Government Funded
Clinical Neuropsychological Services
February 2012

APS Contacts:

Professor Lyn Littlefield, OAM
Executive Director
l.littlefield@psychology.org.au

Mr David Stokes, B.Ed MA, MAPS
Senior Manager Professional Practice
d.stokes@psychology.org.au

Dr Fiona Bardenhagen, PhD MAPS CCN
Chair, College of Clinical Neuropsychologists
fiona.bardenhagen@gmail.com
and members of the CCN National Committee

Dr Leah Collins DPsych (Health) MAPS CCH CCP
Policy Officer Professional Practice
l.collins@psychology.org.au
Proposal for Funded Clinical Neuropsychological Services
From the Australian Psychological Society

Introduction and Executive Summary

The World Health Organisation has stated that brain diseases and disorders account for the largest proportion of medical disability in the developed world, but Australians with these conditions are unable to access the specialist clinical neuropsychological services they need under the current Medicare system. People with neuropsychological disorders often have disabilities that are life-long, and sometimes progressive, with major ramifications to their psychosocial adjustment, education, careers, and families. Neuropsychological services are provided under the Department of Veteran’s Affairs (DVA) and insurance schemes like Workcover, the Motor Accidents Insurance Board (MAIB) and Transport Accident Victims (TAC), but many ordinary Australians are not covered by these schemes, creating much inequity in provision and access to services.

An extensive literature review recently concluded that “Neuropsychological assessment is a valuable clinical tool that provides unique information about diagnosis, prognosis, and clinical management for nearly all neurocognitive and psychiatric disorders as well as many medical conditions. Incorporating neuropsychological assessment into the clinical care of individuals with cognitive dysfunction can help to identify cognitive, emotional, and functional variables that cannot be determined with other tools, and can contribute to enhanced clinical management and outcomes.” (Braun et al., 2011, p.111, See Appendix A).

Clinical Neuropsychologists specialise in the assessment, diagnosis, and treatment of psychological disorders associated with conditions affecting the brain. They have highly specialised training in the structure and function of the central nervous system (CNS) and how it relates to, and is expressed through, domains like cognition, language, memory, concentration, planning, problem-solving, emotions, and behaviour. They are trained to assist with diagnosis, characterisation, and treatment planning in complex conditions including:

1. Neurodegenerative disorders (e.g., Alzheimer’s Disease, fronto-temporal dementia, multiple sclerosis);
2. Developmental disorders (e.g., learning/reading/language disorders, intellectual disabilities (IDs), Autism Spectrum Disorders (ASD), Attention Deficit Hyperactivity Disorder (ADHD));
3. Neurological conditions (e.g., epilepsy, brain tumours, Parkinson’s Disease);
4. Psychiatric disorders (e.g., cognitive problems in early onset psychosis, schizophrenia and mood disorders);
5. Substance abuse and toxicology (e.g., alcohol-related brain damage, medication-related cognitive and movement disorders);
6. Acquired brain injury (ABI) (e.g., traumatic brain injury from motor vehicle accidents, falls, or assault; encephalitis, meningitis, brain abscesses);
7. Vascular disorders (e.g., vascular dementia, cognitive changes following stroke/heart disease);
8. Non-CNS conditions (e.g., lupus, diabetes, cardiac and respiratory conditions, systemic illness, anorexia nervosa).

The APS urges the Government to fund Clinical Neuropsychological services provided by Endorsed Clinical Neuropsychologists upon referral from a specialist physician, with special provisions for regional and rural GPs (see below). This aims to ensure
people with cognitive difficulties can receive the most accurate diagnosis, appropriate treatment and reduce the number of inappropriate prescriptions of medications that can often have poor treatment outcomes and adverse side effects. The APS provides below a background literature review, a proposed strategy for delivering services and also sets out a costs analysis.

Background

The role of Clinical Neuropsychologists goes beyond the diagnosis of conditions and characterisation of cognitive problems. Clinical Neuropsychologists are able to support a person to manage the difficulties identified on assessment within their own, individual circumstances. This individualised focus is imperative considering the variability of symptoms reported by people, even within the same diagnostic group. Review assessment and intervention is important as it enables monitoring for psychological and cognitive change over time. Rehabilitation plans can then be modified in recognition of the changing needs of the person.

People with brain conditions often experience depression, anxiety and adjustment disorders as a result of their illness or injury, as well as disruptions, limitations or catastrophic losses in their academic, vocational and social functioning. Apart from the estimated 269,000 Australians currently living with dementia, over 500,000 Australians have an ABI: 75% of these are aged less than 65, 75% are male, and 66% acquired their brain injury before age 25 (Australian Institute of Health and Welfare [AIHW], 2007). Such people need ongoing assistance to manage their disabilities. Brain dysfunction is often considered an “invisible” disability, as people may be physically intact but have reduced function because of their cognitive and behavioural impairments.

