



Medicare Benefits Schedule Review Taskforce

Final Report on the review of Neurosurgery and Neurology MBS items

2018



Important note

The views and recommendations in this report originated from the Clinical Committee and have been revised (where appropriate) and endorsed by the MBS Review Taskforce following consultation with stakeholders.

This report has now been forwarded to the Government for their consideration.

The Taskforce welcomes ongoing feedback on this or any MBS Review report via:
mbsreviews@health.gov.au



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1. Executive summary

The MBS Review Taskforce (the Taskforce) is undertaking a programme of work that considers how more than 5,700 items on the MBS can be aligned with contemporary clinical evidence and practice and improve health outcomes for patients. The Taskforce will also seek to identify any services that may be unnecessary, outdated or potentially unsafe.

The Taskforce is committed to providing recommendations to the Minister for Health (the Minister) that will allow the MBS to deliver on each of these four key goals:

- Affordable and universal access.
- Best-practice health services.
- Value for the individual patient.
- Value for the health system.

The Taskforce has endorsed a methodology whereby the necessary clinical review of MBS items is undertaken by clinical committees and working groups.

The Neurosurgery and Neurology Clinical Committee (the Committee) was established in 2018 to make recommendations to the Taskforce on MBS items in its area of responsibility, based on rapid evidence review and clinical expertise.

The recommendations from the clinical committee have been revised, where appropriate, to consider feedback provided by stakeholders during an eight week targeted consultation period.

1.1 Key recommendations

- **Guidance towards higher-value use of EEG**

The Committee recommends that professional and patient bodies work together with the Department of Health (the department) to create a standardised national referral form for routine electroencephalogram (EEG; item 11000). This will discourage low-value use and assist clinicians in determining when to refer directly to a neurologist, rather than requesting further testing that is not supported by the evidence. In addition, the Committee recommends adding an explanatory note to item 11000 to provide guidance to clinicians on indications where the use of EEG is considered to be of low value, based on evidence of low diagnostic power.

The Committee also recommends that prolonged EEG items 11003, 11004 and 11005 require use of standard International Federation of Clinical Neurophysiology 10-20



electrode placement, in order to promote high-quality testing and replicable interpretation of results.

- **Referral of conduction studies and evoked response items for additional compliance scrutiny**

The Committee noted potential anomalies in the use of these items. Given the number of clinically reasonable explanations for variation in usage, the Committee elected not to recommend formal restrictions for the descriptors. However, it feels that further investigation into usage by outlier clinicians would be appropriate.

- **Inclusion of stereotaxy and cranioplasty in several neurosurgical items**

The Committee recommends integrating the services described by items 40803 (stereotaxy) and 40600 (cranioplasty) into a variety of neurosurgical items.

- **Consolidation of neurosurgical items**

The Committee recommends consolidating many infrequently used neurosurgical items that involve common techniques and surgical conduct and are typically co-claimed as part of larger procedures.

- **Creation of new items for conjoint surgery and novel techniques**

The Committee recommends creating conjoint surgical items for complex intracranial tumour resections, as well as new items allowing for stereotactic radiosurgery and awake craniotomy.

1.2 Consumer impact

All recommendations have been summarised for consumers in Appendix A – Summary for consumers. The summary describes the medical service, the recommendation of the clinical experts and the rationale behind the recommendations. A consumer impact statement is available in Section 6.

Both patients and clinicians are expected to benefit from these recommendations because they address concerns regarding patient safety and quality of care, and because they take steps to simplify the MBS and make it easier to use and understand. In addition, the Committee's recommendations promote the provision of higher value medical care, which can reduce unnecessary procedures and related out-of-pocket fees for patients, while supporting improved access to modern procedures and the responsible operation of the healthcare system as a whole.



2. About the MBS Review

2.1 Medicare and the MBS

2.1.1 What is Medicare?

Medicare is Australia's universal health scheme. It enables all Australian residents (and some overseas visitors) to have access to a wide range of health services and medicines at little or no cost.

Introduced in 1984, Medicare has three components:

- Free public hospital services for public patients.
- Subsidised drugs covered by the Pharmaceutical Benefits Scheme (PBS).
- Subsidised health professional services listed on the MBS.

2.2 What is the MBS?

The MBS is a listing of the health professional services subsidised by the Australian Government. There are more than 5,700 MBS items, which provide benefits to patients for a comprehensive range of services, including consultations, diagnostic tests and operations.

2.3 What is the MBS Review Taskforce?

The Government established the Taskforce as an advisory body to review all of the 5,700 MBS items to ensure they are aligned with contemporary clinical evidence and practice and improve health outcomes for patients. The Taskforce will also modernise the MBS by identifying any services that may be unnecessary, outdated or potentially unsafe. The MBS Review is clinician-led, and there are no targets for savings attached to the review.

2.3.1 What are the goals of the Taskforce?

The Taskforce is committed to providing recommendations to the Minister that will allow the MBS to deliver on each of these four key goals:

- **Affordable and universal access**—the evidence demonstrates that the MBS supports very good access to primary care services for most Australians, particularly in urban Australia. However, despite increases in the specialist workforce over the last decade, access to many specialist services remains problematic, with some rural patients being particularly under-served.



- **Best practice health services**—one of the core objectives of the MBS Review is to modernise the MBS, ensuring that individual items and their descriptors are consistent with contemporary best practice and the evidence base when possible. Although the Medical Services Advisory Committee (MSAC) plays a crucial role in thoroughly evaluating new services, the vast majority of existing MBS items pre-date this process and have never been reviewed.
- **Value for the individual patient**—another core objective of the MBS Review is to support the delivery of services that are appropriate to the patient’s needs, provide real clinical value and do not expose the patient to unnecessary risk or expense.
- **Value for the health system**—achieving the above elements of the vision will go a long way to achieving improved value for the health system overall. Reducing the volume of services that provide little or no clinical benefit will enable resources to be redirected to new and existing services that have proven benefit and are underused, particularly for patients who cannot readily access those services currently.

2.4 The Taskforce’s approach

The Taskforce is reviewing existing MBS items, with a primary focus on ensuring that individual items and usage meet the definition of best practice. Within the Taskforce’s brief, there is considerable scope to review and provide advice on all aspects that would contribute to a modern, transparent and responsive system. This includes not only making recommendations about adding new items or services to the MBS, but also about an MBS structure that could better accommodate changing health service models.

The Taskforce has made a conscious decision to be ambitious in its approach, and to seize this unique opportunity to recommend changes to modernise the MBS at all levels, from the clinical detail of individual items, to administrative rules and mechanisms, to structural, whole-of-MBS issues. The Taskforce will also develop a mechanism for an ongoing review of the MBS once the current review has concluded.

As the MBS Review is clinician-led, the Taskforce decided that clinical committees should conduct the detailed review of MBS items. The committees are broad-based in their membership, and members have been appointed in an individual capacity, rather than as representatives of any organisation.



The Taskforce asked the committees to review MBS items using a framework based on Professor Adam Elshaug's appropriate use criteria (1). The framework consists of seven steps:

1. Develop an initial fact base for all items under consideration, drawing on the relevant data and literature.
2. Identify items that are obsolete, are of questionable clinical value,¹ are misused² and/or pose a risk to patient safety. This step includes prioritising items as "priority 1", "priority 2" or "priority 3", using a prioritisation methodology (described in more detail below).
3. Identify any issues, develop hypotheses for recommendations and create a work plan (including establishing working groups, when required) to arrive at recommendations for each item.
4. Gather further data, clinical guidelines and relevant literature in order to make provisional recommendations and draft accompanying rationales, as per the work plan. This process begins with priority 1 items, continues with priority 2 items and concludes with priority 3 items. This step also involves consultation with relevant stakeholders within the committee, working groups, and relevant colleagues or Colleges. For complex cases, full appropriate use criteria were developed for the item's explanatory notes.
5. Review the provisional recommendations and the accompanying rationales, and gather further evidence as required.
6. Finalise the recommendations in preparation for broader stakeholder consultation.
7. Incorporate feedback gathered during stakeholder consultation and finalise the review report, which provides recommendations for the Taskforce.

All MBS items will be reviewed during the course of the MBS Review. However, given the breadth of the review and its timeframe, each clinical committee has to develop a work plan and assign priorities, keeping in mind the objectives of the review. Committees use a robust prioritisation methodology to focus their attention and resources on the most important items requiring review. This was determined based on a combination of two standard metrics, derived from the appropriate use criteria:

- Service volume.
- The likelihood that the item needed to be revised, determined by indicators such as identified safety concerns, geographic or temporal variation, delivery irregularity, the

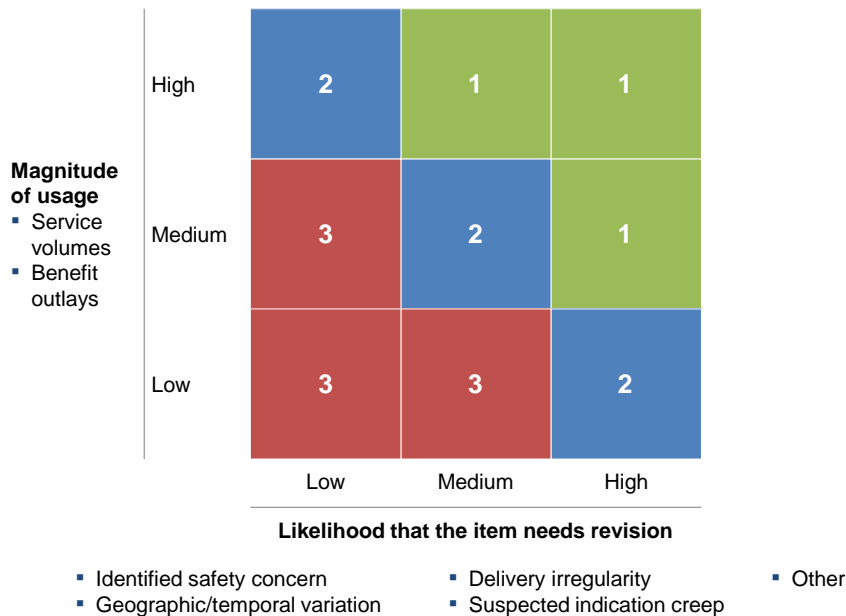
¹ The use of an intervention that evidence suggests confers no or very little benefit on patients; or where the risk of harm exceeds the likely benefit; or, more broadly, where the added costs of the intervention do not provide proportional added benefits.

² The use of MBS services for purposes other than those intended. This includes a range of behaviours, from failing to adhere to particular item descriptors or rules through to deliberate fraud.



potential misuse of indications or other concerns raised by the clinical committee (such as inappropriate co-claiming).

Figure 1: Prioritisation matrix



For each item, these two metrics were ranked high, medium or low. These rankings were then combined to generate a priority ranking ranging from one to three (where priority 1 items are the highest priority and priority 3 items are the lowest priority for review), using a prioritisation matrix (Figure 1). Clinical committees use this priority ranking to organise their review of item numbers and apportion the amount of time spent on each item.

The Taskforce has recommended that each MBS item in the surgical section (T8) of the MBS represents a complete medical service and highlighted that it is not appropriate to claim additional items in relation to a procedure that are intrinsic to the performance of that procedure.

It is proposed that for surgical procedures, this principle will be implemented through restricting claiming to a maximum of three MBS surgical items for a single procedure or episode of care. For bilateral procedures benefits will be paid for a maximum of six surgical items for an episode of care. The existing multiple operation rule will be applied to these items.



The Taskforce's rationale for making this recommendation is that 94 per cent of MBS benefits paid are for episodes where three or fewer items are claimed. On the occasions when more than three items are claimed in a single procedure or episode of care, there is often less transparency and greater inter-provider variability in benefits claimed for the same services, greater out-of-pocket expenditure for patients, and increased MBS expenditure that does not necessarily result in improved patient care.

Where the same group of three or more items are consistently co-claimed across providers, these represent a complete medical service and should be consolidated. Consolidation will improve consistency and optimise the quality of patient care; reduce unnecessary out-of-pocket costs for patients; and better correlate MBS expenditures with the actual services provided to patients.



3. About the Neurosurgery and Neurology Clinical Committee

The Committee was established in January 2018 to make recommendations to the Taskforce on MBS items within its remit, based on rapid evidence review and clinical expertise.

3.1 Neurosurgery and Neurology Clinical Committee members

The Committee consists of 12 members, whose names, positions/organisations and declared conflicts of interest are listed in Table 1.

Table 1: Neurosurgery and Neurology Clinical Committee members

Name	Position/organisation	Declared conflict of interest
A/Prof. Mark Davies OAM	Neurosurgeon in private/public practice and Head of the Department of Neurosurgery at St. George Hospital, Sydney Past President of the Neurosurgical Society of Australasia (NSA) Current Training Board Chair for neurosurgery Previous Co-Chair for MBS Review Spinal Surgery Committee	Claims in-scope MBS items
Dr Mark Dexter	Neurosurgeon in private/public practice and Head of the Department of Neurosurgery at both Westmead Hospital and Westmead Children's Hospital Past President of the NSA	Claims in-scope MBS items
Dr Sarah Olson	Neurosurgeon in private/public practice in Brisbane Current Vice President of the Board of the NSA	Claims in-scope MBS items
Mr Myron Rogers	Neurosurgeon in private/public practice in Melbourne Past President of the NSA	Claims in-scope MBS items Co-Chair of a WorkSafe Victoria Committee reviewing the billing practices of spinal surgeons in Victoria



Name	Position/organisation	Declared conflict of interest
Prof. John Watson	Neurologist in private/public practice at Sydney Adventist Hospital Associate Dean and Head of Sydney Adventist Hospital Clinical School	Claims in-scope MBS items Chairman of the Australian and New Zealand Association of Neurologists (ANZAN) Fees Committee Member of MSAC Protocol Advisory Sub-Committee
Dr Andrew Bleasel	Neurologist in private/public practice at Westmead Hospital, as well as a rural private practice in Wagga Wagga Director of Physician Training and Academic Leader, Westmead Clinical School Past President of the Epilepsy Society of Australia	Claims in-scope MBS items
Dr James Mitchell	Neuro-Anaesthetist in private/public practice in Melbourne Works with neurosurgeons as well as other surgical specialties	None
Dr Jo-Anne Manski-Nankervis	General Practitioner in Essendon, Melbourne Senior Lecturer in primary care at the University of Melbourne Member of the Royal Australian College of General Practitioners (RACGP) Member of the MBS Review Endocrinology Committee	None
Ms Eileen Jerga	Past CEO of the Heart Foundation in the Australian Capital Territory (ACT) Member of MSAC Member of Vascular CAG Past member of MSAC PICO Advisory Sub-committee (PASC) Member of the MBS Review Vascular Clinical Committee and Intensive Care & Emergency Medicine Clinical Committee, and has contributed to six other MBS review working groups	None



Name	Position/organisation	Declared conflict of interest
	Member of the Nursing and Midwifery Board of Australia for ACT	
Mr John Stubbs	Member of the MSAC Evaluation Sub-Committee (ESC)	None
	Past member of four other MBS Review Committees	
	Member of the New South Wales Medical Board	
	Member of the Cancer Institute	
	Former CEO of Cancer Voices and Canspeak Australia	
	Board member of the Cancer Institute of New South Wales	
	Board Member of Health Consumers New South Wales	
	Board Member of Illawarra Shoalhaven Local Area Health District	
	Contributor to several research organisations	
Dr Geoffrey Speldewinde	Rehabilitation and Pain Physician in Canberra	Claims in-scope MBS items
	Director of Rehabilitation at Calvary John James Hospital, ACT	
	President, Australian Pain Society	
Prof. Michael Besser AM	Consultant Emeritus Neurosurgeon, Sydney	Chairman of Brain Cancer Biobanking Australia network
	Lecturer in neuroanatomy at the University of Sydney	
	Past President of the NSA	
	Member of the MBS Review Taskforce	

3.2 Conflicts of interest

All members of the Taskforce, clinical committees and working groups are asked to declare any conflicts of interest at the start of their involvement and reminded to update their declarations periodically. A complete list of declared conflicts of interest can be viewed in Table 1.



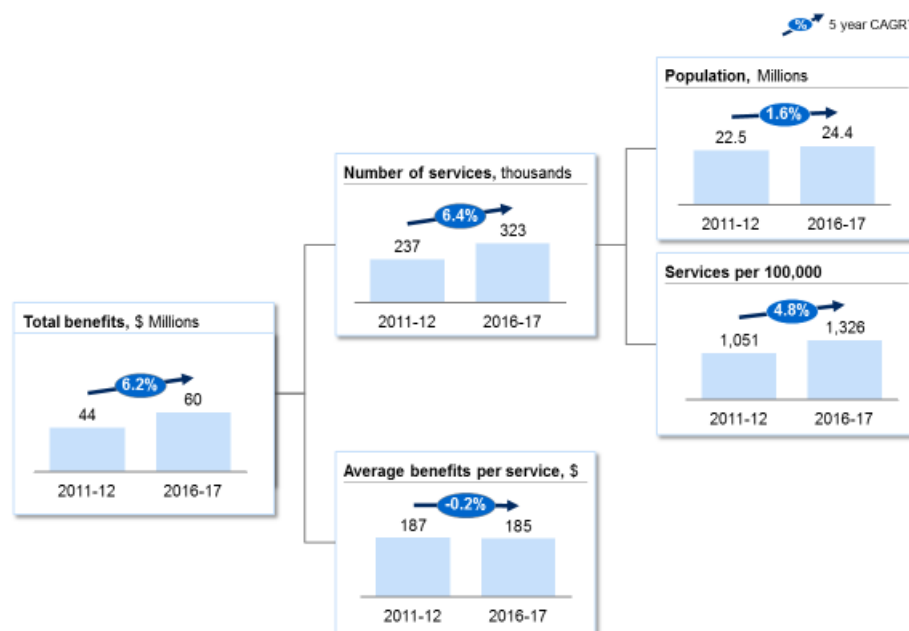
It is noted that the majority of the Committee members share a common conflict of interest in reviewing items that are a source of revenue for them (i.e. Committee members claim the items under review). This conflict is inherent in a clinician-led process and, having been acknowledged by the Committee and the Taskforce, it was agreed that this should not prevent a clinician from participating in the review.

3.3 Areas of responsibility of the Committee

The Committee reviewed 115 MBS items: 86 neurosurgical items and 29 neurological items.

In financial year (FY) 2016/17, these items accounted for approximately 323,000 services and \$60 million in benefits. Over the past five years, service volumes for these items have grown at 6.4 per cent per year, and the cost of benefits has increased by 6.2 per cent per year. This growth is largely explained by an increase in the number of services per capita (Figure 2). EEG, neuromuscular electrodiagnosis and botulinum toxin injection services account for 82 per cent of the total services and 70 per cent of benefits paid.

Figure 2: Drivers of neurosurgery and neurology item growth, FY2011/12–2016/17



¹ Compound Annual Growth Rate
SOURCE: Medicare Data, MBS050 Database



3.4 Summary of the Committee's review approach

The Committee completed a review of its items across four full committee meetings (two teleconferences and two in-person meetings) and two specialty subgroup meetings (one in-person neurosurgery meeting and one neurology teleconference). It developed the recommendations and rationales contained in this report during these meetings.

