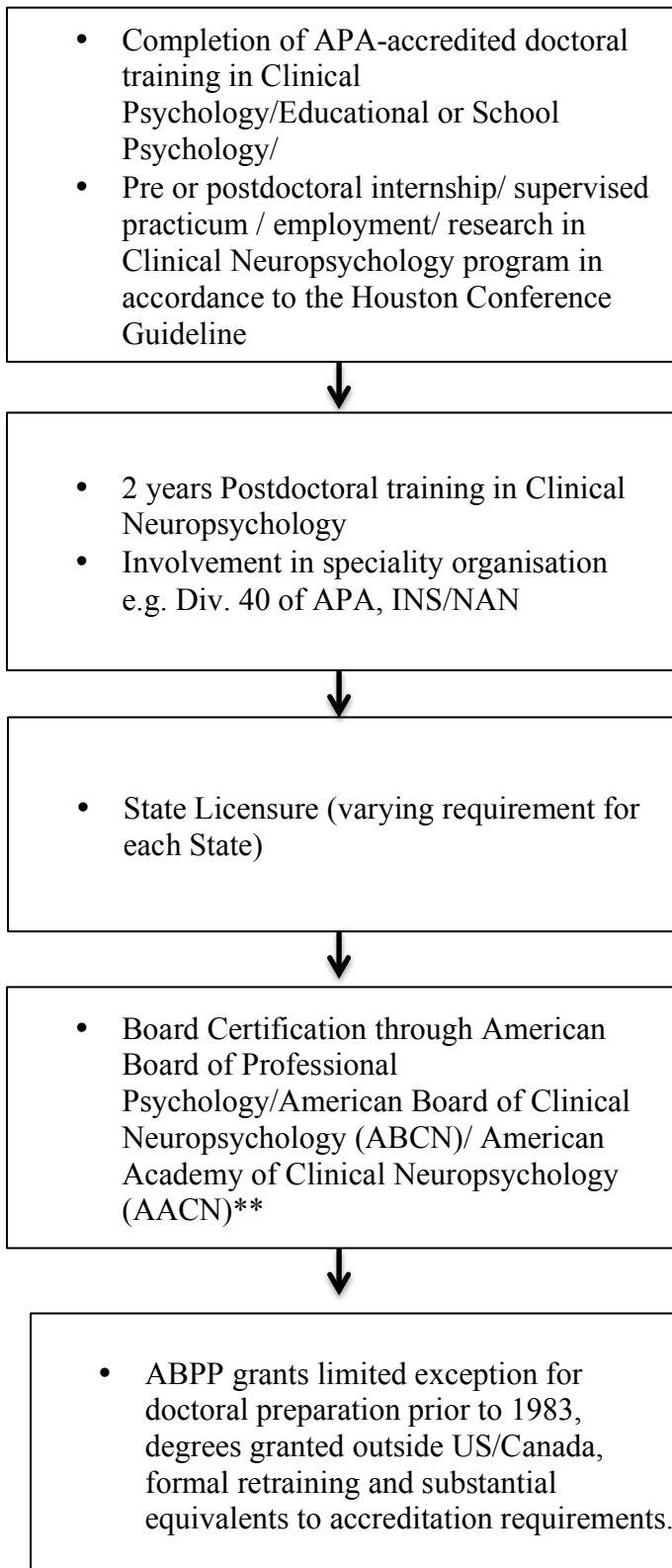


The clinical supervisor must be registered with the HCPC, hold Full Membership of the Division of Neuropsychology, Chartered membership of the Society and must appear on the Specialist Register of Clinical Neuropsychologists (SRCN) and the Register of Applied Psychology Practice Supervisors (RAPPS). They must also attend a QiCN Supervisor Workshop within 12 months of approval as a Clinical Supervisor for the QiCN.

7.2 The American Model:

The Clinical Neuropsychology training model in the United States of America is different from the British and European programs, at least in parts. The training models are predominantly influenced by the requirements of Houston Guidelines, American Psychological Association, American Board of Professional Psychology (ABPP), American Board of Clinical Neuropsychology (ABCN) and American Academy of Clinical Neuropsychology (AACN).

Figure 2: Varying training pathways and requirements for Clinical Neuropsychology in the United States of America



Houston Conference Guideline:

Definition: A Clinical Neuropsychologist is a professional psychologist trained in the science of brain-behavior relationship. Specializes in the application of assessment and intervention principles based on the scientific study of human behaviour across the lifespan, relating normal and abnormal functioning of the central nervous system

VI. Knowledge Base: Generic Core and Generic Clinical Core; Foundations for the study of Brain-Behavior relationship; Foundations for the Practice of CN.

