Medicare Benefits Schedule Review Taskforce

Report from the Cardiac Services Clinical Committee

2017

Important note

The views and recommendations in this report have been released for the purpose of seeking the views of stakeholders.

This report does not constitute the final position on these items, which is subject to:

- Stakeholder feedback;

Then

- Consideration by the MBS Review Taskforce;

Then *if endorsed*

- Consideration by the Minister for Health; and
- Government.

Stakeholders should provide comment on the recommendations via the online consultation tool.

Confidentiality of comments

If you want your feedback to remain confidential, please mark it as such. It is important to be aware that confidential submissions may still be subject to access under freedom of information law.

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1. Executive summary

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 The Taskforce also seeks to identify any services that may be unnecessary, outdated or potentially unsafe.

The Taskforce is committed to providing recommendations to the Minister for Health that will allow the MBS to deliver on the following 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 Taskforce has asked the Clinical Committees to undertake the following tasks:

1. Consider whether any MBS items are obsolete and should be removed from the MBS.
2. Consider identified priority reviews of selected MBS services.
3. Develop a program of work to consider the balance of MBS services within its remit and items assigned to the Committee.
4. Advise the Taskforce on relevant general MBS issues identified by the Committee in the course of its deliberations.

The recommendations from the Clinical Committees will be released for stakeholder consultation. The Clinical Committees will consider feedback from stakeholders and then provide recommendations to the Taskforce in a Review Report. The Taskforce will consider the Review Report from Clinical Committees and stakeholder feedback before making recommendations to the Minister for Health, for consideration by the Government.

The Cardiac Services Clinical Committee (the Committee) was established in April 2016 to make recommendations to the Taskforce regarding MBS items in its area of responsibility, based on rapid evidence review and clinical expertise. The Taskforce asked the Committee to review cardiac-related items. The Committee convened five Working Groups with specific areas of focus and expertise, incorporating an additional 24 clinicians and two additional consumer representatives.

The Committee was assigned 188 MBS items to review, including procedures, investigations and other services related to cardiology. All recommendations relating to these items are included in this report for consultation. The Committee also provided input on items that will be referred to their primary reviewing Clinical Committee to assist with their recommendations for consultation.

An inclusive set of stakeholders is now engaged in consultation on the recommendations outlined in this report. Following this period of consultation, the recommendations will be finalised and presented to the Taskforce. The Taskforce will consider the report and stakeholder feedback before making recommendations to the Minister for Health for consideration by the Government.

1.1 Key recommendations

The Committee has highlighted its most important recommendations below. Of the 188 items reviewed, 65 were found to require no change and 117 have undergone some level of revision. Six services were considered obsolete, and the relevant items have been recommended for removal from the schedule. The complete recommendations and accompanying rationales for all items can be found in Sections 4 to 9. These recommendations are provisional and may be revised based on feedback received during consultation. Appendix C contains a complete list of items considered by the Committee.

1.1.1 Broad themes

During the Committee's review, a number of general issues emerged that were relevant to multiple items under consideration. In part, this is because many of the reviewed items are clinically related and interdependent, and many recommendations are constructed as a package of changes to reflect this, and to ensure that MBS items are cohesive and complementary. These issues do not have a dedicated section in the report (instead, they are specifically discussed under the applicable items), but they are highlighted here.

- The Committee modified descriptors across the items under review to reduce low-value care. For example, many investigatory services—such as stress echocardiograms (stress echos)—have been restricted from use in asymptomatic patients or for screening. Clinically appropriate repeat intervals have also been added to prevent inappropriately frequent services, such as routine annual surveillance that does not align with the guidelines. These changes will free up capacity in the health system and prevent patients from receiving low-value, inconvenient, potentially harmful and costly services.
- The Committee identified a significantly higher than expected rate of co-claiming of specialist consultations with various services. The MBS rules on co-claiming consultations are being refined by the Principles and Rules Committee, and it is the recommendation of this Committee that these requirements be made more visible to providers to reduce inappropriate co-claiming.
- The Committee noted the need for strong compliance and audit functions to identify and prevent low-value use or misuse. Although every effort has been made to align the proposed descriptors with contemporary best practice, it is not possible (nor is it desirable) to create descriptors that account for every complexity of clinical medicine. Beyond this, implementation of these recommendations will be complex and presents challenges to providers, patients and the system. Such challenges are unavoidable when significantly modernising a system that is used by thousands of providers and millions of patients across the country. For this reason, the Committee recommends that MBS compliance, the Colleges, and professional and educational organisations work together to support the effective implementation of these recommendations.
- The Committee identified the need to support providers in locating previous investigations, in order to avoid repeating them. For this reason, it recommends adding all the reviewed non-surgical items to the Department of Human Services (DHS) MBS items online checker tool. This will allow providers to ensure that a patient is eligible for a service before performing it, thereby reducing low-value repeat services. However, the Committee noted that this provides minimal assistance in locating previous results if a patient is ineligible for a service. For this reason, the Committee also strongly supports the development of a system that allows clinicians to locate or access past reports of their patients.
- When considering various recommendations, the Committee considered what impacts they may have on several specific groups, such as paediatric patients, patients from regional and

remote areas, and patients from disadvantaged backgrounds. In some instances, recommendations were amended to minimise any potential consequences, and specific exceptions may have been granted in rare circumstances, such as for patients with complex congenital heart disease.

1.1.2 Section 4 – Cardiac imaging recommendations

Echocardiography

- The Committee recommends restructuring the existing echocardiography items into six new items:
  - Item 5511A: Initial complete echocardiogram (echo).
  - Item 5511B: Serial echo for valvular dysfunction.
  - Item 5511C: Serial echo for heart failure or structural heart disease.
  - Item 5511D: Serial echo for complex or rapidly evolving congenital heart disease.
  - Item 5511E: Frequent repetition serial echo for specified indications, with a lower schedule fee to reflect the focused nature of these services.
  - Item 5511F: Repeat echo not covered by items A–E for exceptional circumstances. This should represent a very low proportion of a referrer's services and should be closely monitored by compliance.

  The descriptors for these items align with best-practice guidelines and specify intervals between studies to reduce low-value repeat services. The descriptors also provide greater specificity on the technical requirements of an echo to reduce low-quality studies.
- This recommendation is intended to reduce low-value use and high growth in service provision, without restricting appropriate use. Echos (excluding stress echos) account for over 900,000 services and over $180 million in annual benefits, with average growth in service volume of 7 per cent per year over the last five years. The Committee noted that twice the number of services per population were performed in New South Wales, Queensland, Victoria and South Australia, compared with other states. It felt that the high annual growth and geographic variability represent significant practice variation, including over- and under-servicing—a view supported by the published literature (1).

Gatekeeper to functional imaging

- The Committee recommends that for General Practitioners (GPs), Consultant Physicians and Cardiologists, standard exercise stress testing (EST) with a reported Duke Treadmill Score (DTS) (rather than stress echo or myocardial perfusion scan [MPS], collectively referred to as 'functional imaging') should be the first-line investigation for symptomatic patients with suspected coronary artery disease (CAD) who have an Australian Absolute risk score for cardiovascular event over 5 years of less than 10 per cent and an interpretable electrocardiogram (ECG), and are able to exercise.
- The Committee agreed on two core principles that are central to this recommendation. Firstly, coronary investigations are best considered from a prognosis-and-outcomes perspective, rather than a risk-of-anatomical-disease perspective. This represents a paradigm shift in the literature, moving away from how CAD has previously been considered by many clinicians. Secondly, the population in question are patients with atypical/uncertain symptoms—as defined by the National Institute for Health and Care Excellent (NICE) guidelines (i.e., low or intermediate risk of obstructive CAD)—who are able to exercise and have an interpretable

ECG, and who have an Australian Absolute risk score for cardiovascular event over 5 years of less than 10 per cent. The other recommendations described in this report allow GP access to functional imaging or CT coronary angiography (CTCA) for patients who do not fall into this low-risk category.

- The Committee noted that EST is a completely non-invasive, broadly available and low-cost technique that performs well in patients with a normal resting ECG whose symptoms suggest a low to intermediate pre-test probability (PTP) of myocardial ischaemia. The Committee agreed that although stress echo and MPS have superior sensitivity and specificity compared with EST for the anatomical diagnosis of CAD (as determined by invasive coronary angiography [ICA]), outcomes and anatomical diagnosis are not the same thing. The addenda to the European Society of Cardiology (ESC) guidelines state that there is no evidence that the superior "diagnostic" accuracy of stress echo and MPS over EST leads to improved patient outcomes (2), and the only randomised study comparing outcomes between EST and functional studies (in this case, MPS) showed no benefit for MPS over EST (3). Furthermore, two studies have shown that for the typical patient seen in general practice with symptoms suggestive of a low to intermediate probability of obstructive CAD, a negative stress ECG has a strong negative predictive value (in the order of 99 per cent over four years) for adverse cardio-vascular outcomes such as heart attack or death (4,5). EST is also considerably less expensive than stress echo or MPS.
- Although there are concerns that this change may result in increased health expenditure and inefficiency for some patients (as well as other concerns discussed later in the report), the Committee agreed that, on balance, the recommendation has the potential to considerably improve the value of functional imaging by reducing unnecessary testing in patients with a low probability of CAD and a low risk of adverse outcomes. This recommendation is supported by the available literature (although a limited number of published studies have examined outcomes rather than anatomical disease), as well as the American Heart Association (AHA) and ESC guidelines and the American College of Cardiology/AHA acceptable use criteria (6,7). Although the NICE guidelines recommend against the use of EST as a test for the exclusion of CAD, it was noted that the evidence cited for this relates to anatomical disease (8). CTCA or ICA should be used to exclude anatomical disease, but the Committee agreed that EST with DTS was an appropriate gatekeeper to functional imaging, with the aim of reducing low-value imaging in patients with an Australian Absolute risk over 5 years of less than 10 per cent and a DTS greater than or equal to five.
- The Committee also noted that functional imaging has grown by an average of 8.4 per cent per year over the last five years, and that it now outnumbers the less expensive standard EST by almost three to one. Stress echos are the primary driver of this growth, increasing at a rate of 12 per cent per year. MPS services are growing at less than 1 per cent per year, but they still account for 24 per cent of functional imaging services. GPs are the referrers for 70 per cent of stress echos and 35 per cent of MPS services. Medicare statistics show that stress echos and MPS lead to a revascularisation procedure over the next 18 months in only 2–3 per cent of cases. Furthermore, there is marked variation in the rate of functional imaging per 100,000 population between states (1,9). The Committee agreed that this variation likely includes under-servicing in some areas and over-servicing in others and that steps should be taken to reduce this low-value use.

Functional studies

- For many patients who require functional testing for the assessment of ischaemia, MPS and stress echo provide clinically equivalent information. To prevent perverse volume shifts, the

recommendations across both groups of items have been largely aligned, and the Committee recommends that these should be considered as a single package of changes.

Stress echocardiography

- The Committee recommends updating the stress echo item descriptors to restrict use for low-value indications and require providers to be appropriately trained, ensuring that only high-quality, high-value services are provided to patients. This includes splitting the stress echo items into stress echo with limited 'safety' baseline echo and stress echo with complete structural echo (with appropriate co-claiming restrictions applied to the standard echo items).
- The recommendations are intended to preserve best practice for patient safety, improve patient experience and reduce low-value services, freeing up resources such as technicians, equipment and specialists. The Committee noted that stress echos account for over $56 million in benefits annually, and that service volumes have grown at a rate of 12 per cent per year over the last five years. This growth rate is concerning, and the Committee agreed that it goes beyond what could reasonably be attributed to clinical need. Many stress echos are likely to be low value, and MBS data shows that only 2 per cent of patients who have a stress echo subsequently receive a revascularisation procedure over the next 18 months (for MPS, the rate is 3 per cent). Furthermore, 7 per cent of patients receive repeat services in a single year, and 20–45 per cent of patients are receiving annual stress echos—a practice not supported by the evidence in the absence of clinical changes.
- The restructuring is also intended to prevent circumvention of co-claiming restrictions. For example, some patients may be unnecessarily required to attend for services on multiple days: 17 per cent of patients (almost 41,000 per year) received a standard echo within the four weeks prior to their stress echo and a portion of these services are likely to be inappropriate. As a result of these changes, providers will have greater flexibility and clarity regarding the requirements of the stress echo items.
- The restructure also enables the creation of complete medical services by combining the EST item with the stress echo items. In light of these changes and the recommended new item structure the Committee recommends the fees for the new items be reviewed with the outcome being at least cost-neutral to the MBS.

Myocardial perfusion scanning

- The Committee recommends restructuring MPS items, which includes creating complete medical services and splitting the items for single-phase (rest or stress) studies to allow for the inclusion of EST in the stress phase. These changes are intended to modernise the MBS.
- The Committee recommends that for suspected CAD in cases where stress echo and MPS provide clinically equivalent information, stress echo should be the preferred option to avoid unnecessary radiation exposure, with exemptions allowing MPS as first line for appropriate patient, modality and access reasons.
- The Committee recommends adding an explanatory note to all stress echo and MPS items that encourages (for patients in whom either study would provide equivalent information) consideration of the cost and radiation exposure of an investigation, in addition to access factors, when determining the most appropriate investigation.

Cost comparison of stress echo and MPS

- Despite analysis suggesting a significant cost difference between MPS and stress echo over 12 months favouring stress echo, the Committee felt that a deeper understanding of the disease

burden of each cohort was needed before a definitive cost-comparison could be completed. The Committee recommends that further research be undertaken outside the MBS Review to understand the cost-effectiveness of various cardiac investigations and procedures in the Australian context, and that consideration be given to the relative role of these procedures in light of this.

1.1.3 Section 5 – General recommendations

- The committee recommends implementing an ongoing review process to maintain the alignment of the MBS with contemporary clinical practice, and reviewing significant recommendations post-implementation to ensure the intended outcomes are achieved.
- The Committee recommends developing a structured request form for cardiac investigations, outlining the minimum information that needs to be provided. This will ensure that requestors consider all relevant information before requesting investigations, and that providers have the information needed to verify that the requirements of the descriptors are met, and that the most appropriate modality is being used, before performing a service (in line with MBS requirements).
- The Committee recommends creating two new items for Heart Team consultations in order to increase the likelihood that patients receive the most appropriate treatment for their condition, particularly patients with stable multi-vessel CAD. These conferences will include a non-interventionalist, an interventional cardiologist and a cardiac surgeon (at a minimum) where cardiac intervention is considered, and will be required prior to revascularisation in certain circumstances.
- The Committee recommends that documentation should be required, generally in the report, for how indication requirements were met for all investigations and procedures with specified indications.

1.1.4 Section 6 – CAD-related recommendations

Angiography

- The Committee recommends 'rebuilding' these item numbers to capture two dimensions: indication and complexity. The coronary angiography item numbers have been divided into three broad indications:
  - In acute coronary syndromes (ACS) where strong evidence exists, to support the routine use of angiography to determine the likely need for revascularisation.
  - In suspected or known stable CAD, where the evidence for revascularisation is often less certain.
  - Where the patient is undergoing cardiac surgery and a pre-operative assessment of coronary status is required.

  Within each indication, there is an item for native arteries and an item for grafts to reflect the increased time and complexity involved. Items for fractional flow reserve (FFR) and right and left heart catheterisation have been retained and updated in line with the principles of the Review.
- This recommendation is intended to reduce practice variability and align the MBS with contemporary practice. The Committee agreed that despite relatively clear indications for angiography, substantial variation remains in the provision of coronary angiography across Australia, with New South Wales, the Australian Capital Territory (ACT) and Tasmania

performing twice as many angiograms per capita as Queensland and South Australia. It also agreed that although existing item numbers were originally developed to encompass the substantial complexity in coronary angiography provision, the item numbers do not describe the indications for this investigation and are therefore open to differing interpretations and over-use. (ICA has been growing in Australia at 3 per cent per year over the last five years. In the 2014/15 financial year [FY], 178,958 services were performed and $62 million was claimed in benefits.)

PCI and angioplasty

- The Committee recommends dividing the PCI item numbers into three broad indications:
  - ST elevation myocardial infarction (STEMI), within the context of an acute reperfusion strategy (targeting a door-to-balloon time of less than 60 minutes), among patients with chest pain presenting within 12 hours.
  - Troponin positive ACS, including STEMIs outside a door-to-balloon time of 60 minutes and non STEMI.
  - Stable CAD with evidence of ongoing ischaemia, despite optimal medical management documented on functional testing or FFR. (Note that involvement of the Heart Team in decision-making is advocated.)
- The redrafted items are intended to capture: (i) the clinical complexity of treating patients with acute coronary syndrome (ACS), compared to treating stable coronary artery disease; and the complexity of multi-territory PCI during the same procedure (compared to the staged procedures).
- The recommendation is also intended to reduce practice variability. For example, despite relatively clear indications for PCI—including appropriateness criteria published by numerous international bodies—substantial variation persists across Australia, with New South Wales performing 40 per cent more services per capita than other states, and South Australia and the Northern Territory providing more than 20 per cent fewer services per capita than all other states. Services have been growing at 4 per cent per year, and 28,224 PCI and angioplasty services were provided in FY 2014/15, equating to $9.1 million in benefits.
- The proposed PCI items have also been structured to provide complete medical services (including, for example, set-up shots and ECGs), thereby addressing highly variable co-claiming patterns. ICA is not included in the service because patients (particularly in rural areas) may have had a diagnostic ICA performed by a different provider. However, it cannot be co-claimed if a diagnostic service was performed in the last three months, except in the case of a new ACS event.

CT coronary angiography (CTCA)

- The Committee recommends splitting the item for CTCA into three items:
  - One structured-access item for GPs to request CTCA, limited to patients with stable atypical symptoms who are not known to have CAD with an Australian Absolute risk score of cardiovascular event of greater than or equal to 10 per cent over five years.
  - Two specialist-access items—split into CAD and non-CAD related indications—with the addition of accepted indications (such as where ICA is unable to delineate a bypass graft).
- This recommendation is intended to modify CTCA items to reflect the expanding role of this test in the assessment of acute chest pain and stable CAD. CTCA is a relatively recent addition

to the MBS, but it has had an average growth rate of 22 per cent per year over three years, with growth of 12 per cent from FY2013/14 to FY 2014/15. In FY 2014/15, $29 million in benefits were paid for 44,976 services. The Committee agreed that the investigation is coming to the fore as evidence builds of its effectiveness, and that its recommendations for CTCA items should take this into account and be forward-looking (without over-reaching).

- The Committee agreed that CTCA is a robust test with a very strong negative predictive value in terms of outcomes. However, the new limited-GP-access CTCA item carries the risk of considerable uptake (as the Department noted had occurred with GP access to knee MRI). This risk is expected to be mitigated (to some extent) for the following reasons: (i) many CTCAs ordered by a GP would otherwise have been ordered by a cardiologist; (ii) the test can only be ordered following Australian Absolute risk assessment; and (iii) the test cannot be performed for patients with known coronary disease (such as those where the result is positive), or within five years of a negative result. Nonetheless, the Committee acknowledges the risk and recommends that the Medical Services Advisory Committee (MSAC) reviews these changes prior to implementation.
- The Committee recommends creating a standardised request form, which includes the preconditions for the request and the information used to calculate the Australian Absolute risk score.

1.1.5 Section 7 – Electrocardiography (ECG) recommendations

- The Committee recommends retaining items for ECG trace only, formal report only, and both trace and report, with the following key changes to improve the value of the services:
  - Amend the item for trace and report so that it is a referred service where a formal report is provided.
  - Restrict the claiming of ECG traces for patients in hospital, where the costs of obtaining a trace are separately funded.
  - Clarify the requirements of a formal report.
  - Require all traces to be reviewed in a clinically appropriate timeframe and by an appropriately trained provider for patient safety.
- The Committee agreed that these changes would not reduce patient access to appropriate ECGs and would improve the clinical value provided by 12-lead ECGs.
- The Committee determined that an item for referred ECG trace and formal report should remain on the MBS in recognition of the access it gives GPs—particularly rural GPs—to specialist review of a trace. Although all doctors should be capable of interpreting ECGs, the Committee acknowledged that GPs (and other clinicians) who are concerned about a trace, or are unable to obtain an adequate trace, should be able to seek additional support.
- The Committee agreed that many ECGs are of low value, particularly those performed without a referral. (The financially objective gatekeeping function is not present in non-referred services.) It also agreed that many providers perform routine/baseline ECGs, screening ECGs or repeat ECGs in the absence of symptoms. These are almost entirely claimed as a trace and report, despite many lacking a formal report or an appropriate clinical indication. For this reason, there was consensus that defining a service for referred ECGs would significantly increase the clinical value of the services provided, and that involving two providers would ensure an element of gatekeeping, thereby enhancing the value of the services. (Appropriate gatekeeping weighs the value of specialist input against the inconvenience to the patient. This

function, primarily performed by primary care clinicians, is a cornerstone of the Australian healthcare system.)

- This gatekeeping element is intended to address concern about the volume and variability of ECG claims. The Committee noted that more than 2.7 million ECG services are claimed under the MBS every year, at a cost of over $71 million, and that over 98 per cent of these services are claimed as a trace and report. There is also considerable variability in ECG services across the states, with New South Wales and Queensland providing twice as many services as Western Australia and the Northern Territory. People in remote and very remote areas also claim 25–50 per cent fewer services than people in more urban areas. The Committee also voiced concern about the 7 per cent per year growth in service volumes, which is well above population growth of 1–2 per cent per year. The Committee agreed that shifting disease patterns do not account for growth at this rate, and it felt that the substantial and growing investment in a relatively straightforward activity could be better directed to other necessary services.
- The Committee recommends that formal ECG traces and reports should be stored and made readily available to other clinicians (with patient consent) in order to provide greater value to the patient and the health system.
- The Committee provided greater clarity on the requirements for a formal report, and it recommended that all traces should be reviewed in a clinically appropriate timeframe and by an appropriately trained provider in order to ensure patient safety. It noted that there is always a chance that a life-threatening abnormality may be detected on the ECG.
- The Committee considered the role of the MBS for in-hospital ECG services, which account for 500,000 services and $15 million in benefits. The Committee agreed that the costs of performing an ECG trace—including nurse time and consumable costs—are already included in the accommodation fee for an admission. It also agreed that the care of an admitted patient by a clinician reasonably includes the review of ECG traces associated with that admission. However, the Committee acknowledged that there may be instances in which a provider requires a second opinion from a specialist on a non-routine inpatient trace, and sending a trace for a formal report would be appropriate in these circumstances.