The review drew on various types of MBS data, including data on utilisation of items (services, benefits, patients, clinicians and growth rates); service provision (type of clinician, geography of service provision); patients (demographics and services per patient); co-claiming or episodes of services (same-day claiming and claiming with specific items over time); and additional clinician and patient-level data, when required.

The review also drew on data presented in the relevant literature and clinical guidelines, all of which are referenced in the report. Guidelines and literature were identified through medical journals and other sources, such as professional societies.



4. Recommendations: Neurological items

4.1 Electroencephalography

Table 2: Item introduction table for items 11000 and 11003–11006

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
11000	Electroencephalography, not being a service: (a) associated with a service to which item 11003, 11006 or 11009 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices (Anaes.)	\$123.10	48,873	\$5,208,339	1.3%
11003	Electroencephalography, prolonged recording of at least 3 hours duration, not being a service: (a) associated with a service to which item 11000, 11004, 11005, 11006 or 11009 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices	\$325.70	5,422	\$1,439,606	9.6%
11004	Electroencephalography, ambulatory or video, prolonged recording of at least 3 hours duration up to 24 hours duration, recording on the first day, not being a service: (a) associated with a service to which item 11000, 11003, 11005, 11006 or 11009 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices	\$325.70	1,918	\$512,437	5.4%
11005	Electroencephalography, ambulatory or video, prolonged recording of at least 3 hours duration up to 24 hours duration, recording on each day subsequent to the first day, not being a service: (a) associated with a service to which item 11000, 11003, 11004, 11006 or 11009 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices	\$325.70	2,683	\$702,297	12.8%
11006	Electroencephalography, temporosphenoidal, not being a service involving quantitative topographic mapping using neurometrics or similar devices	\$167.00	17	\$2,125	-18.1%



4.1.1 Recommendation 1

- Item 11000: Develop a standardised national referral form for routine EEG requests.
 - The Committee believes that inadequate referring clinician education is a major driver of low-value routine EEG use. To address this, the Committee recommends that a standardised national referral form be developed for routine EEG requests. This form should:
 - Require referring clinicians to provide details on the patient's clinical condition and any other investigations already conducted.
 - Provide guidance on high- and low-value indications for routine EEG.
 - Indicate when prolonged EEG or other investigations would be preferable to routine EEG as a first-line investigation.
 - Allow for direct referral after discussion with a neurologist, regardless of indication. This would ensure that access to routine EEG is not restricted in special situations.
 - Be jointly developed by the department, the Australian and New Zealand Association of Neurologists (ANZAN) and the Australia and New Zealand Child Neurology Society (ANZCNS), along with an educational leaflet supporting its use. Ideally, these materials should be introduced when the other EEG recommendations in this report are implemented. Other affected parties, such as the Australian Private Hospitals Association, should also be consulted during the development of this form.

In addition, the Committee feels it is incumbent on neurologists to provide feedback to referrers on the quality of their referrals wherever feasible, and it encourages more active specialist–referrer engagement in general.

- Create an explanatory note to specify that this EEG item should not be used for the listed low-value indications, unless first discussed and agreed with a neurologist.
- The proposed new explanatory note is as follows:
 - Routine electroencephalography should not be performed for the following indications/presentations, except after discussion with a Neurologist. In some of these situations a routine EEG is of relatively low diagnostic value, while in others it would be more appropriate to refer the patient directly for a prolonged EEG, or to a Neurologist for consultation and possible further investigation:



- Suspected Psychogenic Non-Epileptic Seizures (PNES)
 - Syncope
 - Exclusion of a mass lesion
 - Headache & migraine
 - Behavioural disturbance/aggression
 - Tics
 - Postural dizziness
 - Non-specific fatigue
 - Intellectual impairment
 - Paediatric simple febrile seizures
 - Breath-holding spells
 - Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD)
- The department, peak bodies and/or interest groups should review measures of outer regional and remote patient access over the coming two to three years. If there are indications of limited access, consider either a) increasing this item's schedule fee; b) adding a rural loading; c) creating an item for routine EEG in defined rural settings; or d) using an alternative mechanism to improve the accessibility of this critical service.
- Item 11003: Change the item descriptor to specify that use of this item requires multi-channel recording using standard International Federation of Clinical Neurophysiology 10-20 electrode placement, except when EEG is used during neurosurgical procedures.
- The proposed item descriptor is as follows:
 - Electroencephalography, prolonged recording of at least 3 hours duration, requiring multi-channel recording and full 10-20 electrode placement, not being a service: (a) associated with a service to which item 11000, 11004, or 11005 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices. Electrode placement and number of recorded channels may vary only when this item is used during a neurosurgical procedure.



- Item 11004: Change the item descriptor to specify that use of this item requires multi-channel recording using standard International Federation of Clinical Neurophysiology 10-20 electrode placement.
 - The proposed item descriptor is as follows:
 - Electroencephalography, ambulatory or video, prolonged recording of at least 3 hours' duration up to 24 hours' duration, recording on the first day, requiring multi-channel recording and full 10-20 electrode placement, not being a service: (a) associated with a service to which item 11000, 11003 or 11005 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices.
- Item 11005: Change the item descriptor to specify that use of this item requires multi-channel recording using standard International Federation of Clinical Neurophysiology 10-20 electrode placement.
 - The proposed item descriptor is as follows:
 - Electroencephalography, ambulatory or video, prolonged recording of at least 3 hours' duration up to 24 hours' duration, recording on each day subsequent to the first day, requiring multi-channel recording and full 10-20 electrode placement, not being a service: (a) associated with a service to which item 11000, 11003 or 11004 applies; or (b) involving quantitative topographic mapping using neurometrics or similar devices.
- Item 11006: Delete item.

4.1.2 Rationale for Recommendation 1

This recommendation focuses on improving the efficacy of care, increasing clinician awareness of high-value care and ensuring that the MBS aligns with professional standards. It is based on the following:

- Item 11000

Rural access and patterns of practice

- The Committee noted the following contextual points regarding routine EEG item 11000:
 - Neurologists usually interpret EEG traces and claim item 11000, but the tests themselves are usually requested by non-neurologists and performed by



medical technicians. Merely changing the descriptor for item 11000 is expected to have a sub-optimal effect on referral patterns, since most clinicians have little reason to read and consider the item before referring patients for a routine EEG.

- Routine EEG interpretation can usually be done remotely via telemedicine, on a non-urgent basis, by a qualified neurologist. This means that a limited supply of neurologists in regional and remote areas is not likely to limit access to this service. Limited numbers of medical technicians could be a concern.
- MBS data on average out-of-pocket charges by SA4 geographic area do not clearly indicate that charges are higher in non-metropolitan areas than in metropolitan areas. This suggests that patients in regional and remote areas are not being asked to pay more for routine EEG than those in urban areas—a situation that might limit their access to this service. However, this analysis does not offer a perspective on whether the schedule fee is in fact too low in all settings, which might create a broader access issue.
- A previous analysis of MBS data suggests that increasing a schedule fee can paradoxically result in an increase in out-of-pocket charges, rather than a decrease. This suggests that raising the schedule fee for this item in all settings may not reliably address access problems, whether those occur in urban or regional/rural areas.
- The Committee recommends defining measures of service accessibility (especially in outer regional and remote areas), monitoring these over time, and addressing any identified access issues through the most appropriate mechanisms, including possible schedule fee increases or other means of increasing effective rebate rates for certain populations.

Discouraging low-value use

- Routine EEG remains a vital element of neurological diagnostic resources, affording clinicians a real-time, non-invasive and safe method of assessing cerebral function and disorder. However, routine EEG is also widely (and often unknowingly) used in situations where it adds little value to the diagnostic process:
 - A study of the NHS conducted in 2006 found that 26 per cent of EEG requests were inappropriate, and that the EEG contributed to diagnosis or management in only 22 per cent of cases (2).



- Routine EEG is often requested prior to prolonged EEG tests when attempting to exclude a diagnosis of epilepsy. However, the sensitivity of a routine 20–30 minute EEG in epilepsy has been reported to be in the range of 25–56 per cent (3). Another study found that only 37 per cent of patients with known epilepsy showed epileptiform activity in the first 20 minutes of EEG monitoring, compared with 89 per cent during a 24-hour EEG (4).
- Although the epilepsy sensitivity statistics might be considered inadequate to constitute high-value care, the Committee noted that routine EEG remains a valuable investigation for the diagnosis of epilepsy (or to gauge the likelihood of epilepsy) in situations where an unusual clinical presentation or the results of other investigations suggest that diagnosis. Routine EEG also serves a gatekeeping function, facilitating the detection of epilepsy in a subset of patients who can then be spared from more time- and resource-intensive second-line investigations (such as prolonged EEG, in some cases).
- Similarly, due to its safety and relative accessibility, routine EEG is often used as a non-exclusionary (but diagnostically informative) investigation in the initial workup of many clinically complex presentations that share epileptic symptomatology. While routine EEG use in these situations is not necessarily of high clinical value, the Committee believes that formally restricting its use in such situations would restrict access in a manner that negatively affects patient care.
- As such, the Committee recommends actively discouraging (rather than restricting) the use of item 11000 for low-value indications. Reducing the number of unnecessary/low-value routine EEGs will promote the use of only high-yield investigations from the outset. This will save patients time and reduce inconvenience and out-of-pocket costs, while also promoting better allocation of healthcare funding.
- To achieve this, the Committee supports the creation of a standardised referral form and an explanatory note, which would raise awareness among referring clinicians of potentially low-value indications and encourage the referral of atypical cases to a neurologist.

Potentially low-value indications/presentations

- The literature and relevant guidelines highlight several situations in which a routine EEG is commonly requested but is unlikely to be clinically useful. These situations should be mentioned in the referral form and explanatory note.



- Paediatric febrile seizures: The American Academy of Pediatrics Clinical Practice Guidelines (2011) state that "an EEG should not be performed in the evaluation of a neurologically healthy child with a simple febrile seizure." (5) The National Institute for Health and Care Excellence (NICE), the Australia and New Zealand Child Neurology Society and the Royal Children's Hospital Melbourne Guidelines (6) also do not support the routine use of EEGs in children presenting with a simple febrile seizure. Kuretec (1997) found that abnormal EEG features did not help to predict recurrence of febrile seizures in children (7). Additionally, Harini (2015) determined that the positive predictive value of an epileptiform EEG predicting development of epilepsy following a complex febrile seizure was only 15 per cent (8).
- Headache: NICE Guidelines recommend that EEGs should not be performed for headache or suspected migraine (6). Gronseth (1994) concluded that EEG is not indicated in the routine evaluation of patients presenting with headache (9). Kramer (1994) and Carlo (1999) found that EEGs were of no value in children with chronic headaches and should not be routinely ordered (10) (11).
- Syncope: NICE Guidelines recommend that EEGs should not be routinely performed for simple syncope (6). Numerous studies found that EEGs have low yield in this context, with a sensitivity as low as 0 per cent (12) (13). Choosing Wisely echoes the Australia and New Zealand Child Neurology Society's recommendation that EEGs should not be routinely performed for children presenting with syncope (14) (15).
- Psychosis: NICE Guidelines recommend that EEGs should not be performed for psychosis (6). Information from a New South Wales-based EEG database revealed that further tests were only recommended after four of 132 EEGs ordered for early psychosis) (16). Manchanda (2003) highlighted that "there is widespread consensus that the EEG is not useful for the detection of clinically relevant abnormalities in patients with psychosis" (17). However, the Committee noted that the early presentation of patients with psychosis is seldom categorical, and that establishing such a serious diagnosis (and making the decision to administer treatment, with its attendant side effects) is not to be taken lightly. As such, it is sometimes appropriate to conduct a battery of tests to narrow the field of differential diagnoses, and there is particular value in establishing a negative epilepsy finding on EEG. The



Committee recommends that psychosis not be added to the list of low-value indications in the explanatory note.

- There are other situations in which a routine EEG is likely to represent low-value care, but there is limited evidence available to support this:
 - Behavioural or mood disturbance and aggression: Richer (2002) found a higher prevalence of EEG abnormalities among children with ADHD (6.1 per cent, compared to 3.5 per cent among non-ADHD children) but concluded that the clinical utility of these findings was limited (18).
 - Tics: Although some EEG abnormalities may be found in patients with tic disorders, studies have shown that EEGs are of no value in the evaluation of these conditions (Neufeld, 1990) (19).
 - Non-specific fatigue: An EEG is not recommended by any major guidelines as part of the investigation of fatigue.
 - Postural dizziness: An EEG is not recommended by any major guidelines as part of the investigation of postural dizziness.

Multiple EEGs performed for the same patient

- The Committee considered whether routine EEG tests might be misused through excessive repeat testing on the same patient, either over the course of several days or over a longer period.
- MBS data showed that a significant proportion of clinicians (23 per cent) requested routine EEG three or more times for at least one patient in FY2016/17, while 11 per cent did so four or more times on at least one occasion. While not unusual among clinicians, only 1 per cent of patients received three or more routine EEGs in the same time period, and 0.3 per cent claimed four or more. One possible interpretation of these data is that although patients rarely need multiple routine EEGs, there are reasonable situations that require this:
 - The Committee noted that multiple routine EEGs can be useful in the titration of medication for absence seizures in children, adolescents and young adults.
 - Similarly, repeated prolonged and/or ambulatory EEGs can be useful in titrating anti-epileptic medication in complex cases, such as in patients with autoimmune-related epilepsy, or with nocturnal, absence or subclinical seizures.



- Considering the limited numbers of patients involved, the existence of reasonable indications for multiple EEGs and the risk of inadvertently limiting access to EEG in unusually complex cases, the Committee agreed that the number of EEGs a patient can claim in a given year should not be restricted.
- Items 11003, 11004 and 11005:
 - These prolonged EEG items are usually used for diagnostic purposes (in epileptic and non-epileptic seizures), for pre-operative planning in epilepsy surgery and for intraoperative monitoring in neurosurgical procedures (such as carotid endarterectomy).
 - Analysis of MBS co-claiming data does not suggest meaningful usage in other indications at present, but the Committee raised concerns about misuse of these items in cases where a minimal form of the procedure is done (involving single channel recording and few electrodes placed). This is sometimes the case in sleep studies such as the Multiple Sleep Latency Test (MSLT), for which the Committee understands a separate item has been recommended by the MBS Review Thoracic Clinical Committee. In this example, the use of EEG technology is appropriate, but the Committee regards the extent/conduct of the service inadequate to qualify for use of this item. The correct conduct of a prolonged EEG requires multiple channels to be recorded for at least three hours, using standard International Federation of Clinical Neurophysiology 10-20 electrode placement, and this should be reflected in the descriptor.
- Item 11006:
 - There is limited evidence for the continued use of this procedure given that surface application of EEG electrodes has been shown to be equally effective, and with a better safety and patient comfort profile.
 - The Committee believes that this item is obsolete and should be deleted. The 17 services claimed in FY2016/17 would shift to item 11003 or item 11004.



4.2 Electrocorticography

Table 3: Item introduction table for item 11009

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
11009	Electrocorticography	\$227.75	27	\$4,681	15.7%

4.2.1 Recommendation 2

- Item 11009: Increase this item's schedule fee to align with item 11005.

4.2.2 Rationale for Recommendation 2

This recommendation focuses on improving the calibration of MBS reimbursement. It is based on the following:

- This is a very difficult procedure that takes about two hours to perform. It meaningfully improves patient outcomes in epilepsy surgery by precisely defining the margins of tissue to be resected.
- The Committee believes this item is significantly under-reimbursed, given the time and complexity of the procedure. It recommends a schedule fee commensurate with item 11005, which is of comparable complexity and duration.

4.3 Neuromuscular electrodiagnosis

Table 4: Item introduction table for items 11012, 11015, 11018 and 11021

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
11012	Neuromuscular electrodiagnosis — conduction studies on 1 nerve or electromyography of 1 or more muscles using concentric needle electrodes or both these examinations (not being a service associated with a service to which item 11015 or 11018 applies)	\$112.00	13,162	\$1,247,169	9.4%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
11015	Neuromuscular electrodiagnosis — conduction studies on 2 or 3 nerves with or without electromyography (not being a service associated with a service to which item 11012 or 11018 applies)	\$149.90	13,096	\$1,675,895	0.2%
11018	Neuromuscular electrodiagnosis — conduction studies on 4 or more nerves with or without electromyography or recordings from single fibres of nerves and muscles or both of these examinations (not being a service associated with a service to which item 11012 or 11015 applies)	\$223.95	110,243	\$21,308,196	3.6%
11021	Neuromuscular electrodiagnosis — repetitive stimulation for study of neuromuscular conduction or electromyography with quantitative computerised analysis or both of these examinations	\$149.90	12,816	\$1,597,500	16.2%

4.3.1 Recommendation 3

- Items 11012, 11015, 11018 and 11021: Develop a standardised national referral form for nerve conduction studies (NCS) and electromyography (EMG) requests.
 - The Committee believes that inadequate referring clinician education is a major driver of low-value use of NCS and EMG. To address this, the Committee recommends that a standardised national referral form be developed for NCS/EMG requests, using the same guidance provided for routine EEG in Recommendation 1.
 - Given that the Committee makes the same recommendation for routine EEG (Recommendation 1) and all in-scope evoked response testing items (Recommendation 4), a single referral form might be developed that encompasses all these services.
 - The Committee also recommends highlighting these items for additional compliance scrutiny.
- Items 11012, 11015 and 11018: Create an explanatory note to discourage use of these items in low-value situations.



- The proposed explanatory note is as follows:
 - Nerve conduction studies and/or EMG should not be used in the following indications/situations. In some of these situations these tests would be of relatively low diagnostic value, while in others it would be more appropriate to refer the patient for alternative investigations first (e.g. magnetic resonance imaging [MRI] in mild radiculopathy)
 - Muscle pain in the absence of other abnormalities on examination or laboratory testing
 - A four limb needle EMG/nerve conduction study for neck and back pain after trauma
 - EMG for low back pain without leg pain or sciatica
- The Committee also recommends that consideration be given to requiring clinicians to be credentialed in electrodiagnostic testing in order to use these items.

4.3.2 Rationale for Recommendation 3

This recommendation focuses on improving the efficacy of care, increasing clinician awareness of high-value care and ensuring that the MBS aligns with professional standards. It is based on the following:

- Items 11012, 11015 and 11018:
 - The Committee identified several indications in which the sensitivity and/or specificity of NCS/EMG is sufficiently low that it constitutes low-value care. Use of NCS/EMG in these indications should be discouraged. The examples mentioned in the recommendation (muscle pain in the absence of other abnormalities on examination or laboratory testing, a four-limb needle EMG/NCS for neck and back pain after trauma, and EMG for low back pain without leg pain or sciatica) are singled out in international guidelines as low-value situations for NCS/EMG use (14).
 - The Committee noted that there is a very high concentration of claims in New South Wales relative to other states and territories, and that this concentration is even more pronounced in certain smaller regions of the state. MBS data also suggest that use of these items is concentrated among a relatively small number of clinicians: the top 10 clinicians of item 11018 by service volume in FY2016/17 conducted 24 per cent of all tests nationwide, performing an average of 2,699 services each over the course of the year. This suggests that they were likely to be making extensive use of



medical technicians or headline billing arrangements in order to complete such a quantity of tests.