Neuropsychological assessment and treatment planning is invaluable for people with brain and other medical conditions, and for those with mental health conditions including depression, anxiety and psychosis. One very important skill Clinical Neuropsychologists contribute to medical processes is the ability to distinguish between organic and non-organic conditions, thus ensuring that appropriate diagnosis and treatment is provided rapidly. Clinical Neuropsychologists are therefore crucial to best practice multidisciplinary care.

While other professions may be able to screen for cognitive and behavioural impairment, Clinical Neuropsychologists have the most scientifically validated tools for assessing and understanding the real-life manifestations of brain disorders. While magnetic resonance imaging (MRI) scans can show the structure of the brain, and positron emission tomography (PET) scans can show areas of changed metabolism, only Clinical Neuropsychologists can integrate medical, personal, and psychological factors into a comprehensive understanding of a person’s overall cognition and quality of life (QoL). Neuropsychological assessment is useful for improving diagnostic precision, for establishing a baseline for future comparison, and is very important for helping the patient, their family or carers, and professional support networks maximise functional and emotional adaptation.

Clinical Neuropsychologists are experts in the administration and interpretation of psychometrically sound, standardised tests of cognition and psychopathology. The need for thorough and correct diagnosis in a range of chronic and acute illnesses is heightened by the fact that correct diagnosis determines best treatment and appropriate medication. In some cases, incorrect diagnosis leads to the use of treatments that are not only ineffective but costly as well. This is particularly so in paediatric and aged care domains. For example, one study of a private clinical
population previously assessed via clinical interview only, found once a formal neuropsychological assessment was conducted, 48% of children received a new psychiatric diagnosis, 22% had a diagnosis eliminated and 51% had a psychiatric diagnosis confirmed (Afrra and Knapp, 2008).

Accurate diagnosis and precise characterisation of cognitive deficits has a significant impact both on the quality of care, treatment outcome as well as reducing cost. There is strong evidence for the unique contribution of Clinical Neuropsychologists to the following common clinical conditions (Braun et al., 2011, See Appendix A):

1. Dementia
2. Mild Cognitive Impairment (MCI)
3. Stroke
4. Traumatic Brain Injury (TBI)
5. Epilepsy
6. Parkinson’s Disease
7. Other CNS Disorders
8. Noncentral Nervous System Medical Conditions
9. Psychiatric Disorders
10. Paediatric Developmental and Cognitive Disorders

1. Dementia
According to Alzheimer’s Australia (2011), around 269,000 Australians had dementia in 2011, and this number will rise to almost one million by 2050. Early and accurate diagnosis of dementia is important because memory complaints – often the most common first concern – are also found with normal aging, and can also be caused by depression, stroke, mild cognitive impairment, medications and a range of medical problems.

Differential diagnosis of dementia is important for predicting functional abilities and guiding medication management. Neurologists, geriatricians, and psychiatrists often refer to Clinical Neuropsychologists to assist with differential diagnosis, because neuropsychological assessment significantly increases diagnostic accuracy in dementia even after specialist medical evaluation (Geroldi et al, 2008; Hentschel et al, 2005). Neuropsychological assessment can help distinguish between normal ageing, depression, mild cognitive impairment, and various types of dementia (e.g., Gavett et al., 2009, 2010). It accurately predicts conversion to Alzheimer’s disease in large epidemiologic samples after 5 and 10 years (Tierney et al., 2005), as well as in individual patients. Repeat neuropsychological assessments are highly sensitive to subtle changes in cognitive function and in determining response to memory-enhancing medications, even in those with severe Alzheimer’s disease (Cummings et al., 2010).

Early and accurate differentiation of the causes of memory problems and various dementia subtypes is especially important where this may affect treatment. For example, in Lewy body dementia, antipsychotic medication is contraindicated to treat hallucinations and donepezil (Aricept) can lead to worsening of symptoms in frontotemporal dementia (Braun et al., 2011). In cases of delirium and depression, diagnosis is crucial for correct treatment and recovery: the underlying cause of delirium must be determined and treated quickly, and depression can sometimes present with dementia-like symptoms in the elderly. Cognitive changes due to normal ageing requires no medication.
In addition to the clinical and QoL benefits of neuropsychological assessment, a 2009 cost study in the USA showed a savings of $100,000 per patient when Alzheimer's disease was detected early (Weimar & Sager, 2009).