1.1.6 Section 8 – AECG and electrophysiology recommendations

Ambulatory ECG (AECG)

- The Committee recommends revising the items for AECG monitoring to align with contemporary best practice, with the choice of service linked to the frequency of symptoms under investigation. For example, in patients who experience symptoms very infrequently, a 24-hour service is unlikely to coincide with those symptoms, and longer-term monitoring is therefore of greater clinical value. The Committee has not recommended specific indications for each item because there are many high-value indications for these services.
- The Committee recommends permitting the insertion and removal of implanted loop records (ILRs) in an outpatient setting, and reviewing the schedule fee for these services in light of the significant reduction in the time and complexity of the procedures. The Committee agreed that technological advancements mean that it is now possible to safely and quickly insert and remove ILRs in an outpatient setting. This would result in procedures with a much lower cost to the health system and insurers. Such a change could only be implemented with an exception granted by the Prostheses List to allow outpatient insertion.

Cardiac resynchronisation device

- The Committee recommends redrafting the items for cardiac resynchronisation devices to simplify the MBS, and removing the requirement for sinus rhythm to align with published evidence and improve patient access to these treatments. This is particularly important in light of reports of patients undergoing cardioversion in order to meet the current descriptor—a practice that is both wasteful and exposes patients to unnecessary risk.

1.1.7 Section 9 – Cardiac surgery recommendations

- The Committee recommends restructuring the items for cardiac surgery to create (where possible) complete medical services. Specifically, the items for coronary artery bypass surgery, valvular surgery and aortic surgery have been significantly rebuilt as a schedule of 'base' items, incorporating previously co-claimed items into the new base items (where appropriate) in a cost-neutral way. Elements of a procedure that may contribute significantly to time or complexity (such as all-arterial graft use in coronary bypass surgery), or which are performed by only selected providers (such as off pump coronary artery bypass surgery), have been retained as 'bolt-on' items, which are intended to be co-claimed with the appropriate base procedure.
- The development of complete medical services is important, as variation in claiming practices can result in patients receiving very different rebates for the same procedure. This approach has been adopted for recent additions to the MBS and is being used by other surgical committees across the MBS Review.
- The Committee noted that cardiothoracic surgical procedures are regularly co-claimed with items from other areas of the MBS, particularly the vascular and plastics sections. Should the recommended changes to the MBS be implemented, the Committee recommends applying a general rule to the cardiac surgery section of the MBS stating that these items are not to be co-claimed in the same procedure with services outside this section of the MBS. This will prevent providers from claiming other items intended for different procedures, in addition to the 'complete' cardiac surgical items.
- The Committee noted the recommendation from the Principles and Rules Committee to limit providers to co-claiming a maximum of three items. The above changes will reduce the number of items claimed per service. However, due to the nature of cardiac surgery, multiple discrete sub-procedures are often performed in the same procedure, such as a valve replacement and bypass surgery. Even with the proposed items, such a procedure may require more than three items to be claimed. Should this limit be applied, the Committee recommends taking appropriate steps to ensure that it does not have unintended impacts on the provision of cardiac surgery.

1.2 Key consumer impacts

- The Committee brought together practitioners with experience in and commitment to the care of people with cardiac conditions to examine how well the descriptions of Medicare items match current clinical practice and meet the needs of Australians. Consumer representatives were on the Committee and every Working Group. The consumer impacts summary (Section 3.4) provides more detail on consumer impacts. There is also a list of all the reviewed items, written in plain English, in Appendix A – Summary for consumers.
- Changes have been recommended for some items that are no longer up to date. Some items are no longer used, and some should not be used because clinical best practice has changed since they were originally described. These items have been recommended for deletion.

- The majority of the work conducted by the Committee focused on clinical issues and the provision of clinical services. As a result, the consumer representative relied frequently upon the advice of the clinicians regarding how consumers would be affected.
- The consumer representative used the following framework to assess recommendations:
  - **Safety**: None of the recommendations negatively affect the safety of cardiac services.
  - **Quality**: Many of the recommended changes are intended to improve quality, primarily by aligning the reimbursement system with evidence-based practice.
  - **Access**: The recommendations do not negatively affect appropriate access. However, some patient groups have been receiving services that they do not need, which can result in either negative health impacts or unnecessary cost. Inappropriate access was restricted where possible.
  - **Effectiveness**: None of the recommendations reduce the effectiveness of cardiac services. The Committee did recommend that the MSAC consider allowing GPs to order CT scans of heart arteries (at present, only specialists can order these scans), but this is expensive and is not yet supported by strong evidence, so this recommendation might not be approved.
  - **Cost-effectiveness**: The recommendations will have a positive effect on cost-effectiveness because they make it easier to determine which patient groups should have access to specific tests and treatments.
  - **Accountability**: Many of the changes include wording that facilitates future auditing for quality purposes.
  - **Data collection**: Data collection for research, monitoring and auditing presents a huge opportunity for a revised MBS, and the recommendations should improve the opportunities to use this data for targeted research in the future.

1.3 Next steps for these recommendations

- The Committee's recommendations will be considered by the Taskforce, along with feedback received during public consultation. The Taskforce will decide if these should be endorsed and recommended to the Government. The Government will then decide which recommendations to implement, and the Department of Health and other relevant agencies will work to implement them. This process may take some time.

2. About the Medicare Benefits Schedule (MBS) Review

2.1 Medicare and the MBS

What is Medicare?

Medicare is Australia's universal health scheme, which 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.

What is the MBS?

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

2.2 The MBS Review Taskforce

What is the MBS Review Taskforce?

The Government established an MBS Review Taskforce (the Taskforce) as an advisory body to review all of the 5,700 MBS items to ensure that they align with contemporary clinical evidence and practice, and to 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 Review is clinician-led, and there are no targets for savings attached to the Review. Following stakeholder review, the Taskforce will present its recommendations to the Minister for Health for consideration by the Government.

What are the goals of the Taskforce?

The Taskforce is committed to providing recommendations to the Minister for Health that will allow the MBS to deliver on each of these four 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 particularly under-serviced.
- **Best-practice health services.** One of the core objectives of the Review is to modernise the MBS, ensuring that individual items and their descriptors are consistent with contemporary best practice and the evidence base, where 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 Review is to maintain an MBS that supports 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 will go a long way towards 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 benefits but are underused, particularly for patients who cannot readily access these services.

2.3 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 to be 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 all committees in the second tranche of the review process to review MBS items using a framework based on Appropriate Use Criteria endorsed by the Taskforce (10). 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, are misused 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.

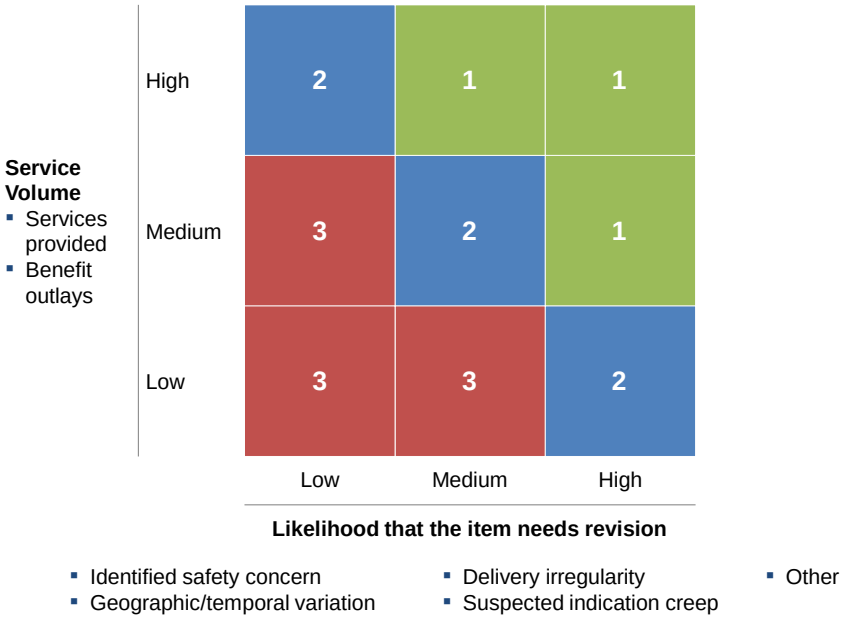
All MBS items will be reviewed during the course of the MBS Review. However, given the breadth of and timeframe for the Review, each Clinical Committee had to develop a work plan and assign

priorities, keeping in mind the objectives of the Review. Committees used 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 (10):

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

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 used this priority ranking to organise their review of item numbers and apportion the amount of time spent on each item.

Figure 1: Prioritisation matrix



3. About the Cardiac Services Clinical Committee

The Cardiac Services Clinical Committee (the Committee) is part of the second tranche of Clinical Committees. It was established in April 2016 to make recommendations to the Taskforce on MBS items within its remit, based on rapid evidence review and clinical expertise. The Taskforce asked the Committee to review cardiac-related MBS items.

The Committee consists of 18 members, whose names, positions/organisations and declared conflicts of interest are listed in Section 3.1. All members of the Taskforce, Clinical Committees and Working Groups were asked to declare any conflicts of interest at the start of their involvement and are reminded to update their declarations periodically.

3.1 Committee members

Table 1. Committee members and declared conflicts of interest

Name	Position/Organisation	Declared conflict
Professor Richard Harper (Chair)	Emeritus Director of Cardiology, Monash Medical Centre Adjunct Professor of Medicine, Monash University	None
Associate Professor Aidan Foy	General Physician and Gastroenterologist Clinical Dean Maitland Clinical School University of Newcastle and University of New England Joint Medical Program.	None
Associate Professor Andrew MacIsaac	Director of Cardiology Services and Deputy Chief Medical Officer, St Vincent's Hospital, Melbourne Immediate past president, Cardiac Society of Australia and New Zealand	None
Professor Andrew McGavigan	Professor of Cardiology, Flinders University; Director of Arrhythmia Services, Flinders Medical Centre, South Australia; Chair EP and Pacing Council, CSANZ.	None
Dr Daniel Moses	Director of Medical Imaging, Northern Hospital Network, South Eastern Sydney Local Health District. Conjoint Senior Lecturer, Faculty of Medicine, University of New South Wales	None
Associate Professor David Muller	Director of Cardiac Catheterisation Laboratories, St Vincent's Hospital, Sydney Associate Professor of Medicine, University of New South Wales	None
Professor Derek Chew	Professor of Cardiology, Flinders University Regional Director of Cardiology, Southern Adelaide Local Health Network	None
Associate Professor Gary Sholler	Director Cardiac Services, Sydney Children's Hospitals Network	None
Associate Professor Glenn Young	Senior Clinical Lecturer, University of Adelaide; Electrophysiologist, Adelaide Cardiology	None
Associate Professor Ian Scott	Director, Internal Medicine and Clinical Epidemiology, Princess Alexandra Hospital School of Medicine, University of Queensland	None
Associate Professor Jayme Bennetts	Department of Surgery, Flinders University Director, Cardiac and Thoracic Surgery, Flinders Medical Centre Chair, Government Relations, Australian and New Zealand Society of Cardiac and Thoracic Surgeons.	None
Associate Professor John Atherton	Director of Cardiology, Royal Brisbane and Women's Hospital Associate Professor, Department of Medicine, University of Queensland	None
Ms Karen Carey	Member, National Health and Medical Research Council (NHMRC), and Chair, Community and Consumer Advisory Group	None

Name	Position/Organisation	Declared conflict
Professor Mark Harris	Director, Centre of Obesity Management and Prevention Research Excellence in Primary Health Care (COMPaRE – PHC); Foundation Professor of General Practice and Executive Director, Centre for Primary Health Care and Equity, University of New South Wales.	None
Professor Paul Bannon	Head of Department, Cardiothoracic Unit, The Royal Prince Alfred Hospital Professorial Chair of Cardiothoracic Surgery, University of Sydney President, Australian and New Zealand Society of Cardiac and Thoracic Surgeons	None
Dr Ruth Arnold	Cardiologist, Orange Health Service Chair, Rural Working Party, Cardiology, Agency for Clinical Innovation, New South Wales	None
Professor Tom Marwick	Director, Baker IDI Heart & Diabetes Institute	None
Professor Michael Besser (Taskforce Ex-Officio)	Associate Professor, Sydney University Consultant Emeritus Neurosurgeon, Royal Prince Alfred Hospital and the Children's Hospital Westmead	None

It is noted that the majority of 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 and is not noted in the table above.

3.2 Areas of responsibility of the Committee

The Committee was assigned 188 MBS items to review, covering procedures, investigations and other services related to cardiology. Appendix C contains a list of items reviewed by the Committee. In the 2014/15 financial year (FY), these items accounted for approximately 5.3 million services and $647 million in benefits. Over the past five years, service volumes for these items have grown at 6.8 per cent per year, and the cost of benefits has increased by 7.6 per cent per year. This growth is largely explained by a 5.5 per cent increase per year in the number of services per capita (Figure 2).

Figure 2: Drivers of growth

Unpublished data, extract based on date of service data from 2009-10 to 2014-15 which uses data processed up to 30 May 2016. (Department of Health).

3.3 Summary of the Committee's review approach

The Committee completed a review of its items across seven full Committee meetings, during which it developed the recommendations and rationales outlined in Sections 4 – 9.

The Review drew on various types of MBS data, including data on utilisation of items (services, benefits, patients, providers and growth rates); service provision (type of provider, 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 provider 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 sourced from medical journals and other sources, such as professional societies.

3.3.1 Structure of the report

The Committee reviewed 188 items and made recommendations based on the best available evidence and clinical expertise, in consultation with relevant stakeholders. The Committee's most important provisional recommendations for stakeholder consultation relate to the investigation and management of coronary artery disease (CAD), which includes the restructuring of invasive coronary angiography (ICA) and percutaneous coronary intervention (PCI) items, along with a suite of changes to cardiac imaging and stress-testing items. There has also been significant restructuring of the cardiac surgical items, along with a number other changes, to improve the value of the services more broadly. Other minor changes and the removal of obsolete items have been recommended to simplify and modernise the MBS. The changes focus on the objectives of the MBS Review: to

improve access to medical services, encourage best practice, increase value to consumers and the health system, and simplify the MBS to improve patient care.

An inclusive set of stakeholders is now engaged in consultation on the recommendations resulting from this process, which are outlined in this report. Following this period of consultation, the Committee will consider stakeholder feedback before finalising the recommendations and presenting them to the Taskforce. The Taskforce will consider the report and stakeholder feedback before making recommendations to the Minister for Health for consideration by the Government.

3.3.2 Working group structure

Due to the volume and complexity of the items in scope, the Committee formed five Working Groups with broader membership to provide greater content expertise. The recommendations in this report are organised by Working Group, with order determined by both priority and logical flow, as many of the items and recommendations are interconnected.

- Section 4 – Cardiac imaging items: Echocardiography, exercise stress testing and stress imaging.
- Section 5 – General recommendations.
- Section 6 – CAD-related recommendations: CT coronary angiograms (CTCA), ICA and PCI.
- Section 7 – Electrocardiography (ECG) items: 12-lead ECGs.
- Section 8 – AECG and electrophysiology items: All AECG and electrophysiology items.
- Section 9 – Cardiac items: All cardiac surgical items.

3.3.3 Numbering of proposed items

Throughout the report, the Committee recommends new or substantially changed items, several of which involve splitting or consolidating current items. These proposed items are often referred to using letters to differentiate them for ease of reference. If the recommended items are ultimately added to the MBS, the Department of Human Services (DHS) will assign new numbers in the usual format. The Committee is not recommending changes to the MBS numbering system.

3.3.4 Diagnostic imaging items with "NK" designations

The majority of diagnostic imaging items on the MBS are duplicated, with a designation of "K" for those performed on newer equipment or "NK" for those performed on older equipment. The Committee did not feel that the use of older equipment should be specifically excluded for any of the services reviewed, and for this reason only the "K" versions are listed below. All endorsed recommendations are expected to apply to "NK" equivalents without modification. For example, it is recommended that all echocardiogram recordings be made on digital media, and that older equipment unable to record digitally should not be used for MBS-rebated services. However, the "NK" items for echocardiography may be retained as digital equipment will age over time and cease to be eligible for "K" items.

3.3.5 Other MBS item attributes

Items on the MBS are attributed with markers such as (Anaes.) or (Assist.) to identify when additional services are claimable, or to apply other rules of the MBS. Unless specifically mentioned, the Committee has not recommended any changes to these attributes.

3.3.6 Implementation and compliance

The MBS descriptors proposed in this report reflect aspects of ideal clinical care supported by national and international guidelines, appropriateness criteria and expert opinion. The Committee recognises that good clinical care often requires some individualisation in order to meet the specific needs of the patient.

Many current MBS items describe services, but not the appropriate indications for use. In addition to implementing an ongoing review process (as described in Section 5.1), the Committee recommends that the approach to compliance and audit be reviewed, particularly with regard to qualitative and clinical descriptor parameters. MBS compliance has provided input throughout the drafting process to ensure the proposed descriptors are clear and auditable. For example instead of generally referring to 'guidelines', where possible the relevant information has been extracted from the current guidelines and incorporated into the descriptor or explanatory note. As mentioned above, this necessitates a robust ongoing review process as recommended by the Committee in Section 5.1.

In light of the substantially more detailed descriptors, it is important to ensure that compliance efforts remain directed at aspects of care that are clearly deemed inappropriate, while also applying behavioural economics techniques to ensure the desired behaviour changes are realised and sustained. It is important that the compliance function continue to work with the profession to achieve this, and the Committee agrees that cardiologists would welcome the opportunity to be involved in compliance efforts to ensure that the MBS is used to provide high value care.

The Committee acknowledges that the recommendations in this report will necessitate changes for the health system, providers and patients, some of which will be significant. Whether implemented gradually or as a 'big bang', there will be challenges. The complexity of the implementation phase should not be understated and implementation planning should be a high priority to minimise confusion, facilitate a smooth transition and maximise the impact captured from the recommendations.

3.4 Consumer impacts summary

The Committee brought together practitioners with experience in and commitment to the care of people with cardiac conditions in order to examine how well the descriptions of Medicare items match current clinical practice and meet the needs of Australians. Consumer representatives were on the Committee and every Working Group.

This section provides a more detailed discussion of the consumer impacts of the recommendations in this report, using the consumer representative framework. A list of the recommendations, written in plain English, can be found in Appendix A – Summary for consumers.

3.4.1 Consumer representative framework

- Changes have been recommended for some items that are no longer up to date. Some items are no longer used, and some should not be used because clinical best practice has changed since they were originally described. These items have been recommended for deletion.
- The majority of the work conducted by the Committee focused on clinical issues and the provision of clinical services. As a result, the consumer representative relied frequently upon the advice of the clinicians regarding how consumers would be affected.

The consumer representative used the following framework to assess recommendations.

1. Where no changes to an MBS Item were recommended, there was no consideration of consumer issues.

2. Where changes or the deletion of MBS Items were recommended, the consumer representative considered the following questions:

    a. Would there be a positive or negative impact on safety?

    b. Would there be a positive or negative impact on the quality of services provided?

    c. Would there be any limitations on access, particularly for people living in rural and remote locations or people with special needs, including Indigenous Australians?

    d. Would the efficacy of the test or treatment (or sometimes a series of tests or treatments) be reduced or increased?

    e. Would the changes reduce or increase cost-effectiveness or future costs, and was there the potential for a perverse outcome?

    f. Would the change increase accountability by providing conditions against which service providers could be measured?

    g. Would the change increase data collection for research, monitoring and audit purposes?

3.4.2 Cardiac services outcomes

During the review of cardiac services, clinician expert opinion was relied upon in several instances where the research did not demonstrate a clear position. In some instances, there was disagreement between clinicians. In general, the consumer issues were resolved as follows:

Safety

- The safety of cardiac services was not negatively affected by any of the recommendations.

Quality

- Many of the recommended changes seek to improve quality, primarily by aligning the reimbursement system with evidence-based practice. None of the recommendations negatively affected the quality of cardiac services, but it is important to note that in some instances, rural or remote populations and/or Indigenous Australians have poorer access to quality care than populations in cities (e.g., diagnostic equipment is older and may produce lower quality images with higher radiation levels).
- It is difficult to achieve the right balance in such instances, because many people prefer to receive services close to their home—even if local services are of an inferior quality—rather than travelling to a major centre for treatment. In general, where there was a health outcome effect, the Committee felt that people should travel to receive evidence-based care.

Access

- Appropriate access was not negatively affected, although existing issues facing rural areas persist (described above). It was also noted that some patient groups have been receiving services that they do not need, which can result in either negative health impacts or neutral health impacts with unnecessary cost. The consumer representative relied on the clinicians' advice about whether access would be positively or negatively impacted.
- There was significant discussion about giving patients access to a Heart Team prior to a recommendation for treatment for coronary artery disease. The issue here is the balance between restricting access to specific procedures by making Heart Team involvement

compulsory, ensuring the rights of the patient to choose whether the Heart Team should be involved, the timing of informed consent, and determining whether these access limitations result in better health outcomes for the patient or unnecessary delay and cost to the system. There was consensus that referral to a Heart Team was likely to result in better choices for the patient and better informed consent, but that it should not be required for all populations. Data should be collected to ensure that the desired outcomes (e.g., better patient outcomes) are achieved once this recommendation is implemented.