- It was noted that relatively scarce skills and special equipment are required to perform these tests, and one would therefore expect service provision to be concentrated among a few clinicians. However, the Committee expressed concern at the extent of concentration seen in the MBS data and recommends that the department highlights this area of practice for increased compliance activity.
- The Committee considered restricting multiple claims of these items for the same patient. However, analysis of MBS data indicate that a minority of patients (less than 2 per cent, on average) underwent multiple tests using these items during a two-week period after their first NCS or EMG claim in FY2016/17, and that approximately 7.4 per cent claimed multiple NCS/EMG items over the course of FY2016/17 as a whole. The Committee also noted several clinical situations in which it would be reasonable to perform additional or repeat NCS/EMG tests for a patient:
 - Repeats within 14 days:
 - Addressing patient discomfort due to prolonged testing (which involves needle insertions for EMG and electrical shocks for NCS), especially in situations such as the characterisation of multifocal neuropathies, which can require testing of multiple muscles and nerves in different limbs.
 - Diagnosis and monitoring of amyotrophic lateral sclerosis (ALS).
 - Repeats within one year:
 - Monitoring of evolving palsies that show progressive denervation.
 - Monitoring of evolving neuropathies such as Guillain-Barré Syndrome.
 - Monitoring of immunologically based neuropathies (for immunosuppressive drug titration).
- As such, the Committee elected not to restrict the number of claims a patient can make for these items in a given time period. However, the Committee noted a significant movement within ANZAN towards credentialing clinicians in neurophysiological testing. With appropriate changes to the MBS, such credentialing could be required before a clinician can use these items, which might improve appropriate use of the items, as well as patient experience and outcomes.



- Item 11021:
 - Although alternative diagnostic tests for myasthenia gravis exist (e.g. single fibre EMG [SFEMG] and antibody testing), repetitive stimulation NCS remains useful in this indication. It has the advantage of being more widely available than SFEMG and can provide an immediate diagnosis, unlike antibody testing. In addition, it is a superior modality for monitoring myasthenia gravis in complex patients who are resistant to, or choose not to receive, treatment. Repetitive stimulation is also useful in the diagnosis and management of other conditions, including presymptomatic neuromuscular junction disorders, Lambert-Eaton Myasthenic Syndrome (LEMS), and the differentiation of myotonic disorders and dystrophies (e.g. the McManis test).
 - While generally inappropriate for use in surgical monitoring, certain cases do exist where repetitive stimulation NCS is of value. Examples include nerve integrity monitoring in parotid gland surgery and paediatric scoliosis/kyphosis correction.
 - MBS data indicate that this item is regularly used in several ENT procedures (e.g. electronystagmography, impedance audiograms, electrooculography, caloric testing). The Committee questioned whether these procedures reflect the original intended use of this item but considered them reasonable on clinical grounds.

4.4 CNS evoked responses

Table 5: Item introduction table for items 11024 and 11027

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
11024	Central nervous system evoked responses, investigation of, by computerised averaging techniques, not being a service involving quantitative topographic mapping of event-related potentials or involving multifocal multichannel objective perimetry — 1 or 2 studies	\$113.85	9,767	\$948,194	3.2%
11027	Central nervous system evoked responses, investigation of, by computerised averaging techniques, not being a service involving quantitative topographic mapping of event-related potentials or involving multifocal multichannel objective perimetry — 3 or more studies	\$168.90	11,256	\$1,627,499	-4.9%



4.4.1 Recommendation 4

- Items 11024 and 11027: Develop a standardised national referral form for evoked response testing requests.
 - The Committee believes that inadequate referring clinician education is a major driver of low-value evoked response testing. To address this, the Committee recommends that a standardised national referral form be developed for evoked response testing requests, using the same guidance provided for routine EEG in Recommendation 1.
 - Given that the Committee makes the same recommendation for routine EEG (Recommendation 1) and all in-scope NCS/EMG (Recommendation 3), a single referral form might be developed that encompasses all these services.
 - The Committee also recommends highlighting these items for additional compliance scrutiny.

4.4.2 Rationale for Recommendation 4

This recommendation focuses on improving the value of care. It is based on the following:

- Previously, evoked response testing was a critical modality for diagnosing multiple sclerosis (MS). However, in recent years this function has been almost completely replaced by MRI and evoked responses mostly confined to prognostic usage in the MS indication.
- Nonetheless evoked response testing still plays a valuable role in the diagnosis of neuropathies and central nervous system disorders. MBS data indicate that evoked response testing items are now used in association with several other items, most notably electrodiagnostic items 11012, 11015 and 11018 (as part of the typical investigation for neuropathy), as well as items for investigating hearing, visual and vestibular disorders (e.g. electrooculography, electronystagmography, various forms of audiometry, and caloric testing of the labyrinth).
- The Committee noted that there is a very high concentration of claims in New South Wales, and that this concentration is even more pronounced in certain smaller regions of the state. Almost five times as many item 11024 claims are made for patients living in New South Wales compared to those in the ACT (the state or territory with the next highest utilisation rate), and the top 10 clinicians by service volume in FY2016/17 were responsible for approximately 63 per cent of all services delivered nationwide. The top



10 clinicians of item 11027 were similarly responsible for approximately 54 per cent of total item 11027 services in FY2016/17.

- It was noted that relatively scarce skills and special equipment are required to perform these tests, and that one would therefore expect service provision to be concentrated among a few clinicians. However, the Committee expressed concern at the extent of the concentration seen in the MBS data and recommends that the department highlights this area of practice for increased compliance activity.

4.5 Other diagnostic procedures

Table 6: Item introduction table for item 12200

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
12200	Collection of specimen of sweat by iontophoresis	\$37.20	605	\$20,931	8.0%

4.5.1 Recommendation 5

- Item 12200: No change.

4.5.2 Rationale for Recommendation 5

This recommendation recognises the ongoing relevance of the item in its current form. It is based on the following:

- This item was previously used to facilitate the diagnosis of cystic fibrosis, but this is no longer part of modern clinical practice.
- MBS data suggest that many of these tests are performed by sports medicine specialists to test specific biomarkers relevant to electrolyte management.
- The Committee is not aware of any concerns regarding use of this item.



4.6 Other therapeutic procedures

Table 7: Item introduction table for items 14227, 14230, 14233, 14236, 14239 and 14242

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
14227	Implanted infusion pump, refilling of reservoir, with baclofen, for infusion to the subarachnoid or epidural space, with or without re-programming of a programmable pump, for the management of severe chronic spasticity	\$97.95	588	\$50,250	3.7%
14230	Intrathecal or epidural spinal catheter insertion or replacement of, for connection to a subcutaneous implanted infusion pump, for the management of severe chronic spasticity with baclofen (Anaes.) (Assist.)	\$298.05	<6	N/A	N/A
14233	Infusion pump, subcutaneous implantation or replacement of, and connection to intrathecal or epidural catheter, and loading of reservoir with baclofen, with or without programming of the pump, for the management of severe chronic spasticity (Anaes.) (Assist.)	\$361.90	<6	N/A	N/A
14236	Infusion pump, subcutaneous implantation of, and intrathecal or epidural spinal catheter insertion, and connection of pump to catheter and loading of reservoir with baclofen, with or without programming of the pump, for the management of severe chronic spasticity (Anaes.) (Assist.)	\$659.95	<6	N/A	N/A
14239	Removal of subcutaneously implanted infusion pump, or removal or repositioning of intrathecal or epidural spinal catheter, for the management of severe chronic spasticity (Anaes.)	\$159.40	9	N/A	5.2%
14242	Subcutaneous reservoir and spinal catheter, insertion of, for the management of severe chronic spasticity (Anaes.)	\$473.65	<6	N/A	N/A



4.6.1 Recommendation 6

- Items 14227, 14230, 14233, 14236, 14239 and 14242: Restructure these items so that there are single items for each of the major infusion pump and component procedures: implantation, removal/replacement and refilling.
- Item 14227: No change.
- Items 14230 and 14239: Consolidate these items into item 14233.
- Item 14233:
 - Change the item descriptor to exclude insertion and include the removal or replacement of any infusion pump component.
 - The proposed item descriptor is as follows:
 - Infusion pump and/or components thereof, removal or replacement of, and connection to intrathecal or epidural catheter, and loading of reservoir with baclofen, with or without programming of the pump, for the management of severe chronic spasticity (Anaes.) (Assist.)
 - Retain the existing schedule fee for this item.
- Item 14236:
 - Change the item descriptor to include only the implantation of any infusion pump component.
 - The proposed item descriptor is as follows:
 - Infusion pump and/or reservoir, subcutaneous implantation of, and intrathecal or epidural spinal catheter insertion, and connection of pump to catheter and loading of reservoir with baclofen, with or without programming of the pump, for the management of severe chronic spasticity (Anaes.) (Assist.)
 - Retain the existing schedule fee for this item.
- Item 14242: Consolidate this item into item 14236.

4.6.2 Rationale for Recommendation 6

This recommendation focuses on simplifying the MBS and improving the calibration of MBS reimbursement. It is based on the following:



- There is no need for six different items to describe implantation, replacement and removal procedures. The complexity of these procedures and the amount of time they require are similar regardless of the specific infusion pump component. The Committee recommends consolidation into three items, covering:
 - Refilling of an infusion pump.
 - Removal or replacement of part or all of the pump.
 - Implantation/insertion of the pump.
- The Committee feels that the complexity of component replacement/removal and implantation procedures is best accounted for by the existing schedule fees for items 14233 and 14236 respectively.

4.7 Botulinum toxin injections for spastic/spasmodic conditions

Table 8: Item introduction table for items 18350–51, 18353, 18360 and 18365

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
18350	Botulinum toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of hemifacial spasm in a patient who is at least 12 years of age, including all such injections on any one day	\$124.85	9,588	\$1,037,830	3.5%
18351	Clostridium Botulinum Type A Toxin-Haemagglutinin Complex (Dysport), injection of, for the treatment of hemifacial spasm in a patient who is at least 18 years of age, including all such injections on any one day	\$124.85	486	\$53,401	16.9%
18353	Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxinA (Xeomin), injection of, for the treatment of cervical dystonia (spasmodic torticollis), including all such injections on any one day	\$249.75	10,737	\$2,298,072	N/A
18360	Botulinum Toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of	\$124.85	4,684	\$496,111	8.4%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
	moderate to severe focal spasticity, if: (a) the patient is at least 18 years of age; and (b) the spasticity is associated with a previously diagnosed neurological disorder; and (c) treatment is provided as: (i) second line therapy when standard treatment for the conditions has failed; or (ii) an adjunct to physical therapy; and (d) the treatment is for all or any of the muscles subserving one functional activity and supplied by one motor nerve, with a maximum of 4 sets of injections for the patient on any one day (with a maximum of 2 sets of injections for each limb), including all injections per set; and (e) the treatment is not provided on the same occasion as a service mentioned in item 18365				
18365	Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxin (Xeomin), injection of, for the treatment of moderate to severe spasticity of the upper limb following a stroke, if : (a) the patient is at least 18 years of age; and (b) treatment is provided as: (i) second line therapy when standard treatment for the condition has failed; or (ii) an adjunct to physical therapy; and (c) the patient does not have established severe contracture in the limb that is to be treated; and (d) the treatment is for all or any of the muscles subserving one functional activity and supplied by one motor nerve, with a maximum of 4 sets of injections for the patient on any one day (with a maximum of 2 sets of injections for each upper limb), including all injections per set; and (e) for a patient who has received treatment on 2 previous separate occasions - the patient has responded to the treatment	\$124.85	846	\$90,275	N/A



4.7.1 Recommendation 7

- Items 18350, 18351, 18353, 18360 and 18365: No change.
- Items 18360 and 18365: The Committee expressed support for the idea that a suitable applicant should apply to PBAC for reimbursement of botulinum toxin products in line with the dosage measures described in the relevant MBS items, in the interests of ensuring consistency between MBS and PBS reimbursement practices for botulinum toxin-related services and products.

4.7.2 Rationale for Recommendation 7

This recommendation recognises the ongoing relevance of the items in their current form. It is based on the following:

- Items for the use of botulinum toxin in neurological conditions were last amended in 2014 and 2015, with a view to allowing broader use in neurological patients across multiple indications.
- Growth in use of several items has been marked since then, but the Committee feels this represents an appropriate normalisation of usage considering the severity of the relevant indications and the lack of other good management options for these patients. The existing descriptors ensure that all qualifying patients will have undergone alternative therapies previously, with poor results.
- The items' descriptors already provide considerable detail regarding the acceptable indications and limits to their use and the Committee does not believe there is sufficient cause to modify these.
- Items 18360 and 18365 specify limits to the number of injections that may be administered to a patient on a particular day. However, these specifications are not consistent with those described in the PBS items for botulinum toxin products, which generally provide reimbursement for fewer injections. For example, PBS reimbursement is limited to 4 lifetime administrations, despite the fact that many stroke patients will require long-term treatment involving multiple claims of 18365 over time.



4.8 Botulinum toxin injections for axillary hyperhidrosis

Table 9: Item introduction table for item 18362

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
18362	Botulinum Toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of severe primary axillary hyperhidrosis, including all injections on any one day, if: (a) the patient is at least 12 years of age; and (b) the patient has been intolerant of, or has not responded to, topical aluminium chloride hexahydrate; and (c) the patient has not had treatment with botulinum toxin within the immediately preceding 4 months; and (d) if the patient has had treatment with botulinum toxin within the previous 12 months - the patient had treatment on no more than 2 separate occasions (Anaes.)	\$246.70	6,657	\$1,520,412	54.8%

4.8.1 Recommendation 8

- Item 18362:
 - No change.
 - Prioritise this item for regular ongoing review.

4.8.2 Rationale for Recommendation 8

This recommendation recognises the ongoing relevance of the item in its current form. It is based on the following:

- Items for the use of botulinum toxin in neurological conditions were last amended in 2014 and 2015, with a view to allowing broader use in neurological patients across multiple indications.
- Growth in use of this item has been considerable since then, but the Committee feels this represents an appropriate normalisation of usage considering the severity of the relevant indications and the lack of other effective options for these patients. The existing descriptor ensures that all qualifying patients will have undergone alternative therapies previously, with poor results.



- This treatment has replaced thoracotomy and sympathectomy in many cases, offering an enormous improvement in patient safety and outcomes while decreasing the considerable cost of such treatment to patients and the system.
- The items' descriptors already provide considerable detail regarding the acceptable indications and limits to their use.
- MBS data showed no other concerning trends:
 - In FY2016/17, approximately 26 per cent of these procedures were done by neurologists, with a further 73 per cent conducted by dermatologists. The Committee regards this service split as appropriate and not of particular concern.
 - MBS data show that the average service count per patient in FY2016/17 was 1.5. This is within the descriptor's limits of approximately three services per patient per year.
 - MBS data on annual service rates over the past five years (by neurologists and dermatologists combined) indicate that the explosive growth in service utilisation seen previously is slowing, with year-on-year growth from FY2015/16 to FY2016/17 of 13.4 per cent. This compares with rates of 268 per cent, 90 per cent, 42 per cent and 26 per cent in the respective years between FY2011/12 and FY2015/16. Absolute growth in services also slowed over this timeframe, with increases in service volume of 1,231, 1,514, 1,357, 1,186 and 768 between FY2011/12 and FY2016/17.
- The Committee recommends that the department reviews this item regularly to ensure growth rates are not suggestive of misuse, but it does not advocate making any changes at this time.

4.9 Botulinum toxin injections for other conditions

Table 10: Item introduction table for items 18366, 18368 and 18374

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
18366	Botulinum Toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of strabismus, including all such injections on any one day and associated electromyography) (Anaes.)	\$156.40	209	\$30,517	17.1%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
18368	Botulinum Toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of spasmodic dysphonia, including all such injections on any one day	\$267.05	1,196	\$273,294	4.7%
18374	Clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxin (Xeomin), injection of, for the treatment of bilateral blepharospasm in a patient who is at least 18 years of age, including all such injections on any one day (Anaes.)	\$124.85	1,025	\$111,592	N/A

4.9.1 Recommendation 9

- Items 18366, 18368 and 18374: No change.

4.9.2 Rationale for Recommendation 9

This recommendation recognises the ongoing relevance of the items in their current form. It is based on the following:

- Items for the use of botulinum toxin in neurological conditions were last amended in 2014 and 2015, with a view to allowing broader use in neurological patients across multiple indications.
- Growth in use of several items has been marked since then, but the Committee feels this represents an appropriate normalisation of usage considering the severity of the relevant indications and the lack of other good options for these patients. The existing descriptors ensure that all qualifying patients will have undergone alternative therapies previously, with poor results.
- The items' descriptors already provide considerable detail regarding the acceptable indications and limits to their use, and the Committee does not believe there is sufficient cause to modify these.



4.10 Botulinum toxin injections

Table 11: Item introduction table for item 18377

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
18377	Botulinum Toxin Type A Purified Neurotoxin Complex (Botox), injection of, for the treatment of chronic migraine, including all injections in 1 day, if: (a) the patient is at least 18 years of age; and (b) the patient has experienced an inadequate response, intolerance or contraindication to at least 3 prophylactic migraine medications before commencement of treatment with botulinum toxin, as manifested by an average of 15 or more headache days per month, with at least 8 days of migraine, over a period of at least 6 months, before commencement of treatment with botulinum toxin; and (c) the requirements relating to botulinum toxin type a under the pharmaceutical benefits scheme are complied with for each patient—applicable not more than twice except if the patient achieves and maintains at least a 50% reduction in the number of headache days per month from baseline after 2 treatment cycles (each of 12 weeks duration)	\$124.85	21,461	\$2,606,325	N/A

4.10.1 Recommendation 10

- Item 18377:
 - No change.
 - Prioritise this item for regular ongoing review.

4.10.2 Rationale for Recommendation 10

This recommendation recognises the ongoing relevance of the item in its current form. It is based on the following:

- Items for the use of botulinum toxin in neurological conditions were last amended in 2014 and 2015, with a view to allowing broader use in neurological patients.



- Growth in use of this item has been marked since then, but the Committee feels this represents an appropriate normalisation of usage considering the severity of the relevant indication and the lack of other good options for these patients. The existing descriptor ensures that all qualifying patients will have undergone alternative therapies previously, with poor results.
- The Committee agreed that this is an evolving area of practice, and that it is already carefully delimited by the existing item descriptor. However, it noted that per-capita usage rates of this item were considerably higher in the ACT than elsewhere in the country. The Committee considered this to be an indication of individual clinician practice patterns that might be worth monitoring for compliance purposes.
- MBS data show that the average service count per patient in FY2016/17 was 2.7. This is not significantly in excess of expected service frequency, given botulinum toxin would usually be administered approximately every three to four months.
- MBS data on annual service rates (by neurologists) over the three financial years since this item was introduced indicate that the previously explosive growth in service utilisation is slowing, with year-on-year growth rates of 494 per cent, 57 per cent and 37 per cent between FY2013/14 and FY2016/16. Absolute growth in services has remained high over the same timeframe, with increases in service volume of 8,249, 5,693 and 5,850 between FY2013/14 and FY2016/17. This still represents very rapid growth, but given the early stage in the evolution of this new service the Committee does not recommend any changes at this time. It does recommend flagging this item for regular review, however, to ensure growth rates are not suggestive of misuse (particularly in the ACT).