Most neuropsychological tests are of greater utility than cognitive screening measures in the clinical context because of their superior positive predictive value, psychometric properties, standardised development, and availability of demographically-based normative data, (Smith, Ivnik, & Lucas, 2008). Cognitive screening measures used by other professionals have relatively weak sensitivity and specificity, particularly for people with high premorbid baseline intellectual ability, divergent ethnic/linguistic backgrounds, the earliest phases of illness, or with atypical degenerative disease – areas where neuropsychological assessment has unique strengths (Braun et al., 2011, p. 109).

2. Mild Cognitive Impairment (MCI)
Unlike normal ageing, MCI is characterised by the presence of abnormal, subtle cognitive deficits that may progress to dementia over time. Braun et al's (2011) review identified nearly 400 peer-reviewed articles related to neuropsychology and MCI. The review showed that early detection and characterisation of MCI is important for informing treatment and prognosis because certain MCI subtypes are more likely to progress to dementia. Neuropsychological assessment is particularly useful for detecting MCI when cognitive deficits are mild and have not affected daily functioning, as such changes are often not evident on clinical interview or neuroimaging. Neuropsychological assessment is sensitive in discriminating between different MCI subtypes, determining different conversion rates to varying types of dementia, and in detecting people with pre-MCI memory complaints who progress to MCI over time. Early detection of MCI informs decisions about medication, providing prognostic data, informing stroke risk, determining functional abilities, and developing compensatory behavioural strategies to improve functional cognitive abilities (see Braun et al., 2011 for review).

3. Stroke
Stroke is the leading cause of ABI in Australia, affecting over 60,000 people annually, 12,000 of whom are under 55 years of age (AIHW 2007). Neuropsychological assessment assists with rehabilitation planning after stroke through provision of detailed information about cognitive and functional abilities, guiding rehabilitation treatments, and predicting functional outcome even 5 years after stroke (Braun et al., 2011). Neuropsychological assessment and rehabilitation are particularly important for assisting with return to work or study after stroke.

4. Traumatic Brain Injury (TBI)
TBI is the leading cause of death and disability among young people in Australia. More than 22,000 Australians were hospitalised following a TBI in 2004-2005: males had twice the rate of TBI, 40% of TBIs were caused by a fall, one third by a motor vehicle accident, and one sixth by assault (AIHW, 2007). In 2008, approximately 1,000 cases of severe TBI were identified, with an estimated total cost of care of $8.6 billion, and the lifetime cost per incident of severe TBI across Australia estimated at $4.8 million (cited in Khan, 2012). Rehabilitation interventions are of benefit in patients with TBI. In the nearly 1,700 publications on neuropsychological functioning and TBI discovered by Braun and colleagues (2011), there was evidence that neuropsychological status is the most prominent factor in predicting functional recovery after TBI, and that it is important in designing post-injury interventions. It is also important in characterising the unique patterns of impairments seen in older adults after TBI (Braun et al., 2011).
The diagnosis and characterisation of cognitive deficits after TBI is vital for the development of appropriate rehabilitation programs and the implementation of cognitive skills retraining. Programs of cognitive rehabilitation provide vital skills to improve functioning and retain capabilities at risk of deterioration. Programs can include skills training such as psychoeducation about brain functioning and strategies to compensate for deficits in attention, memory and executive functioning (Gehrin, Aaronson, Taphoorn and Sitskoorn, 2011). Family education programs are also invaluable in this context to promote consistent use of strategies at home and in the community. Clinical Neuropsychologists deliver programs face-to-face, in group settings or utilising eHealth software within residential facilities.

Neuropsychological assessment and intervention can be invaluable in aiding adjustment to injury following TBI and directing efforts at returning to independent living and employment. For example, in the case of ABI leading to disability, a client-centered approach that includes a comprehensive specialist neuropsychological assessment of cognitive functioning is deemed the most appropriate, best-practice treatment to support individuals returning to the workforce and supports long term workforce participation (O'Brien, 2007).

5. Epilepsy
Neuropsychological assessment is seen as a medically necessary component of pre-surgical planning for people with epilepsy, with over 1,690 studies of neuropsychological functioning in epilepsy identified by Braun and colleagues. Neuropsychological assessment helps in pre- and post-surgical planning through mapping the location of cognitive functions to inform surgical decisions, predicting and measuring post-surgical cognitive and functional outcomes and combining all this information into individually tailored cognitive remediation strategies (see Braun et al, Appendix A, for reference details). Neuropsychological assessment can also affect medication regimes through measuring the cognitive effects of anticonvulsant medications.