- The issue of follow-up care after surgery (also called aftercare) was discussed and only partially resolved. The current system bundles the payment for follow-up care into the surgical fee. This means that patients with complex comorbidities or complications may have less access to extended follow-up care. This rule applies to the whole MBS and is being reviewed by the Principles and Rules Committee, which is responsible for these issues. It was recommended that the complex outcomes from changes to these rules be considered carefully.
- Questions were asked about limiting access to a nuclear test in favour of a stress echo, given that both tests provide equivalent diagnostic relevance (for most patient groups), and that the nuclear test may cost more and involves radiation. The Committee supports using the lowest cost test but felt that more research was needed. The Committee took into account that there is better access to the nuclear test in some regional areas, and that it is bulk billed more often (on 92 per cent of occasions for the nuclear test versus 68 per cent for stress echo), which means that it has lower out-of-pocket costs for most patients. The Committee ultimately recommended that where both tests are accessible (including out-of-pocket cost considerations) and clinical effectiveness is equal, stress echo should be preferred as it does not involve radiation. The Committee also recommended adding a note to the MBS to encourage General Practitioners (GPs) to consider the cost to the MBS and the levels of radiation exposure when deciding with the patient what the best test is for them.
- Clinicians' own experiences suggest that some geographic regions are being serviced using older equipment, and that this older equipment delivers poorer images and higher radiation levels. However, some tests with equivalent efficacy vary in terms of availability, both geographically and between states, which makes it difficult to balance access against radiation exposure.

Effectiveness

- Effectiveness was not negatively affected by any of the recommended changes. Issues relating to diagnostic tests were discussed, specifically whether people should have immediate access to the new emerging gold standard tests (e.g., CT coronary angiogram), or whether there should be limited access to these tests until costs decrease and the supporting evidence is stronger. At present, this test is only available to specialists, but the Committee recommended that the MSAC consider allowing GPs to order it for some patient groups.
- The Committee also considered whether patients should have to meet specific thresholds in lower cost tests before the more expensive tests are offered. It should be noted that there are potentially negative health outcomes associated with using high-technology tests in the wrong patient groups, or if abnormalities are identified that would have otherwise had no clinical impact (as some members suggested had occurred with knee MRI). This represents a trade-off between limiting access and improving targeting, and data should be collected to ensure that any changes result in improved health outcomes and increased cost-effectiveness.

Cost-effectiveness

- Cost-effectiveness was generally positively affected by clarifying which patient groups should have access to specific tests, treatments and intervention. However, data will need to be collected in order to monitor the impacts of changes, and to respond quickly if needed.

Accountability

- There is an opportunity to require specific data collection and reporting on meaningful key performance indicators to ensure that MBS item numbers are being used appropriately. Many of the changes included wording specifically intended to facilitate future auditing for quality purposes.

Data collection

- Data collection for research, monitoring and auditing presents a huge opportunity for a revised MBS, and the conditions attached to the revised items should generally improve opportunities to use this data for targeted research in the future.
- During discussions, the Committee highlighted some research questions that are particularly relevant to consumers, including the following:

1. What effect does introducing the Heart Team in the Australian setting have on health outcomes and informed consent?
2. Does requiring certain tests before patients are eligible for more expensive tests result in better targeting of patient groups, improved individual health outcomes and lower overall costs? (For example, stress echo is a good test for showing functional effect such as ischaemia, but not anatomical CAD. CT shows anatomical CAD but not ischaemia and is more expensive. Stress ECG is the cheapest test, but if it is positive or uncertain, the patient may need another test. Which test should be used as gatekeeper?)
3. What is the availability of high-quality tests in rural and remote regions and what can be done to improve this? Is it better for patients or the health system if they are sent to major centres for testing?
4. Several of the recommended changes rely on clinicians using tools properly (e.g., the Australian Absolute Cardiovascular Risk Tool and the Duke Treadmill Score). Will all clinicians use these tools effectively, and how do we monitor and facilitate this?
5. A substantial amount of the discussion among the Committee and Working Groups involved in this report focused on the appropriateness of various tests and interventions. Research into the health service and health policy drivers of more appropriate care is likely to lead to substantial benefits in terms of improved health outcomes and reduced health costs.

4. Cardiac imaging recommendations

4.1 Cardiac Imaging Working Group membership

The Committee formed a Working Group to consider cardiac imaging services, including echocardiogram (echo), stress echocardiogram (stress echo), exercise stress testing (EST) and myocardial perfusion scans (MPS). The Cardiac Imaging Working Group included the following members:

- Professor Aidan Foy (Chair) – General Physician and Gastroenterologist; Clinical Dean Maitland Clinical School University of Newcastle and University of New England Joint Medical Program.
- Dr Ruth Arnold – Cardiologist, Orange Health Service; Chair, Rural Working Party, Cardiology, Agency for Clinical Innovation (ACI), New South Wales.
- Associate Professor John Atherton – Director of Cardiology, Royal Brisbane and Women's Hospital; Associate Professor, Department of Medicine, University of Queensland.
- Associate Professor Barry Elison – Director of Nuclear Medicine, Illawarra Shoalhaven Local Health District.
- Dr Geoff Evans – Cardiologist, Charles Clinic Heart Care, Launceston, Tasmania and Rural Outreach Service.
- Dr Walid Jammal – General Practitioner, Member, Evaluation Sub-Committee of the Medical Services Advisory Committee; Clinical Lecturer, University of Sydney Faculty of Medicine; Conjoint Senior Lecturer, Western Sydney University.
- Professor Tom Marwick – Director, Baker IDI Heart & Diabetes Institute.
- Ms Anne McKenzie – Independent consumer.
- Dr Daniel Moses – Director of Medical Imaging, Northern Hospital Network, South Eastern Sydney Local Health District. Conjoint Senior Lecturer, Faculty of Medicine, University of New South Wales
- Associate Professor David Prior – Deputy Director of Cardiology, St Vincent's Hospital, Melbourne; Associate Professor, University of Melbourne.
- Dr Dave Richmond – Rural GP, Cowra NSW. Secretary and ex-president, Rural doctors Association of NSW.
- Professor Richard Harper – Emeritus Director of Cardiology, Monash Medical Centre; Adjunct Professor of Medicine, Monash University (Ex-Officio).

The following recommendations were developed by the Cardiac Imaging Working Group and accepted unanimously, with the exception of the gatekeeper recommendation. (Dissenting views are noted in the relevant section.)

The Committee endorsed the recommendations unanimously.

4.2 Echocardiography

Current item descriptors and MBS data from FY 2014/15
Item 55113 – Schedule fee: $230.65 Services: 697,638 Total Benefits: $142,206,653 Average annual growth: 8.7% M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of cardiac failure, or suspected or known ventricular hypertrophy or dysfunction, or chest pain: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)
Item 55114 – Schedule fee: $230.65 Services: 146,935 Total Benefits: $29,508,939 Average annual growth: 3% M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of suspected or known acquired valvular, aortic, pericardial, thrombotic or embolic disease or heart tumour: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)
Item 55115 – Schedule fee: $230.65 Services: 56,377 Total Benefits: $10,829,483 Average annual growth: 4.5% M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of congenital heart disease: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (r)

Public data from 2014-15 (Department of Human Services)

Recommendation 1.1

Δ Add all cardiac imaging items to the DHS MBS items online checker tool.

Recommendation 1.2

Δ Restructure the existing transthoracic echocardiography items into six new items:

- Item 5511A: Initial complete echo.
- Item 5511B: Serial echo for valvular dysfunction.
- Item 5511C: Serial echo for heart failure or structural heart disease.
- Item 5511D: Serial echo for complex or rapidly evolving congenital heart disease.
- Item 5511E: Frequent repetition serial echo for specified indications, with a lower schedule fee to reflect the focused nature of these services.
- Item 5511F: Repeat echo not covered by items A–E for exceptional circumstances. This should represent a very low proportion of a referrer's services and should be closely monitored by compliance.

The descriptors and explanatory notes for these items are presented on the following pages.

Item 5511A

Initial real time echocardiographic examination of the heart with real time colour flow mapping from at least 3 acoustic windows for the investigation of:

- Δ Symptoms or signs of cardiac failure; or
- Δ Suspected or known ventricular hypertrophy or dysfunction; or
- Δ Pulmonary hypertension; or
- Δ Valvular, aortic, pericardial, thrombotic or embolic disease; or
- Δ Heart tumour; or
- Δ Symptoms or signs of congenital heart disease; or
- Δ Other rare indications, in line with accepted clinical guidelines.

(a) Examination including the following:

i. Left ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed; and

ii. Right ventricular structure and function with quantitative assessment where appropriate; and

iii. Left and right atrial structure including quantification of atrial sizes; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all 4 valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures; and

viii. Recordings on digital media; and

ix. Detailed formal report, including relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(b) If the minimum requirements for views or recordings in criteria (a) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(c) Not to be used as a screening test, in asymptomatic patients, or for routine surveillance in the absence of clinical changes, except in line with accepted clinical guidelines.

(d) Not claimable within 2 years of any complete echo (5511A-D, 5511F, 55116C or 55117C).

(e) Not being a service performed within 4 weeks of a stress echo (55116A-C, 55117A-C, 55116X, or 55116Y).

(f) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory note: Examples of other rare but acceptable indications include (but are not limited to): sudden death of an immediate relative, prior to the commencement of specific drugs which require cardiac monitoring, and for patients scheduled for cardiac surgery who have not previously had an echocardiogram.

[Standard text around co-claiming with a consultation.]

[Generic note about DI bulk-billing incentive.]

Item 5511B

Serial real time echocardiographic examination of the heart from at least 3 acoustic windows for the investigation of known valvular dysfunction.

(a) Performed at intervals in line with appropriate clinical guidelines or the intervals recommended in the explanatory notes.

(b) Examination including the following:

i. Left ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed; and

ii. Right ventricular structure and function with quantitative assessment where appropriate; and

iii. Left and right atrial structure including quantification of atrial sizes; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all 4 valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures; and

viii. Recordings on digital media; and

ix. Detailed formal report, including comparisons to previous imaging, relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(c) If the minimum requirements for views or recordings in criteria (b) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(d) Not being a service performed within 4 weeks of a stress echo (55116A-C, 55117A-C, 55116X, or 55116Y).

(e) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory note: Recommended intervals adapted from the 2014 AHA/ACC Guideline for the Management of Patients with Valvular Heart Disease.

(a) Mild to moderate disease

i. Aortic stenosis should have a repeat every 3–5 years for mild disease and 1–2 years for moderate disease.

ii. Other valvular disease should NOT have repeat imaging more frequently than every 3 years for mild disease and every 1–2 years for moderate disease.

iii. Mild–moderate mitral stenosis does not require any repeat imaging unless clinical signs or symptoms change.

(b) Severe disease should be monitored in line with guidelines.

[Standard text around co-claiming with a consultation.] [Generic note – DI bulk-billing incentive.]

Item 5511C

Serial real time echocardiographic examination of the heart from at least 3 acoustic windows for the investigation of patients with known heart failure or structural heart disease, excluding valvular dysfunction, and where:

(a) Changes in symptoms or cardiac examination have occurred since the last echo; or

(b) The patient is in a defined population as specified in the explanatory notes; and

(c) Examination including the following:

i. Left ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed; and

ii. Right ventricular structure and function with quantitative assessment where appropriate; and

iii. Left and right atrial structure including quantification of atrial sizes; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all 4 valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures; and

viii. Recordings on digital media; and

ix. Detailed formal report, including comparisons to previous imaging, relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(d) If the minimum requirements for views or recordings in criteria (C) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(e) Claimable once in any 12 month period.

(f) Not being a service performed within 4 weeks of a stress echo (55116A-C, 55117A-C, 55116X, or 55116Y).

(g) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory note: [Standard text around co-claiming with a consultation.]

[Generic note about DI bulk-billing incentive.]

Item 5511D

Serial real time echocardiographic examination of the heart from at least 4 acoustic windows for the investigation of complex or rapidly evolving congenital heart disease before or after cardiac surgery where:

(a) Transitional circulation, substantive age related changes, or rapid lesion evolution warrant review; or

(b) Cardiac surgery has required multilevel cardiac reconstruction; or

(c) Multilevel or bilateral congenital heart disease where an echocardiogram is clinically indicated but not covered by items 5511A–C, or 5511E.

(d) Examination including the following as minimum requirements:

i. Consistent with published paediatric and congenital heart disease echo protocols; and

ii. Ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed unless not clinically relevant due to underlying physiology or anatomy; and

iii. Atrial structure including quantification of atrial sizes unless not clinically relevant due to underlying physiology or anatomy; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment from the subxiphoid views recommended for congenital heart lesions; and

viii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures; and

ix. Recordings on digital media; and

x. Detailed formal report, including comparisons to previous imaging, relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(e) If the minimum requirements for views or recordings in criteria (d) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(f) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: It is expected that on average, fewer than 5% of a provider's services would be claimed under this item, other than in a predominantly congenital heart disease practice or congenital heart programme where high frequency would be expected & permitted. However it is acknowledged that some providers in specific areas of clinical practice may have higher rates that are clinically appropriate and substantiation of this appropriateness may be requested by MBS compliance and will be considered during any clinical audit activities

[Standard text around co-claiming with a consultation.]

[Generic note about DI bulk-billing incentive.]

Item 5511E:

Frequent repetition serial real time echocardiographic examination of the heart from at least 3 acoustic windows for the investigation of patients:

- Δ With pericardial effusion or pericarditis; or
- Δ On chemotherapy which requires cardiac surveillance; or
- Δ On Clozapine; or
- Δ Commenced on a medication which requires echocardiograms to comply with the requirements of the PBS; or
- Δ Within 3 months after cardiac surgery or catheter based structural intervention; or
- Δ With acute rapidly evolving cardiomyopathy; or
- Δ With pulmonary arterial hypertension.

(a) Performed at intervals in line with appropriate clinical guidelines.

(b) Focused examination including the following where appropriate:

i. Left ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed; and

ii. Right ventricular structure and function with quantitative assessment where appropriate; and

iii. Left and right atrial structure including quantification of atrial sizes; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all 4 valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures.

(c) If the minimum requirements for views or recordings in criteria (b) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(d) Recordings on digital media; and

(e) Detailed formal report, including comparisons to previous imaging, relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(f) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: [Standard text around co-claiming with a consultation.]

[Generic note about DI bulk-billing incentive.]

Item 5511F

Repeat real time echocardiographic examination of the heart from at least 3 acoustic windows for the investigation of patients where an echocardiogram is clinically indicated, the service does not meet the requirements of items 5511A–E, and the indication or rationale for the service is documented in the patient's notes.

This item is intended to cover rare occurrences where a repeat echo is clinically indicated beyond the situations described in the primary echo items. The indication or rationale is documented.

Note: High usage of this item may trigger a compliance alert.

(a) Examination including the following:

i. Left ventricular structure and function including quantification of systolic function using M-mode, 2-dimensional or 3-dimensional imaging and diastolic function should also be assessed; and

ii. Right ventricular structure and function with quantitative assessment where appropriate; and

iii. Left and right atrial structure including quantification of atrial sizes; and

iv. Vascular connections of the heart including the great vessels and venous structures; and

v. Pericardium and quantitation of any haemodynamic consequences of pericardial abnormalities; and

vi. Assessment of all 4 valves including structural assessment and measurement of blood flow velocities across the valves using pulsed wave and continuous wave Doppler techniques with quantitation of stenosis or regurgitation if present; and

vii. Assessment of additional haemodynamic parameters including the assessment of pulmonary pressures; and

viii. Recordings on digital media; and

ix. Detailed formal report, including comparisons to previous imaging, relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

(b) If the minimum requirements for views or recordings in criteria (a) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study.

(c) When performed within 4 weeks of a stress echo (55116A-C, 55117A-C, 55116X, or 55116Y) the report must specifically document the clinical change(s) in the patient's condition since the stress echo to warrant a separate study.

(d) Not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: It is expected that on average, fewer than 5% of a provider's services would be claimed under this item. However it is acknowledged that some providers in specific areas of clinical practice may have higher rates that are clinically appropriate, and substantiation of this appropriateness (such as compliance with guidelines or best practice) may be requested by MBS compliance and will be considered during any clinical audit activities.

Examples of potential indications for which this item would be appropriate include a repeat study performed every 1–2 years WITHOUT change of symptoms or changes on cardiac examination for:

1) A patient eligible for transplant; or

2) The surveillance of patients with hypertrophic obstructive cardiomyopathy (HOCM); or

3) A patient who has a history of known familial syndromes.

[Standard text around co-claiming with a consultation.]

[Generic note about DI bulk-billing incentive.]

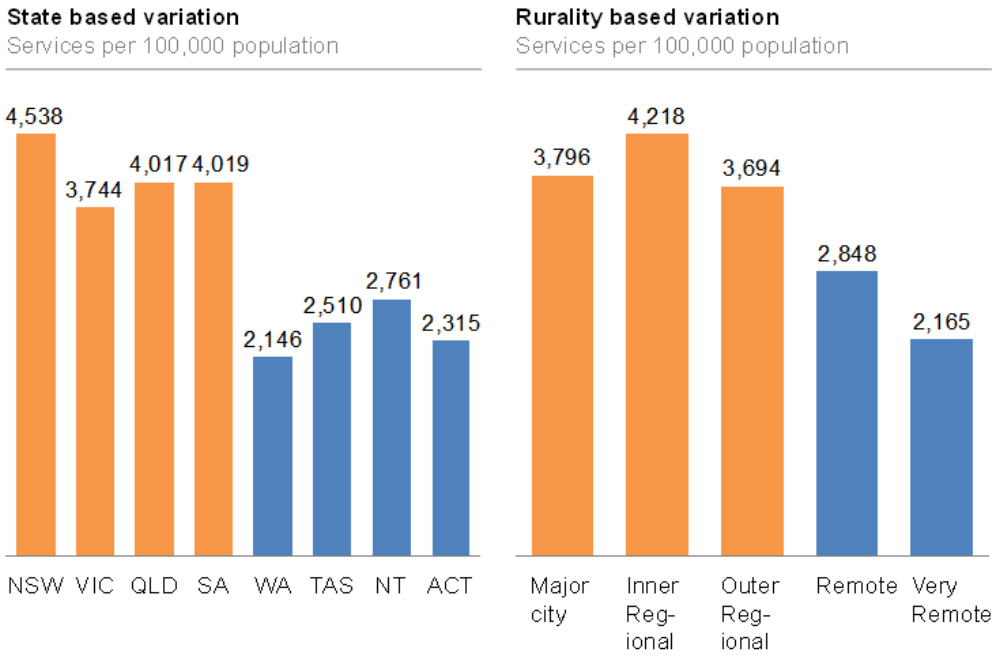
Rationale

These recommendations focus on modernising the MBS and supporting best practice care and are based on the following observations.

Overview

- The Committee noted that echos (excluding stress echos) account for over 900,000 services and over $180 million in annual benefits, with average growth in service volume of 7 per cent per year over the last five years. As one of the single largest imaging services on the MBS, it warrants careful consideration.
- The Committee noted that twice the numbers of services per population were performed in the eastern states (Figure 3), and that there was some variation by rurality. It felt that the high annual growth and geographic variability represent significant practice variation, including over- and under-servicing. This view is supported by the published literature (1).

Figure 3: Geographical variation of echo usage (items 55113, 55114, 55115, 55119, 55120, and 55121)



Unpublished data, based on date of service for Medicare claims processed between July 1 2014 and April 30 2016 extracted on 20 June 2016 (Department of Health).
Remoteness Area classes are based on the Accessibility and Remoteness index of Australia (ARIA). Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.

- MBS data showed that 11 per cent of services are same-year repeats, and that 40 per cent of services are repeat studies conducted during a five-year window. The Committee agreed that it is likely that a significant number of initial and repeat services are for inappropriate indications, which represents low-value care. Reducing this low-value use is difficult, however, given the broad indications for which echos are clinically useful and valuable studies.
- The Committee agreed that the indications for repeat studies are more specific than for an initial echo, and it recommended a revised item structure to reflect this. A structure consisting of four items was proposed: initial echo, serial echo for valve pathology, serial echo for heart failure or structural pathology, and frequent repetition serial echo for specific indications. The Committee agreed that these changes align with good clinical practice and would not result in any significant negative impact on patient access or outcomes. It noted that it is not possible to completely define appropriate use, and that the intent of these changes is to prevent low-value, high-frequency studies.
- The Committee also agreed that high-quality, conscientious providers often treat patients who need an echo but do not fit within the guidelines, or who may have had a recent study that the provider is unable to obtain. Such cases are rare, but the Committee felt that it was important for a rebate to remain payable in these instances. It agreed that item 5511F should be created for exceptional cases, accounting for less than 5 per cent of a provider's volume. It also recommended that the MBS audit and compliance team monitor usage of this item closely. Should overall service volume for this item account for more than 5 per cent of echo services in the 6–12 months following implementation, a detailed review is recommended.
- The Committee agreed that a previous low-quality or inadequate study is a common indication for a repeat echo. The descriptors have therefore been revised in line with the Cardiac Society of Australia and New Zealand's (CSANZ) position statement on training and performance in adult echos (11).

Initial studies

- The Committee agreed strongly that echos should not be performed as a screening test, in asymptomatic patients, or for routine surveillance in the absence of clinical changes, except in line with accepted clinical guidelines. It agreed that the current indications should be retained, with the addition of "other indications in line with accepted clinical guidelines" to provide future-proofing and cover for rare indications such as specific familial syndromes. The Committee agreed that this addition is unlikely to result in a significant increase in volume as the current item descriptors already provide a very broad scope.
- The Committee agreed that it was appropriate to restrict the item for initial complete study (item 5511A) to not more than once every two years, with additional repeat items created to allow more frequent services for specific indications, with appropriate intervals. Although it may be clinically appropriate to have a longer interval, this could create practical issues in the absence of a personal health record or global database system. Patients often cannot tell a doctor what investigation they have had, let alone where and when. Tracking down studies (reports and/or pictures) from other providers would create considerable work for practitioners, at the cost of staff time. Such an expectation would be unrealistic and could disadvantage patients, who may receive non-rebatable services. As a result, restrictions to these items require the addition of all cardiac imaging items to the Health Professionals Online Services (HPOS) MBS item online eligibility checker to allow providers to confirm patient eligibility prior to providing the service. This will prevent patients from being left out of pocket having received non-rebatable services. The Committee also recommended that efforts should continue to support the creation of a centralised system for the storage of imaging reports and images.
- The Committee recommended creating three items for repeats due to the variable intervals and criteria appropriate to each collection of indications.