VII. Skills: Assessment, Treatment & Interventions, Consultation, Research, Teaching and Supervision

VIII. Doctoral education in Clinical Neuropsychology

IX. Internship in Clinical Neuropsychology

X. Residency Education and Training in Clinical Neuropsychology

(Details of VI – X: refer to attached copy of the Houston Guideline)

American Academy of Clinical Neuropsychology

Requirements:

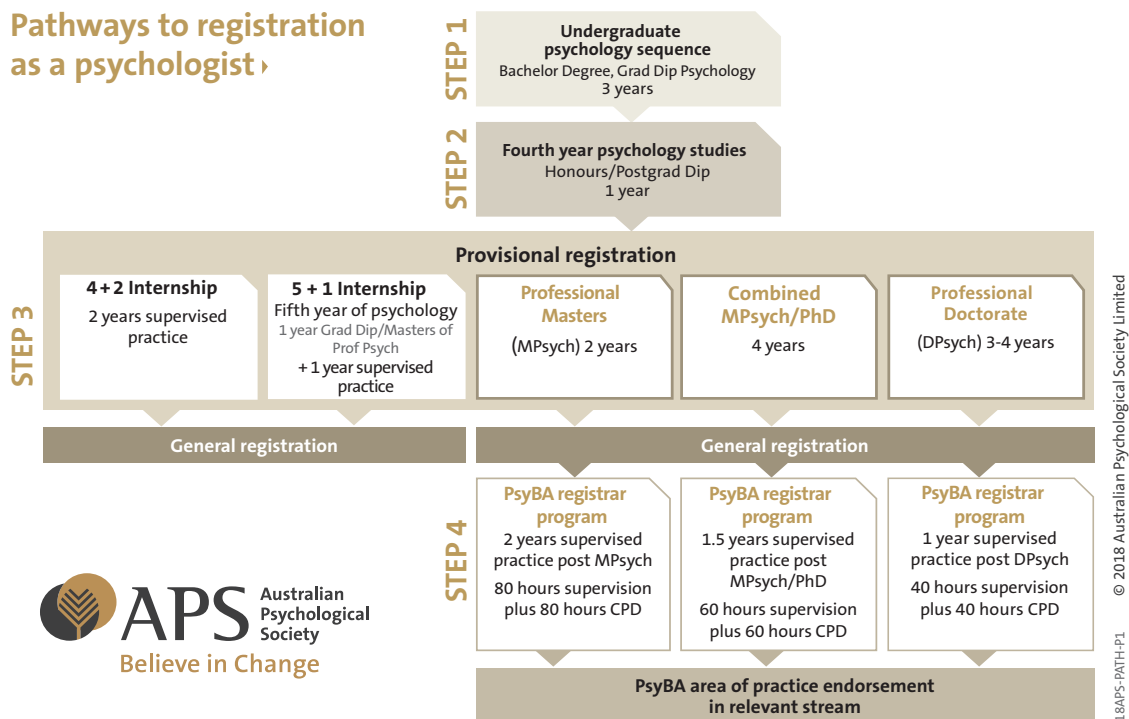
1. Completion of a doctoral degree in psychology from an accredited university
2. Internship in a clinically relevant area of professional psychology,
3. Equiv. of 2 years of additional specialised training in clinical neuropsychology
4. State or Provincial licensure to practice psychology and/or clinical neuropsychology independently.

*Attainment of ABCN/ABPP Diploma in Clinical Neuropsychology (i.e board certification) is the clearest evidence of competence as a clinical neuropsychologist, assuring all criteria have been met.

7.3. The Australian Model:

The Australian Psychological Society, College for Clinical Neuropsychology provides for a few possible pathways towards becoming a qualified Clinical Neuropsychologist, in accordance to the bylaws and the provision of professional psychological societies other than itself including the Psychological Board of Australia. The APS recognises more than one training pathway towards earning an endorsed area of practice in Clinical Neuropsychology.