6. Parkinson’s disease
There have been over 1,400 publications on neuropsychological functioning and Parkinson’s disease (Braun et al., 2011). Neuropsychological assessment can help with prognosis and medication by differentiating between syndromes which have symptoms of Parkinsonism, but are not necessarily consistent with Parkinson’s disease (e.g. Lewy body dementia, Parkinson’s-plus syndromes). Treatment planning in Parkinson’s is informed by identification of neuropsychological strengths and weaknesses, and in predicting and measuring post-surgical cognitive outcomes for surgical patients (Braun et al., 2011).

7. Other central nervous system disorders
There is a recognised and growing scientific basis for the use of neuropsychological assessment to detect cognitive impairment and guide treatment planning and prognostication in other CNS disorders such as multiple sclerosis (MS), Huntington’s disease, hydrocephalus, encephalitis, amyotrophic lateral sclerosis (ALS), brain tumours, and intracranial aneurysms (Braun et al., 2011).

8. Noncentral nervous system medical conditions
Neuropsychological assessment is valuable in non-CNS medical disorders because it is sensitive to detecting the presence, nature, and severity of brain dysfunction, and helps guide clinical management and rehabilitation efforts to improve daily functioning, treatment compliance, or work performance (Braun et al., 2011).
A variety of medical conditions can be accompanied by cognitive dysfunction, particularly in the elderly, a fact which is still poorly recognised, especially in primary care (Braun et al., 2011) Neuropsychological evaluation is critical to the management of people with complex and chronic medical conditions which are accompanied by cognitive dysfunction. For example, Braun and colleagues found more than 300 publications on neuropsychological function in cardiac disorders.

Neuropsychological assessment can detect cognitive impairment and inform treatment planning in medical conditions including acute respiratory distress, cancer, chronic kidney disease, chronic obstructive pulmonary disease, cardiac disorders, hypertension, obesity (bariatric surgical candidates), obstructive sleep apnoea, and Type II diabetes (see Braun et al., 2011, for references). Appendix B lists a range of ICD-10 diagnoses where neuropsychological assessment may be indicated.

Neuropsychological identification of cognitive impairment can inform treatment planning in myocardial infarction, ventricular ejection fraction, heart failure, cardiovascular disease, moyamoya, sicle cell disease, decreased cardiac index, and also pulmonary disease and hepatic encephalopathy (see Braun et al., 2011). Neuropsychological assessment can predict functional capacity in cardiovascular disease, heart failure, and HIV, and can predict medication adherence and functional abilities after kidney transplant. It can classify disease progression in lupus and in HIV dementia, and is a sensitive measure of cognitive impairments in people at risk of Type II diabetes. It can detect cognitive impairments in people with diabetes, and predict functional limitations as well as helping with managing treatment compliance. Neuropsychological testing can also measure effects of surgery on cognitive function in people with brain tumours and intracranial aneurysms (Braun et al., 2011).

9. Psychiatric Disorders

"Neuropsychological deficits are a cardinal symptom in many so-called 'functional' disorders, such as schizophrenia, bipolar disorder, and depression, and are often a direct result of brain changes related to such disorders. The nature and severity of neuropsychological dysfunction (e.g., impaired reasoning or communication, lack of insight, distractibility and impulsivity, problems with memory or planning) varies among individuals with major psychiatric disorders. Many patients are referred for neuropsychological assessment to evaluate the nature and severity of cognitive dysfunction, especially as this information relates to medical decision-making and independent living. Medical management is often guided by information about the patients’ neuropsychological status regardless of their legally defined ‘competence’. Neuropsychological assessment predicts functioning for individuals with psychiatric disorders such as schizophrenia” (Braun et al., 2011, pp.110-111).

10. Paediatric and Adolescent Onset Developmental and Neurocognitive Disorders

Clinical Neuropsychologists improve the accurate diagnosis, appropriate treatment and improve the QoL of children and young people with a variety of conditions including developmental and behavioural disorders (e.g., ADHD, ASD) and mental health disorders (e.g., psychosis).

The clear diagnosis of neuropsychological and developmental disorders diagnosed in childhood (e.g., ADHD, IDs) assists immensely in the treatment and management of the child within the family and community. In addition, the precise characterisation of cognitive strengths and weaknesses also assists in planning management approaches. A Clinical Neuropsychologist can assess, interpret and provide cognitive
and behavioural strategies to support the child to achieve the maximal QoL and to provide guidance, remedial and management strategies for parents and teachers. The emotional and interpersonal health of the family is often enhanced by clear identification of the nature and character of these disorders.