5. Recommendations: Neurosurgical items

The Committee has made specific recommendations for each of the neurosurgical items in scope, as well as two broader recommendations that are relevant to multiple items.

The Committee believes that the neurosurgical section of the MBS is unnecessarily complex, and that many items for similar procedures could be readily consolidated into more general items. This will serve to simplify billing and ensure that patients receive the same rebate for similar procedures. Specific consolidations are clearly indicated in the recommendations made below. Unless otherwise specified, the Committee's intent is for item consolidations to be implemented in a cost neutral manner, such that the remaining post-consolidation items' schedule fees reflect appropriately weighted averages of their component items' service volumes, schedule fees and other applicable variables.

The two broader recommendations mentioned above involve the addition of stereotaxy and cranioplasty services to the descriptors of several different items, either with or without an associated increase in the items' schedule fees. The inclusion of these services as an integral part of major neurosurgical procedures will simultaneously improve patient outcomes and result in the creation of single items that represent a complete medical service. These will no longer require additional co-claiming of stereotaxy and cranioplasty items, and co-claiming should be restricted for items where these services are added. Stereotaxy and cranioplasty additions are recommended on an item-by-item basis in the relevant sections below, but their general rationale is broadly similar, and is offered in the notes that follow.

- **A note from the Committee on stereotaxy**

Recommendations

- The Committee recommends adding the service described by stereotaxy item 40803 to many of the items within its scope (as detailed in the recommendations that follow). In doing so, the Committee seeks to promote better patient safety and outcomes, improve the transparency of the MBS for patients and ensure that patients receive the same rebate for the same procedure.
- Unless otherwise specified, the Committee supports increasing the applicable items' schedule fees in line with the addition of item 40803, in accordance with the existing MBS multiple operation rule. The Committee appreciates that these recommendations will result in more stereotaxy being performed and reimbursed



than is currently the case, but it believes any additional cost will be outweighed by the benefits to patient safety and outcomes.

- Some neurosurgical procedures in which stereotaxy is usually used can also be performed free-hand, and the Committee generally supports clinician autonomy and clinical judgment in deciding when this is appropriate. However, success rates in free-hand neurosurgery are clinician-dependent, and the Committee strongly encourages the use of stereotaxy as a default in almost all cases where the choice exists. It also expects that this will become the norm in the near future.

Context

- Stereotactic surgery (stereotaxy) is a minimally invasive surgical technique that uses three-dimensional data and coordinate systems to provide real-time localisation, navigation and guidance to a surgeon during a procedure. Prior to surgery, these data are used for operative planning.
- First performed experimentally in 1906, stereotaxy originally used a frame attached to the skull as a fixed reference, which allowed coordinates to be dialled in and instruments directed to a target within that frame. While frame-based systems are still used, a number of technologies converged in the 1980s to allow the development of frameless stereotaxy, which is now fundamental to all modern stereotaxy systems.
- Modern stereotaxy typically involves using CT or MRI data acquired before and during a procedure. These images are then digitally combined to produce a three-dimensional "map" of the operative area. Stereotaxy is then used to guide different implements and enable the performance of various procedures, including biopsies, insertion of implants, electrosurgery, surgery and radiosurgery, among others.
- Before surgery, patients have surface markers placed on the skin before being imaged (using CT or MRI) and the imaging data are loaded on to an intraoperative stereotactic workstation. The patient's anatomy is co-registered to the image space prior to the procedure by identifying each surface marker and its corresponding point on the images. The stereotaxy workstation makes this calculation by "triangulating" each point with optical cameras, in the same way that satellites do. Instruments that can be optically tracked by the stereotaxy system can then be represented digitally on monitors in the operating room. Both the position and orientation of the instrument (in reference to the imaging) are made available to the surgeon in real time. Today, data about structures as specific as brain tracts and functional areas can be incorporated into the image set as well.



Modern standard of care

- Stereotaxy is integral to the modern practice of neurosurgery and has been for almost 30 years. All major teaching hospitals in Australia have had this tool for at least 25 years, it has been considered the standard of care in the conduct of most intracranial procedures for many years, and stereotaxy systems are a mandatory requirement of the Royal Australasian College of Surgeons for accreditation of neurosurgical units within hospitals in Australia. Along with the operating microscope, stereotaxy is one of a few major technological developments that have transformed neurosurgical practice in terms of its capacity, safety and outcomes.

Safety and efficacy considerations

- The ability to plan, precisely target and guide instruments within the brain is critical to patient safety in neurosurgery, where inaccuracy on the order of a few millimetres can have devastating, lifelong consequences for the patient and the community. In fact, many procedures cannot be conducted at all without stereotactic image guidance.
- Without stereotaxy, surgeons are largely dependent on their detailed anatomical knowledge and sense of 3D spatial recognition once they reach below the surface of the brain. The precision provided by stereotaxy allows for rapid localisation of targets deep within the brain, as well as calculation of the best trajectories so that instruments arrive there without transgressing sensitive structures. Without stereotaxy, it would not be possible to reliably hit deep-seated targets (for example, when biopsying a tumour or placing an electrode for treating Parkinson's disease).
- Stereotaxy allows the surgeon to reliably map out boundaries, enhancing the completeness of tumour resection. This is closely linked to patient survival and tumour recurrence. The surgeon can also reliably identify critical structures adjacent to and beyond the boundaries of tumours before they are encountered, in spite of the distorted and dangerous anatomical environment tumours often cause.

Evidence

- The use of stereotaxy improves patient safety and outcomes in intracranial procedures and is now standard clinical practice in many neurosurgical procedures. This is confirmed by MBS data, which show that the principal stereotaxy item (40803) is regularly co-claimed with a wide variety of other neurosurgical items.
- The difference in patient outcomes between surgery performed with and without stereotaxy has not been the subject of a great deal of research over the past 20



years, largely because its positive role in modern-day neurosurgical practice is as undisputed as that of an operating microscope. Several older references are available, however, that show the superiority of even the stereotaxy systems of the time. The technology has advanced considerably since then, further improving the utility and accuracy of stereotaxy in modern surgery (20) (21) (22) (23) (24) (25) (26).

The Committee notes that there will be no comparative literature available for many indications, simply because the surgery is impossible to do without stereotaxy. Examples include functional neurosurgery and the targeting of deep lesions in the brain.

- **A note from the Committee on cranioplasty**

- The Committee recommends adding the service described by cranioplasty item 40600 to many of the items within its scope (as detailed in the recommendations that follow). Cranioplasty is a procedure to repair cranial defects (holes in the skull) or deformities resulting from trauma, surgery or congenital causes. This can be accomplished through the use of bone cement, bone autografts or plastic/metal cranial prostheses (e.g. plates).
- In addition to its use in some skull fractures, cranioplasty (item 40600) is frequently co-claimed with neurosurgical procedures that result in large cranial defects, such as removal of intracranial tumours, cerebrovascular pathologies and epilepsy surgeries. These procedures often result in painful or cosmetically unacceptable cranial defects (27). During its discussions, the Committee noted that even where patients are initially satisfied with their operative outcomes without cranioplasty, they often return later complaining of recurrent headaches or discomfort with an asymmetric appearance of the face or head. Both can lead to significant morbidity and emotional distress in patients who have already had to deal with a life-changing illness.
- The Committee agrees that the use of cranioplasty is generally indicated in major procedures such as those mentioned above. In these cases, cranioplasty has a positive effect both on patients' physical outcomes and on their smooth and successful reintegration into society. This value is sufficiently clear that the Committee recommends adding the service described by cranioplasty item 40600 to those items and increasing their schedule fees in accordance with the MBS multiple operation rule. This consolidation into more complete medical services also helps to



simplify the MBS and ensure patients receive the same benefits for the same procedure.

- The Committee recommends that selected items include cranioplasty services without the addition of any extra schedule fee. This is because cranioplasty is sometimes used in less radical procedures for filling smaller surgical defects or even the holes left by stereotactic frames and surgical instrumentation. The Committee believes that the rationale for including cranioplasty in these items is less clear. On one hand, the time taken to repair a cranial defect is similar for small and medium-sized defects—both require careful mixing, application and quality checking of bone cement repairs. On the other hand, many small defects do not need to be repaired, or are insignificant enough that they should be done as a matter of course. These should not be eligible for the same benefit claimed for large cranioplasties. Items that do not specifically include cranioplasty or exclude co-claiming with item 40600 will still be eligible to co-claim item 40600 separately as needed.

5.1 General procedures

Table 12: Item introduction table for items 39000, 39003, 39006, 39009, 39012, 39015 and 39018

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39000	Lumbar puncture (Anaes.)	\$75.30	6,386	\$378,732	5.5%
39003	Cisternal puncture (Anaes.)	\$85.65	<6	N/A	N/A
39006	Ventricular puncture (not including burr-hole) (Anaes.)	\$159.40	11	\$964	-9.4%
39009	Subdural haemorrhage, tap for, each tap (Anaes.)	\$59.35	<6	N/A	N/A
39012	Burr-hole, single, preparatory to ventricular puncture or for inspection purpose - not being a service to which another item applies (Anaes.)	\$237.60	13	\$1,599	-10.0%
39015	Ventricular reservoir, external ventricular drain or intracranial pressure monitoring device, insertion of - including burr-hole (excluding after-care) (Anaes.) (Assist.)	\$376.00	542	\$83,473	0.4%
39018	Cerebrospinal fluid reservoir, insertion of (Anaes.) (Assist.)	\$376.00	12	\$1,811	-4.4%



5.1.1 Recommendation 11

- Item 39000: No change.
- Items 39003, 39009 and 39012: Consolidate these items into item 39006.
- Item 39006: Change the item descriptor to consolidate the various intracranial access procedure items and include the creation of a burr-hole.
 - The proposed item descriptor is as follows:
 - Procedure to obtain access to intracranial space (including subdural space, ventricle or basal cistern), either percutaneously or through the use of a burr-hole (Anaes.)
- Item 39015: Change the item descriptor to specify that this item is intended for insertion of a parenchymal pressure monitoring device. Remove ventricular reservoir/drain insertion (moved to item 39018) and exclude the use of stereotaxy (40803).
 - The proposed item descriptor is as follows:
 - Intracranial parenchymal pressure monitoring device, insertion of, including burr-hole, not being a service associated with a service to which item 40803 applies (Anaes.)
- Item 39018: Change the item descriptor to include related procedures and add stereotaxy.
 - The proposed item descriptor is as follows:
 - Cerebrospinal reservoir, ventricular reservoir, or external ventricular drain, insertion of, with or without stereotaxy (Anaes.)
 - Increase the schedule fee commensurate with the addition of item 40800, in accordance with the multiple operation rule.

5.1.2 Rationale for Recommendation 11

This recommendation focuses on simplifying the MBS, improving the safety and efficacy of patient care, and ensuring that care aligns with professional standards. It is based on the following:

- Items 39003, 39006 and 39009:
 - Items 39003 and 39009 are seldom performed and their technique and complexity are closely related to that of item 39006.



- Co-claiming analysis suggests that some of these procedures are performed in conjunction with a burr-hole (item 39012). Including this service in consolidated item 39006 would create a complete medical service.
- The Committee considered adding the option of using an assistant in these procedures. However, MBS data showed that an assistant was used in few or no services in FY2016/17, so it was agreed that this addition should not be necessary.
- Item 39012: This item is no longer used as a standalone procedure in modern clinical practice and has now been included in item 39006.
- Items 39015:
 - The Committee agreed that it would be appropriate to consolidate item 39015 into item 39018. Item 39015 includes ventricular reservoir and drain insertion procedures, which use similar techniques to those involved in item 39018.
 - The Committee's proposed change to this item—focusing it towards parenchymal intracranial pressure monitoring device insertion—means that it would no longer require the use of stereotaxy. The existing item was co-claimed with stereotaxy (item 40803) in approximately 54 per cent of cases in FY2016/17. The services requiring stereotaxy would shift to item 39018.
 - The Committee considered adding the option of using an assistant in this procedure. However, MBS data showed that an assistant was used only once in FY2016/17, so it was agreed that this addition should not be necessary.
- Item 39018:
 - Although it is technically possible to perform these procedures free-hand in isolated cases, the Committee recommends including stereotaxy in this item to encourage better patient safety and outcomes, and to create a more complete medical service. In contrast to item 39015 (insertion of a parenchymal monitor), cerebrospinal or ventricular reservoir/drain insertions require very accurate targeting of the ventricular system because there is often only one chance to correctly perform them, and because inaccurate positioning can cause serious adverse effects. MBS data analysis confirms that stereotaxy (item 40803) was co-claimed in approximately 67 per cent of item 39018 cases in FY2016/17.
 - The Committee recommends using the current schedule fee for item 40800 when calculating the new schedule fee for item 39018, rather than using the schedule fee for item 40803. (The schedule fee for item 40803 is recommended for use in other procedures in this report.) Item 39018 procedures are faster to perform than the



majority of others that involve stereotaxy and do not warrant the addition of the full schedule fee for item 40803. The Committee also appreciates that there is a small risk that including the schedule fee for stereotaxy in item 39018 without requiring its use could result in clinicians choosing not to use stereotaxy but claiming the full schedule fee anyway, as well as unintentional shifting of services from public to private settings.

- The Committee considered adding the option of using an assistant in this procedure. However, MBS data showed that an assistant was not used in any item 39018 service in FY2016/17, so it was agreed that this addition should not be necessary.

5.2 Pain procedures

Table 13: Item introduction table for items 39106, 39109 and 39112

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39106	Neurectomy, intracranial, for trigeminal neuralgia (Anaes.) (Assist.)	\$1,188.20	NFP	\$1,066	-17.8%
39109	Trigeminal gangliotomy by radiofrequency, balloon or glycerol (Anaes.)	\$443.70	125	\$28,950	3.9%
39112	Cranial nerve, intracranial decompression of, using microsurgical techniques (Anaes.) (Assist.)	\$1,541.50	473	\$405,116	8.2%

5.2.1 Recommendation 12

- Item 39106: Consolidate this item into item 39112.
- Item 39109: Change the item descriptor and schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Trigeminal gangliotomy by radiofrequency, balloon or glycerol, including stereotaxy (Anaes.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.



- Item 39112: Change the item descriptor to include items 39106 and 39500, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Cranial nerve, neurectomy or intracranial decompression of, using microsurgical techniques, including stereotaxy and cranioplasty (Anaes.)
 - Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.

5.2.2 Rationale for Recommendation 12

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Items 39106 and 39112:
 - These procedures (as well as item 39500) are very similar in practice and complexity and there is no need for separate items for each procedure.
 - The use of stereotaxy and cranioplasty is now standard practice in these procedures and benefits patient safety, outcomes and experience. Adding these procedures would result in the creation of a more complete medical service.
 - Approximately 50–80 per cent of item 39106 and 39112 services claimed in FY2016/17 were co-claimed with stereotaxy (item 40803) and/or cranioplasty (item 40600) and the Committee believes that some clinicians will have performed limited cranioplasties in more cases without co-claiming the item.
 - Item 39106 and 39112 procedures often result in a defect behind the mastoid process that can be painful and cosmetically unacceptable, and the Committee reports that patients who do not undergo cranioplasty at the time of primary surgery regularly return in the months thereafter requesting that it be performed.
- Item 39109:
 - The use of stereotaxy meaningfully improves patient outcomes and should be encouraged by adding it to the item descriptor. This procedure involves very precise targeting of the trigeminal nerve ganglion using a percutaneous needle. Incorrect placement of the needle or ablative can result in severe adverse effects, such as corneal anaesthesia, stroke or the need to abort the procedure.



5.3 Cranial nerve procedures

Table 14: Item introduction table for items 39500 and 39503

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39500	Vestibular nerve, section of, via posterior fossa (Anaes.) (Assist.)	\$1,270.90	13	N/A	-2.8%
39503	Facio-hypoglossal nerve or facio-accessory nerve, anastomosis of (Anaes.) (Assist.)	\$955.00	7	\$3,488	-12.9%

5.3.1 Recommendation 13

- Item 39500: Consolidate this item into item 39112.
- Item 39503: Change the item descriptor to prevent co-claiming of stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Facio-hypoglossal nerve or facio-accessory nerve, anastomosis of, not being used in association with item 40803 (Anaes.) (Assist.)

5.3.2 Rationale for Recommendation 13

This recommendation focuses on simplifying the MBS and improving the value and quality of care. It is based on the following:

- Item 39500: Vestibular nerve section is rare but is indicated for refractory Meniere's disease. The procedure can be consolidated into item 39112 (a facial nerve procedure) because the approach and the majority of the surgical technique are very similar.
- Item 39503: Though rarely used, this procedure is still relevant in modern clinical care and should be retained in the MBS. It was not co-claimed with item 40803 in FY2016/17, but the Committee felt it prudent to restrict such practices as there is no clinical need to use stereotaxy in these procedures.



5.4 Cranio-cerebral injuries

Table 15: Item introduction table for items 39600, 39603, 39606, 39609, 39612 and 39615

Item	Descriptor	Schedule fee	Services FY2015/16	Benefits FY2015/16	Services 5-year annual avg. growth
39600	Intracranial haemorrhage, burr-hole craniotomy for - including burr-holes (Anaes.) (Assist.)	\$473.65	137	\$36,375	-0.4%
39603	Intracranial haemorrhage, osteoplastic craniotomy or extensive craniectomy and removal of haematoma (Anaes.) (Assist.)	\$1,195.70	742	\$576,253	2.2%
39606	Fractured skull, depressed or comminuted, operation for (Anaes.) (Assist.)	\$797.10	12	\$5,833	-1.6%
39609	Fractured skull, compound, without dural penetration, operation for (Anaes.) (Assist.)	\$955.00	14	\$8,037	3.1%
39612	Fractured skull, compound, depressed or complicated, with dural penetration and brain laceration, operation for (Anaes.) (Assist.)	\$1,120.45	9	\$6,303	-3.9%
39615	Fractured skull with rhinorrhoea or otorrhoea, repair of by cranioplasty or endoscopic approach (Anaes.) (Assist.)	\$1,195.70	111	\$95,625	6.5%

5.4.1 Recommendation 14

- Items 39600, 39603, 39606, 39609, 39612 and 39615: Consolidate the existing intracranial haemorrhage and skull fracture items into four items.
- Item 39600: Consolidate this item into item 39603.
- Item 39603: Change the item descriptor to include burr-hole access (item 39600), decompressive craniotomy where necessary (item 39721) and subtemporal decompression (item 40015), under stereotactic guidance (item 40803). This item should also provide for post-operative reopening for swelling or repair of cerebrospinal fluid leaks where necessary (subset of services described by 39615). This item may be claimed for the initial procedure and for each episode of post-operative re-opening.