Valvular dysfunction

- The Committee recommended creating an item (5511B) for repeat studies related to known valvular dysfunction. This item would require examination of the whole heart, including cardiac valves and ventricular function.
- Clinical guidelines for the investigation and management of valvular dysfunction are complex, as they account for valve, pathology and severity. It is therefore not practical to create unique items for all valve and severity combinations. For this reason, the Committee recommended aligning the interval for repeat studies with the relevant international guidelines, such as those published by the American Heart Association (AHA). Guidance has been provided in the explanatory notes for this item, which outline the intervals for mild to moderate disease (which accounts for the majority of patients and low-value repeats). This guidance has been adapted from the 2014 AHA/American College of Cardiology (ACC) guidelines and simplified in order to be more suitable for the explanatory notes.

Heart failure and structural pathologies

- The Committee recommended creating an item (5511C) for repeat studies related to known heart failure or structural heart disease, excluding valvular dysfunction, where one of the following are true: (i) changes in symptoms or cardiac examination have occurred since the last echo; (ii) the patient is eligible for transplant; (iii) the study is for the surveillance of a patient with hypertrophic obstructive cardiomyopathy (HOCM); or (iv) the patient has a history of known familial syndromes. The Committee considered whether this item could be a focused study, but it ultimately agreed that a complete study is good clinical practice.

- The Committee agreed that restricting repeats to once every 12 months was reasonable; noting that such repeats will generally require symptom evolution to be claimable. It acknowledged that symptom evolution is subjective, and that a provider could easily say that symptoms have worsened slightly. However, it felt that this restriction would nonetheless encourage judicious providers to order studies more appropriately.

Complex congenital heart disease

- The Committee recommended creating a specific item for complex multilevel or bilateral congenital heart disease, noting that frequent imaging may be required, particularly in the perioperative period. This is not suitable as an indication for item 5511E, as the studies are complete (not focused) and time-consuming to perform, due to complex anatomy and patient age. The lower rebate for item 5511E would therefore be inappropriate for this service.
- The Committee considered a blanket exception for paediatric patients to allow unrestricted access to imaging. However, with the exception of complex congenital heart disease, it felt that the descriptors for adult populations would also be suitable for paediatric patients. Providers using item 5511F (for indications not covered by items A-E) should be providing services consistent with Australian best-practice guidelines for paediatric echocardiography or the relevant adult guidelines as appropriate (12–14).

Conditions requiring high-frequency serial echo

- The Committee noted that there is a specific group of indications for which there is evidence supporting frequent echo surveillance. For this reason, it recommended an item to specifically account for these indications (item 5511E), which are listed in the draft descriptor. It agreed that these studies could be more targeted, focusing on comparison of specific views with previous studies. The Committee therefore recommended that this service should receive a lower MBS rebate.
- Due to the variable nature of these indications, the Committee recommended that intervals should align with the appropriate clinical guidelines.

Other considerations for repeat services

- Consideration was given to restricting repeats for same providers only. However, this has been identified as an ineffective approach, as large urban centres frequently have multiple providers, while rural areas may only have a single provider. As a result, the restriction would apply for all patients in rural areas, but could be easily circumvented in urban settings. The Committee felt that this was an inequitable solution.

Schedule fee for repeat studies

- The Committee agreed that all patients should initially receive a complete study to ensure important diagnoses are not missed. In serial studies, some patients may be suitable for a more focused study (i.e., of ventricular function only). However, good clinical practice would involve a complete repeat echo. The Committee acknowledged that some repeat studies may be more targeted and faster to perform, and in such instances it would be reasonable to consider a lower schedule fee. However, the Committee also noted that many repeat studies are equally time-consuming when performed well, with all views repeated. When comparison with previous images is provided, potential time-savings are further diminished. Although comparison with previous images is valuable, previous images are not always accessible in the absence of a centralised image storage system. For this reason, the items for repeats should not require comparisons in all studies.
- As noted above, the Committee felt that high-frequency serial echos were sufficiently different from standard echos and appropriate for a clinically focused repeat with a lower MBS fee.

Co-claiming with stress echo

- The items for echos and stress echos have a restriction on them to prevent same-day co-claiming. As a result of this, patients are required by some providers to attend for an echo and then return on a subsequent day for a stress echo. The Committee noted that the current wording of the stress echo item—which requires a baseline but specifies matched pre/post-stress views—is unclear on if it is intended to include a complete baseline echo, as not all baseline views have a post-stress component. As a result, some providers perform services a split over multiple days to enable both the standard echo and stress echo services to be claimed. The Committee noted that this outcome is not beneficial for patients and represents low-value use of health resources. It therefore recommended changes to the stress echo items to provide clarity of required baselines and to allow patients who clinically require both studies to receive them. These changes are outlined in the stress echo section of the Report. Corresponding changes to the co-claiming restrictions on the echo items have been recommended here, such as extending the co-claiming restriction with stress echo services to 4 weeks, with the exception of item 5511F which is retained for urgent and exceptional circumstances where a patient requires a structural echo in the days immediately after a stress echo has been performed.

Complete medical service

- The Committee noted that 20–30 per cent of echo services were co-claimed with a consultation, and that 15 per cent were co-claimed with an ECG (Figure 4). It agreed that there are some instances where co-claiming a consultation is appropriate—for example, where a rural or remote patient has a post-consult echo squeezed in on the same day, or has a pre-consult echo booked on the same day (in advance), based on the patient's clinical history but without knowing his or her current clinical status. It was noted that local patients often receive pre-consult studies too, although this usually occurs in the days prior to the consultation. This is believed to reduce the likelihood of a patient requiring a consult to determine the need for a repeat echo, followed by a second consult to interpret the echo and make management decisions.
- The Committee recommended referencing or including MBS co-claiming restrictions—as agreed by the Principles and Rules Committee—in the descriptor, to ensure that providers are aware of these requirements. However, a hard block should not be placed on this practice.
- The majority of co-claiming with ECGs occurs with a consultation and may be appropriate. Co-claiming with an echo when not requested by the referring provider is inappropriate and should not be performed. A hard rule is not proposed, but the MBS audit and compliance team may wish to monitor this issue over time to identify outlier providers who may be co-claiming more frequently.

Figure 4: Top services co-claimed with echocardiograms

	Trigger item			
	55113—Failure, ventricular dysfunction or chest pain		55114—Valve, aortic, pericardial, thrombotic or tumor	
	Episodes #	Episodes Percent	Episodes #	Episodes Percent
Specialist consult[1]	13,218	22	3,458	28
12-Lead ECG	9,525	16	1,900	15
Holter	887	2	118	1
Stress ECG	1,280	2	158	1
TOE	113	<1	45	<1
Chest X-ray	242	<1	32	<1
Total	59,701		12,264	

1 Specialist consult includes items 104, 110, 116, 119, 132 or 133. 12-lead ECG item 11700. Holter items 11709. Stress ECG items 11712. TOE items 55118. Chest X-ray 58503.

Unpublished data, extract based on date of service in financial year 2014-15. The reference period for trigger items, was July-Dec 2014 which includes episodes plus/minus six weeks of trigger item, which includes services from mid Nov 2013 to mid Feb 2015. (Department of Health).

Self-referral

- Δ The Committee considered whether removing the ability of providers (predominantly cardiologists) to self-refer for echo services would improve the value of the services provided. It was acknowledged that self-referred services may be more likely to be performed at a lower threshold and may therefore be of lower value. However, the Committee felt that a restriction on self-referral would be evaded by providers in larger practices (who could refer to each other), but could not be evaded by rural providers, who may practise independently. Although there is already a restriction on same-practice cross-referral for Diagnostic Imaging Services Table (DIST) items, the Committee felt that a more appropriate solution would be to improve the descriptors for the items. Further consideration of this issue could be undertaken if the proposed changes do not sufficiently reduce low-value services.
- Δ The Committee agreed that educating providers to ensure that they understand that they (not the referrer) are accountable for compliance with the descriptors may have some effect, although services are often performed by a sonographer before a clinician is involved. Random audit and other compliance activity would be appropriate to ensure providers with significantly higher rates of echo per consultation are complying with descriptors.

Formal reports

- Δ The Committee noted that when a patient is referred to a cardiologist and receives an echo, the referring provider may receive a letter from the cardiologist but not a formal report on the echo. It felt that a letter from a cardiologist does not meet the definition of a formal report, which should include all relevant measurements and findings. As an imaging service on the DIST, the provision of a report is expected, and both the images and reports are expected to be stored in compliance with DIST requirements. Providers who do not currently provide a report

may be in breach of MBS requirements. Given that echo studies are performed by a broader provider base than many other studies, the Committee recommended including the requirements for formal reports in the descriptors for these items.

4.3 Exercise stress testing

Current item descriptors and MBS data from FY 2014/15
Item 11712 – Schedule fee: $152.15 Services: 464,040 Total Benefits: $60,685,140 Average annual growth: 3.5% Multi channel ECG monitoring and recording during exercise (motorised treadmill or cycle ergometer capable of quantifying external workload in watts) or pharmacological stress, involving the continuous attendance of a medical practitioner for not less than 20 minutes, with resting ECG, and with or without continuous blood pressure monitoring and the recording of other parameters, on premises equipped with mechanical respirator and defibrillator

Public data from 2014-15 (Department of Human Services)

Recommendation 2

Δ Change the descriptor for item 11712, using the proposed wording below.

Item 11712

Multi-channel ECG monitoring and recording during exercise (motorised treadmill or cycle ergometer capable of quantifying external workload in watts) for the investigation of symptoms consistent with cardiac ischaemia or other cardiac disease, which are exacerbated with exercise.

Performed with:

(a) The continuous attendance of a medical practitioner capable of recognising symptoms and signs of cardiac disease, who has training in exercise testing and is capable of interpreting the exercise test findings, for the duration of the procedure; and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. On premises equipped with standard resuscitation equipment and defibrillator; and

(b) Resting ECG with or without continuous blood pressure monitoring and the recording of other parameters; and

(c) With documentation in the report of the calculated Duke Treadmill Score and how the indication requirements of the descriptor were met.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) within 5 years of a high quality CTCA with a normal calcium score and no plaques; or (v) where the patient has an abnormal resting ECG which would prevent the interpretation of results.

Claimable once in any 24 month period.

Explanatory notes: A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observations.

Δ The Committee noted that although the total number of services for EST has increased over the last five years, this increase is driven heavily by co-claiming with stress echo and MPS

services. The number of stand-alone EST services has declined by an average of 5 per cent per year over the last five years, driven primarily by the increased use of stress echo.

- Although the volume of EST has been decreasing, it was agreed that low-value studies are still being performed, such as functional studies of any kind in asymptomatic patients for family history of ischaemic heart disease (IHD) alone—an indication that the Committee unanimously considered inappropriate. For this reason, the Committee recommended restricting the service to the investigation of symptoms consistent with cardiac ischaemia, which are exacerbated by exercise (including walking or using the stairs). It was noted that there may be a very small number of patients who have cardiac disease that is not exacerbated by exercise, but the Committee agreed that truly 'silent' disease is exceedingly rare, most patients have symptoms of some description, and that an EST would be of low yield and value in such cases. Further specific exclusions are recommended for asymptomatic patients, population screening, and patients with abnormal resting ECGs, which would impede a provider's ability to interpret results. In these populations, the Committee felt that EST was clearly unacceptable as these are low-value indications.
- The Committee discussed the addition of an indication for screening asymptomatic diabetic patients who have silent ischaemia or small vessel disease. Although diabetic patients may have painless disease, it was not agreed that these patients have truly 'silent' disease without any symptoms, such as poor exercise tolerance and shortness of breath. The Committee agreed that, at present, there is insufficient evidence to justify the screening of diabetic patients with EST(15,16).
- Repeat studies within 24 months were agreed to be of low clinical value, except for patients who undergo revascularisation followed by required testing to assess other moderate/non-stented disease, or to investigate new symptoms. However, for these patients, a stress echo or MPS would be a more detailed and appropriate investigation. The Committee therefore recommended a restriction of no repeat studies within 24 months, as well as exclusion of use for surveillance of known cardiac disease in the absence of symptom evolution since the last study. The Committee agreed that this would not have a negative impact on patient outcomes. It was noted that for some patients, a submaximal study may be conducted to determine an appropriate exercise program (i.e., four to six weeks post-revascularisation), but this is generally a very short study and would be appropriate to perform as part of a routine follow-up consultation.
- It was noted that work-related or personally desired stress tests that do not comply with the descriptor (i.e., required annually) are of low clinical value and should not be funded by the MBS. However, such services should continue to be available where privately funded.
- The Committee noted that 49 per cent of ESTs are co-claimed with a consultation. It agreed that this was higher than is acceptable. In line with the emerging recommendations of the Principles and Rules Committee, it agreed that it is inappropriate to co-claim a consultation if a patient is specifically referred for an investigation by another provider. Co-claiming is appropriate in instances where a referral is for a consultation, and the specialist decides during the consult to perform a same-day EST. The Committee recommended that the MBS audit and compliance team routinely audit providers who co-claim EST at a higher rate than their peers.
- The reference to pharmacological stress was removed because pharmacological stress ECGs are no longer performed as stand-alone services, and because item 11712 will no longer be co-claimable with stress echo/MPS items, which are being revised to include the exercise component as part of their complete services.
- The Committee agreed that a Duke Treadmill Score (DTS) should be calculated for all studies and included in the report. This is best practice and is already current practice for the majority

of providers. The requirement here will improve practice and support later recommendations for which DTS can be an indication for subsequent services.

- The Committee agreed that the term 'mechanical respirator' was outdated and recommended using the more modern term 'standard resuscitation equipment' instead. This is generally a 'resus trolley,' which includes a bag valve mask and defibrillator at a minimum.

4.4 Gatekeeper for cardiac imaging

Recommendation 3

- For GPs, Consultant Physicians and Cardiologists, standard EST (rather than stress echo or MPS) should be the first-line investigation for symptomatic adult patients with suspected CAD and an Australian Absolute risk score for cardiovascular event of less than 10 per cent over 5 years, and who have an interpretable ECG and are able to exercise. This should be reflected in the revised MBS descriptors.

Rationale

This recommendation focuses on encouraging best practice and improving the value of care provided by the MBS. It is based on the following observations.

Overview

- The Committee agreed on two core principles that are central to this recommendation. Firstly, coronary investigations are best considered from a prognosis-and-outcomes perspective, rather than a risk-of-anatomical-disease perspective. This reflects a paradigm shift in the literature, moving away from how CAD has previously been considered by many clinicians. Secondly, the population in question are patients with atypical/uncertain symptoms—as defined by the National Institute for Health and Care Excellence (NICE) guidelines (i.e., low or intermediate risk of obstructive CAD)—who are able to exercise and have an interpretable ECG, and who have an Australian Absolute risk score for cardiovascular event of less than 10 per cent over five years.
- The other recommendations described in this report allow access to functional imaging or CTCA (including for GPs) for patients who do not fall into this low-risk category. Appendix B provides a visual representation of the gatekeeper to functional imaging recommendation.

Considerations

- Stress echos are increasing at a rate of 12 per cent per year and now outnumber the less expensive standard EST by more than four to one, with 70 per cent of referrals for stress echos coming from GPs. Medicare statistics show that stress echos and MPS lead to a revascularisation procedure within 6 weeks in only 1–3 per cent of cases regardless of referring provider specialty (Table 2). A one month sample population (n=22,717) was followed for 18 months and the revascularisation rates remained 2-3% for both modalities (9). Furthermore, there is marked variation in the rate of functional imaging per 100,000 population between states. For example, New South Wales' rate of stress echos is more than three times the rates of South Australia and Western Australia (Figure 5). This variation is even more marked between Medicare locals, some of which have rates of stress echo up to 10 times higher than others (1). There is no evidence that this variation influences patient outcomes, and although there is almost certainly under-servicing in some areas, there is undoubtedly over-servicing in other areas.

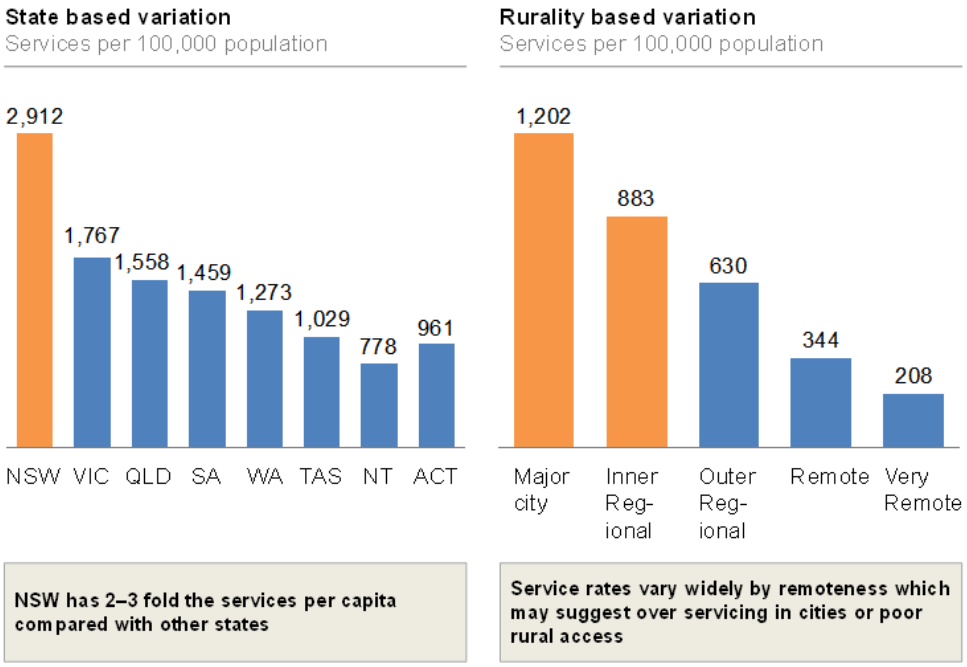
Table 2: Revascularisation rate of cardiac investigations

Requesting provider	EST	MPS	SE
Cardiologist	1.7%	2.2%	2.0%
Other Specialist	1.2%	1.7%	1.8%
GP	1.2%	1.3%	1.4%
Radiologist	0.6%	2.7%	1.0%
Surgeon	0.0%	0.8%	1.2%
Total episodes investigated	69,386	39,660	123,424

Cardiac investigations includes EST item 11712. MPS items 61302, 61306, 6151, 6152, 6153, 61303, 61307, 61654. SE items 55116, 55117, 55122, and 55123. Revascularisation included services for CABG (items 38497, 38498, 38500, 38501, 38503, 38504) or PCI (item 38306) within 6 weeks (prior and/or post) of the 'trigger" cardiac investigation(s) items. The reference period for the trigger items is between July-Dec 2014 by date of service using date of processing data from April 2014 to June 2016. Department of Health.

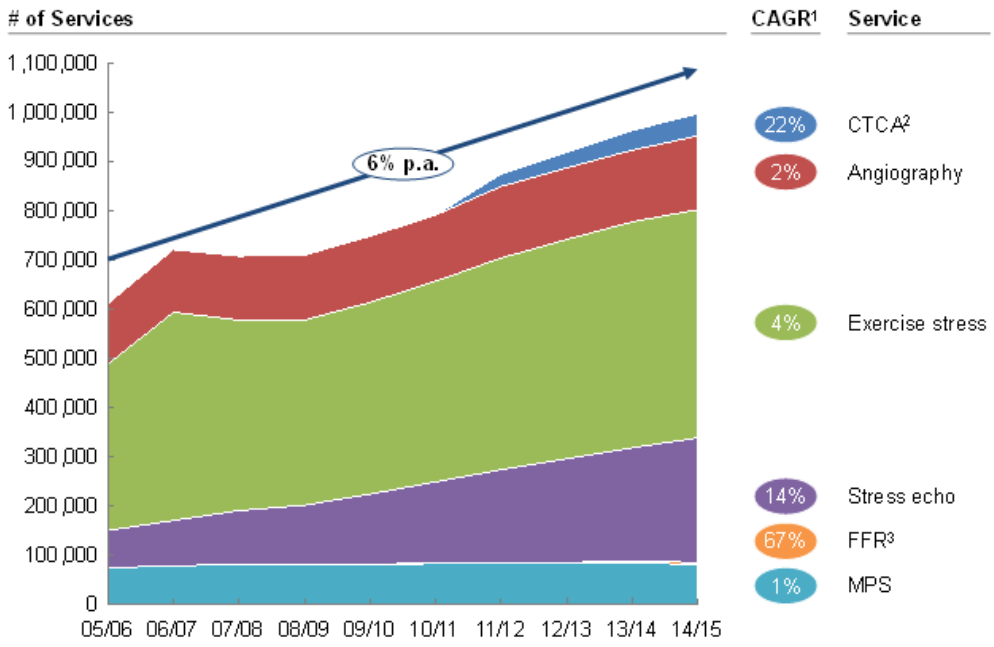
- More broadly, the ratio of cardiac investigations to revascularisation has been steadily increasing over the last 10 years. Growth in CAD diagnostics has averaged 6 per cent per year (Figure 6), while growth in revascularisation therapeutics has remained relatively flat, with PCI and angioplasty growing at 3 per cent per year and CABG static at almost zero growth over 10 years. As a result, the average number of diagnostics per therapeutic has increased from 22 in FY2005/06 to 30 in FY 2014/15 (Figure 7).