Schizophrenia is associated with significant cognitive deficits (e.g., organisation, memory, language) and the severity of cognitive impairment has been recognised as a major determinant of outcome and quality of life (Galletly, 2009). Early intervention, which includes neuropsychological assessment and treatment, is an integral part of best practice in the treatment of young people with psychotic illnesses. This population often includes economically disadvantaged people who require access to Clinical Neuropsychology to provide quality assessment, monitoring and intervention tailored to provide the best outcomes. This has now become a major component of the Orygen Youth Health Early Psychosis Prevention and Intervention Centre (EPPIC) program of early intervention, however EPPIC is a regionalised community service available only to the north-west suburbs of Melbourne.
Proposal: Strategy and Costing

The following proposal has been designed to be both cost containing and able to make the best use of the limited services. What is proposed utilises the already established and extensively used DVA model and Medicare Better Access Scheme of funding. The APS proposes that following a specialist referral (or rural GP) the Government fund a set of services including:

1. **Assessment:** One clinical neuropsychological assessment session per patient per year (with options of short, medium and long assessments based on need); and
2. **Feedback:** One feedback session for each assessment (where recommendations can be provided to family in writing and/or person); with scope for
3. **Treatment:** A maximum of 6 treatment sessions per patient per year, based on clinical need.

It is proposed that while a specialist must refer the patient to a Clinical Neuropsychologist, pre-approval for session length should not be required. Specialist physicians should be considered clinically adept to appropriately refer to Clinical Neuropsychology services and, as such, the Clinical Neuropsychologist is funded for the whole assessment and not merely individual sessions. Payment covers a review of the patient history and presenting issues, formal assessment, evaluation of results and report writing and will be established on a needs basis of the patient. Generally first assessments are considered to be either medium or extended, where review assessments would be usually short or, where complexity is evident, medium.

Recent data from College of Clinical Neuropsychologists (CCN) reported that members indicated that 95% provide feedback to their clients, except for medicolegal cases, severely impaired patients with no family to benefit from feedback, or where patients cannot afford the extra time in a self-funded assessment. Ninety-four percent of CCN provide recommendations following an assessment, and 46% provide neuropsychological interventions. It is therefore important that separate items be created for neuropsychological feedback and recommendations, and for neuropsychological treatment.

Neuropsychological feedback requires the preparation of a written plain-language summary for the patient (or their carer, parent or guardian, in the case of very impaired or young patients), and individualised recommendations. The APS recommends that feedback be capped at two hours to allow preparation of written materials for the patient, as well as the verbal delivery of the feedback if necessary. The APS also recommends that clients be able to access 6 individual neuropsychological treatment sessions per year.

The referrals would need to be made to psychologists with area of endorsement in Clinical Neuropsychology by the Psychology Board of Australia (PsyBA) and these could be managed by special endorsement to their Medicare Provider status. In addition, in order to support rural GPs and patients, the APS propose that rather
than a specialist referral being necessary, rural GPs (e.g., ARIA+ score of .21 and above)\(^1\) should be able to refer patients for clinical neuropsychological services after a tele-health consultation with a specialist.

**Budgetary Estimation**

1 **Service providers.** AHPRA’s (2011) most recent statistics of Endorsed Clinical Neuropsychologists indicates that 411 specialist Clinical Neuropsychologists would be eligible to provide services under such a funded initiative.

2 **Service costs.** It is recommended that the basis of costings should be the well-tested and extensively-utilised DVA cost framework and the Medicare Australia Better Access Initiative (see Table 1). Table 1 refers to the proposed Items 1-5.

<table>
<thead>
<tr>
<th>Proposed Item</th>
<th>DVA Item (if applicable)</th>
<th>Item Description</th>
<th>Maximum Cost**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CL20*</td>
<td>Neuropsychology Assessment (Short) (Maximum Limit Applies)</td>
<td>$563.55</td>
</tr>
<tr>
<td>2</td>
<td>CL25*</td>
<td>Neuropsychology Assessment (Medium) (Maximum Limit Applies)</td>
<td>$840.00</td>
</tr>
<tr>
<td>3</td>
<td>CL30*</td>
<td>Neuropsychology Assessment (Long) (Maximum Limit Applies)</td>
<td>$1120.00</td>
</tr>
<tr>
<td>4</td>
<td>n/a</td>
<td>Feedback Session (maximum 2 hrs) – includes written report and recommendations specifically for the patient (Per hour equivalent to Better Access Clinical Psychology Medicare Item 80010 = $122.15)</td>
<td>$244.30</td>
</tr>
<tr>
<td>5</td>
<td>n/a</td>
<td>Neuropsychological treatment (individual) (1 hour each equivalent to Better Access Clinical Psychology Medicare Item 80010 = $122.15, maximum of 6)</td>
<td>$732.90</td>
</tr>
</tbody>
</table>

*(from Neuropsychologist Schedule of Fees, November 2010, DVA)  
** (all items are calculated without GST)

3 **Service frequency.** This is extremely difficult to assess as the frequency of service will depend on referrals from medical specialists. It is uncertain what un-serviced demand exists in the community. Acknowledging that these are both estimative and possibly maximum frequency, the APS propose the Government consider the following frequencies of services.