- The proposed item descriptor is as follows:
 - Intracranial haemorrhage removal, requiring craniotomy or burr-holes, including subtemporal decompression, craniotomy for brain swelling, stroke, or raised intracranial pressure, including stereotaxy, or re-opening post-operatively where necessary, including for swelling or post-operative cerebrospinal fluid leak. Payable for each episode of post-operative re-opening. (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Items 39606: Consolidate this item into item 39609.
- Item 39609: Change the item descriptor to specify usage in skull fractures without brain laceration and dural penetration.
- The proposed item descriptor is as follows:
 - Fractured skull, without brain laceration or dural penetration, repair of (Anaes.) (Assist.)
- Item 39612: Change the item descriptor to specify usage in skull fractures with brain laceration and dural repair, but without cerebrospinal fluid rhinorrhoea or otorrhoea.
- The proposed item descriptor is as follows:
 - Fractured skull, with brain laceration or dural penetration but without cerebrospinal fluid rhinorrhoea or otorrhoea, repair of (Anaes.) (Assist.)
- Item 39615: Change the item descriptor to specify usage in traumatic skull fractures with cerebrospinal fluid rhinorrhoea or otorrhoea, and to include stereotaxy (item 40803) and dermofat graft (item 45018).
- The proposed item descriptor is as follows:
 - Fractured skull, after trauma only, with cerebrospinal fluid rhinorrhoea or otorrhoea, repair of, including stereotaxy and dermofat graft (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of items 45018 and 40803, in accordance with the multiple operation rule.



5.4.2 Rationale for Recommendation 14

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Items 39600 and 39603:
 - The Committee agreed that it would be preferable to consolidate these services into a single item. They represent alternative approaches to treating intracranial haemorrhages and require similar amounts of time. Multiple burr-holes are sometimes needed when using the burr-hole approach (item 39600), which can take as much time as the craniotomy described in item 39603.
 - The proposed descriptor for consolidated item 39603 includes all procedures for intracranial haemorrhage or swelling involving one or more burr-holes and/or craniotomy or craniectomy. It also includes stereotaxy, which improves the accuracy of the burr-hole/craniotomy placement, thereby improving outcomes and safety.
 - Items 40015 and 39721 should also be consolidated into item 39603, given that the technique and mode of accessing a haemorrhage or swelling are substantially the same in cases where the cause is traumatic/postoperative (item 39721) or elective (item 40015). These items would no longer need to be retained as standalone items, thereby simplifying the MBS.
- Items 39606, 39609 and 39612:
 - These items unnecessarily distinguish between different types of skull fracture for which the therapeutic approach is very similar. The principal therapeutic differences lie in whether there is brain laceration/dural penetration, and whether cerebrospinal fluid (CSF) leakage is present. The proposed changes reflect this:
 - Item 39609 will include current item 39606 services and cover all fractures without dural penetration.
 - Item 39612 will be used for patients with dural penetration but no CSF leakage
 - Item 39615 use will be limited to cases of skull fracture with CSF leakage (rhinorrhoea or otorrhoea)
 - Skull fractures resulting in dural penetration and brain laceration require more complex repairs than those without, but the distinction between depressed/comminuted and compound fractures without dural penetration is minor



- Hence items 39606 and 39609 do not require separate items to distinguish between these types of fractures and can be consolidated to cover fractures without dural penetration, while 39612 is kept as a separate item to cover instances where there is dural penetration but no CSF leakage
- Where there is dural penetration but no CSF leakage (39612), damage to deeper brain structures is less likely, and the use of stereotaxy is generally unnecessary. Co-claiming of 40803 should be permitted for rare cases (for example, a comminuted depressed skull fracture in which a fragment is embedded within the brain), but not included in this item
- By contrast, fractures leading to CSF leakage – typically from the skull base (39615) – can involve underlying brain injury and are characteristically difficult to localise and repair without stereotaxy
- Item 39615:
 - Given the danger to intracranial structures in these severe fractures, patient safety is improved by using stereotaxy with this procedure. This constitutes best practice. Co-claiming analysis indicates that item 39615 was co-claimed with item 40803 in approximately 32 per cent of cases in FY2016/17, but the Committee considers this to be inappropriately low, given the severity of possible complications due to a failed or inadequate repair. A combined item would support patient safety and outcomes and represent a more complete medical service.
 - The Committee believes that post-operative CSF leak repairs should be claimed using item 39603. Item 39615 is intended to be used in post-traumatic situations, not in cases of post-operative CSF leak. Procedures for post-operative CSF leak tend to be less complex because the location of the previous surgery is already clear, and because such leaks are generally smaller and simpler to repair. The Committee believes that item 39603 more accurately reflects the complexity of these repairs. As a result of this change, the Committee expects approximately 80% of current item 39615's service volume to shift to item 39603.
 - Dermofat/fascia grafts are an integral part of the procedure and should be included with this item. During procedures to repair a CSF leak, the dura must be repaired in a watertight fashion. This cannot be achieved by primary repair. Instead, the repair utilises several layers of tissue graft including use of the patient's own fascia or fat, synthetic collagen grafts and tissue glue to achieve a reliable seal.
 - The proposed changes to the wording of the item descriptor will provide greater clarity and promote consistency in item use.



5.5 Skull base surgery

Table 16: Item introduction table for items 39640, 39642, 39646, 39650, 39653–54, 39656, 39658, 39660 and 39662

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39640	Tumour involving anterior cranial fossa, removal of, involving craniotomy, radical excision of the skull base, and dural repair (Anaes.) (Assist.)	\$3,031.65	63	\$138,542	4.7%
39642	Tumour involving anterior cranial fossa, removal of, involving frontal craniotomy with lateral rhinotomy for clearance of paranasal sinus extension, (intracranial procedure) (Anaes.) (Assist.)	\$3,187.25	6	\$14,343	-9.7%
39646	Tumour involving anterior cranial fossa, removal of, involving frontal craniotomy with lateral rhinotomy and radical clearance of paranasal sinus and orbital fossa extensions, with intracranial decompression of the optic nerve, (intracranial procedure) (Anaes.) (Assist.)	\$3,653.60	15	\$40,268	-4.6%
39650	Tumour involving middle cranial fossa and infra-temporal fossa, removal of, craniotomy and radical or sub-total radical excision, with division and reconstruction of zygomatic arch, (intracranial procedure) (Anaes.) (Assist.)	\$2,642.95	19	\$33,099	-3.7%
39653	Petro-clival and clival tumour, removal of, by supra and infratentorial approaches for radical or sub-total radical excision (intracranial procedure), not being a service to which item 39654 or 39656 applies (Anaes.) (Assist.)	\$4,703.15	34	\$111,998	-14.4%
39654	Petro-clival and clival tumour, removal of, by supra and infratentorial approaches for radical or sub-total radical excision, (intracranial procedure), conjoint surgery, principal surgeon (Anaes.) (Assist.)	\$3,420.50	15	\$36,635	-7.4%
39656	Petro-clival and clival tumour, removal of, by supra and infratentorial approaches for radical or	\$2,565.30	15	\$26,103	0.0%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
	sub-total radical excision, (intracranial procedure), conjoint surgery, co-surgeon (Assist.)				
39658	Tumour involving the clivus, radical or sub-total radical excision of, involving transoral or transmaxillary approach (Anaes.) (Assist.)	\$3,031.65	11	\$25,011	6.6%
39660	Tumour or vascular lesion of cavernous sinus, radical excision of, involving craniotomy with or without intracranial carotid artery exposure (Anaes.) (Assist.)	\$3,031.65	38	\$85,270	-4.6%
39662	Tumour or vascular lesion of foramen magnum, radical excision of, via transcondylar or far lateral suboccipital approach (Anaes.) (Assist.)	\$3,031.65	12	\$26,549	1.8%

5.5.1 Recommendation 15

- Skull base surgery items: Restructure these items based on which of the two “zones” of the skull base they principally involve.
 - Items to be used in the anterior and middle cranial fossae and cavernous sinus would be consolidated into item 39640, while those relating to the petro-clival and foramen magnum regions would be consolidated into item 39653. These items would refer to procedures performed by an individual surgeon, with or without assistance from a non-neurosurgeon clinician assistant.
 - Items 39654 and 39656 would be retained and similar new items 39640X and 39640Y created to facilitate conjoint surgery in the anterior and/or middle cranial fossae or the cavernous sinus.
- Item 39640: Change the item descriptor to include anterior and middle cranial fossa and cavernous sinus tumours and vascular lesions, as well as stereotaxy and cranioplasty. Also, split this item to create two new items, covering the same surgery when performed conjointly by a principal and a second surgeon.
 - The proposed item descriptor for item 39640 is as follows:
 - Anterior or middle cranial fossa or cavernous sinus, tumour or vascular lesion, removal or radical excision of, including stereotaxy and cranioplasty (Anaes.) (Assist.)



- The Committee recommends increasing this item's schedule fee to align with item 39646 (anterior cranial fossa tumour removal with lateral rhinotomy, radical sinus clearance and optic nerve decompression), before the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- New item 39640X: Create a new item to allow conjoint surgery by a primary surgeon for removal of anterior and middle cranial fossa and cavernous sinus tumours and vascular lesions, including both stereotaxy and cranioplasty.
 - The proposed item descriptor for item 39640X is as follows:
 - Anterior or middle cranial fossa or cavernous sinus, tumour or vascular lesion, removal or radical excision of by conjoint surgery, principal surgeon, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - The Committee recommends setting the schedule fee for this item at the same level as that of item 39654, before the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- New item 39640Y: Create a new item to allow conjoint surgery by a second surgeon for removal of anterior and middle cranial fossa and cavernous sinus tumours and vascular lesions, including both stereotaxy and cranioplasty.
 - The proposed item descriptor for item 39640Y is as follows:
 - Anterior or middle cranial fossa or cavernous sinus, tumour or vascular lesion, removal or radical excision of by conjoint surgery, co-surgeon, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - The Committee recommends setting the schedule fee for this item at the same level as that of item 39656, before the addition of items 40803 and 40600, in accordance with the multiple operation rule.
 - It would be expected that new items 39640X and 39640Y would be provided by neurosurgeon acting as the principal surgeon, supported by another neurosurgeon or ENT surgeon.
- Items 39642, 39646, 39650 and 39660: Consolidate these items into item 39640.
- Item 39653: Change the item descriptor to include all petro-clival, clival and foramen magnum tumour resection procedures by a single surgeon, using both stereotaxy and cranioplasty.



- The proposed item descriptor is as follows:
 - Petro-clival, clival or foramen magnum tumour or vascular lesion, removal or radical excision of by a single surgeon, including stereotaxy and cranioplasty (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Item 39654: Change the item descriptor to include conjoint surgery for all petro-clival, clival and foramen magnum tumour resection procedures by a principal surgeon, using both stereotaxy and cranioplasty.
- The proposed item descriptor for item 39654 is as follows:
 - Petro-clival, clival or foramen magnum tumour, removal or radical excision of by conjoint surgery, primary surgeon, including stereotaxy and cranioplasty (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Item 39656: Change the item descriptor to include conjoint surgery for all petro-clival, clival and foramen magnum tumour resection procedures by a second surgeon, using both stereotaxy and cranioplasty.
- The proposed item descriptor for item 39656 is as follows:
 - Petro-clival, clival or foramen magnum tumour, removal or radical excision of by conjoint surgery, second surgeon, including stereotaxy and cranioplasty (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Items 39658 and 39662: Consolidate these items into item 39653.
- Amend the explanatory notes for the items for Skull Base Surgery to clarify that it is expected that the items for conjoint surgery for removal of tumours from the anterior or middle cranial fossa or cavernous sinus, would be performed by a neurosurgeon with another neurosurgeon or ENT surgeon acting as co-surgeon.



The proposed explanatory note is as follows:

- The surgical management of lesions involving the skull base (base of anterior, middle and posterior fossae) often requires the skills of several surgeons or a number of surgeons from different surgical specialties working together or in tandem during the operative session. These operations are usually not staged because of the need for definitive closure of the dura, subcutaneous tissues, and skin to avoid serious infections such as osteomyelitis and/or meningitis.
- Items 39640, 39640X, 39653, 39654 cover the removal of the tumour, which would normally be performed by a neurosurgeon acting as a solo surgeon or as the principle surgeon during conjoint surgery. Items 39640Y and 39656 provide for the services performed by a second surgeon. It is expected that these services would be performed by another neurosurgeon or an ENT surgeon. Other items are available to cover procedures performed as a part of skull base surgery by practitioners in other specialties, such as ENT and plastic and reconstructive surgery.

5.5.2 Rationale for Recommendation 15

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- The procedures described by these items will continue to decline in number as stereotactic radiotherapy becomes a more established treatment modality in the management of cerebral and cerebrovascular tumours of the skull base.
- It is no longer necessary to distinguish between tumour or vascular lesion excisions from the cavernous sinus, foramen magnum, middle and anterior fossa or petro-clival/clival regions, allowing this section of the MBS to be simplified. Although the surgical approach/technique differs, the complexity of these procedures is broadly similar in most cases.
- In keeping with the broader rationale detailed in the notes at the beginning of Section 5, the Committee strongly recommends that both stereotaxy and cranioplasty are included in these restructured items. Although the relative service volumes of these items are quite different, the items that are used most frequently have higher rates of co-claiming with stereotaxy and cranioplasty. For example, item 35640 was co-claimed with item 40803 in approximately 70 per cent of cases in FY2016/17, and with item 40600 in approximately 57 per cent of cases. Similarly, item 35653 was co-claimed with item



40803 in approximately 82 per cent of cases in FY2016/17, and with item 40600 in approximately 71 per cent of cases. These are all complex and time-consuming procedures that require a high level of precision, and that result in a significant cranial defect.

- The Committee recommends introducing new items for use by a second surgeon in procedures for the removal of anterior or middle cranial fossa or cavernous sinus tumours or vascular lesions. In practice, some of these tumours can be unusually difficult to remove, requiring up to nine hours in most cases and up to 24 hours in rare, complex scenarios. In long complex procedures, the assistance of a second surgeon may optimise patient outcomes by enhancing decision making and mitigating against the impact of fatigue on an individual surgeon. It also decreases the need for extended anaesthesia or staged surgery (a second, separate operation). Currently, if a second surgeon is required for a procedure, he or she claims a surgical assistance item for this work. However, the expertise required and time taken to assist in such procedures far exceeds the value of assistance items, so in practice both surgeons often combine their fees and split them evenly. This means both surgeons receive just a fraction of the already modest compensation available for what are among the most difficult procedures in modern surgical practice. This, in turn, discourages the use of second surgeons, to the detriment of patient safety and outcomes. The Committee considers this inequitable and counter to patients' best interests.
- The Committee does not expect to see many cases requiring two surgeons - perhaps 10% of the existing item 39640 services would warrant the trouble and time taken to organise such additional expert assistance. The cost impact of allowing claiming by both primary and conjoint surgeons is expected to be minimal and far outweighed by the benefits to patients from the improved care delivered. Benefits would include shorter total durations of surgery and anaesthesia and the improved safety and precision achieved by allowing surgeons to rotate during what is often a very long and delicate procedure.
- The Committee believes that the schedule fee of item 39640 should be increased to that of the current item 39646, to better reflect the increased overall complexity of the surgical procedures that will be described by newly consolidated item 39640. Similarly, given the new conjoint surgery items 39640X and 39640Y will be used only for cases of roughly equal complexity to those described by items 39654 and 39656, their schedule fees could appropriately be set at the same levels as those two items, respectively.



5.6 Intracranial neoplasms

Table 17: Item introduction table for items 39700, 39703, 39706, 39709, 39712, 39715, 39718 and 39721

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39700	Skull tumour, benign or malignant, excision of, excluding cranioplasty (Anaes.) (Assist.)	\$556.60	156	\$39,498	3.4%
39703	Intracranial tumour, cyst or other brain tissue, burr-hole and biopsy of, or drainage of, or both (Anaes.) (Assist.)	\$519.00	137	\$25,710	5.3%
39706	Intracranial tumour, biopsy or decompression of via osteoplastic flap or biopsy and decompression of via osteoplastic flap (Anaes.) (Assist.)	\$1,112.85	94	\$41,419	-0.4%
39709	Craniotomy for removal of glioma, metastatic carcinoma or any other tumour in cerebrum, cerebellum or brain stem - not being a service to which another item in this Sub-group applies (Anaes.) (Assist.)	\$1,586.75	1,526	\$1,716,386	1.4%
39712	Craniotomy for removal of meningioma, pinealoma, cranio-pharyngioma, intraventricular tumour or any other intracranial tumour, not being a service to which another item in this Sub-group applies (Anaes.) (Assist.)	\$2,865.00	926	\$1,886,046	-0.5%
39715	Pituitary tumour, removal of, by transcranial or transphenoidal approach (Anaes.) (Assist.)	\$1,985.30	387	\$563,075	3.9%
39718	Arachnoidal cyst, craniotomy for (Anaes.) (Assist.)	\$872.30	28	\$8,557	4.0%
39721	Craniotomy, involving osteoplastic flap, for re-opening post-operatively for haemorrhage, swelling, etc (Anaes.) (Assist.)	\$797.10	57	\$24,248	5.3%



5.6.1 Recommendation 16

- Item 39700: Change the item descriptor and schedule fee to include stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Skull tumour, benign or malignant, excision of, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Item 39703: Change the item descriptor and schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Intracranial tumour, cyst or other brain tissue, burr-hole and biopsy of, or drainage of, or both, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 39706: Consolidate this item into item 39709.
- Item 39709: Change the item descriptor and schedule fee to specify that the item covers all surgery on one or more tumours performed through a single craniotomy and includes stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Intracranial tumour, biopsy, drainage, decompression or removal of one or more of via a single craniotomy, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Item 39712: Change the item descriptor and schedule fee to specify that it covers all procedures performed through a single craniotomy and includes stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Transcranial tumour removal or biopsy of a meningioma, pinealoma, cranio-pharyngioma, pituitary, intraventricular lesion or brain stem lesion or any other intracranial tumour by any means (with or without endoscopy), one or



more of through a single craniotomy, and including stereotaxy and cranioplasty (Anaes.) (Assist.)

- Increase the schedule fee commensurate with the addition of items 40803 and 40600, in accordance with the multiple operation rule.
- Item 39715: Change the item descriptor and schedule fee to specify a transphenoidal approach, include stereotaxy (item 40803) and dermis, dermofat or fascia grafting (item 45018), and restrict co-claiming with cranioplasty.
 - The proposed item descriptor is as follows:
 - Pituitary tumour, removal of, by transphenoidal approach, including stereotaxy and dermis, dermofat or fascia grafting, not being a service associated with a service to which item 40600 applies (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of items 40803 and 45018, in accordance with the multiple operation rule.
- Item 39718: Change the item descriptor to include neuroendoscopy, and the item descriptor and schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Arachnoidal cyst, craniotomy for, including stereotaxy and neuroendoscopy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 39721: Consolidate this item into item 39603.

5.6.2 Rationale for Recommendation 16

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Item 39700:
 - The Committee believes that including stereotaxy in this item will reduce the need for reoperation and improve the functional outcomes of post-operative patients. The full extent of skull tumour spread is not always visible, and stereotaxy is often required (or should be used) to ensure tumour removal with adequate surgical margins. Approximately 33 per cent of item 39700 services in FY2016/17 co-claimed stereotaxy item 40803.