Figure 3: Pathways towards general registration as a psychologist and endorsement of area of practise in Clinical Neuropsychology (Adopted from the APS official website¹⁰)



To be eligible for endorsement in one of the approved areas of practice, a psychologist must have¹¹:

- An accredited Doctorate in one of the approved areas of practice (Clinical Neuropsychology, or Clinical Psychology) and at least one year of approved,

¹⁰ Study pathways, Australian Psychological Society:

<https://www.psychology.org.au/Training-and-careers/Careers-and-studying-psychology/studying-psychology/Study-pathways>

¹¹ Endorsement, Psychology Board of Australia

<http://www.psychologyboard.gov.au/Endorsement.aspx>

supervised, full-time equivalent practice with a Board approved supervisor (a Clinical Neuropsychologist); or

ii) an accredited Masters degree in one of the approved areas of practice and a minimum of two years of approved, supervised, full-time equivalent practice with a Board-approved supervisor; or

iii) another qualification that, in the Board’s opinion, is substantially equivalent to (i) or (ii).

For a full area of practise endorsement in Clinical Neuropsychology by ASP, the following hours of practise as a registrar and board approved supervision are required.

A summary of the requirements are presented in the Table 2¹²:

Table 2: Registrar program requirements for area of practice endorsement

Qualification	Duration of psychological practice	Total number of hours of psychological practice	Total supervision required during psychological practice	Total active professional development required during psychological practice
DPsych/PsyD degree	One year FTE	1540 hours	40 hours*	40 hours*
Combined MPsych/ PhD degree	1.5 years FTE	2310 hours	60 hours*	60 hours*
Masters degree	Two years FTE	3080 hours	80 hours*	80 hours*

FTE: Full time equivalent

* The continuing professional development (CPD) and supervision hours in this table include the 30 total hours of CPD per year required for the CPD registration standard (10 hours' supervision [peer consultation] and 20 hours' CPD) and are not additional to the hours shown in the table.

¹² Registrar program, Psychology Board of Australia:
<http://www.psychologyboard.gov.au/Endorsement/Registrar-program.aspx>

Appendix:

6.0 Core Competencies of Clinical Neuropsychologist (Adult and Pediatrics): Knowledge and Skills, Clinical Work, Communication, Personal and Professional Practise. The detailed list is presented:

6.1 Knowledge of: -

- Fundamental principles underpinning neuroscience
- Normal aging, brain pathology/injury and neurological recovery
- Conceptual approaches adopted in clinical neuropsychology and their historical foundations
- Contemporary theories of brain/behaviour relationships and their implications for clinical practice
- Psychometric and statistical principles
- Methods, terminology and conceptual approaches of clinical medical disciplines allied to clinical neuropsychology
- Advances in neuroscience research/practice and its implications for neuropsychological theory/practice
- Contemporary models/frameworks of health, disability and participation
- Common neuropsychological, neurological and neuropsychiatric conditions
- Historical and theoretical foundations of developmental cognitive neuroscience
- Terminology, methodologies and paradigms relevant to the study of developmental brain/behaviour relationships
- Major theories of brain/behaviour development and how they inform approaches to neuropsychological assessment and interpretation of data
- Neuroanatomical development of each sensory, motor and cognitive neural system and the integration of systems
- Major theories of normal cognitive learning and brain development
- Competing processes involved in restoration after early injury or abnormal compensation within each neural cognitive or motor system at different stages of development
- The relationship between underlying neuropathology and cognitive outcome
- Assessment for infants and childrens at risk of developmental delay

6.2 Clinical Skills; Ability to:

- Demonstrate a holistic understanding of the social, psychological, cognitive and vocational impact of acquired brain injury and neurological conditions both for individuals and systems

- Identify cognitive impairment, behavioural changes and emotional difficulties and also provide integrated psychological/neuropsychological approaches to manage these
- Understand structural organisation of neurorehabilitation services and the role of clinical neuropsychology within such a service
- Map behavioural observations to possible neurological, cognitive or emotional underpinnings
- Perform clinical assessment including history taking, bedside cognitive assessment and mental status examinations and carry this through to management of specific neuropsychological condition in neurological or psychiatric diseases
- Tailor neuropsychological assessment to clients and address appropriate questions
- Select, administer and interpret a wide range of assessment instruments
- Understand psychometric principles underpinning cognitive testing
- Describe the range of factors that could affect performance on neuropsychological tests
- Construct formulations about the client's neuropsychological status by the deductive application of appropriate test instruments in the course of a broader investigation
- Demonstrate knowledge regarding the neuropsychological profiles associated with a range of common neuropsychological disorders
- Use neuropsychological formulations dynamically to facilitate a client's understanding and adjustment, to plan interventions if required, and to revise formulations
- Formulate, devise and deliver evidence based and tailored neuropsychological interventions
- Adapt models of therapeutic intervention for psychological difficulty in the context of impaired cognitive functioning
- Implement psychological interventions appropriate to the presenting 'neuropsychological' difficulty and to the psychological and social circumstances of the client(s)/ patients
- Apply principles of management and rehabilitation of neuropsychological/neurological disorders
- Utilise up-to-date knowledge and understand the treatment approaches and management of a range of common of neuropsychological, neurological and neuropsychiatric conditions
- Understand the role of clinical neuropsychology in mental health services
- Demonstrate an understanding of the social, emotional, cognitive and educational impact (and how these interact) of acquired brain injury and neurological conditions both for individuals and systems