**Assessment.** On the prospect that available practitioners may receive from one specialist referral per week (48 per annum) this would become a total of 19,728 services per year (411x48=19,728). Considering a maximum

\(^1\)The APS utilise the Accessibility/Remoteness Index of Australia Plus (ARIA+) which is a geographical conceptualisation of remoteness utilised by the Australian Bureau of Statistics (ABS; see [http://gisca.adelaide.edu.au/projects/category/about_aria.html](http://gisca.adelaide.edu.au/projects/category/about_aria.html) for a brief overview). ARIA determines categories of locations throughout Australia. The APS suggests the Government PsyBa consider this categorisation to support the selection of GPs in rural areas to be able support their patients via tele-health conference with a specialist to refer to Clinical Neuropsychology services. An ARIA+ score of .21 and above, which is considered Inner Regional by the ABS would include locations such as Wollongong in NSW, Ballarat in Victoria and Townsville in Queensland).
estimate, the most common Item could be Item 3 (Neuropsychological Assessment, Long) to provide a thorough one-off assessment (hence 19,728 Item 3 services per annum).

Feedback. With a similar number of patients receiving a feedback session regarding their results (Item 4), this would suggest a maximum 19,728 Item 4 services could be considered per annum.

Treatment. If half of these patients (i.e., 9,864) received 6 treatment sessions, this would propose that Item 5 could be utilised 59,184 times per annum (9,864x6=59,184).

Hence, one model of frequency would suggest the following utilising of:
- Item 3 Assessment: 19,728 services
- Item 4 Feedback: 19,728 services
- Item 5 Treatment: 59,184 services

4 Final Costing and Analysis. Acknowledging that these are both estimative and possibly maximum figures, the budgetary expectation would be:
- Item 3 Assessment: $22.09 million
- Item 4 Feedback: $4.82 million
- Item 5 Treatment: $7.23 million
- Total Cost Per Annum: $34.14 million

Cost Savings

An estimate of the savings through reduced medication expense as a result of inappropriate prescribing can be considered in the following terms. As reported by the Pharmaceutical Benefits Scheme (PBS), using data reported by the Department of Health and Ageing (DOHA; 2010), two common drug groups used in neuropsychology patients are psycholeptics (drugs which produce calming effects) and psychoanaleptics (e.g. antidepressants, psychostimulants, and antidementia drugs).

In 2010, the combined cost to the government of these two drug groups was $776.96 million (DOHA, 2010; Table 7a). Using these figures, even a conservative 1% reduction of the PBS money spent in these two drug groups, as a result of community access to specialised neuropsychological treatment and more precise diagnosis, could result in a saving to the government of $7.77 million per year.

Further cost-savings can be obtained through early diagnosis and intervention in dementia. Early diagnosis of dementia through the use of sensitive neuropsychological assessment and management recommendations can result in improved family management of the condition, which can delay nursing home entry by up to 18 months (Braun et al., 2011).

Regarding the volume of services, the APS acknowledge that 20.88 million prescriptions of these two medications were dispensed in 2010 (DOHA, 2010; Table 7). The APS does not purport that the proposed number of Clinical Neuropsychological services (i.e., of 19,728) is comparable to the volume of prescriptions dispensed; but rather that the cost saving of appropriate diagnosis and utilisation of non-pharmacotherapy interventions, will significantly reduce the number of patients being prescribed and renewing unnecessary medication. In addition, the cost saving of appropriate diagnosis and appropriate antidementia
medications will significantly delay the need for nursing home placement for patients with Alzheimer’s disease.

Early diagnosis of Alzheimer’s disease, which has a current incidence of 1,600 new cases per week in Australia (Alzheimer’s Australia, 2011), can result in the prescription of medications that slow the course of Alzheimer’s disease which can delay nursing home admissions by approximately 12 months (Salib & Thompson, 2011) a saving of nearly $30,000 per patient per annum (based on one Residential Aged Care Facility bed costing). Using these figures, if Clinical Neuropsychologists contributed to the early diagnosis of dementia in only 900 patients each year and avoided a 12 month delay to nursing home administration, this would be a saving of $27 million per year. Total Potential Savings: $27m + $7.77m = $34.77 million. These savings would render the initiative cost neutral.