- The Committee believes that including cranioplasty will result in an increase in the frequency with which it is used, improving cosmetic outcomes and decreasing the incidence of post-operative headaches. Approximately 36 per cent of item 39700 services in FY2016/17 co-claimed cranioplasty item 40600. However, since a section of the skull must be excised to remove the tumour, cranioplasty will realistically be needed in most cases.
- Item 39703: Stereotaxy is essential in order to safely and precisely target an intracranial lesion for biopsy and should be included in this item.
- Item 39706: This item should be consolidated into item 39709. The procedures to biopsy or remove intracranial tumours are technically equivalent, and consolidation will simplify the MBS.
- Item 39709:
 - These procedures sometimes involve the removal of more than one lesion or area of tissue. In some cases, these lesions can be accessed through a single craniotomy, but they sometimes require multiple craniotomies in order to approach from different angles and minimise damage to surrounding brain structures.
 - The Committee recommends amending this item to cover all lesions removed through a single craniotomy. In cases involving two completely separate craniotomies, tumour removals and cranioplasties (such as bilateral spread of a tumour), there is no time saved on the second side as a result of having completed the first. It is reasonable in such cases that this item be claimed twice. However, the additional time and effort required to remove extra lesions through the same craniotomy does not warrant repeat claims. The Committee understands that some clinicians claim this item multiple times; once for each individual lesion removed through a single craniotomy, and estimates that this would account for 20-30 per cent of the total service volume for this item.
 - The use of stereotaxy is considered the standard of care in modern neurosurgery for the planning, localisation and safe removal of these tumours and should be included in this item. Approximately 93 per cent of item 39709 services in FY2016/17 co-claimed stereotaxy item 40803.
 - The Committee believes that cranioplasty should be used considerably more often during item 39709 services. These procedures frequently leave significant cranial defects for which cranioplasty improves outcomes, as described above.



Approximately 47 per cent of item 39709 services in FY2016/17 co-claimed cranioplasty item 40600.

- Item 39712:
 - Item 39712 involves similar situations to those discussed for item 39709 in terms of single versus multiple craniotomies, and the Committee recommends similar restriction of claims for multiple lesions through a single craniotomy.
 - The Committee recommends adding stereotaxy to item 39712. It also recommends including cranioplasty because meningiomas often invade into the skull, resulting in large defects that must be repaired using this procedure. Stereotaxy and cranioplasty were co-claimed with this item in approximately 91 per cent and 65 per cent of cases, respectively, in FY2016/17.
- Item 39715:
 - The Committee recommends retaining transcranial approaches within item 39712 (rather than item 39715) because these are much more difficult than transphenoidal procedures. About 5 per cent of cases currently claimed using item 39715 would shift to item 39712 as a result of this change.
 - Harvesting and grafting of a dermofat or fascial graft (item 45018) should be added to item 39715—along with stereotaxy (item 40803)—because transphenoidal surgery frequently results in an intracranial fluid leakage. This must be repaired in multiple layers, as discussed in Section 5.4, and often requires the harvesting and grafting of dermofat/fascia to prevent further leakage or infection.
- Item 39718:
 - The Committee recommends adding stereotaxy to this item. Intracranial anatomy is often very distorted around an arachnoidal cyst, which increases the risk of complications when stereotaxy is not used. It was co-claimed in approximately 57 per cent of item 39718 services in FY2016/17.
 - Neuroendoscopy is routinely used in these procedures, and the Committee believes it should be included without modification of the existing schedule fee.
- Item 39721: This service has been included in the recommended descriptor for item 39603 and does not need to be retained as a standalone procedure.



5.7 Cerebrovascular disease

Table 18: Item introduction table for items 39800, 39803, 39806, 39812, 39815, 39818 and 39821

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39800	Aneurysm, clipping or reinforcement of sac (Anaes.) (Assist.)	\$2,857.55	359	\$683,521	2.2%
39803	Intracranial arteriovenous malformation, excision of (Anaes.) (Assist.)	\$2,857.55	103	\$208,907	0.2%
39806	Aneurysm, or arteriovenous malformation, intracranial proximal artery clipping of (Anaes.) (Assist.)	\$1,285.75	16	\$10,439	N/A
39812	Intracranial aneurysm or arteriovenous fistula, ligation of cervical vessel or vessels (Anaes.) (Assist.)	\$631.75	<6	N/A	N/A
39815	Carotid-cavernous fistula, obliteration of - combined cervical and intracranial procedure (Anaes.) (Assist.)	\$1,827.25	8	N/A	N/A
39818	Extracranial to intracranial bypass using superficial temporal artery (Anaes.) (Assist.)	\$1,827.25	26	\$32,891	5.4%
39821	Extracranial to intracranial bypass using saphenous vein graft (Anaes.) (Assist.)	\$2,169.75	<6	N/A	N/A

5.7.1 Recommendation 17

- Item 39800: Change the item descriptor and schedule fee to include the services described by items 39806 and 39812, as well as stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Aneurysm, clipping, proximal ligation, or reinforcement of sac, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - The Committee recommends increasing this item's schedule fee to align with item 39653 (petroclival tumour removal), before the addition of stereotaxy and cranioplasty in accordance with the multiple operation rule.



- Item 39803: Change the item descriptor to include the services described by item 39815, as well as any related angiography, if these are performed surgically via a craniotomy. In addition, change both the item descriptor and the schedule fee to include stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Intracranial arteriovenous malformation or fistula, treatment via craniotomy, including stereotaxy, cranioplasty and all angiography (Anaes.) (Assist.)
 - The Committee recommends increasing this item's schedule fee to align with item 39653 (petroclival tumour removal), before the addition of stereotaxy and cranioplasty in accordance with the multiple operation rule. There should be no change to the schedule fee related to the inclusion of angiography.
- Items 39806 and 39812: Consolidate these items into item 39800.
- Item 39815: Consolidate use of this item via a craniotomy into item 39803 and refer to the Vascular Clinical Committee, with advice to create an item specifically for use via interventional radiological approaches. This change should only be implemented once an appropriate interventional radiological item has been created so that access to this service is maintained.
- Item 39818: Change the item descriptor and schedule fee to include stereotaxy (item 40803) and clarify the language.
 - The proposed item descriptor is as follows:
 - Intracranial vascular bypass using indirect techniques, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 39821: Change the item descriptor and schedule fee align with the schedule fee for items 39800 and 39803, prior to the addition of stereotaxy (item 40803) and clarify the language.
 - The proposed item descriptor is as follows:
 - Intracranial vascular bypass using direct anastomosis techniques, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee to align with items 39800 and 39803 before the addition of item 40803, in accordance with the multiple operation rule.



- The Committee requests that the Vascular Surgery Clinical Committee consults this Committee while reviewing any interventional neuroradiology items in its scope, in order to ensure its recommendations do not unintentionally adversely affect neurosurgical patients' access to high quality care.

5.7.2 Rationale for Recommendation 17

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Items 39800 and 39803:
 - Inclusion of stereotaxy and cranioplasty
 - In line with the rationale provided in the notes at the beginning of Section 5, the Committee recommends adding both stereotaxy and cranioplasty to these items. Stereotaxy item 40803 was co-claimed with items 39800 and 39803 in approximately 41 per cent and 93 per cent of cases, respectively, in FY2016/17. Cranioplasty item 40600 was co-claimed with items 39800 and 39803 in approximately 62 per cent and 70 per cent of cases, respectively, over the same period.
 - Schedule fee increases
 - The Committee believes that the time requirements and complexity of items 39800 and 39803 are now closer to that of the procedure described in item 39653 (petro-clival tumour removal), and that the schedule fees for items 39800 and 39803 should be increased to align with item 39653.
 - The development of interventional radiology techniques for treating cerebrovascular disease has resulted in a shift in the nature of cases referred for surgical treatment using items 39800 and 39803. MBS data support this, showing minimal service volume growth for these surgical items, but an approximately 15% 5-year CAGR for item 35412 (Intracranial aneurysm, ruptured or unruptured, endovascular occlusion with detachable coils...).
 - Only the most complex and high-risk cases are now operated on surgically, and these tend to require a higher level of skill and take longer to perform than the average case did when these items were created. Aftercare of patients is also typically prolonged, with a higher incidence of post-operative complications.



- There is a worsening lack of clinical expertise in these procedures, and the relatively low reimbursement rate provides little incentive for surgeons to agree to perform them. The reduction in the volume of surgically treated patients results in fewer training opportunities for neurosurgical registrars, meaning that many newly qualified neurosurgeons will not have received adequate training in complex aneurysm or AVM repairs to feel confident in taking on these cases. Typically, registrars seeking to improve their skills sufficiently would be forced to seek fellowship training abroad, presenting an additional barrier to providing adequate patient access in Australia.
 - In further support of this recommendation, the Committee understands that interventional radiologists would combine items 35412 (summarised as endovascular occlusion of an intracranial aneurysm with detachable coils, using selective arteriography or venography by digital subtraction angiography) to treat the same condition as item 39800. These two items currently have the same schedule fee, but treating an aneurysm surgically usually takes two to three times as long (four to 12 hours) as the equivalent interventional radiology procedure (one to two hours), and neurosurgeons are additionally responsible for managing the aftercare of patients, who are usually high acuity and sometimes require prolonged care.
 - Finally, the Committee noted that service volumes for items 39800 and 39803 have remained approximately static overall in recent years, and expects surgical volumes to decrease over the coming years, which would counterbalance to some extent any additional benefit outlay this schedule fee increase might cause.
- Items 39806, 39812 and 39815: Consolidating these services will simplify the MBS. These are low-volume procedures (16 or fewer services in FY2016/17), and item 39815 is used exclusively by interventional radiologists. The technique used to perform these procedures is similar to that used for items 39800 and 39803.
 - Item 39815: The Committee advocates referring this item to the Vascular Clinical Committee for further review and the creation of a more specific item for use by interventional radiologists. It was used exclusively by interventional radiologists in FY2016/17, and anecdotal evidence suggests it is used mainly for lack of a more appropriate item number. Item 39803 should include any services described by item 39815 that are performed via a craniotomy (surgical), as well as all related angiography, without a compensatory change in item 39803's schedule fee. This will ensure that the



correct items are used for surgical and interventional radiology approaches to this procedure.

- Items 39818 and 39821:
 - These items refer to a form of vascular bypass used to improve blood flow to the brain in order to decrease the risk of stroke, often indicated in children suffering from moyamoya disease. The two items approach this surgery in different ways, resulting in low- and high-flow bypasses. However, the current descriptors use outdated and unclear terminology, are unnecessarily specific and do not account for changes in surgical technique over time.
 - The proposed changes to items 39818 and 39821 provide greater clarity and distinguish between indirect methods (generally used in paediatric cases) and direct methods, which is more reflective of modern clinical practice.
 - Item 39818 would cover vascular bypass by indirect method, with stereotaxy.
 - Item 39821 would cover the vascular bypass by direct method, also with stereotaxy.
 - The Committee believes that the time and complexity of item 39821 is similar to that of complex aneurysm repair (item 39800 and 39803) and therefore the schedule fee should be increased to the same level.
- Request for consultation
 - Surgery remains a major treatment modality for cerebral aneurysms (item 39800) and arteriovenous malformations (item 39803), although many can now be treated using interventional neuroradiology techniques as well. The relevant interventional neuroradiology items are outside the Committee's scope, but some of these are also used by neurosurgeons when treating some of the rarer vascular malformations (where there is no more specific item number available). As such, the Committee wishes to ensure that patient access to critical services is not unintentionally negatively affected by the recommendations of other Committees, and requests that Committees reviewing these items consult with it prior to finalising their reports.



5.8 Neurosurgical infections

Table 19: Item introduction table for items 39900, 39903 and 39906

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39900	Intracranial infection, drainage of, via burr-hole - including burr-hole (Anaes.) (Assist.)	\$519.00	16	\$3,990	5.9%
39903	Intracranial abscess, excision of (Anaes.) (Assist.)	\$1,586.75	62	\$70,592	-2.7%
39906	Osteomyelitis of skull or removal of infected bone flap, craniectomy for (Anaes.) (Assist.)	\$797.10	127	\$44,296	8.9%

5.8.1 Recommendation 18

- Item 39900: Change the item descriptor and schedule fee to include stereotaxy (item 40803), exclude cranioplasty (item 40600) and clarify the language.
 - The proposed item descriptor is as follows:
 - Intracranial infection, treated by burr-hole, including stereotaxy, not being a service associated with a service to which item 40600 applies (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 39903: Change the item descriptor and schedule fee to include stereotaxy (item 40803) and exclude cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Intracranial infection, treated by craniotomy, including stereotaxy, not being a service associated with a service to which item 40600 applies (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 39906: Change the item descriptor to restrict co-claiming with stereotaxy (item 40803) and cranioplasty (item 40600).



- The proposed item descriptor is as follows:
 - Osteomyelitis of skull or removal of infected bone flap, craniectomy for, not being a service associated with a service to which items 40803 or 40600 apply (Anaes.) (Assist.)

5.8.2 Rationale for Recommendation 18

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Items 39900 and 39903:
 - Simplifying the descriptors' language provides greater clarity for patients and clinicians alike.
 - The use of stereotaxy improves patient safety and outcomes because abscesses are often located deep within the brain and can distort surrounding structures. It is now standard practice to use stereotaxy.
 - The Committee recommends restricting the co-claiming of cranioplasty item 40600 because cranial defects should not be repaired in the presence of infection in most cases.
- Item 33906:
 - Co-claiming this item with stereotaxy (item 40803) constitutes low-value care and should be restricted. The procedure is usually performed after a previous cranial surgery, which means that there is already an existing scar, and that pathology is usually limited to superficial structures. As a result, there is no need to use stereotaxy. In FY2016/17, it was co-claimed in approximately 38 per cent of services.
 - The presence of infection should preclude use of cranioplasty, and co-claiming of item 40600 should be restricted.



5.9 CSF circulation disorders

Table 20: Item introduction table for items 40000, 40003, 40006, 40009, 40012, 40015 and 40018

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40000	Ventriculo-cisternostomy (Torkildsen's operation) (Anaes.) (Assist.)	\$917.40	<6	N/A	N/A
40003	Cranial or cisternal shunt diversion, insertion of (Anaes.) (Assist.)	\$917.40	505	\$222,420	3.7%
40006	Lumbar shunt diversion, insertion of (Anaes.) (Assist.)	\$721.95	26	\$12,048	3.4%
40009	Cranial, cisternal or lumbar shunt, revision or removal of (Anaes.) (Assist.)	\$526.40	290	\$87,425	0.8%
40012	Third ventriculostomy (open or endoscopic) with or without endoscopic septum pellucidotomy (Anaes.) (Assist.)	\$1,030.20	81	\$31,403	-5.4%
40015	Subtemporal decompression (Anaes.) (Assist.)	\$638.65	<6	N/A	N/A
40018	Lumbar cerebrospinal fluid drain, insertion of (Anaes.)	\$159.40	112	\$11,035	-3.4%

5.9.1 Recommendation 19

- Items 40000, 40006 and 40009: Consolidate these items into item 40003.
- Item 40003: Change the item descriptor to include the services described by items 40000, 40006 and 40009, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Ventricular, lumbar or cisternal shunt diversion, insertion or revision of, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.



- Item 40012: Change the item descriptor to specify that endoscopy is used, and that the intention is the treatment of CSF circulation disorders. In addition, change both the item descriptor and the schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Endoscopic ventriculostomy for treatment of CSF circulation disorders, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 40015: Consolidate this item into item 39603.
- Item 40018: No change.

5.9.2 Rationale for Recommendation 19

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Items 40000–40009:
 - The Committee recommends consolidating these items as they all involve similar levels of complexity. In fact, revising a shunt is often technically more difficult than inserting a new one.
 - These procedures benefit from the use of stereotaxy and it should therefore be included in the consolidated item. Lumbar shunts (item 40006) are generally inserted through a laminectomy or laminotomy and so would not necessarily require the use of stereotaxy. However, the Committee considers the level of complexity of this procedure to be equivalent to that of a cranial or cisternal shunt diversion with the use of stereotaxy. As such, it would not be unreasonable to consolidate these items at the recommended schedule fee.
- Item 40012:
 - The use of endoscopy is now standard practice for ventriculostomy procedures and should be a required part of this item. An endoscope is passed through the brain, lateral ventricle and third ventricle and then a tiny hole is made in front of the basilar artery. This is very delicate work and requires stereotaxy to perform safely.
 - There is no need to specify septum pellucidotomy. Stating that this item is intended for use in CSF circulation disorders would provide greater clarity.



- Item 40015:
 - This procedure is now largely obsolete and only remains useful in paediatric patients with high or volatile intracranial pressure. The proposed descriptor for item 39603 includes the subtemporal decompression required in these circumstances.
 - The few other cases that may have used this item previously have been replaced in modern clinical practice by the craniostenosis procedure described by item 40115.
- Item 40018: This item is still useful and does not require any changes.

5.10 Congenital disorders

Table 21: Item introduction table for items 40100, 40103, 40106, 40109, 40112, 40115 and 40118

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40100	Meningocele, excision and closure of (Anaes.) (Assist.)	\$691.75	63	\$19,369	9.5%
40103	Myelomeningocele, excision and closure of, including skin flaps or Z plasty where performed (Anaes.) (Assist.)	\$1,015.25	6	N/A	-5.6%
40106	Arnold-Chiari malformation, decompression of (Anaes.) (Assist.)	\$1,030.20	121	\$55,025	1.6%
40109	Encephalocele, excision and closure of (Anaes.) (Assist.)	\$1,112.85	33	\$15,110	11.7%
40112	Tethered cord, release of, including lipomeningocele or diastematomyelia (Anaes.) (Assist.)	\$1,428.75	19	\$15,318	-5.3%
40115	Craniostenosis, operation for - single suture (Anaes.) (Assist.)	\$721.95	14	\$5,445	-3.8%
40118	Craniostenosis, operation for - more than 1 suture (Anaes.) (Assist.)	\$955.00	16	\$11,059	-7.0%



5.10.1 Recommendation 20

- Item 40100: Consolidate this item into item 40103.
- Item 40103: Change the item descriptor to specify that it covers spinal pathologies only, include item 40100, remove unnecessary specifications around how closure is performed, and restrict co-claiming of stereotaxy and cranioplasty.
 - The proposed item descriptor is as follows:
 - Spinal myelomeningocele or spinal meningocele, excision and closure of, not being used in association with items 40803 or 40600 (Anaes.) (Assist.)
- Item 40106: Change the item descriptor to include reconstruction. In addition, change both the item descriptor and the schedule fee to include laminectomy (item 40306), stereotaxy (item 40803) and dermofat graft (item 45018), and exclude co-claiming with cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Chiari malformation, decompression and/or reconstruction of, including laminectomy, dermofat graft and stereotaxy, not being used in association with item 40600 (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of items 40803, 40306 and 45018 in accordance with the multiple operation rule.
- Item 40109: Change the item descriptor to include cranial meningoceles, and include reconstruction. In addition, change both the item descriptor and the schedule fee to include stereotaxy (item 40803) and dermofat graft (item 45018).
 - The proposed item descriptor is as follows:
 - Encephalocoele or cranial meningocele, excision and closure of, including stereotaxy and dermofat graft (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of items 40803 and 45018, in accordance with the multiple operation rule.
- Item 40112: Change the item descriptor and schedule fee to include laminectomy (item 40306) and spinal rhizolysis (item 40330), and exclude co-claiming with cranioplasty (item 40600).