- Identify cognitive impairment, behavioural changes and emotional difficulties and provide integrated psychological/neuropsychological approaches to manage these
- Tailor neuropsychological assessment to children/young people and address appropriate questions
- Understand psychometric principles underpinning cognitive testing, and measurement of cognitive change during development, and use these principles in the interpretation of assessment results
- Demonstrate an understanding of (and administer) neurodevelopmental assessment batteries
- Integrate neuropsychological data with measures of brain function to improve diagnosis and prognosis and demonstrate an understanding of and administer the tools used to assess different components of cognition and behaviour and describe the range of factors that affect performance on neuropsychological/neurodevelopmental tests.
- Demonstrate knowledge regarding the expected neuropsychological profiles associated with a range of neurological, neurodevelopmental and neuropsychiatric disorders
- Produce neuropsychological formulations that reflect the complex range of variables involved in paediatric clinical cases
- Use neuropsychological formulations to facilitate a child's or young person's understanding and adjustment of their experiences and to plan interventions, coupled with the ability to revise formulations
- Demonstrate applied understanding of neurological recovery & neuropsychological rehabilitation
- Formulate, devise, deliver and evaluate evidence based psychological/neuropsychological interventions which are individually tailored to the child/young person/family
- Adapt models of therapeutic intervention for psychological difficulty in the context of impaired cognitive functioning and developmental age
- Demonstrate knowledge of methods of reintegration into the educational system after acquired brain injury and work with support staff, teachers, parents and children to support this process
- Understand the relationship between patterns of cognitive function and appropriate learning intervention
- Understand the relationship between cognitive impairment and educational progress and attainment
- Understand treatment and management of a range of developmental and acquired neurological conditions
- Demonstrate knowledge of specialist settings for acute or long term support for children with neuropsychological difficulties
- Understand role of neuropsychology in child mental health service

6.3 Communication Skills; Ability to:

- Communicate neuropsychological hypotheses and conclusions clearly and effectively to specialist and non-specialist audiences
- Adapt style of communication to people with a wide range of neuropsychological disorders with differing levels of cognitive ability, sensory acuity and modes of communication
- Adapt communication and level of detail used in communication depending on the audience
- Provide feedbacks to patients/clients/systems clearly and sensitively
- Understand the process of providing expert neuropsychological opinion and advice, including the preparation and presentation of evidence in formal settings
- Support others' learning in the application of neuropsychological skills, knowledge, practices and procedures
- Use neuropsychological formulations to assist multi-professional communication
- Accommodate additional medical information from various sources
- Communicate effectively with children and young people
- Adapt style of communication to children and young people of different developmental ages with a wide range of neuropsychological disorders and differing levels of cognitive ability, sensory acuity and modes of communication
- Adapt communication and level of detail used in communication depending on the audience
- Communicate effectively clinical and nonclinical information from a neuropsychological perspective in a style appropriate to a variety of different audiences
- Provide expert neuropsychological opinion and advice, including the preparation and presentation of evidence in formal settings
- Sensitively communicate neuropsychological results and formulations with professionals, parents and children

6.4 Personal and Professional Practise; Knowledge of:

- Ethical principles of practice, legal and statutory obligations and general professional standards as applied to clinical neuropsychology practice
- The differing requirements for neuropsychology in a range of contexts including private practice
- General professional issues, and developments in professional arrangements and practice within a national and international context and an appreciation of practices and concerns of professions allied to clinical neuropsychology
- Differing roles of pediatric neuropsychology within a range of professional settings

- Health and educational policies that are relevant to children and young people who have developmental learning difficulties, acquired brain injuries or neurological conditions