Figure 5: Geographical variation in stress echo services (items 55116, 55117, 55122, and 55123)



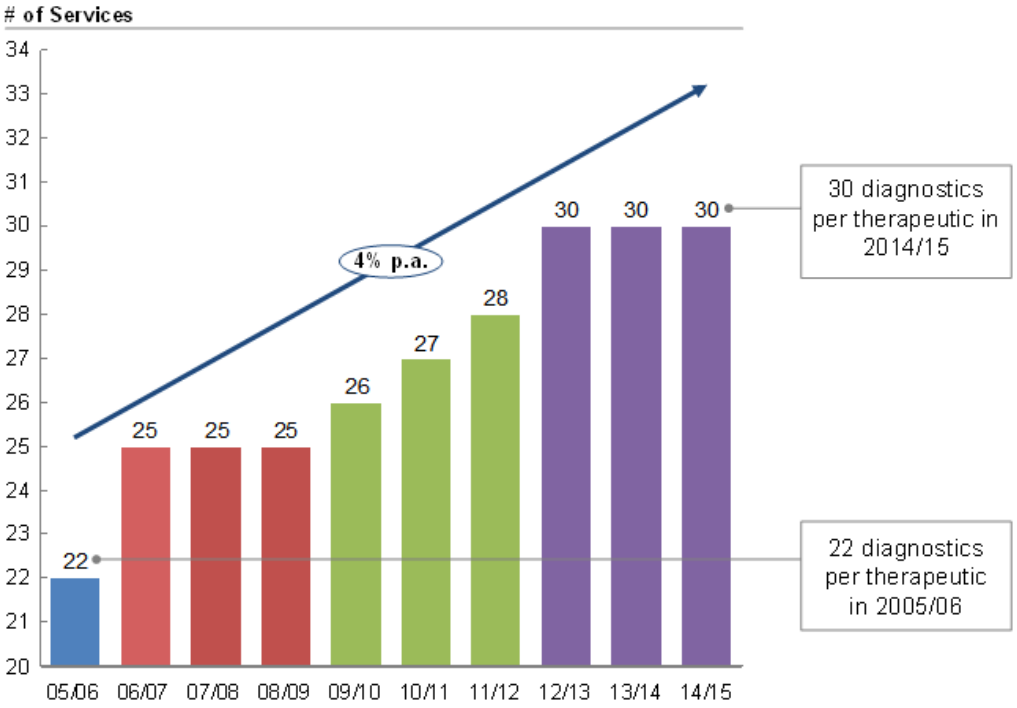
Unpublished data, extract based on date of service for Medicare claims processed between July 1 2014 and April 30 2016 (Department of Health).
Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.

Figure 6: Growth in CAD diagnostic services since FY2005/06



Unpublished data, extract based on date of service, financial years 2005-6 to 2014-15 (Department of Health).
1 Compound annual growth rate over 10 years.
2 CTCA compound annual growth rate is calculated over 3 years since introduction. Item 57360, 57361.
3 FFR: 3,692 services in financial year 2014-15 and not visible due to the figure scale, CAGR over 9 years since introduction. Item 38241.
4 Population growth and aging each account for 1 -2% growth.
Angiography items 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240, 38246, 59973, 59925, 59970, and 59971. Exercise stress 11712.MPS items 61303, 61307, 61654, 61302, 61306, 61651, 61652, and 61653.

Figure 7: Average ratio of CAD diagnostic to therapeutic services



Diagnostic services include CTCA (items 57360, 57361), angiography (items 38215 - 38246, 59973, 59925, 59970, 59971), exercise stress (item 11712), stress echo (items 55116-55123), FFR (item 38421) and MPS (items 61303 – 61653).
Therapeutic services include PCI (item 38306), angioplasty (items 38300, 38303) and CABG (items 38498, 38500, 38501,

38503, 38504). Unpublished data, extract based on date of service, compound annual growth rate over financial years 2005-6 to 2014-15 (Department of Health).

- Although the growth of MPS has remained low (less than 1 per cent per year over the last five years), it is clinically interchangeable with a stress echo for many patients. This clinical equivalence necessitates that changes to access for either study must be applied to the other to avoid significant unintended volume shifts. These studies are collectively referred to as functional (stress) imaging.
- The Committee agreed that a large number of patients currently undergo stress imaging, despite having a very low probability of CAD and a very low risk of having a cardiovascular event (such as a heart attack). The reasons for this are complex and may include lack of education, demand from patients for tests, and a desire to use the 'best' test, which is often considered to be the one with the highest sensitivity and specificity for anatomical CAD. The Committee noted that patient demands may be a particularly significant factor, with patients wanting to know whether their symptoms are coming from their heart, rather than the risk of a heart attack over five years. The consumer representative noted that although patients often want definitive answers, these are rarely available. The Committee supported this view. It would be appropriate for a patient to receive an explanation from his/her doctor that an assessment of their symptoms and risk factors placed them at a very low risk of having an event within five years and the DTS further reinforced this, but that they should actively manage their risk factors to reduce the risk of problems in the future.
- The Committee agreed that for a population with a very low probability of CAD, low event rates would be expected for any diagnostic test. It agreed that for patients with low probability, there is no difference in outcomes between EST and stress echo, and many of these patients may not need any investigation at all. The proposal is not a binary approach to stress testing; high probability patients are identified by typical angina, while low and intermediate probability patients, based on symptoms, undergo an Australian Absolute risk assessment. Those with an Australian Absolute risk of event less than 10 per cent over five years who need an investigation would receive an EST, which applies the DTS. Patients with a DTS between +4 and -10 have an indeterminate result and are eligible to receive follow-up functional imaging, if clinically appropriate. Those with a greater than 10 per cent Absolute risk have the option of either a CTCA to identify anatomical disease or functional stress imaging. Those in whom the CTCA shows obstructive CAD with lesion(s) greater than 50 per cent, or those with lesions of indeterminate severity, can then undergo stress imaging to determine if the lesions are functionally significant or not. Depending on their response to optimal medical therapy, patients with functionally significant lesions may be eligible for invasive coronary angiography with a view to revascularisation if appropriate anatomy was present.
- Although any level could be considered arbitrary, the expert consensus of the Committee was that a 10 per cent Australian Absolute risk of event over five years is an appropriate cut-off. This is already used as the threshold for starting to consider statin therapy, and it was agreed to be an acceptable way of determining when imaging would be indicated, thereby reducing low-value imaging in low-risk patients. The entire purpose of investigating patients with atypical/uncertain symptoms is to identify those with significant risk factors who may be missed by symptom definitions, and the purpose of the 10 per cent cut-off is to better target the use of CTCA in this way. As always, referral to a cardiologist or consultant physician is available to GPs for any patient they are concerned about.
- The AHA guidelines list EST as a class 1A recommendation for patients with intermediate probability of CAD and an interpretable ECG (7). The European Society of Cardiology (ESC) guidelines list EST as class 1B (the same as stress echo and MPS), noting that EST is a

completely non-invasive, broadly available and low-cost technique that performs well at intermediate pre-test probabilities between 15 per cent and 65 per cent in patients with a normal resting ECG (no ST–T abnormalities) (6). Although the NICE guidelines recommend against the use of EST as a test for the exclusion of CAD, it was noted that the evidence cited for this relates to anatomical disease (8). For the exclusion of anatomical disease, CTCA or ICA should be used, but the Committee agreed that EST with DTS was an appropriate gatekeeper to functional imaging, with the aim of reducing low-value imaging in patients with an Australian Absolute risk of less than 10 per cent over five years and a DTS greater than five.

- The Committee agreed that although stress echos and MPS have superior sensitivity and specificity compared with EST for the anatomical diagnosis of CAD (as determined by ICA), outcomes and anatomical diagnosis are not the same thing. The addenda to the ESC guidelines state that there is no evidence that superior 'diagnostic' accuracy leads to improved patient outcomes (2).
- The Committee noted that there is not a large amount of published literature comparing the outcomes of functional imaging with EST. Two published studies in the *New England Journal of Medicine* and the *Journal of the American Board of Family Medicine* demonstrated concordant results: for the typical patient seen in general practice with symptoms suggestive of a low to intermediate probability of obstructive CAD, a negative EST has a strong negative predictive value (in the order of 99 per cent over four years) for adverse cardiovascular outcomes such as heart attack or death (4,5). At the time of writing, there was no prospective randomised data demonstrating that the superior diagnostic performance of functional imaging translates into superior outcomes over EST. Indeed, the Committee noted that in the recent ESC guidelines, which include a comprehensive literature review, only one randomised study comparing functional testing (in this case, MPS) to EST showed equivalent outcomes (3). A 2008 article in the *British Medical Journal* showed that for patients with suspected angina presenting to hospital chest pain clinics, neither 12-lead ECG nor EST provided additional prognostic information over specialist clinical assessment(17). This article did not address the question of the incremental value of stress echo or MPS however other studies have similarly called into question the value of stress echo above clinical assessment(18,19). No studies show EST to be a poor predictor of outcomes in the specific low-risk population the gatekeeper would apply to.
- There is conflicting evidence regarding the effectiveness of specialist history and examination compared with EST and stress echo in determining likely outcomes from CAD (4,17–19). The Committee agreed that accurate clinical assessment of anginal symptoms is the best predictor of obstructive CAD. However, patients often demand some form of investigation, and referral of the entire population of patients with symptoms possibly due to obstructive CAD seen by GPs would both overwhelm specialists and potentially not avoid the demand for testing, especially taking into account the reassurance that such testing provides. Of the available tests, EST has a considerably lower cost (MBS fee: $152.15) compared with stress echo (MBS fee including EST: $337.73) and MPS (MBS fee including EST: $785.78–910.98).
- The consumer representative asked if this recommendation would result in 'placebo' tests being performed, which may falsely reassure consumers. The Committee noted that another recommendation requires the calculation of DTS for all EST services and agreed that DTS is a prognostically powerful tool that is far from a placebo test. Patients who exercise to a high level without ECG evidence of ischaemia have an excellent prognosis (4,20). Those who do not exercise adequately will have an intermediate score on that basis alone and will be eligible for functional imaging, which is allowed in these recommendations. It was noted that even in the United States, where imaging is heavily used, a stress echo is considered inappropriate as the first-line investigation in patients with a low pre-test probability of CAD who have an

interpretable ECG and are able to exercise (21). It is also important to note that while a negative anatomical test (ICA or CTCA) can exclude disease, a negative functional test of any form (MPS, stress echo or EST) does not exclude anatomical disease and risk factor modification should still be considered.

Specific concerns

The Committee discussed a number of potential concerns when developing this recommendation.

- The risk of false positive results in women.
  - A concern was discussed about the risk of false positive EST in women. The available evidence is linked to anatomical diagnosis and is thought to be related to the interpretation of ST changes without the additional consideration of duration of exercise. The NICE guidelines note that such challenges may have arisen due to thresholds for abnormal being defined almost exclusively in men (8).
  - The Committee agreed that the likelihood of false positive results in both men and women diminishes as DTS increases, and it noted that a positive result (DTS ≤ -11) typically leads to cardiologist referral, which would be appropriate. DTS takes into account the degree of ST change and time exercising. A DTS less than or equal to -11 leading to ICA and an indeterminate result (DTS between -11 and +5) leading to stress echo would be appropriate in most circumstances. The objective nature of the DTS will reduce the 'fudging' of results to allow access to inappropriate downstream investigations, although this cannot be entirely prevented. Compliance efforts could monitor the rate of downstream investigations for EST providers to identify outliers who, for example, may be under-reporting DTS in order to classify patients as equivocal. Changes to downstream investigations recommended in this report support attempts to reduce inappropriate investigation and revascularisation of patients.
- The risk of false negative results.
  - The Committee agreed that a DTS greater than or equal to five in a patient with atypical symptoms and an Australian Absolute risk score of less than 10 per cent over five years is very unlikely to be a false negative. Such a patient is extremely unlikely to have significant obstructive CAD and is therefore at a low risk of an adverse cardiovascular event. A patient who does not exercise to a high level (for whatever reason) will have a lower DTS and may then progress to either referral to a cardiologist or functional imaging. Although no test is able to perfectly predict the future, the Committee agreed that for the patient described above, it would be clinically appropriate to implement risk-factor modification as required and observe. If such a patient had ongoing symptoms, or if the GP was concerned, the patient could be referred to a cardiologist, who could then order a CTCA if clinically appropriate.
- The suggestion that calcium scoring and CTCA may be more appropriate gatekeepers.
  - Calcium scoring was proposed as a lower cost gatekeeper than EST, as recommended in the 2010 NICE guidelines. It was stated that there is a risk that a patient may have a negative EST but an elevated calcium score, as could also occur with negative functional studies. Such a patient may feel falsely reassured, leading to a lack of risk-factor modification and subsequent increased risk of adverse outcomes. The Committee acknowledged this, but felt that calcium scoring alone was an inappropriate gatekeeper because of its inability to detect non-calcified coronary lesions. Most members agreed that CTCA may soon become the preferred first-line investigation for suspected CAD, noting that there is some evidence that CTCA used in this way improves outcomes compared to the use of all forms of stress testing as the gatekeeper (22). However, evidence for CTCA is still emerging, and the

current MBS fee of $700 is significantly higher than the fees for EST or stress echo. It was noted that the costs of performing CTCA may decrease to a level where it becomes a cost-effective solution.

- The risk of cost increase.
  - The recommendation to use EST as the gatekeeper for low-risk patients is intended to reduce low-value functional imaging, which, aside from other benefits, would result in savings for CAD investigation. Some members of the Imaging Working Group raised concerns that this is dependent on resulting behaviour change among clinicians. If the majority of patients currently receiving functional imaging simply receive an additional preceding EST that is loosely interpreted as equivocal, they would then proceed on to the same service patterns that currently exist, or to even higher rates of downstream investigation, resulting in a significant increase in cost. Based on the available evidence, however, the majority of patients in this low-risk group (around 66–75 per cent) will have a negative EST (4,5) and would hence avoid subsequent investigations. The Committee noted that costings would be performed on the recommendation, but members who expressed this concern felt that a more detailed evaluation, such as that undertaken by the MSAC, would be a more appropriate level of analysis.
- Concern that this requirement would negatively affect patients from remote areas.
  - Questions were raised about the impact on patients who may travel long distances to access services. If such a patient travelled for an EST, which was then found to be positive, would they have to return on another day for functional imaging? If CTCA was unavailable, would a high-risk patient be required to have EST as a first-line investigation?
  - It was noted that if a provider felt that a patient was likely to require a stress echo but did not meet the criteria, he or she could perform limited 'safety' baseline and pre-stress echo views prior to the EST commencing. Should the EST be negative, the provider would not be able to charge for the stress echo. If the test was positive or indeterminate (DTS less than +5), the remainder of the stress echo could be performed and the service billed at the higher stress echo rebate. It would be inappropriate to bill for both the EST and the stress echo in this instance as the stress echo included the EST. However, if the patient had a positive or equivocal EST and was then slotted into an available space later the same day and underwent a full stress echo, including re-stressing, a rebate would be claimable for both services.
  - In response to these concerns, the Committee agreed that steps should be taken to ensure patients from regional and remote areas are not disadvantaged. It therefore agreed that functional imaging should be available as a first-line investigation alongside CTCA for patients with an Australian Absolute risk of greater than 10 per cent over five years.
- Clarity on the definition of typical versus atypical angina.
  - The Committee agreed that the definition for typical angina should be adopted from the NICE guidelines. The guidelines list three features of angina pain:
    - Constricting discomfort in the front of the chest, or in the neck, shoulders, jaw or arms.
    - Precipitated by physical exertion.
    - Relieved by rest or Glyceryl trinitrate (GTN) within about five minutes.
  - If all three features are present, pain is defined as typical angina. If two or less features are present, pain is defined as atypical/uncertain symptoms.

Endorsement

The Imaging Working Group endorsed this recommendation. It passed with seven in favour, three opposed and one abstaining.

- Dr Barry Elison – Against: Felt that the published literature supporting EST was not sufficiently powerful or recent. In addition, calcium scoring was felt to be a more effective and lower cost service to recommend as a gatekeeper.
- Dr Geoff Evans – Against: Concerned that EST evidence is derived from low risk populations and is not objectively applicable to many rural/regional communities which are known to have higher disease prevalence. Supported recommendation for EST and DTS in clinically low-risk patients. Concerned restrictions may complicate rural services delivery and questioned predictive value of the Australian Absolute risk score in high disease prevalence populations.
- Dr David Prior – Against: Agreed that considering EST as the first-line investigation is a good idea, but felt that making this a requirement (which does not take into account individual patient and local area conditions) was too strong a recommendation.
- Dr Walid Jammal – Abstained: Supports EST be used in low risk patients, but abstained due to concerns about the potential for significant cost increases, as well as the validity and detail of the evidence which has been used to inform the recommendations. Supports a full HTA and MSAC assessment of the recommendations.

The Committee endorsed this recommendation unanimously.

4.5 Stress echo

Current item descriptors and MBS data from FY 2014/15
Item 55116 – Schedule fee: $261.65 Services: 243,163 Total Benefits: $54,370,194 Average annual growth: 12.2% Exercise stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before exercise (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at, or immediately after, peak exercise; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)
Item 55117 – Schedule fee: $261.65 Services: 8,793 Total Benefits: $2,041,809 Average annual growth: 7.5% Pharmacological stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before drug infusion (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at least twice during drug infusion, including a recording at the peak drug dose; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)

Public data from 2014-15 (Department of Human Services)

Recommendation 4

- Change items 55116 and 55117 for stress echo to reflect a focused stress echo study for appropriate indications, as a complete medical service including EST.
  - Item 55116A: Focused exercise stress echo with limited structural baseline echo.
  - Item 55117A: Focused pharmacological stress echo with limited structural baseline echo.
  - Item 55116C: Exercise stress echo with complete structural baseline echo.

- Item 55117C: Pharmacological stress echo with complete structural baseline echo.
- Item 55116X: Repeat focused exercise/pharma stress echo with limited baseline due to change in clinical presentation post revascularisation.
- Item 55116Y: Urgent stress echo with limited structural baseline echo performed within 4 weeks of a complete structural echo.
- Item 55117B: Pharmacological stress echo performed within 4 weeks of failed exercise stress echo.

The descriptors and explanatory notes for these items are presented on the following pages.

Item 55116A

Exercise stress echocardiography, focused stress study with limited structural baseline echo performed by an appropriately trained provider for:

(a) Symptoms possibly related to cardiac ischaemia in patients who have one of:
   i. An exercise stress test with a Duke Treadmill Score of less than +5; or
   ii. An uninterpretable ECG which precludes exercise stress testing; or
   iii. Typical angina meeting all three NICE criteria (see explanatory note); or
   iv. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years.

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Minimum requirements for testing are:

(a) Two-dimensional recordings before exercise (baseline) from at least 2 acoustic windows; and

(b) Matching recordings at or immediately after peak exercise, which include at least: parasternal short and long axis views, and apical 4-chamber, 2 chamber and long axis views; and

(c) Recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and

(d) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(e) Resting ECG and continuous multi-channel ECG monitoring and recording during stress; and

(f) With or without continuous blood pressure monitoring and the recording of other parameters; and

(g) Formal report, including relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

If the minimum requirements for views or recordings in criteria (a) and (b) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study. Claimable once in any 2 year period including services of 55117A-C, 55116B, 55116X and 55116Y. Not claimable within 4 weeks of a service for items 5511A-D or 5511F.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

Appropriately trained means a provider that meets the level 2 requirements for stress echo as described in the CSANZ Guidelines for Training and Performance in Adult Echocardiography, or an equivalent training standard.

A complete echo includes any of items 55116C, 55117C, 5511A-D or 5511F.

[Surgical risk information as shown in Table 4]

Item 55117A

Pharmacological stress echocardiography, focused stress study with limited structural baseline echo performed by an appropriately trained provider for:

(a) Symptoms possibly related to cardiac ischaemia in patients who have one of:

  i. An exercise stress test with a Duke Treadmill Score of less than +5; or

  ii. An uninterpretable ECG or other condition which precludes exercise stress testing; or

  iii. Typical angina meeting all three NICE criteria (see explanatory note); or

  iv. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years.

(b) Known CAD, with symptom evolution since the previous functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom

evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Minimum requirements for testing are:

(a) Two-dimensional recordings before drug infusion (baseline) from at least 2 acoustic windows; and

(b) Matching recordings at least twice during drug infusion, including a recording at the peak drug dose, which include at least: parasternal short and long axis views, and apical 4-chamber, 2 chamber and long axis views; and

(c) Recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and

(d) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(e) Resting ECG and continuous multi-channel ECG monitoring and recording during stress; and

(f) With or without continuous blood pressure monitoring and the recording of other parameters; and

(g) Formal report, including relevant measurements and documentation of how the indication requirements of the descriptor were met. Separate from any letter(s) to the referrer, provided to the patient's preferred general practitioner and/or the referring practitioner and images to be provided upon request to other clinicians with patient consent.

If the minimum requirements for views or recordings in criteria (a) and (b) are not met, the report must include documentation of which views were not obtained, the reason for this and any clinical implications. The service is not claimable if the views obtained are inadequate to be considered a diagnostic study. Claimable once in any 2 year period including services of 55117A-C, 55116B, 55116X and 55116Y. Not claimable within 4 weeks of a service for items 5511A-D, or 5511F.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

Appropriately trained means a provider that meets the level 2 requirements for stress echo as described in the CSANZ Guidelines for Training and Performance in Adult Echocardiography, or an equivalent training standard.

A complete echo includes any of items 55116C, 55117C, 5511A-D or 5511F.

[Surgical risk information as shown in Table 4]

Item 55116C

Exercise stress echocardiography, stress study and complete structural echocardiogram performed by an appropriately trained provider.

This service must meet all the requirements for a stress echo (item 55116A) AND all the requirements for a structural echo (item 5511A).

A single report must be provided documenting all required findings and measurements for each study. The report must clearly state the indication(s) which required both a complete structural and stress echo to be performed.

Claimable once in any 2 year period including services of 55116A, 55117A, 55117C, 55116X, 55116Y, 5511A-D, and 5511F.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: See explanatory notes for items 55117A and 5511A. Views taken to meet the requirements of item 5511A can be counted as pre-stress views as required by item 55116A.