- The proposed item descriptor is as follows:
 - Tethered cord, release of, including lipomeningocele or diastematomyelia, multiple levels, including laminectomy and rhizolysis, not being used in association with item 40600 (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of items 40306 and 40330, in accordance with the multiple operation rule.
- Item 40115: Consolidate this item into item 40118.
- Item 40118: Change the item descriptor to include item 40115 (by removing the existing suture specification) and exclude co-claiming with cranioplasty (item 40600).
- The proposed item descriptor is as follows:
 - Craniostenosis, operation for, not being used in association with item 40600 (Anaes.) (Assist.)

5.10.2 Rationale for Recommendation 20

This recommendation focuses on simplifying and modernising the MBS and improving the value, safety and efficacy of patient care. It is based on the following:

- Items 40100 and 40103:
 - There is no need to retain separate items for these services. The procedures are of similar complexity and use the same surgical technique and approach, and item 40103 is very rarely performed.
 - The descriptor for myelomeningocele excision and closure should exclude the use of stereotaxy (item 40803) and cranioplasty (item 40600) because they are unnecessary in these patients and are seldom used in practice.
 - The surgical technique used to repair a cranial myelomeningocele is very similar to that used for an encephalocele repair, and these two procedures would be more appropriately combined under item 40109, leaving 40103 for spinal myelomeningoceles only.
- Item 40106:
 - In Arnold-Chiari syndrome, there is inadequate space in the posterior part of the skull. This results in the displacement of the cerebellar tonsils and brainstem inferiorly, potentially squeezing or damaging these structures and causing severe or



fatal sequelae. Resecting certain parts of the cerebellum and surrounding bone can decompress the area and mitigate the adverse effects of this condition.

- Although this procedure is identical to the one described by the Spinal Surgery Committee's Recommendation 870, the Committee agreed that item 40106 should remain in the MBS. The item recommended by the Spinal Surgery Committee does not specify a Chiari malformation as an indication. The majority of patients suffering from a syrinx have a Chiari malformation as the cause of that syrinx, which means that treating the Chiari malformation also treats the syrinx. However, a minority of patients with symptomatic Chiari malformations do not have a syrinx, and item 40106 is needed to continue serving this population.
- The Committee feels that the schedule fee for item 40106 should be equivalent to the recommended spinal surgery item's schedule fee (Spinal Surgery Committee's Recommendation 870: \$2,184.00) because it is of equivalent complexity.
- The services and values of items 40803, 40303 and 45018 should be included in this item because the procedure requires the use of stereotaxy for safe conduct and typically involves the removal of one or more cervical laminae, as well as harvesting and application of a dermofat/fascial graft.
- Item 40109: As with item 40106, stereotaxy and dermofat/fascial grafts should be included in this item because they are usually necessary for the safe completion of these procedures.
- Item 40112:
 - In a patient with a tethered cord, the spinal cord develops normally up to a certain point, below which cells that were supposed to migrate away to form muscle and skin during development remain on the cord itself, forming a matted clump of cord and other tissue that often tethers to surrounding structures. This can lead to progressive paraparesis in children and young adults unless the cord is released. This surgery is very difficult and poses a high risk to the patient.
 - Laminectomy (item 40306) and spinal rhizolysis (item 40330) form an integral part of this procedure and their services and values should be included with this item to offer a more complete medical service.
- Items 40115 and 40118: These items should be consolidated because the technical differences between treating skull deformities with single or multiple sutures are minimal.



5.11 Skull reconstruction

Table 22: Item introduction table for item 40600

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40600	Cranioplasty, reconstructive (Anaes.) (Assist.)	\$955.00	2,541	\$666,023	4.7%

5.11.1 Recommendation 21

- Item 40600: No change.

5.11.2 Rationale for Recommendation 21

This recommendation focuses on simplifying the MBS. It is based on the following:

- Although the Committee has recommended including cranioplasty in many other items in its scope, it is important to retain the standalone item for use in special situations, such as in a post-infection patient or one who has cerebral swelling.

5.12 Epilepsy surgery

Table 23: Item introduction table for items 40700–09 and 40712

Item	Descriptor	Schedule fee	Services FY2015/16	Benefits FY2015/16	Services 5-year annual avg. growth
40700	Corpus callosum, anterior section of, for epilepsy (Anaes.) (Assist.)	\$1,744.65	14	N/A	-8.6%
40701	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, subcutaneous placement of electrical pulse generator, for: (a) management of refractory generalised epilepsy; or (b) treatment of refractory focal epilepsy not suitable for resective epilepsy surgery (Anaes.) (Assist.)	\$340.60	-	-	N/A
40702	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, surgical	\$159.40	-	-	N/A



Item	Descriptor	Schedule fee	Services FY2015/16	Benefits FY2015/16	Services 5-year annual avg. growth
	repositioning or removal of electrical pulse generator inserted for: (a) management of refractory generalised epilepsy; or (b) treatment of refractory focal epilepsy not suitable for resective epilepsy surgery (Anaes.) (Assist.)				
40703	Corticectomy, topectomy or partial lobectomy for epilepsy (Anaes.) (Assist.)	\$1,466.30	96	\$74,658	2.0%
40704	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, surgical placement of lead, including connection of lead to left vagus nerve and intra-operative test stimulation, for: (a) management of refractory generalised epilepsy; or (b) treatment of refractory focal epilepsy not suitable for resective epilepsy surgery (Anaes.) (Assist.)	\$674.15	-	-	N/A
40705	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, surgical repositioning or removal of lead attached to left vagus nerve for: (a) management of refractory generalised epilepsy; or (b) treatment of refractory focal epilepsy not suitable for resective epilepsy surgery (Anaes.) (Assist.)	\$605.35	-	-	N/A
40706	Hemispherectomy for intractable epilepsy (Anaes.) (Assist.)	\$2,143.10	7	N/A	N/A
40707	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, electrical analysis and programming of vagus nerve stimulation therapy device using external wand, for: (a) management of refractory generalised epilepsy; or (b) treatment of refractory focal epilepsy not suitable for resective epilepsy surgery	\$189.70	-	-	N/A
40708	Vagus nerve stimulation therapy through stimulation of the left vagus nerve, surgical replacement of battery in electrical pulse	\$340.60	-	-	N/A



Item	Descriptor	Schedule fee	Services FY2015/16	Benefits FY2015/16	Services 5-year annual avg. growth
	generator inserted for: (a) management of refractory generalised epilepsy; or (b) treating refractory focal epilepsy not suitable for resective epilepsy surgery (Anaes.) (Assist.)				
40709	Burr-hole placement of intracranial depth or surface electrodes (Anaes.) (Assist.)	\$519.00	15	\$2,531	16.5%
40712	Intracranial electrode placement via craniotomy (Anaes.) (Assist.)	\$1,045.20	91	\$20,646	38.3%

5.12.1 Recommendation 22

- Item 40700: Change the item descriptor to allow different approaches to corpus callosotomy, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803).
 - The proposed item descriptor is as follows:
 - Corpus callosotomy, for epilepsy, including stereotaxy (Anaes.) (Assist.)
 - Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Items 40701, 40702, 40704, 40705, 40707 & 40708: No change.
- Item 40703: Change the item descriptor and the schedule fee to include stereotaxy (item 40803) and cranioplasty (item 40600).
 - The proposed item descriptor is as follows:
 - Corticectomy, topectomy or partial lobectomy for epilepsy, including stereotaxy and cranioplasty (Anaes.) (Assist.)
 - The Committee recommends increasing the schedule fee for this item to align with item 39709, before the addition of stereotaxy (item 40803) and cranioplasty (item 40600), in accordance with the multiple operation rule.
- Item 40706: Change the item descriptor to include functional hemispherectomy, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803).



- The proposed item descriptor is as follows:
 - Hemispherectomy or functional hemispherectomy for intractable epilepsy, including stereotaxy (Anaes.) (Assist.)
- The Committee recommends increasing the schedule fee to align with item 39712, before the addition of item 40803, in accordance with the multiple operation rule.
- Item 40709: Change the item descriptor to provide greater clarity, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803).
- The proposed item descriptor is as follows:
 - Intracranial electrode placement via burr-hole, including stereotaxy (Anaes.) (Assist.)
- Increase the schedule fee commensurate with the addition of item 40803, in accordance with the multiple operation rule.
- Item 40712: Change the item descriptor to allow placement of stereotactic electroencephalogram electrodes (SEEG), specify that the item covers single or multiple electrode placements, and change both the item descriptor and the schedule fee to include stereotaxy (item 40803).
- The proposed item descriptor is as follows:
 - Intracranial electrode placement via craniotomy, single or multiple, including stereotactic EEG, including stereotaxy (Anaes.) (Assist.)
- The Committee recommends increasing the schedule fee to align with item 39712, before the addition of item 40803, in accordance with the multiple operation rule.

5.12.2 Rationale for Recommendation 22

This recommendation focuses on simplifying and modernising the MBS and improving the safety and efficacy of patient care. It is based on the following:

- Item 40700: It is clinically unnecessary to specify the anterior section of the corpus callosum. The item should include use of stereotaxy to improve patient outcomes and safety, recognising that the procedure requires highly accurate sections of specific areas of the corpus.
- Items 40701, 40702, 40704, 40705, 40707 and 40708: These items were introduced in November 2017 and do not warrant changes at this stage.



- Item 40703:
 - The use of stereotaxy and cranioplasty is the standard of care and should be included in this item. The pathological areas of the brain that need to be resected look identical to normal tissue, which means it can be very difficult to resect enough pathological tissue without harming function. Stereotaxy was co-claimed in approximately 96 per cent of cases in FY2016/17, and cranioplasty was co-claimed in approximately 58 per cent of cases.
 - This item should be remunerated at the same level as item 39709 because it is of similar complexity and even longer duration.
- Item 40706:
 - The descriptor should be modified to specify “functional” hemispherectomy, which better describes modern clinical practice. Hemispherectomy is technically difficult and rarely performed but is still useful for certain cases of epilepsy, especially in paediatric patients.
 - The schedule fee should be increased to align with item 39712 (transcranial tumour removal or biopsy) because the procedure is of similar complexity and even longer duration. Procedures frequently require full-day surgery and are typically performed on young paediatric patients. Complication rates can be significant, including up to a 5% mortality and 78% shunt rate (28). As has been noted by other clinical committees, performing complex surgery on children is often significantly more challenging than an equivalent adult procedure - this has led to the addition of a 30% schedule fee loading to paediatric variants of some surgical procedures.
 - The use of stereotaxy is essential to safely perform these procedures and should be included in this item.
- Item 40709: The proposed item descriptor provides greater clarity and includes stereotaxy, which is essential to this service.
- Item 40712:
 - The Committee agreed that stereotactic EEG can result in better outcomes for epilepsy surgery patients (29). Localisation of a seizure source in the brain using surgically implanted electrodes is a routine procedure integral to the workup and performance of epilepsy surgery in many patients. Stereotactically implanted EEG electrodes have numerous advantages over electrodes placed surgically by craniotomy over the surface of the brain, chief amongst these being the ability to identify a subcortical epileptic focus more accurately. Specification of the



mode/nature of electrode placement using stereotactic EEG was not envisaged in the original MBS schedule, but has become a critical element of modern practice - the proposed update to the descriptor simply correctly describes the established standard of care, and allows this procedure to be claimed as a complete medical service rather than a collection of co-claimed items.

- The schedule fee should be increased to align with item 39712. Stereotactic EEG procedures are very time consuming to plan and perform, requiring five to six hours of collaborative surgical planning by a neurologist and a neurosurgeon before the surgery even begins. They are of similar complexity to those services described by item 39712, with even longer durations.
- The Committee noted that the service volume in FY2016/17 was considerably higher than it would expect, and appeared inconsistent with the total benefits paid in that year. An analysis of MBS data suggests that there may be compliance issues regarding the use of this item, which have been referred for further investigation. To clarify the intention of the item, the descriptor should be amended to specify that it covers both single and multiple electrode placements, rather than only single placements.

5.13 Stereotactic procedures

Table 24: Item introduction table for items 40800–01 and 40803

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40800	Stereotactic anatomical localisation, as an independent procedure (Anaes.) (Assist.)	\$638.65	114	\$42,989	-6.7%
40801	Functional stereotactic procedure including computer assisted anatomical localisation, physiological localisation, and lesion production in the basal ganglia, brain stem or deep white matter tracts, not being a service associated with deep brain stimulation for parkinson's disease, essential tremor or dystonia (Anaes.) (Assist.)	\$1,745.80	28	\$29,835	4.0%
40803	Intracranial stereotactic procedure by any method, not being a service to which item 40800 or 40801 applies (Anaes.) (Assist.)	\$1,195.70	5,373	\$3,191,128	6.4%



5.13.1 Recommendation 23

- Item 40800: Consolidate this item into item 40803.
- Item 40801: Change the item descriptor to allow lesion production by any means..
 - The proposed item descriptor is as follows:
 - Functional stereotactic procedure including computer assisted anatomical localisation, physiological localisation, and lesion production, by any method, in the basal ganglia, brain stem or deep white matter tracts, not being a service associated with deep brain stimulation for Parkinson's disease, essential tremor or dystonia (Anaes.) (Assist.)
- Item 40803: No change.

5.13.2 Rationale for Recommendation 23

This recommendation focuses on simplifying the MBS. It is based on the following:

- Item 40800: Although the current item descriptor specifies that this should be an independent procedure, co-claiming analysis indicates it is regularly co-claimed with other items. These may be examples of low-value care. It is clinically more appropriate to either not use stereotaxy, or to use item 40803 where needed.
- Item 40801:
 - The descriptor will be amended to include 'by any method' to clarify that the item is agnostic to as the type of technology used for lesion production. This change will ensure that the MBS remains fit for purpose as technological approaches to deep brain lesioning progress.
- Item 40803: This item should be retained in its present state. While the Committee has attempted to incorporate stereotaxy into the majority of neurosurgical items in which it should be used, it is aware that clinicians from other specialties make appropriate use of this item in procedures that are out of scope, and does not seek to limit such usage.



5.14 Deep brain stimulation

Table 25: Item introduction table for items 40850–52, 40854, 40856, 40858, 40860 and 40862

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40850	deep brain stimulation (unilateral) functional stereotactic procedure including computer assisted anatomical localisation, physiological localisation including twist drill, burr hole craniotomy or craniectomy and insertion of electrodes for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability (Anaes.) (Assist.)	\$2,264.45	12	N/A	-1.6%
40851	deep brain stimulation (bilateral) functional stereotactic procedure including computer assisted anatomical localisation, physiological localisation including twist drill, burr hole craniotomy or craniectomy and insertion of electrodes for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.) (Assist.)	\$3,963.00	253	\$750,645	2.6%
40852	deep brain stimulation (unilateral) subcutaneous placement of neurostimulator receiver or pulse generator for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.) (Assist.)	\$340.60	536	\$65,588	7.4%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40854	deep brain stimulation (unilateral) revision or removal of brain electrode for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.)	\$526.40	29	\$7,798	-7.1%
40856	deep brain stimulation (unilateral) removal or replacement of neurostimulator receiver or pulse generator for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.)	\$255.45	148	\$22,908	11.5%
40858	deep brain stimulation (unilateral) placement, removal or replacement of extension lead for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.)	\$526.40	665	\$135,841	7.1%
40860	deep brain stimulation (unilateral) target localisation incorporating anatomical and physiological techniques, including intra-operative clinical evaluation, for the insertion of a single neurostimulation wire for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.)	\$2,022.70	469	\$522,326	1.9%



Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40862	Deep brain stimulation (unilateral) electronic analysis and programming of neurostimulator pulse generator for the treatment of: parkinson's disease where the patient's response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations; or essential tremor or dystonia where the patient's symptoms cause severe disability. (Anaes.)	\$189.70	11,654	\$1,481,018	14.5%

5.14.1 Recommendation 24

- No change to items 40850-52, 40854, 40856, 40858 and 40682.
- The Committee recommends that a suitable sponsor put forward an application for MSAC evaluation of the use deep brain stimulation (DBS) surgery for additional indicators where the use of DBS is becoming accepted practice. This includes for:
 - patients suffering from severe, intractable symptoms due to the following pathologies:
 - Epilepsy
 - Movement disorders
 - Tourette's syndrome and other tic disorders
- Item 40860: Change the item descriptor to specify that post-operative calibration and related aftercare is included.
 - The proposed item descriptor is as follows:
 - Neurosurgery physiological targeting or localisation (unilateral) incorporating anatomical and physiological techniques, including intra-operative clinical evaluation, with or without insertion of one or more neurostimulation wires, in conjunction with treatment for a brain tumour or neurological disorders, including inpatient post-operative calibration and neurological aftercare. (Anaes.) (Assist.)
- Item 40862: No change.
- These items should be prioritised for regular ongoing review.



5.14.2 Rationale for Recommendation 24

This recommendation focuses on ensuring that the MBS supports patient access to modern clinical procedures. It is based on the following:

- Items 40850–40860:
 - The Committee believes that expansion of the indications for DBS to cover neurological disorders more generally would be appropriate following MSAC evaluation.
 - The Committee notes that there is an emerging evidence base for broadening the indications for the surgical DBS items to “neurological disorders”. Although the literature has not yet conclusively demonstrated the efficacy and safety of DBS in some neurological indications (e.g. epilepsy, tinnitus), evidence supporting its use for indications other than the currently included Parkinson's disease, essential tremor and dystonia is developing quickly, and already shows sufficient improvement in outcomes at acceptable risk levels to make this an important surgical option for selected patients (30).
 - The Committee expects evidence in this field to progress rapidly in the coming years and notes the importance of the MBS remaining up to date and flexible as this area evolves.
- Item 40860
 - The Committee recommends expanding item 40860's descriptor because there are several neurosurgical procedures in which neurologists play a substantial role in enabling successful outcomes, but there is no appropriate item that neurologists can use to bill patients for this time (often several hours). For example, a neurologist would conduct regular neurophysiological testing during awake craniotomy and stereotactic EEG surgery. The Committee advocates for expanding item 40860's descriptor to include such procedures, which are of similar complexity and duration, where a neurologist assists with a neurosurgical procedure. This will promote patients' access to these procedures without adding further complexity to the MBS.



- Item 40862:
 - The Committee considers the additional co-claiming of consultation items with item 40862 to be a potential example of low-value care, particularly where item 40862 is claimed twice for bilateral DBS programming. Co-claiming analysis indicates that approximately 89 per cent of item 40862 services in FY2016/17 were co-claimed with consultation items, and with item 00116 specifically in the vast majority of cases. Though important, these procedures are relatively routine; they are conducted every two to three months on average and are often performed by a nurse or assistant in approximately 20 to 30 minutes. Although technically the conditions for claiming item 00116 might be fulfilled, correct conduct of the item 40862 service requires active engagement and questioning of the patient along the lines of a normal consultation.
 - However, the Committee agreed not to limit consultation co-claiming at this time following consultation with the neurological community, where it was reported that these consultations are indeed significant, routinely performed and necessary to providing high-quality care to these patients.

5.15 Miscellaneous neurosurgical procedures

Table 26: Item introduction table for items 40903 and 40905

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
40903	Neuroendoscopy, for inspection of an intraventricular lesion, with or without biopsy including burr hole (Anaes.) (Assist.)	\$554.55	103	\$18,716	3.4%
40905	Craniotomy, performed in association with items 45767, 45776, 45782 and 45785 for the correction of craniofacial abnormalities (Anaes.)	\$601.70	7	N/A	-11.6%

5.15.1 Recommendation 25

- Item 40903: Delete item.
- Item 40905: Change the item descriptor to allow usage by neurosurgeons only, and remove the specified items to be performed in conjunction with craniofacial abnormality corrections.