Evidence suggests that neuropsychological involvement in rehabilitation planning for people with ABIs should result in more effective treatments and functional outcomes which would result in savings in terms of the proposed National Disability Insurance Scheme. Cost savings and improved treatment outcomes would also be expected in the area of complex and chronic conditions like diabetes and respiratory disorders where poor treatment compliance can be related to undiagnosed cognitive impairment. Despite the financial benefits to Government from utilising Clinical Neuropsychological services in this manner, the accurate diagnosis and appropriate treatment of vulnerable people with these conditions impacts significantly on the QoL of such people.

N B Further information about this submission is available upon request. Contact David L Stokes, APS Senior Manager Professional Practice: d.stokes@psychology.org.au or Phone 03 8662 3324.
References


Appendix B

List of ICD-9 codes appropriate for coverage (not comprehensive)

Infectious and parasitic diseases (001–139)
006.5 Amoebic brain abscess
013 Tuberculosis of meninges and CNS
042-044 HIV
045-049 Poliomyelitis and other non-arthropod-borne viral diseases of the CNS
054.3 Herpetic meningoencephalitis
088.81 Lyme disease
094 Neurosyphilis

Neoplasms (140–239)
191 Malignant neoplasm of the brain
192 Malignant neoplasm of other and unspecified parts of the nervous system
225 Benign neoplasm of the brain and other parts of the nervous system
237 Neoplasm of uncertain behavior of endocrine glands and nervous system
(includes Neurofibromatosis)

Endocrine, nutritional and metabolic diseases, and immunity disorders (240–279)
242.9 Hyperthyroidism, NOS
243-244 Hypothyroidism
249 Secondary Diabetes
250 Diabetes
251.2 Hypoglycemia
252 Hyper/Hypoparathyroidsm
265.1 Wernicke’s
266.2 B12 deficiency
270.1 PKU
272.0 Hypercholesterolemia
275.1 Wilson’s disease
277.0 Cystic Fibrosis (consent for lung transplant surgery)
277.7 Metabolic syndrome
277.8 Other specified disorders of metabolism

Diseases of the blood and blood-forming organs (280–289)
282.6 Sickle Cell anemia (because of risk for silent/no symptom stroke)

Mental Disorders 290-319
290.0 Senile dementia uncomplicated
290.1 Presenile dementia
290.10 Presenile dementia uncomplicated
290.11 Presenile dementia with delirium
290.12 Presenile dementia with delusional features
290.13 Presenile dementia with depressive features
290.2 Senile dementia with delusional or depressive features
290.20 Senile dementia with delusional features
290.21 Senile dementia with depressive features
290.3 Senile dementia with delirium
290.4 Vascular dementia
290.40 Vascular dementia uncomplicated
290.41 Vascular dementia with delirium
290.42 Vascular dementia with delusions
290.43 Vascular dementia with depressed mood
290.8 Other specified senile psychotic conditions
290.9 Unspecified senile psychotic condition
291.1 Alcohol-induced persisting amnestic disorder
291.2 Alcohol-induced persisting dementia
292.82 Drug induced persisting dementia
292.9 Unspecified drug induced persisting mental disorders
293.0 Delirium
294.0 Amnestic disorder in conditions classified elsewhere
294.1 Dementia in conditions classified elsewhere
294.10 Dementia in conditions classified elsewhere without behavioral disturbance
294.11 Dementia in conditions classified elsewhere with behavioral disturbance
294.8 Other persistent mental disorders due to conditions classified elsewhere
294.9 Unspecified persistent mental disorders due to conditions classified elsewhere (disturbances in the mental process related to thinking, reasoning, and judgment)
295 Schizophrenic disorders
296 Episodic mood disorders (depression, mania, bipolar)
299.0 Autistic disorder
299.00 Autistic disorder current or active state
299.01 Autistic disorder residual state
299.1 Childhood disintegrative disorder
299.10 Childhood disintegrative disorder current or active state
299.11 Childhood disintegrative disorder residual state
299.8 Other specified pervasive developmental disorders
299.80 Other specified pervasive developmental disorders current or active state
299.81 Other specified pervasive developmental disorders residual state
299.9 Unspecified pervasive developmental disorder
299.90 Unspecified pervasive developmental disorder current or active state
299.91 Unspecified pervasive developmental disorder residual state
300 Neurotic disorders (anxiety, panic, GAD, conversion, phobia, OCD, somatoform)
303 Alcohol Dependence Syndrome
304 Drug Dependence
306.1 Anorexia Nervosa (cognitive deficits from malnutrition)
309 Adjustment reaction
310 Specific nonpsychotic mental disorders following organic brain damage (frontal lobe syndrome, post-concussive syndrome)
311 Depressive disorder NOS
314.0 Attention deficit disorder of childhood
314.00 Attention deficit disorder of childhood without hyperactivity
314.01 Attention deficit disorder of childhood with hyperactivity
314.1 Hyperkinesis of childhood with developmental delay
314.2 Hyperkinetic conduct disorder of childhood
314.8 Other specified manifestations of hyperkinetic syndrome of childhood
314.9 Unspecified hyperkinetic syndrome of childhood
315 Specific delays in development
315.0 Developmental reading disorder
315.1 Developmental mathematics disorder
315.2 Other specific developmental learning difficulties
315.3 Developmental speech or language disorder
315.31 Expressive language disorder
315.32 Mixed receptive-expressive language disorder
315.5 Mixed development disorder
315.8 Other specified delays in development
315.9 Learning disability/developmental delay, NOS
317-319 Mental Retardation
Diseases Of The Central Nervous System 320-327
320 Bacterial meningitis
321 Meningitis due to other organisms
322 Meningitis of unspecified cause
323 Encephalitis myelitis and encephalomyelitis
324 Intracranial and intraspinal abscess
325 Phlebitis and thrombophlebitis of intracranial venous sinuses
326 Late effects of intracranial abscess or pyogenic infection
327 Organic sleep disorders