Item 55117C

Pharmacological stress echocardiography, stress study and complete structural echocardiogram performed by an appropriately trained provider.

This service must meet all the requirements for item 55117A AND all the requirements for item 5511A.

A single report must be provided documenting all required findings and measurements for each study. The report must clearly state the indication(s) which required both a complete structural and stress echo to be performed.

Claimable once in any 2 year period including services of 55116A, 55117A, 55116C, 55116X, 55116Y, 5511A-D, and 5511F.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Explanatory notes: See explanatory notes for items 55117A and 5511A. Views taken to meet the requirements of item 5511A can be counted as pre-stress views as required by item 55117A.

Item 55116X

Repeat pharmacological or exercise stress echocardiography performed within 2 years of a previous stress echo study, where the patient has undergone a revascularisation procedure since the last stress echocardiogram and where all the requirements of either item 55116A or 55117A are met.

Claimable once in any 12-month period. Not claimable within 4 weeks of a service for item 5511A- F.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Δ Create a new item for urgent stress echo performed within 4 weeks of a structural echo (items 5511A-F) for a patient who develops a new indication requiring stress imaging.

Item 55116Y

Pharmacological or exercise stress echocardiogram performed within 4 weeks complete structural echo (items 5511A-F), where the patient has developed a new indication requiring additional stress imaging since the structural echo was performed.

The service must meet all the requirements of item 55116A or 55117A, and the report must clearly document the indication for the study.

Claimable once in any 2 year period including services of 55116A, 55117A, 55116C, 55117C, 55116X.

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

- Δ Create a new item for repeat pharmacological stress echo following failed exercise stress echo. The proposed wording is outlined below.

Item 55117B

Pharmacological stress echocardiography performed within 4 weeks of a failed 55116A due to inadequate heart rate response in the initial study.

Meeting all the requirements for item 55117A; and

Claimable once in any 2 year period; and

Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

- Δ Update the explanatory notes for all items to reflect the clarified position of the MBS regarding co-claiming consultations with procedural and investigation items.
- Δ Revise the Diagnostic Imaging Accreditation Scheme standards for stress echo items to align with the level 2 requirements of CSANZ or an equivalent acceptable standard.

Rationale

These recommendations focus on improving the value of the MBS and are based on the following observations.

- Δ The Committee noted that stress echos account for over $56 million in benefits annually, and that service volumes have grown at a rate of 12 per cent per year over the last five years. This represents unsustainable growth, which the Committee agreed goes beyond what could reasonably be attributed to clinical need. It was also noted that 70 per cent of stress echos appear to be referred by GPs (based on MBS data), which the Committee found surprising. This may reflect claiming or data-capture practices. For example, a cardiologist may have a referral on file from a GP and may bill all consults and stress echos, which are then recorded under that referral, although the stress echos may actually be self-determined by the cardiologist.
- Δ As mentioned above in Section 4.4, Medicare statistics show that stress echos and MPS lead to a revascularisation procedure over the next 18 months in only 1–3 per cent of cases (Table 2). Furthermore, there is marked variation in the rate of functional imaging per 100,000 population between states. For example, New South Wales' rate of stress echos is more than three times the rates of South Australia and Western Australia (Figure 5). This variation is even more marked between Medicare locals, some of which have rates of stress echo up to 10 times higher than others (1). However, there is no evidence that this variation influences patient outcomes, and although there is almost certainly under-servicing in some areas, there is undoubtedly over-servicing in other areas.
- Δ The Committee noted that MBS data shows that 7 per cent of patients receive repeat services in a single year and as shown in Table 3, 20-45 per cent of patients are receiving annual or near annual stress echos—a practice not supported by evidence in the absence of clinical changes. The Committee recommended providing stress echos for patients with symptoms that suggest cardiac ischaemia or valvular pathology, or for patients at intermediate to high cardiovascular risk undergoing pre-operative assessment for high-risk surgery.

Table 3: Number of years within a 5 year period in which a patient received at least 1 stress echo

Years with at least 1 stress echo service, #	Patients, #	Proportion, %
1	271	10%
2	675	25%
3	550	20%
4	546	20%
5	667	25%
Total	2,718	100%

Population of patients who received a cardiac investigation in June 2015, filtered for those who received at least 1 stress echo between financial years 2010/11 and 2014/15 inclusive. Cardiac investigation for this table includes: Stress echo (55116, 55117, 55122, 55123), CTCA (57360, 57361), Echo (55113, 55114, 55115, 55119, 55120, 55121), Angiography (ICA) (38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240, 38246, 59973, 59925, 59970, 59971), Exercise stress (11712), MPS (61302, 61306, 61651, 61652, 61653, 61303, 61307, 61654), FFR (38241). Unpublished data, extract based on date of service, 2009-10 to 2014-15 (Department of Health).

- The Committee noted that pre-operative assessment is a common source of inappropriate use, and that the important determinant is the clinical risk of the patient(23,24). Pre-operative stress echo should only be performed in line with international guidelines, and it should be performed in patients with functional capacity of less than four METs (metabolic equivalents), where the surgery is intermediate to high risk (Table 4), and where the patient has at least one clinical risk factor including: ischaemic heart disease (angina pectoris and/or previous myocardial infarction); heart failure; stroke or transient ischaemic attack; renal dysfunction (serum creatinine >170umol/L or 2 mg/dL, or a creatinine clearance of <60 mL/min); or diabetes mellitus requiring insulin therapy (25).

Table 4: Surgical risk estimate according to type of surgery or intervention (25)

Low risk: < 1%	Intermediate risk: 1–5%	High risk: > 5%
Δ Superficial surgery Δ Breast Δ Dental Δ Endocrine: thyroid Δ Reconstructive Δ Carotid asymptomatic (CEA or CAS) Δ Gynaecology: minor Δ Orthopaedic: minor (meniscectomy) Δ Urological: minor (transurethral resection of the prostate)	Δ Intraperitoneal: splenectomy, hiatal hernia repair, cholecystectomy Δ Carotid symptomatic (CEA or CAS) Δ Peripheral arterial angioplasty Δ Endovascular aneurysm repair Δ Head and neck surgery Δ Neurological or orthopaedic: major (hip and spine surgery) Δ Urological or gynaecological: major Δ Renal transplant Δ Intra-thoracic: non-major	Δ Aortic and major vascular surgery Δ Open lower limb revascularisation or amputation or thromboembolectomy Δ Duodeno-pancreatic surgery Δ Liver resection, bile duct surgery Δ Oesophagectomy Δ Repair of perforated bowel Δ Adrenal resection Δ Total cystectomy Δ Pneumonectomy Δ Pulmonary or liver transplant

CAS = carotid artery stenting; CEA = carotid endarterectomy.

[a] Surgical risk estimate is a broad approximation of 30-day risk of cardiovascular death and myocardial infarction that takes into account only the specific surgical intervention, without considering the patient's comorbidities.

- In addition to refining the inclusion criteria, the Committee agreed that stress echos were clearly low value and should not be claimable for screening, patients who are asymptomatic and have a normal cardiac examination, or monitoring or routine surveillance of known disease

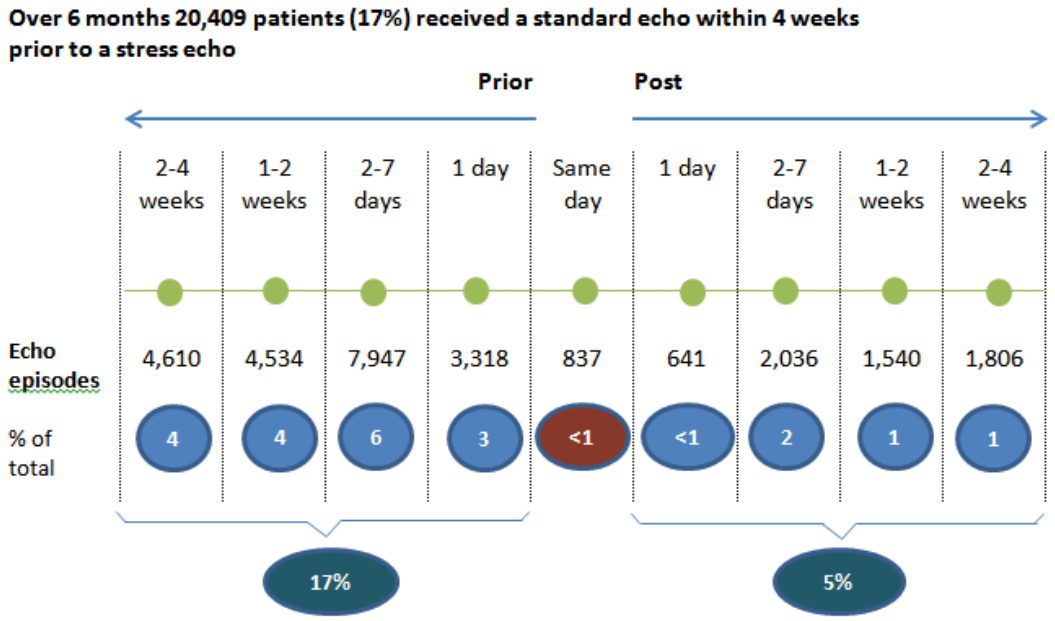
in the absence of symptom evolution or changes on cardiac examination since the last study (21,26).

- Although only a small proportion of patients received more than two stress echo services within a year, the Committee nonetheless agreed that this represented low-value use. It therefore recommended that patients should receive no more than one stress echo every two years except where revascularisation has been performed since the previous study. All stress echos after the first test should require symptom evolution or changes on cardiac examination since the last study.
- The Committee noted that exercise stress echos are sometimes inconclusive if the patient does not reach an adequate heart rate (although this is uncommon). It is standard practice to cease rate control medications prior to a stress test, and to only attempt studies in a patient reasonably expected to be able to exercise sufficiently. However, there are occasions when this does not occur. For example, a patient who is instructed to cease his or her rate control medications may arrive on the day having continued to take them. In such instances, it was noted that providers may attempt the study anyway, acknowledging a high risk of failure. Patients may also have a positive study with signs of ischaemia despite a low heart rate, but if the study is negative without an adequate elevation in heart rate, the test is inconclusive. In such instances, the Committee agreed that it would be reasonable for a patient to return for a pharmacological stress echo or be referred for MPS. The majority of Committee members felt that it is inappropriate to claim for a second attempt at an exercise stress echo. The Committee therefore recommended creating a new item that allows a pharmacological stress echo to be performed in these instances, without counting towards the two-per-year claim restriction. This would have the same MBS fee as a standard pharmacological stress echo, as the equipment and time requirements are the same. These requirements were felt to be sufficient to prevent abuse of this item.
- Committee members are aware that some providers currently perform only a limited baseline echo before stress echos while claiming the rebate for the stress echo item number (~$260) whilst there are other providers who perform a complete structural baseline echo and claim the same item. The Committee agreed this was not appropriate and that services of varying levels of comprehensiveness should have differentiated rebates.
- The Committee agreed that the current items do not clearly outline what baseline elements are expected to be performed as part of the stress echo study. It agreed that the majority of patients only require a focused stress echo with limited structural baseline echo to screen for safety concerns. A complete structural baseline echo is not required for these patients and would be low value care. For the remaining patients, there are clinical circumstances where a full structural echo and stress echo on the same day is appropriate. As such, the Committee recommended that the current stress echo item be split into an item which includes only a limited 'safety' baseline echo, and an item which includes a complete structural echo. The Committee recommends a review be conducted of the relevant stress echo rebates with adjustments to reflect the proposed item structure. The Committee recommends such adjustments be at least cost neutral.
- The Committee noted that some providers have patients attend for a standard structural echo (55113) on one day, and then return on a subsequent day for a stress echo. Figure 8 shows that this affects approximately 40,000 patients per year. The MBS currently restricts the same day co-claiming of stress echo and structural echo. The Committee agreed that a portion of this service splitting reflects appropriate use such as for patients which evolving indications, however a portion may also reflect misuse and circumvention of the co-claiming restriction. MBS data shows that some providers have up to 88% of their patients receiving a structural echo within 4 weeks prior to stress echo, while the median is less than 13% (9). It was agreed

by the Committee that patients attending unnecessarily on multiple days is a low-value use of health resources and inconvenient for the patients. To address this issue, the Committee recommended extending the co-claiming restriction to four weeks. The Committee noted that addressing this unusual practice is a very good outcome of this review, as it improves services for patients and improves the value of the services provided.

Δ Acknowledging that there may be circumstances where a patient undergoes a standard echo and then in the following days or weeks develops new symptoms which indicate that a stress echo should be performed urgently. An item (55116Y) has been created to cater for this small population and it is expected that this will be a small proportion of a provider's services and will require clear documentation of the indication for the urgent study. Similarly, there is a chance that a patient may need a standard echo within days or weeks of receiving a stress echo. The item for exceptional structural echos (5511F) could be used in these instances. MBS data shows that this occurs in fewer than 7% of patients receiving stress echos (9).

Figure 8: Claims for standard echo services before or after stress echo



Unpublished data, extract based on date of service and captures all stress echos over 6 months in 2014, the total number of patients is 123,495 (Department of Health). Echo items 5113, 55114, 55115, 55119, 55120, 55121. Stress echo items 55116, 55117, 55122, and 55123.

Δ To reduce variability in the rebate patients receive, and to modernise and simplify the MBS, the Committee recommended that the stress echo items should be updated to include the EST component that is currently co-claimed. Figure 9 presents a simple bar graph to illustrate this amalgamation. Co-claiming data also showed that standard 12-lead ECGs were being co-claimed with this service. The Committee agreed that this was inappropriate, and that these ECGs should be included in the service where performed. Specialist consults were co-claimed with 48 per cent of ESTs and 27 per cent of pharmacological stress services. It is likely that these rates represent inappropriate co-claiming practices. The Committee recommended educating providers on the rules regarding co-claiming of consults with procedures and investigations, and that the MBS audit and compliance team routinely monitor for outliers.

Figure 9: Indicative depiction of amalgamation of stress echo and EST fees based on the Committee's recommendations

- The Committee discussed a number of additional ways to reduce low-value use of stress echos (particularly initial studies), including restrictions for low pre-test probability, normal CTCA, prior evidence of subclinical disease or uninterpretable ECGs. It was agreed that use for CAD-related indications within five years of a high-quality CTCA with a normal calcium score and no plaques should be restricted.
- The Committee discussed the appropriateness of stress echo as a first-line investigation. It agreed that in low- or intermediate-risk patients, an EST should be the first-line investigation, and that no further investigations should be provided if that EST is normal. From a prognostic perspective, stress ECG is appropriate for reassuring patients with low or intermediate risk. For patients with ongoing symptoms or patients at high risk, referral to a cardiologist or physician is appropriate. Further discussion of this recommendation is outlined in Section 4.4.
- The Committee noted that despite MBS requirements under the DIST, as well as accepted standards of good clinical practice, some practitioners are not providing formal reports for stress echos they perform. It was agreed that a formal report should be documented (separate from any letters), provided to the patient's GP and referring provider (if applicable), and retained in line with DIST requirements. The Committee also noted that the quality of some studies was lower than would be expected of an appropriately trained provider. The Committee therefore recommended that the accreditation standards for stress echo items should be increased to align with the level 2 requirements for stress echo as stated in the CSANZ Guidelines for Training and Performance in Adult Echocardiography or an equivalent acceptable standard(11). Ensuring the skills and expertise of those performing these studies was viewed as a critical step towards ensuring that all services provide clinically useful, diagnostic quality information.

4.6 Myocardial perfusion scans

Due to their interconnectedness, the Committee considered MPS in conjunction with the other cardiac imaging modalities. The Committee has developed provisional recommendations regarding MPS for the consideration of the Diagnostic Imaging Clinical Committee (DICC) and their Nuclear Medicine Working Group (NMWG). These recommendations will be submitted to the DICC and NMWG for consideration as they formulate their own recommendations to the Taskforce. The recommendations will also be included in this Committee's final report to the Taskforce as they are integral to the recommendations made for ICA, PCI and other investigations discussed in this report.

Current item descriptors and MBS data from FY 2014/15		
Item 61302 – Schedule fee: $448.85 Services: 107	Total Benefits: $44,849	Average annual growth: 7.7% Single stress or rest myocardial perfusion study - planar imaging(R)
Item 61303 – Schedule fee: $565.30 Services: 6,630	Total Benefits: $3,484,260	Average annual growth: 17.4% Single stress or rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken (R)
Item 61306 – Schedule fee: $709.70 Services: 106	Total Benefits: $70,283	Average annual growth: 16.2% Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging (R)
Item 61307 – Schedule fee: $834.90 Services: 74,831	Total Benefits: $58,475,142	Average annual growth: -0.7% Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission tomography and with planar imaging when undertaken (R)

Public data 2014-15 (Department of Human Services)

Recommendation 5.1

Δ Split items 61302 and 61303 into separate rest and stress items and update the descriptors for all MPS items as set out below.

Recommendation 5.2

Δ Revise the schedule fee for the single rest items such that the combined fee for separate rest and stress items is equal to the fee for the combined item.

Item 61302A

Single rest myocardial perfusion study - planar imaging, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

i. Have at least one of:

A. An exercise stress test with a Duke Treadmill Score of less than +5; or

B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

C. Typical angina meeting all three NICE criteria (see explanatory note); or

D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

ii. Meet at least one of the following criteria:

A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

B. Unable to exercise; or

C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Item 61302B

Single stress myocardial perfusion study - planar imaging, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

i. Have at least one of:

A. An exercise stress test with a Duke Treadmill Score of less than +5; or

B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

C. Typical angina meeting all three NICE criteria (see explanatory note); or

D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

ii. Meet at least one of the following criteria:

A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

B. Unable to exercise; or

C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Including:

(a) Exercise or pharmacological stress; and

(b) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(c) With or without continuous blood pressure monitoring and the recording of other parameters.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Item 61303A

Single rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

i. Have at least one of:

A. An exercise stress test with a Duke Treadmill Score of less than +5; or

B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

C. Typical angina meeting all three NICE criteria (see explanatory note); or

D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

ii. Meet at least one of the following criteria:

A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

B. Unable to exercise; or

C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Item 61303B

Single stress myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

i. Have at least one of:

A. An exercise stress test with a Duke Treadmill Score of less than +5; or

B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

C. Typical angina meeting all three NICE criteria (see explanatory note); or

D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

ii. Meet at least one of the following criteria:

A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

B. Unable to exercise; or

C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Including:

(a) Exercise or pharmacological stress; and

(b) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(c) With or without continuous blood pressure monitoring and the recording of other parameters.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Item 61306A

Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

  i. Have at least one of:

    A. An exercise stress test with a Duke Treadmill Score of less than +5; or

    B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

    C. Typical angina meeting all three NICE criteria (see explanatory note); or

    D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

  ii. Meet at least one of the following criteria:

    A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

    B. Unable to exercise; or

    C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

    D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Including:

(a) Exercise or pharmacological stress; and

(b) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(c) With or without continuous blood pressure monitoring and the recording of other parameters.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Item 61307A

Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission tomography and with planar imaging when undertaken, performed for:

(a) Symptoms possibly related to cardiac ischaemia in a patient who meets both criteria below:

  i. Have at least one of:

    A. An exercise stress test with a Duke Treadmill Score of less than +5; or

    B. An uninterpretable ECG or other condition which precludes exercise stress testing; or

    C. Typical angina meeting all three NICE criteria (see explanatory note); or

    D. Atypical or uncertain symptoms and an Australian Absolute Risk Score of >10% for cardiovascular events within 5 years; and

  ii. Meet at least one of the following criteria:

    A. Body habitus or other physical condition (including heart rhythm disturbance) such that stress echo is unlikely to provide adequate information; or

    B. Unable to exercise; or

    C. Is unable to access a stress echo due to distance, cost or clinically unacceptable wait times; or

    D. Has had a failed stress echo; or

(b) Known CAD, with symptom evolution since the functional imaging study; or

(c) Assessment of non-CAD related disease in line with clinical guidelines; or

(d) Pre-operative assessment of a patient with functional capacity of <4 METs where the surgery is intermediate to high risk (see explanatory notes) and the patient has at least one of: (a) ischaemic heart disease or previous myocardial infarction; (b) heart failure; (c) stroke or transient ischaemic attack; (d) renal dysfunction (serum creatinine >170umol/L or 2 mg/dL or a creatinine clearance of <60 mL/min); or (e) diabetes mellitus requiring insulin therapy.

Not claimable for (i) screening; or (ii) patients who are asymptomatic and have a normal cardiac examination; or (iii) monitoring or routine surveillance of known disease in the absence of symptom evolution or changes on cardiac examination since the last study; or (iv) coronary artery disease related indications within 5 years of a high quality CTCA with a normal calcium score and no plaques.

Including:

(a) Exercise or pharmacological stress; and

(b) The continuous attendance of a healthcare provider trained in cardiopulmonary resuscitation for the duration of the procedure, and with a second trained provider either present for the duration of the procedure or able to respond immediately with suitable emergency call mechanisms in place. Performed on premises equipped with standard resuscitation equipment and defibrillator; and

(c) With or without continuous blood pressure monitoring and the recording of other parameters.

With documentation in the report of how the indication requirements of the descriptor were met.

A myocardial perfusion study is claimable once every 2 years, consisting of 1 combined study or 1 rest study and 1 stress study, whether performed with planar or SPECT imaging (R).

Explanatory notes: Typical angina is defined as meeting all three of the following: 1) constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND 2) precipitated by physical exertion; AND 3) relieved by rest or GTN within about 5 minutes. Without meeting all three criteria, symptoms should be considered atypical/uncertain.

A calcium score of zero is normal and clinician judgement should be applied for scores of 0–10.

For the purposes of criteria (a) ii C, cost can include upfront costs or out-of-pocket costs which may create an economic barrier to accessing stress echo services.