- The proposed item descriptor is as follows:
 - Craniotomy, performed by a neurosurgeon in conjunction with correction of craniofacial abnormalities (Anaes.) (Assist.)

5.15.2 Rationale for Recommendation 25

This recommendation focuses on improving the quality of patient care. It is based on the following:

- Item 40903: This item describes a technology rather than a procedure; the procedure itself is already described in item 40012, and included as part of the surgical technique in other procedures where it is needed.
- Item 40905: There is no benefit to specifying item numbers relating to specific craniofacial disorders, given that craniotomy by a neurosurgeon for craniofacial disorders of any type is generally of the same complexity.

5.16 New item: Stereotactic radiosurgery

Table 27: Item introduction table for proposed new item 1

Item	Descriptor
New item 1	Stereotactic planning and delivery of radiosurgery (Anaes.) (Assist.)

5.16.1 Recommendation 26

- Create a new item to describe the stereotactic planning and delivery of radiosurgery.
 - The proposed item descriptor is as follows:
 - Stereotactic planning and delivery of radiosurgery (Anaes.) (Assist.)
 - The Committee recommends a schedule fee that combines those of items 40803 and 15600, in accordance with the multiple operation rule.
- The Committee wishes this recommendation to be contingent on its assessment of the Oncology Clinical Committee's final recommendation regarding existing item 15600:
 - Should the Oncology Clinical Committee amend its proposed recommendation so as to be technology agnostic, there will be no need to create New item 1.
 - Otherwise, the Committee will recommend the creation of New item 1.



5.16.2 Rationale for Recommendation 26

This recommendation focuses on ensuring that the MBS supports patient access to modern clinical procedures. It is based on the following:

- Stereotactic radiosurgery has evolved technically and in its neurosurgical use over the last 25 years. It is now a well-established standard of care for many deep-seated/skull-base intracranial pathologies.
- The Committee understands that a recent recommendation by the Oncology Clinical Committee seeks to restructure the item number previously claimable here (item 15600) in a way that limits the ability to use many standard neurosurgical modalities, including but not limited to Gamma Knife. The Committee seeks to preserve patient access to these critically important technologies/procedures and has provided specialist consultation to the Oncology Clinical Committee regarding these concerns.
- Should the Oncology Clinical Committee not agree to modify its recommendation, this Committee recommends the creation of a separate stereotactic radiosurgery item, as described above.
- MBS data show that 40 per cent of item 15600 services claimed in FY2016/17 (approximately 259 services) were associated with the use of item 40803, which describes intracranial stereotaxy. These procedures are assumed to be neurosurgical in nature, and would shift to this new item 1 if this recommendation is made.

5.17 New item: Awake craniotomy

Table 28: Item introduction table for proposed new item 2

Item	Descriptor
New item 2	Awake craniotomy for functional neurosurgery (Anaes.) (Assist.)

5.17.1 Recommendation 27

- Create a new item to describe craniotomies performed while the patient is awake.
 - The proposed item descriptor is as follows:
 - Awake craniotomy for intraparenchymal tumours in locations with high risk of neurological deficit following surgery, including stereotaxy (Anaes.) (Assist.)



- The Committee recommends a schedule fee that aligns with item 39712, before the addition of stereotaxy.

5.17.2 Rationale for Recommendation 27

This recommendation focuses on ensuring that the MBS supports patient access to modern clinical procedures. It is based on the following:

- Awake craniotomy is a more complex craniotomy done for patients with tumours in eloquent locations, in which there is a high risk of neurological deficit following surgery. By carefully monitoring the patient's neurological functions during the operation, the surgeon can ensure the maximum safe amount of tumour tissue is resected (31) (32) (33) (34).
- This surgery is not new, it has been performed for the past two decades but has not yet been reimbursed specifically through the MBS system.
- The duration and level of complexity of this surgery are similar to those described by item 39712, and the Committee recommends a similar schedule fee for this new item. Considerable preoperative planning is required in these cases, including detailed imaging to define important tracts in the brain. The patient is then operated on while awake, with careful monitoring of cognitive, motor and speech function during the procedure. In addition to the standard neurosurgical operating room team, these procedures often involve a speech therapist, a neurologist, and a neurophysiologist who monitors electrical responses. Anaesthesia is also more complex in these cases, involving transitions between periods of general anaesthesia and wakefulness during the surgery.
- The Committee expects the number of awake craniotomies performed to be very low, in the range of around 30 procedures per year. These services would shift from the existing service volume of item 39709.



5.18 New items: Botulinum toxin for focal dystonia and hypersalivation

Table 29: Item introduction table for proposed new items 3 and 4

Item	Descriptor
New item 3	Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxinA (Xeomin), injection of, for the treatment of focal dystonia, including all such injections on any one day
New item 4	Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxinA (Xeomin), injection of, for the treatment of hypersalivation, including all such injections on any one day

5.18.1 Recommendation 28

The Committee acknowledges that PBAC and MSAC evaluations would likely be required to support the creation of these items, after a suitable sponsor submits the relevant applications.

- Create new items to describe the administration of botulinum toxin for the treatment of focal dystonia and hypersalivation.
 - The proposed item descriptor for new item 3 is as follows:
 - Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxinA (Xeomin), injection of, for the treatment of focal dystonia, including all such injections on any one day
 - The proposed item descriptor for new item 4 is as follows:
 - Botulinum toxin type a purified neurotoxin complex (Botox) or clostridium botulinum type a toxin-haemagglutinin complex (Dysport) or incobotulinumtoxinA (Xeomin), injection of, for the treatment of hypersalivation, including all such injections on any one day

5.18.2 Rationale for Recommendation 28

This recommendation focuses on ensuring that the MBS supports patient access to modern clinical procedures. It is based on the following:

- The Committee acknowledges that PBAC and MSAC evaluations would likely be required to support the creation of these items, after a suitable sponsor submits the relevant applications.



- Botulinum toxin therapy is widely used in the treatment of focal dystonias and hypersalivation, providing a low-risk, high-efficacy symptomatic treatment option for patients suffering from debilitating effects of neurological illness (35) (36) (37). The creation of MBS items for these indications would improve access for these patients.

5.19 Referral from Orthopaedic Surgery Clinical Committee: Brachial plexus exploration

Table 30: Item introduction table for item 39333

Item	Descriptor	Schedule fee	Services FY2016/17	Benefits FY2016/17	Services 5-year annual avg. growth
39333	BRACHIAL PLEXUS, exploration of, not being a service to which another item in this Group applies (Anaes.) (Assist.)	\$398.55	82	\$12,050	9.7%

5.19.1 Recommendation 29

Establish a working group consisting of brachial plexus specialists (comprising representation from neurosurgery, plastic and reconstructive surgery and vascular surgery) under the auspices of the Plastics and Reconstructive Surgery Clinical Committee (PRSCC). The working group should provide recommendations on restructuring item 39333 with the intention of:

- describing a common, well-circumscribed set of pathologies and procedures; and
- to support the principle that MBS items constitute more complete medical service.

5.19.2 Rationale for Recommendation 29

The Committee is of the view that brachial plexus procedures cover a large variety of pathology and widely differing surgical procedures. The extent of this variability means that patients will be either grossly under- or over-reimbursed for the relevant procedures, which can limit accessibility and lead to poor billing practices. Strictly speaking, "exploration" describes only the initial stage of brachial plexus procedures: the dissection and identification of the affected nerve roots, prior to their reconstruction. As such, surgeons must decide for themselves which other items to bill, resulting in many different combinations of items, a



consequent lack of equity and transparency for patients, and inconvenience and uncertainty for surgeons. For example, there is anecdotal evidence that clinicians have billed over 30 items for individual complex procedures.

The Plastic and Reconstructive Surgery Clinical Committee provided extensive feedback that item 39633 was not fit for purpose, and that the item should be split and redrafted. The Committee is of the view that a small working group of recognised experts should be established under the auspices of the PRSCC to make recommendations on how the item should be restructured in a way which recognises the variation in the complex and time of complex brachial plexus procedures and describes a set of more complete medical services.



6. Impact statement

Both patients and clinicians are expected to benefit from these recommendations because they address concerns regarding patient safety and quality of care, and they take steps to simplify the MBS and make it easier to use and understand. Patient access to services was considered for each recommendation. The Committee also considered each recommendation's impact on provider groups to ensure that any changes were reasonable and fair. However, if the Committee identified evidence of potential item misuse or safety concerns, recommendations were made to encourage best practice, in line with the overarching purpose of the MBS Review.

Recommended changes to the neurological items covered in this report predominantly serve to improve the value of the services patients receive. By guiding clinicians to make more appropriate referrals for common neurological tests, the Committee aims to reduce the number of tests patients undergo that add minimal value to their management. In many cases, this serves three purposes: reducing inconvenience and discomfort for patients, reducing out-of-pocket fees, and speeding up the journey to successful management by guiding patients towards more informative testing or earlier referral. Speeding up the journey to successful management will also benefit the system as a whole by opening up capacity to provide care to more patients.

Clinicians may require a little extra time to fill in standardised referral forms when referring patients for specific tests, but this will be offset by increasing their certainty in managing patients, and by saving them the time it usually takes to send for and await test results of little diagnostic value. However, the Committee in no way seeks to limit patient access to critical tests and fully appreciates that unusual situations abound in clinical medicine. Sometimes a test must be requested, even when the chances of it revealing useful information are slim. As such, the Committee recommends increased guidance through explanatory notes and referral forms, rather than imposing formal restrictions on usage.

The changes recommended to the neurosurgical items predominantly seek to:

- Simplify claiming procedures for clinicians and improve billing transparency for patients by consolidating similar procedures into fewer items.
- Promote increased use of well-evidenced, standard-of-care technologies (stereotaxy and cranioplasty) that improve the safety and effectiveness of patient care.



These changes will benefit patients by improving the variety, completeness and transparency of the care they can be reimbursed for under Medicare provisions. Clinicians will benefit from simpler billing practices, more predictable payment for similarly complex procedures and an enhanced ability to offer the best care for their most challenging patients.



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8. Glossary

Term	Description
ACT	Australian Capital Territory
ADD/ADHD	Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder
ALS	Amyotrophic lateral sclerosis
ANZAN	Australian and New Zealand Association of Neurologists
ANZCNS	Australia and New Zealand Child Neurology Society
AVM	Arteriovenous malformation
CAGR	Compound annual growth rate or the average annual growth rate over a specified time period.
Change	When referring to an item, "change" describes when the item and/or its services will be affected by the recommendations. This could result from a range of recommendations, such as: (i) specific recommendations that affect the services provided by changing item descriptors or explanatory notes; (ii) the consolidation of item numbers; and (iii) splitting item numbers (for example, splitting the current services provided across two or more items).
Cranioplasty	The use of bone cement, plates or other methods to repair defects (holes or damage) to the skull. Please see the beginning of section 5 of this report for a more detailed description of this procedure.
CSF	Cerebrospinal fluid
DBS	Deep brain stimulation
Delete	Describes when an item is recommended for removal from the MBS and its services will no longer be provided under the MBS.
Department, The	Australian Government Department of Health
EEG	Electroencephalography—a system for measuring the electrical activity of the brain, which is used to diagnose and monitor several neurological conditions.



EMG	Electromyography—a collection of tests that use mild electrical shocks to measure the presence, speed and quality of muscle reactions to electrical signals (which might normally be received through a nerve). These tests are used to diagnose and monitor several neurological disorders.
FY	Financial year
High-value care	Services of proven efficacy reflecting current best medical practice, or for which the potential benefit to consumers exceeds the risk and costs.
Inappropriate use / misuse	The use of MBS services for purposes other than those intended. This includes a range of behaviours, from failing to adhere to particular item descriptors or rules through to deliberate fraud.
LEMS	Lambert-Eaton Myasthenic Syndrome
Low-value care	Services that evidence suggests confer no or very little benefit to consumers; or for which the risk of harm exceeds the likely benefit; or, more broadly, where the added costs of services do not provide proportional added benefits.
MBS	Medicare Benefits Schedule
MBS item	An administrative object listed in the MBS and used for the purposes of claiming and paying Medicare benefits, consisting of an item number, service descriptor and supporting information, schedule fee and Medicare benefits.
MBS service	The actual medical consultation, procedure or test to which the relevant MBS item refers.
Misuse (of MBS item)	The use of MBS services for purposes other than those intended. This includes a range of behaviours, from failing to adhere to particular item descriptors or rules through to deliberate fraud.
MS	Multiple sclerosis
MSAC	Medical Services Advisory Committee
MSLT	Multiple Sleep Latency Test
NCS	Nerve conduction studies—a collection of tests that use mild electrical shocks to measure the presence, speed and quality of electricity conduction through a nerve. These tests are used to diagnose and monitor several neurological disorders.



New service	Describes when a new service has been recommended, with a new item number. In most circumstances, new services will need to go through the MSAC. It is worth noting that implementation of the recommendation may result in more or fewer item numbers than specifically stated.
NICE	National Institute for Health and Care Excellence
No change or leave unchanged	Describes when the services provided under these items will not be changed or affected by the recommendations. This does not rule out small changes in item descriptors (for example, references to other items, which may have changed as a result of the MBS Review or prior reviews).
NSA	Neurosurgical Society of Australasia
Obsolete services / items	Services that should no longer be performed as they do not represent current clinical best practice and have been superseded by superior tests or procedures.
PBS	Pharmaceutical Benefits Scheme
PNES	Psychogenic Non-Epileptic Seizures
RACGP	Royal Australian College of General Practitioners
SEEG	Stereotactic electroencephalogram electrodes
Services average annual growth	The average growth per year, over five years to 2016/17, in utilisation of services. Also known as the compound annual growth rate (CAGR).
SFEMG	Single fibre EMG
Stereotaxy	The use of stereotactic imaging and guidance as part of a neurosurgical or other procedure. Please see the beginning of section 5 of this report for a more detailed description of this procedure.
The Committee	The Neurosurgery and Neurology Clinical Committee of the MBS Review
The Taskforce	The MBS Review Taskforce
Total benefits	Total benefits paid in 2016/17 unless otherwise specified.



Appendix A Summary for consumers

This table describes the medical service, the recommendation(s) of the clinical experts and why the recommendation(s) has been made.

Recommendation 1:

Item	What it does	Committee recommendation	What would be different	Why
11000	A routine electroencephalogram (EEG) is a 20- to 30-minute test that measures the brain's electrical activity, allowing a neurologist to detect electrical abnormalities and sometimes diagnose conditions such as epilepsy.	<p>1) Create a standardised form that GPs and other referring clinicians ("referrers") would use to request an EEG. This form would ask questions about the patient's condition and guide the referrer towards the best next steps, which sometimes might not actually be an EEG.</p> <p>2) Add non-binding guidance to the MBS item to help referrers better understand when an EEG is and isn't a worthwhile test for a particular patient, and if not, what to do instead.</p>	<p>Referrers will better understand which patients might and might not benefit from a routine EEG.</p> <p>Patients would undergo fewer unnecessary or unhelpful EEGs, saving them time and out-of-pocket charges. They would also be referred or investigated more appropriately, resulting in faster diagnosis and better management choices.</p> <p>Those patients who would benefit from EEG will still be eligible for the test. Where a referrer feels certain the test will be helpful, regardless of the guidance given, he or she could still refer the patient for an EEG. This recommendation seeks only to discourage unnecessary testing, not to limit access to it.</p>	Both Committee members and published literature report that a substantial number of patients undergo unnecessary or unhelpful EEGs. This wasteful use of medical technology costs patients and the system time, money and worry.



Item	What it does	Committee recommendation	What would be different	Why
11003, 11004, 11005	Prolonged electroencephalograms (EEG) measure the brain's electrical activity over three or more hours—and sometimes for several days—allowing a neurologist to detect electrical abnormalities, diagnose conditions, determine ideal medicine dosages and evaluate suitability for epilepsy surgery.	Require use of electrodes in the standard International Federation of Clinical Neurophysiology 10-20 electrode placement pattern.	At present, clinicians are not required to apply EEG electrodes in any particular pattern, even though the International Federation of Clinical Neurophysiology 10-20 placement is the accepted norm. This could lead to variations in the placement of electrodes, which can make interpretation of prolonged EEGs less accurate, and can diminish the usefulness of the test.	International standards support 10-20 electrode placement as the best for prolonged EEG. Requiring this for use of the MBS items will improve the quality of EEG interpretation, promoting better diagnosis and care for patients.
11012, 11015, 11018, 11021, 11024, 11027	These tests (nerve conduction studies, electromyography and evoked response testing) allow neurologists to investigate and monitor treatment for various disorders related to movement and the senses.	Investigate usage of these items carefully and provide guidance for appropriate referrals in an explanatory note.	Similar to above, these changes will discourage unnecessary or unhelpful testing where other measures would be more useful, without limiting access to these tests.	Reducing unnecessary testing will save patients time, money and worry. Some of these tests can also be physically uncomfortable and should not be done without good cause.



Item	What it does	Committee recommendation	What would be different	Why
Multiple neurosurgical items		Simplify and rationalise the MBS by combining (consolidating) items with each other.	Today, many items in the MBS describe similar (and sometimes interchangeable) procedures, which are sometimes subject to different reimbursement rates. This means that two patients might receive very similar care but see different procedures on their bills and be reimbursed different amounts. These recommendations will standardise care provision so that similar procedures fall under the same transparent item description and receive the same reimbursement, all other things being equal. They will also simplify billing practices for clinicians.	Transparency and equity of care and reimbursement are important values that should be encouraged by the MBS.
Multiple neurosurgical items	Stereotaxy involves using sophisticated technology to digitally map a patient's brain and guide the neurosurgeon's movements and instruments very precisely during surgery	Include stereotaxy with relevant neurosurgical procedure items.	Today, many neurosurgical procedures benefit from the use of stereotaxy, which has been shown to improve the safety and effectiveness of delicate procedures. However, stereotaxy is not always used in practice. Including stereotaxy in relevant neurosurgical procedure items will promote more frequent use.	Using stereotaxy in relevant procedures decreases the chances that a surgeon will accidentally damage fragile brain areas, while increasing the chance that tumours and other pathologies are removed to the greatest extent safely possible. These recommendations will improve patient safety as well as treatment success rates.



Item	What it does	Committee recommendation	What would be different	Why
Multiple neurosurgical items	Cranioplasty involves repairing damage to or gaps in the skull due to accidents, natural causes or surgery. Not all neurosurgical procedures result in significant gaps or damage, but those that do often benefit from repair. In some cases, not repairing the skull will have no ill effects at all, but sometimes patients report suffering from regular headaches or distress due to disfigurement of the head.	Include cranioplasty with relevant neurosurgical procedure items.	<p>Today there is variation in surgeons' use of cranioplasty, and the Committee believes it should be done more often.</p> <p>Including cranioplasty in relevant neurosurgical procedure items will promote more frequent use.</p>	Using cranioplasty in relevant procedures decreases the chances that patients will suffer from pain and disfigurement, improving their experience of and outcomes from care.