Hereditary And Degenerative Diseases Of The Central Nervous System 330-337
330 Cerebral degenerations usually manifest in childhood
331 Other cerebral degenerations
332 Parkinson's disease
333 Other extrapyramidal disease and abnormal movement disorders
334 Spinocerebellar disease
335 Anterior horn cell disease

Other Disorders Of The Central Nervous System 340-349
340 Multiple sclerosis
341 Other demyelinating diseases of central nervous system
342 Hemiplegia and hemiparesis
343 Infantile cerebral palsy
344 Other paralytic syndromes
345 Epilepsy
346 Migraine
347 Cataplexy and narcolepsy
348 Other conditions of brain
349 Other and unspecified disorders of the nervous system
349.82 Toxic encephalopathy

Diseases of the circulatory system (390–459)
430 Subarachnoid hemorrhage
431 Intracerebral hemorrhage
432 Other and unspecified intracranial hemorrhage
434 Occlusion of cerebral arteries (cerebral thrombosis/embolism with cerebral infarction)
435 Transient cerebral ischemia (TIA)
437.2 Hypertensive encephalopathy
437.5 Moyamoya disease
437.7 Transient global amnesia
438 Late effects of cerebrovascular disease

Diseases of the musculoskeletal system and connective tissue (710–739)
710 Systemic lupus erythematosus

Congenital Anomalies 740-759
740 Anencephalus and similar anomalies
741 Spina bifida
742 Other congenital anomalies of nervous system
758 Chromosomal anomalies
759 Other and unspecified congenital anomalies
Certain conditions originating in the perinatal period (760–779)
760.71 Fetal alcohol syndrome

Symptoms, signs, and ill-defined conditions (780–799)
780.1 Hallucinations
780.93 Memory loss
780.97 Altered mental status
781.8 Neurologic neglect syndrome
784.5 Dysarthria

Injury and Poisoning 800–999
800–804 Fracture Of Skull
850–854 Intracranial Injury, Excluding Those With Skull Fracture
870–879 Open Wound Of Head, Neck, And Trunk
905–909 Late Effects Of Injuries, Poisonings, Toxic Effects, And Other External Causes
958–959 Certain Traumatic Complications And Unspecified Injuries
960–979 Poisoning By Drugs, Medicinals And Biological Substances
980–989 Toxic Effects Of Substances Chiefly Nonmedicinal As To Source
996–999 Complications Of Surgical And Medical Care, Not Elsewhere Classified

Persons Without Reported Diagnosis Encountered During Examination And Investigation Of Individuals And Populations V70-V82
V70 General medical examination
V79 Special screening for mental disorders and developmental handicaps

Special screening for neurological eye and ear diseases V80
V80 Special screening for neurological eye and ear diseases
V80.0 Screening for neurological conditions
V80.01 Special screening for traumatic brain injury
V80.09 Special screening for other neurological conditions