[Surgical risk information as shown in Table 4]

Δ Create a new item for repeat MPS within 2 years with intervening revascularisation

Δ Conduct a GP education campaign focused on the appropriate use of cardiac imaging modalities and investigations, including EST, stress echo, MPS, ICA and CTCA.

Δ Add the following explanatory note to the items for stress echo and MPS:

Explanatory note: In the majority of cases, both stress echo and MPS provide equivalent information. Consideration should be given to the cost and radiation burden of the tests when determining the appropriate modality for a patient, the patient should be fully informed and involved in this decision. It should also be noted that stress echo involves no radiation and that on average; CTCA has a considerably lower radiation dose than MPS or invasive coronary angiography.

Item 6130X

Repeat combined rest and stress myocardial perfusion study performed within 2 years of a previous study, where the patient has undergone a revascularisation procedure since the last myocardial perfusion study and where all the requirements of item 61307 are met.

Claimable once in any 12-month period.

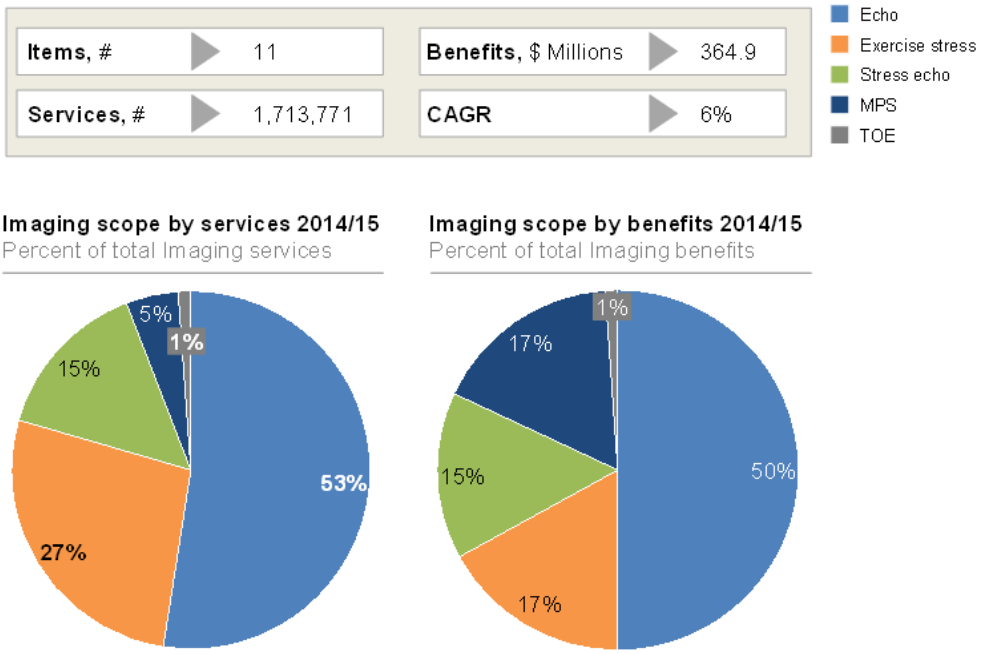
Not being a service associated with a service to which items 11700–11702 or 11712 apply; or a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R).

Rationale

These recommendations focus on improving the value of the MBS and are based on the following observations.

Δ Although MPS represent only 5 per cent of cardiac imaging services and have a relatively flat growth rate of less than 1 per cent per year, they account for 17 per cent of the annual MBS benefits at $62 million per year (Figure 10). The Committee therefore felt it prudent to consider where the value of MPS services could be improved.

Figure 10: Basic MBS data on the scope of the Cardiac Imaging Working Group

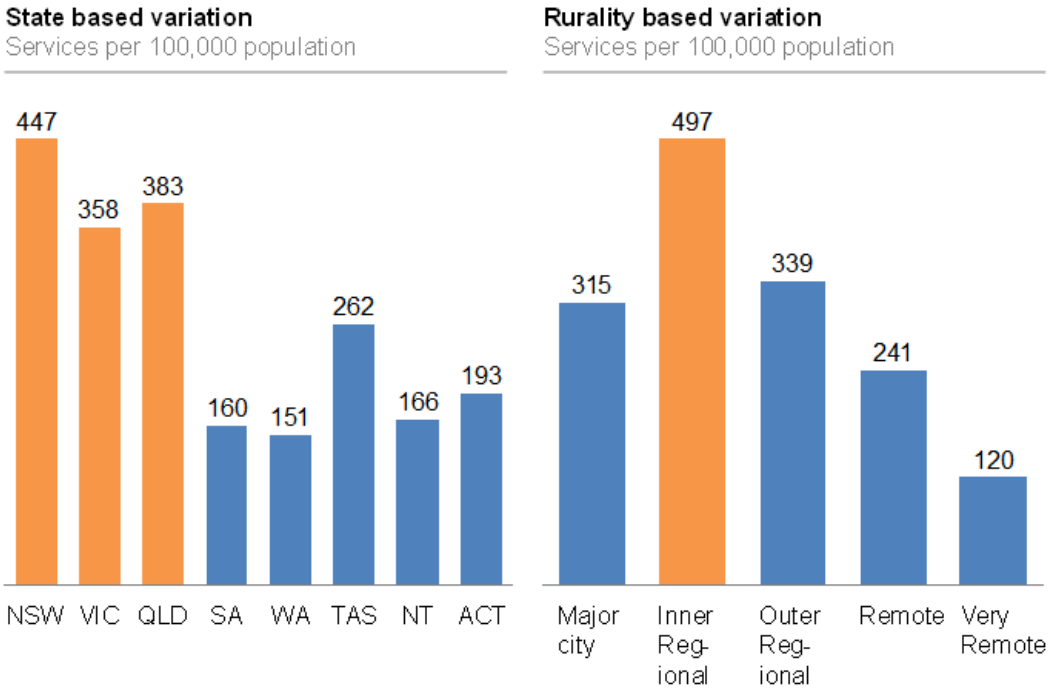


Data is by date of service. Unpublished data (Department of Health).
Echo includes 55113, 55114, and 55115, EST 11712, Stress Echo 55116, 55117, MPS 61302, 61303, 61306, 61307, and TOE 55118

- The Committee strongly agreed that, as with other functional studies, it is not appropriate to use MPS as screening tests for asymptomatic patients, for routine annual investigation of patients with known disease, or in the absence of symptom evolution or changes on cardiac examination. As discussed in the EST and stress echo sections of this report, the Committee agreed that the first-line investigation for patients with atypical chest pain or other symptoms possibly due to CAD and an Australian Absolute risk score of less than 10 per cent over five years should be EST. The indications for stress echo and MPS remain equivalent.
- It was acknowledged that for certain high-risk patients who are being considered for a major operation, it may be appropriate to perform a cardiac functional study such as MPS to exclude significant undiagnosed CAD, which can significantly increase the mortality risk of the procedure.
- It was agreed that MPS are intended for symptomatic patients with low to intermediate or intermediate risk of CAD, and that they should not be performed for patients with a low pre-test probability. With regards to stress echo, the Committee recommended that EST should be used as the first-line investigation for atypical chest pain. MPS should only be used as the first-line investigation for a patient with atypical chest pain if he or she is unable to exercise, or has an uninterpretable ECG, or has an equivocal or indeterminate EST.
- For suspected CAD, the Committee agreed that stress echo should be the preferred investigation over MPS except for patients: who are unable to perform a stress echo; who are unable to reasonably access a stress echo; or in whom a stress echo may be technically unfeasible (for example, due to body habitus). The Committee considered that for most patients with suspected CAD, stress echo and MPS provide clinically equivalent information, and where the information is equivalent stress echo should be preferred as it does not involve radiation exposure. Stress echo is also likely to be a lower cost investigation.

- The Committee noted that for known CAD, MPS and stress echo may provide different clinical information and as such, this should remain at the discretion of the referring provider.
- When considering the radiation exposure, the Committee noted that MPS are generally accepted as safe and appropriate tests for investigating suspected ischaemic heart disease. It was noted that the published average radiation dose for combined rest and stress MPS has declined from 20mSv to 12mSv using technetium-99m-labelled agents(27). As a comparison, a diagnostic ICA (7mSv), a CTCA (1-4mSv) or over twice the average annual non-medical radiation exposure(27–29). The Nuclear Medicine Working Group provided expert advice that average MPS radiation doses in Australia are significantly lower than published literature, with modern imaging protocols and technology permitting effective radiation doses of less than 3mSv. While significantly lower than published figures, this is not an insignificant dose of radiation, equivalent to approximately 150 chest X-rays (at 0.02mSv each)(28).
- The Committee agreed that even if MPS and stress echo are agreed to be of equal cost and clinical utility, stress echo does not involve a radiation burden and so, where available and reasonably possible, it should be the first line investigation(30).
- The relative cost of each service was considered and is discussed in detail in Section 4.7.
- It was noted that there is inadequate access to stress echo services in many regional areas, including prolonged wait times. MPS are more readily available, and they provide additional access to functional cardiac imaging. This is supported by MBS data, which shows that MPS have higher per-capita usage in regional areas—a trend not seen in other cardiac imaging items (Figure 11). This was flagged as a concern for consumers, given that MPS entail radiation exposure, although the radiation burden is low (as discussed above) and is decreasing over time(27). There is also a difference in terms of out-of-pocket costs, which could affect the consumer: over 95 per cent of MPS studies are bulk-billed, compared to 70 per cent of stress echos. This may be because a large proportion of nuclear medicine studies are provided by public hospital facilities, while stress echos are performed widely in both private and public settings.
- The Committee agreed that the local access implications—particularly in regional or remote areas or areas with a lower socioeconomic status—may lead a referrer to request an MPS even in a patient where a stress echo (with no radiation burden) would be clinically appropriate. It is important for referring clinicians to have a clear understanding of the risks and benefits of various cardiac investigation options when making such decisions(30). The Committee recommended that a GP education campaign be undertaken regarding the appropriate use of cardiac imaging modalities and other cardiac investigations.
- From a consumer perspective, use of MPS over stress echo where clinically equivalent may be appropriate if patients are fully informed about the radiation exposure and risks associated with this. The Committee recommended amending the explanatory notes for all stress echo and MPS items to encourage requestors to consider the cost and radiation exposure associated with various tests when determining, with the patient, the most appropriate modality. A similar explanatory note could be applied to anatomical diagnostics such as CTCA and ICA, as well as other investigations involving radiation exposure, however a radiation free alternative is less clear in these situations so this is not currently recommended.
- While it would be preferable for all patients to have easy access to stress echo, this is unlikely to be achieved in the immediate term. As such, the Committee recommended that access to MPS as a first line investigation is retained where a patient is unable to access stress echo due to distance, out-of-pocket cost or wait times for stress echos in their area.

Figure 11: Geographical variation in MPS services



Unpublished data by date of service for Medicare claims processed between July 1 2014 and April 30 2016 extracted on 20 June 2016 (Department of Health).
Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file. MPS items 61303, 61307, 61654, 61302, 61306, 61651, 61652, and 61653.

- The Committee discussed the issue of repeat MPS, which account for 4 per cent of patients each year, and 19 per cent over five years. Although normal MPS provide a 'warranty' for three years, repeat studies may be appropriate if symptoms change significantly. It was therefore agreed that up to two studies within 12 months would be appropriate, particularly (but not exclusively) for patients who undergo revascularisation between studies. It is unlikely that this would result in any significant access restrictions. As mentioned previously, studies should only be performed if there has been symptom evolution since the last study.
- The Committee discussed co-claiming and noted that co-claiming MPS with consults should already be excluded under the current items. Nuclear medicine item numbers include a consultation element, and this is reflected in the current schedule fees. The Committee recommended ensuring diligent application of this rule.
- The Committee considered creating MPS as a complete medical service, but it felt that although CT attenuation is appropriate clinical practice, it is not currently a required component of services. Furthermore, including it may mean that many centres are unable to perform the study due to a lack of appropriate equipment, which may result in access issues in rural areas. The Committee agreed that any co-claiming with EST should be included in the schedule fee, and that co-claiming of item 11712 should be restricted.
- The Committee discussed the lower volume planar items and felt that these should be retained as distinct services based on advice that these items may be used when there is a technical failure of the SPECT equipment. The planar films allow the capture of clinically relevant information (although the information is of lower value than SPECT images), which prevents the patient from having to undergo a complete repeat study. The Committee felt that planar films reflect acceptable contemporary practice in this context. The Committee received advice

from the NMWG of the DICC that they intend to remove planar items. The Committee defers to the DICC on this matter and would not object to such a recommendation applying to the relevant MPS items.

- The Committee noted that there is currently an incentive to split an MPS over two days to attract a higher remuneration (2 x $565.30 versus 1 x $834.90). Although the split services represent only 8 per cent of studies, this has increased from 4 per cent of studies over the last five years. Allowing the service to be run over multiple days does not cause harm to patients and is appropriate in certain situations such as for obese patients or those with a low probability of CAD(31). However, it is (at the very least) inconvenient for many patients. To remove the financial incentive for this, the Committee recommended revising the schedule fees for items 61302 and 61303 such that the single stress item (i.e. 61303B) retain the current single rebate ($565.30 for SPECT item). The single rest item would be set as the relevant combined item less the stress rebate (i.e. SPECT single rest study would be $834.90 less $565.30 resulting in a fee of $269.60). The stress item would then be increased by the EST item rebate amount if merged into a complete medical service as described above.
- The Nuclear Medicine Working Group of the Diagnostic Imaging Clinical Committee may consider recommending the removal of the planar item numbers. These have been retained in this Report, however if there is a recommendation made to remove planar item numbers, the proposed items 61302A, 61302B and 61306A would not be required.

4.7 Cost comparison of stress imaging modalities

Recommendation 6

- Research focused on understanding the cost-effectiveness of cardiac investigations and interventions in the Australian context should be undertaken.

Rationale

These recommendations focus on encouraging best-practice care and improving the value of the MBS. They are based on the following observations.

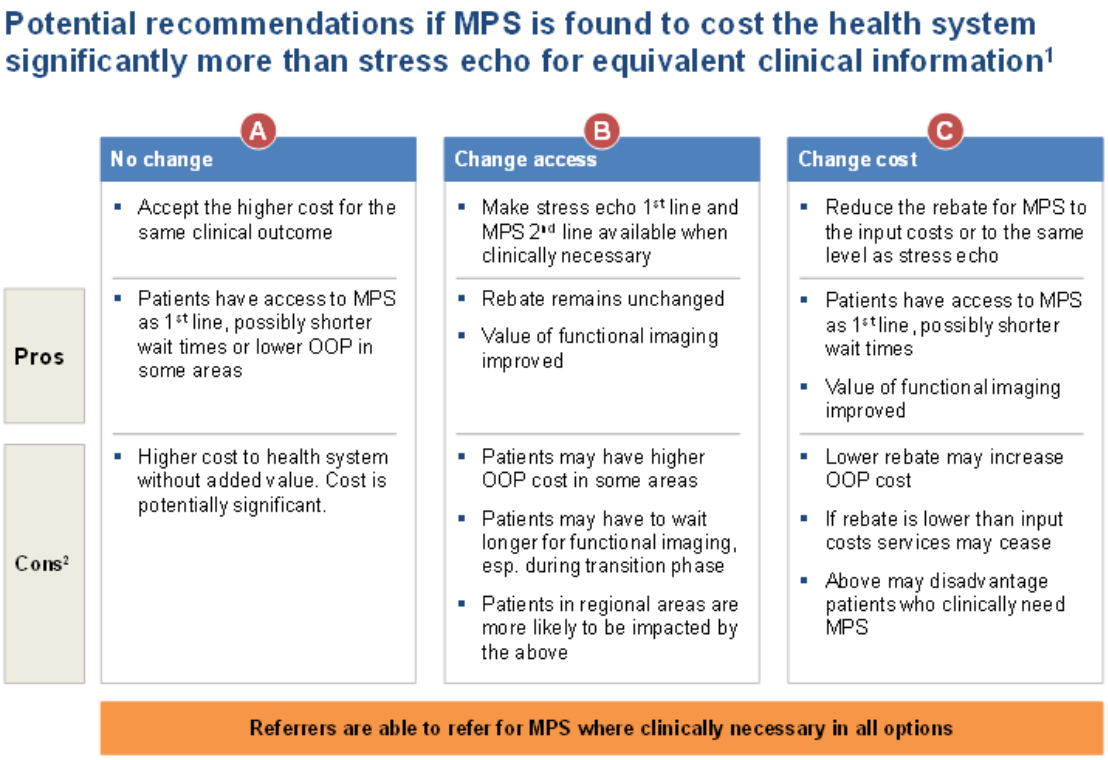
- The Committee agreed that stress echo and MPS provide clinically equivalent information related to myocardial ischaemia for the majority of patients, offering similar sensitivity and specificity (32,33). However, MPS is accepted as more clinically appropriate for certain indications, such as assessing the extent of the ischaemic burden of known CAD (where it is clinically superior) and investigating patients who are unable to have a stress echo (for example, due to obesity) (34). Similarly stress echo is more clinically appropriate in other situations, such as where visualisation of the valves is clinically relevant to the patient.
- The MBS items for both MPS and stress echo are co-claimed with EST when providing a service. As a result, the standard MBS rebate (based on current items) for stress echo is $413.80 ($152.15 for EST + $261.65 for stress echo), and the standard rebate for MPS is $987.05 ($152.15 for EST + 834.90 for MPS item 61307, which accounts for 92 per cent of services) (1). The schedule fee for MPS is approximately 2.4 times higher than the fee for stress echo.
- If one service costs the health system significantly more than the other service but provides the same clinical information, this may indicate low-value care. Three options are available in this situation, all of which were considered by the Committee. Figure 12 lists some of advantages and disadvantages of each option, based on the fact that MPS have a higher rebate than stress echoes. The Committee agreed that should stress echoes have a higher cumulative cost, the same options would be available but the advantages and disadvantages of these options may change.

The three options included:

1) Accepting the higher cost of MPS and making no change.
2) Making changes to access, leading to preferential use of the lower cost service where clinically appropriate.
3) Reducing the cost (rebate) of the higher cost service to reduce the value differential.

Δ Additional options—such as placing restrictions on providers who can refer for certain services—can have inequitable impacts on patients from rural areas and were therefore not considered in detail.

Figure 12: Potential recommendations if cost differential is found



1 Changing which practitioners can refer is also an option, but is generally not desirable for various reasons.
2 Radiation burden of MPS is not listed as it is generally considered a very low dose (note OOP means out-of-pocket costs)

Δ The Committee identified three questions that would influence its final recommendation.

- Is there a cost difference? If so, how significant is the impact on the health system?
  - This involved considering both the service itself and a more comprehensive view over time to capture impacts on claim patterns for other services.
- To what extent will the changes affect patients?
  - This involved considering positive and negative impacts over the short and long term.
- To what extent do the options align with the principles of the MBS?
  - This involved considering whether schedule fees should reflect the input costs or the clinical value of the service provided.

Δ The Committee agreed that a cost-comparison analysis should be performed, comparing the cumulative cost of services over a defined period for patients receiving either MPS or stress

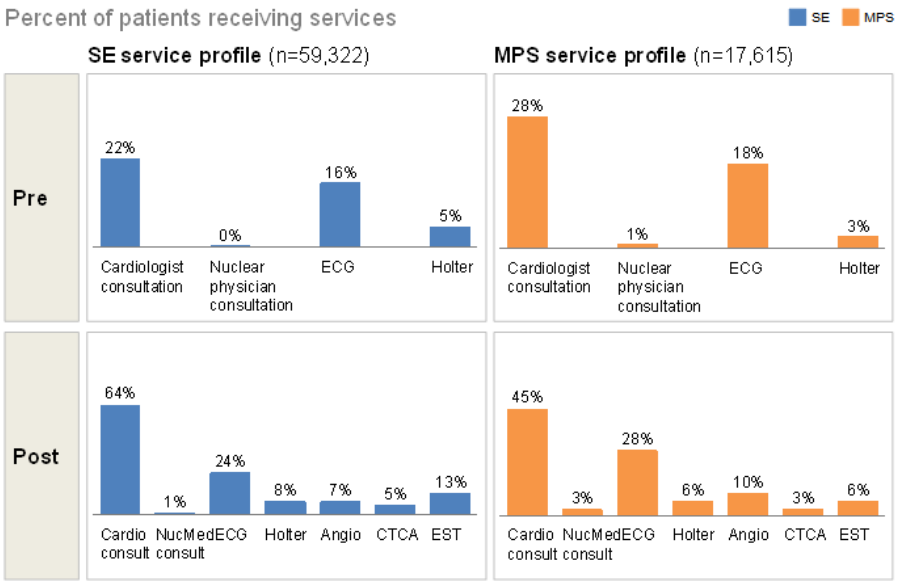
echo as their primary investigation. This analysis was performed, and patients were eligible for inclusion in this analysis if they received either a stress echo or MPS in the first quarter of 2015 (the 'trigger'). Patients were excluded if they had received a stress echo, MPS, ICA, CTCA or EST in the six weeks prior to the first quarter of 2015. The analysis included 59,322 patients for stress echo and 17,615 patients for MPS. The demographics of both the total population (Table 10) and the revascularised population (Table 11) are provided at the end of this section.

- Available MBS data suggests a significant cost difference (presented below for the benefit of readers), however, it was proposed that the MPS population may have a higher disease burden or higher acuity. If present, the higher disease burden could be requiring more downstream investigations which increases the total average cost over time for MPS. If this is the case, in clinically equivalent populations suitable for both modalities, reduced downstream testing in the MPS cohort may offset the higher initial imaging costs.
- It is not possible to determine the disease burden of populations for a direct cost comparison using MBS data. For this reason, the Committee agreed that the cost comparison alone was not sufficient grounds upon which to make a recommendation that either modality should be the preferred stress imaging option where clinically equivalent. The Committee did not consider other factors such as access issues or the radiation burden associated with MPS as a factor in the cost comparison. These considerations are described in Section 4.6.

Cost-comparison analysis

- The cost-comparison data included data for the six weeks prior to the trigger and data for the 12 months post-trigger or until revascularisation (PCI or coronary artery bypass graft [CABG]). The following services were included in the cost comparison: stress echo, MPS, ICA, EST, CTCA, ECG or specialist consult (cardiologist or nuclear medicine physician). The cost comparison excluded EST claimed on the same day as the trigger. (The co-claim rate for both modalities is close to 100 per cent.)
- The analysis showed that both populations had similar service profiles (Figure 13). Patients who received MPS had higher rates of ICA: 10 per cent for those receiving MPS, and 7 per cent for those receiving stress echo. Patients who received a stress echo had higher rates of CTCA: 5 per cent for those receiving stress echo, and 3 per cent for those receiving MPS. Patients who received MPS had a higher rate of pre-test cardiologist consultations but a lower rate of post-test consultations.

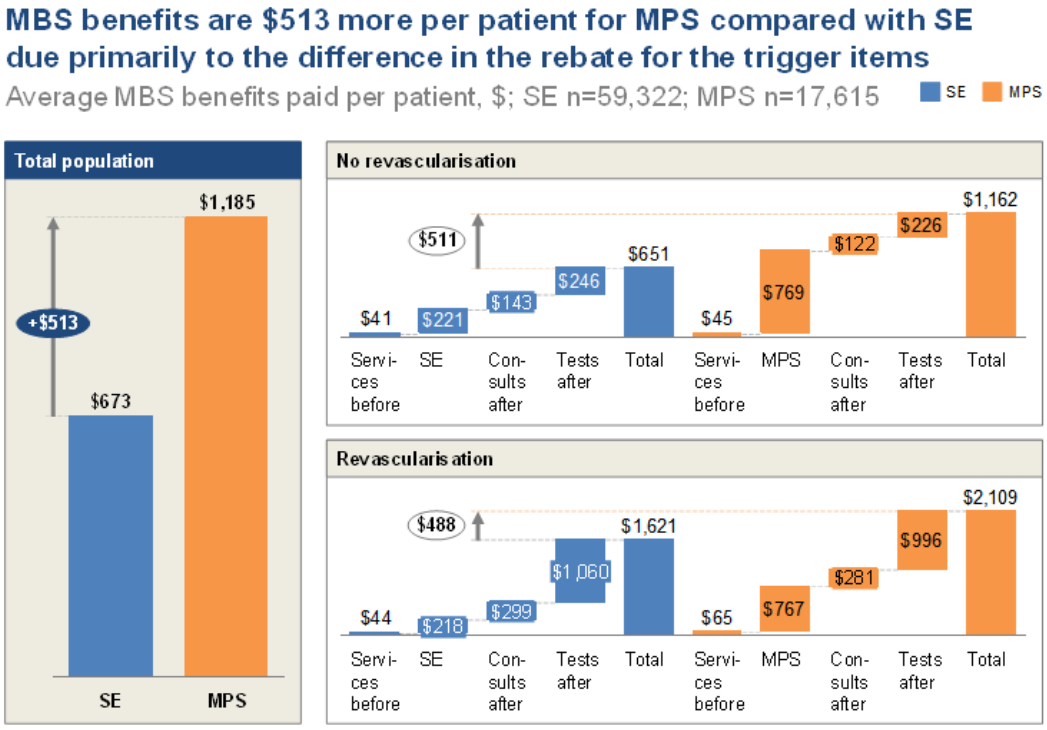
Figure 13: Service profiles before and after the 'trigger' MPS or stress echo



Unpublished date of service data for all patients followed in January - March 2015 (Department of Health). The trigger items are 55116, 55117, 61303 and 61307 during period of Jan –Mar 2015 (DOS), services before means 6 weeks before trigger items, services after trigger items are services performed 12 months of trigger items using DOP data up to Aug 2016. Specialist consultations were attributed to specialist groups based on provider Service Related Group classification.

Figure 14 shows that the average MBS benefit paid for MPS was $513 higher than the average benefit paid for stress echo. This was primarily driven by the difference in rebates between MPS and stress echo. A similar pattern was evident in both the revascularised and non-revascularised patient populations.

Figure 14: Average MBS benefits by modality, with breakdown

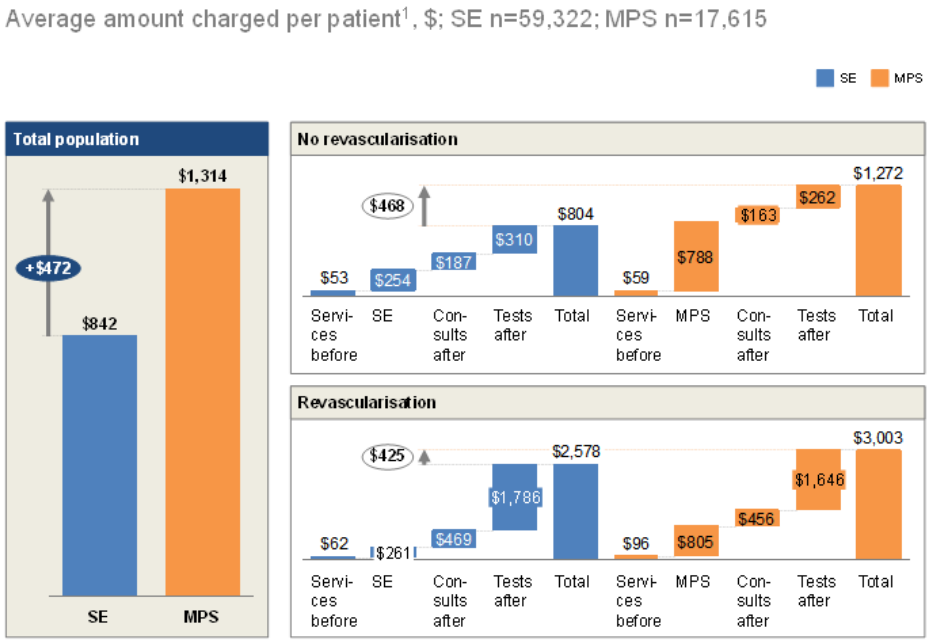


Unpublished date of service data for all patients followed in Q1 2015 (Department of Health).

The trigger items for SE are 55116, 55117, and MPS are 61303 and 61307 during period of Jan –Mar 2015 (DOS), services before means 6 weeks before trigger items, services after trigger items are services performed 12 months of trigger items using, date of processing data up to Aug 2016.

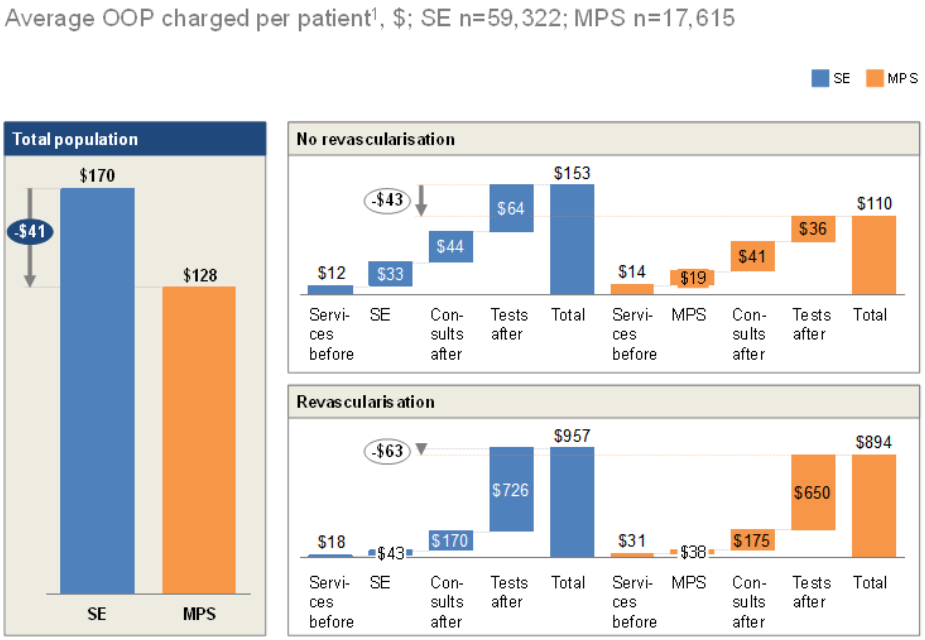
Figure 15 and Figure 16 show the difference in the total amount charged (Figure 15) and total patient out-of-pocket costs (Figure 16). The average out-of-pocket cost difference between MPS and stress echo was $5 for revascularised patients and $14 for non-revascularised patients. This difference was primarily due to tests performed after the initial study. The average out-of-pocket cost difference by remoteness (Table 5) revealed a similar difference of $11 to $35.

Figure 15: Average total charges by modality, with breakdown



1 Includes MBS benefits and patient out-of-pocket expenses
Unpublished date of service data for all patients followed in Q1 2015 (Department of Health).
The trigger items are SE 55116, 55117, and MPS 61303 and 61307 during period of Jan –Mar 2015 (DOS), services before means 6 weeks before trigger items, services after trigger items are services performed 12 months of trigger items using DOP data up to Aug 2016.

Figure 16: Average out-of-pocket costs by modality, with breakdown



1 Calculated as total charge minus the MBS benefit paid. Unpublished date of service data for all patients followed in Q1 2015 (Department of Health).
The trigger items are for SE 55116, 55117, and MPS 61303 and 61307 during period of Jan –Mar 2015 (DOS), services before means 6 weeks before trigger items, services after trigger items are services performed 12 months of trigger items using DOP data up to Aug 2016.

- Although the average difference was small, concerns were raised about significant variation by geography. However, analysis of the data by state and remoteness did not show any consistent trends that suggest disparity. Bulk-billing rates were relatively flat across remoteness categories (Table 7), with MPS bulk-billed at a higher rate of 92 per cent and stress echo bulk-billed at a rate of 68 per cent. The maximum out-of-pocket cost was higher for MPS ($876.60, excluding seven services with out-of-pocket costs greater than $1,000) than stress echo ($411.55), but this was true for all remoteness areas and all states except the Australian Capital Territory (ACT) (Table 8 and Table 9). When bulk billing was excluded, the average out-of-pocket cost was higher for MPS than stress echo for all remoteness areas, with a national average out-of-pocket cost (excluding bulk billing) of $222.01 for MPS and $103.03 for stress echo (Table 6). Although the out-of-pocket cost for MPS was twice as high as for stress echo, it applied to only 8 per cent of patients, compared to the 32 per cent of stress echo patients who incurred an out-of-pocket charge of $100, on average. The potential impact of any recommendations on patient out-of-pocket costs and bulk-billing rates (and therefore access) must be considered.
- As noted above, while the available data suggests a significant cost difference between MPS and stress echo, the lack of clinical information on the populations prevents a complete cost-comparison. The Committee recommended that research should be conducted on the cost-effectiveness of cardiac investigations in the Australian context in order to definitively determine the comparative value of functional imaging modalities.

Table 5: Average out-of-pocket costs by remoteness area*, including bulk-billed services

Remoteness	MPS	Stress Echo	Difference
Major Cities	$21.99	$33.99	$12.00
Inner Regional	$15.06	$26.29	$11.23
Outer Regional	$14.35	$34.28	$19.93
Remote	$14.69	$35.96	$21.27
Very Remote	$7.64	$43.45	$35.81
National Average	$18.49	$32.65	$14.16

Table 6: Average out-of-pocket costs by remoteness area*, excluding bulk-billed services

Remoteness	MPS	Stress Echo	Difference
Major Cities	$235.99	$111.93	-$124.06
Inner Regional	$206.75	$86.42	-$120.33
Outer Regional	$210.29	$80.27	-$130.02
Remote	$136.28	$94.62	-$41.66
Very Remote	$203.39	$140.50	-$62.89
National Average	$222.01	$103.03	-$118.99

Table 7: Average bulk-billing rate by remoteness area*

Remoteness	MPS	Stress Echo
Major Cities	91%	70%
Inner Regional	93%	70%
Outer Regional	93%	57%
Remote	89%	62%
Very Remote	96%	69%
National Average	92%	68%

Table 8: Maximum out-of-pocket costs by remoteness area*

Remoteness area*	MPS	Stress Echo
Major Cities	$876.60	$411.55
Inner Regional	$867.60	$402.55
Outer Regional	$867.60	$411.55
Remote	$618.24	$246.80
Very Remote	$528.70	$251.80
National	$876.60	$411.55

Table 9: Maximum out-of-pocket costs by state

State	MPS	Stress Echo
Australian Capital Territory	$210.00	$231.55
New South Wales	$867.60	$411.55
Northern Territory	$417.45	$201.80
Queensland	$618.24	$402.55
South Australia	$619.45	$231.80

State	MPS	Stress Echo
Tasmania	$412.45	$138.55
Victoria	$876.60	$295.11
Western Australia	$665.45	$332.50
Other	$212.45	$166.55
National	$876.60	$411.55

*Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.
Unpublished Medicare data for MPS services (61303 and 61307) and SE services (55116 and 55117) during period of Jan – Mar 2015 using date of processing data up to Aug 2016. Department of Health

Table 10: Demographics of total populations, %

Category	MPS	Stress Echo
Revascularisation Rate		
Revascularised	2.5	2.2
Non-revascularised	97.5	97.8
Remoteness		
Major Cities	53	70
Inner Regional	27	18
Outer Regional	17	10
Remoteness	3	1
Very Remote	1	0
State		
Australian Capital Territory	1	1
New South Wales	37	49
Northern Territory	1	0
Queensland	24	14
South Australia	3	4
Tasmania	2	1
Victoria	26	24
Western Australia	5	6
Other	1	0
Gender		
Female	48	42
Male	52	59
Age		
0–9	0	0
10–19	0	1
20–29	0	2
30–39	2	4
40–49	6	11
50–59	16	21
60–69	28	31
70–79	31	24
80–89	16	7

Category	MPS	Stress Echo
90–100	1	0
100–109	0	0

Table 11: Demographics of revascularised population only, %

Category	MPS	Stress Echo
Revascularisation Rate		
Revascularised	100	100
Non-revascularised	0	0
Remoteness		
Major Cities	58	69
Inner Regional	27	19
Outer Regional	12	11
Remoteness	<2	<2
Very Remote	<2	<2
State		
Australian Capital Territory	2	1
New South Wales	38	48
Northern Territory	<2	<2
Queensland	23	17
South Australia	4	4
Tasmania	2	2
Victoria	25	21
Western Australia	7	6
Other	<2	<2
Gender		
Female	26	19
Male	74	81
Age		
0–9	0	0
10–19	0	0
20–29	0	0
30–39	0	<2
40–49	<2	3
50–59	8	14
60–69	28	35
70–79	43	35
80–89	19	12
90–00	<2	<2
100–109	0	0

For Tables 5- 11 the trigger items are 55116, 55117, 61303 and 61307 during period of Jan –Mar 2015 (DOS), services before means 6 weeks before trigger items, services after trigger items are services performed 12 months of trigger items using DOP data up to Aug 2016.

SE items 55116, 55117, 55122, and 55123. MPS items 61302, 61307, 61654, 61302, 61306, 61651, 61652, and 61653

5. General recommendations

Although expert Working Groups reviewed all the current items, several broader themes and general recommendations were made directly by the Committee, with unanimous support.

5.1 Ongoing review of the MBS

Recommendation 7.1

- Implement an ongoing review process to maintain the alignment of the MBS with contemporary clinical practice.

Recommendation 7.2

- Review the recommendations relating to cardiac imaging, EST, ICA and PCI 12–24 months after implementation to ensure that the intended outcomes have been achieved, and to inform further revision if necessary.

Rationale

These recommendations focus on encouraging best-practice care, modernising the MBS and improving the value of the MBS. They are based on the following observations.

- The Committee has undertaken considerable work to bring the services within their scope up to date and in alignment with contemporary clinical practice, current evidence and international guidelines. It believes that this will improve the quality of care provided in Australia, have positive impacts on patient outcomes and experience, and improve the value of the MBS for Australians. Previous descriptors were frequently vague, describing the medical services in general terms only. The recommended changes will ensure that the items reflect the latest clinical guidelines, but the MBS will need to be agile in the future, adapting as clinical guidelines evolve. The constant publication of new evidence means that guidelines will be revised and clinical practice will shift, and the MBS needs to be able to change accordingly.
- The Committee noted that the Taskforce established a Working Group to consider processes for the ongoing review of the MBS, and it commends them for this undertaking. In principle, the Committee supports recommendations that will allow the MBS to remain evidence-based and in line with clinical best practice.
- The Committee noted that the MBS has not undergone a review of this nature before, and that many bold and transformative changes are recommended by this Committee and by other Clinical Committees participating in the Review. In order to assess the success of these recommendations, and to protect against any unintended outcomes, the Committee recommended reviewing several areas 12–24 months after implementation to assess the impact of the changes. The Committee also supports efforts by the Department and academic institutions to monitor the success of various measures, thereby contributing to our understanding of health systems in Australia and more generally.

5.2 Structured request form for cardiac investigations

Recommendation 8

- Create structured request forms outlining the minimum requirements for an acceptable cardiac investigation referral.

Rationale

This recommendation focuses on encouraging best-practice care and improving the value of the MBS. It is based on the following observations.

- The Committee noted that providers (not requestors) are required to ensure that the descriptor of a service is met prior to providing that service. This presents a significant challenge as the referral or request form often does not contain enough information to make an accurate assessment.
- The Committee considered creating a structured request form, as is being recommended in other areas of the MBS Review. This ensures both that the requestor has considered all the relevant factors, and that providers have all the relevant information.
- The Committee recommended developing a structured request form for cardiac investigations with a threefold purpose:
  - Ensure requestors consider all the relevant information before requesting investigations.
  - Ensure providers have the information needed to verify that the requirements of descriptors are met before performing a service (in line with MBS requirements).
  - Allow providers to consider if the modality requested is the most appropriate for that patient.
- Once developed, this request form would constitute the minimum requirements for an acceptable referral for EST, stress echo, MPS, CTCA and echo. A unique form or variant may be required for echo due to the breadth of indications and non-CAD factors that need to be incorporated.
- The Committee agreed that a request for a specific procedure or investigation cannot be used as a request for a consultation, as occurs on some 'tick box' request forms.
- The Committee encourages relevant professional bodies to be actively involved in the development and implementation of this recommendation.

5.3 Co-claiming of consultations with imaging and procedural services

Recommendation 9

- Include the following text in the items for echo, stress echo and EST (or make it prominently visible to providers of these services).

In the item descriptor:

> A consultation may be claimed with this service where (i) the study was not specifically requested by another provider and the decision to perform the study was made during a consultation with the proceduralist on the same day as the study; or (ii) where the provider claiming both services is responsible for the ongoing care of the patient and provides a consultation after the study where clinical management decisions are made.

In the explanatory notes:

> *Discussions of the results, findings or interpretation of a study are reasonably expected to be part of a formal report. Discussion of these findings with a patient does not constitute a consult. Similarly, discussion(s) during the course of a study or to determine the safety or appropriateness of the study is part of the service and should not be claimed as a consult.*

Rationale

This recommendation focuses on improving the value of the MBS and is based on the following observations.

- Consultations are co-claimed with up to 50 per cent of investigation services (Table 12), which the Committee agreed was inappropriately high. The Principle and Rules Committee has considered the co-claiming of consultations and is expected to make a recommendation on this topic. However, given the prevalence of the practice, the Committee felt that it was appropriate to include the above text in these items as a reminder to providers about appropriate use of the MBS. Although including such text in the items is one way to achieve this, it was noted that the Principles and Rules Committee is considering an education and knowledge assurance program for MBS providers, and the Department may choose alternative means for ensuring providers are well aware of when co-claiming consultations is appropriate.
- The Committee agreed that co-claiming practices should align with the below explanations (although the Principles and Rules Committee may revise the rules in this regard):
  - If a patient is referred to a cardiologist by any other provider for a specific procedure (e.g., stress echocardiogram, ICA, PCI, electrophysiological studies, pacemaker, structural heart disease intervention), it is not permissible for the cardiologist performing the procedure to charge consultation item numbers related to that procedure, irrespective of whether it is an acute or an elective situation.
  - If a cardiologist self-refers a patient for an elective procedure (such as the tests listed above), it is not permissible to charge a consultation item number on the day of or the day after the procedure, unless the decision to perform the procedure was made during the consultation.
  - If a new patient is admitted to hospital under a specific cardiologist with an acute cardiac condition (e.g., an ACS) and that cardiologist self-refers the patient for a procedure (e.g., ICA/PCI), it is permissible for that cardiologist to charge an initial consultation item number irrespective of whether it is on the same date as the procedure or not.
  - If another provider determined that the procedure was required, a consult is not chargeable unless the provider will also be the primary provider looking after the patient. It is not permissible in any circumstances to charge a consultation item number on the day after the procedure, as this is reasonably considered part of the procedure.
  - If the patient requires an extended hospital stay beyond the day after the procedure, it is permissible for the cardiologist to charge follow-up consultation item numbers during the remainder of the admission, in accordance with the MBS aftercare rules, presuming that he/she continues to be the primary cardiologist looking after the patient.
  - In specific situations—such as for patients travelling from remote areas or for specialist paediatric referrals where guidelines recommend that a consultation be performed prior to an investigation—co-claiming of a consultation may be appropriate. However, clinicians should expect that this will be closely monitored by MBS compliance.

Table 12: Co-claiming of consultations with cardiac investigations

Investigation	Co-claim rate
EST	45%
MPS	2%
SE	48%
Echo	23%
ICA	64%

Data is by date of service. Unpublished data from 2014-15 (Department of Health). EST item 11712. SE item 55116. MPS items 61307 Echo items 55113, 55114. ICA items 38218, 38246, and 55925 (excluding episodes co-claimed with PCI 38300, 38303, 38306).

5.4 Heart Team recommendation

Recommendation 10

Δ Create two new items for Heart Team case conferences, as outlined in the descriptors below.

Item HTCC-Convenor

HEART TEAM CASE CONFERENCE CONVENOR – Attendance by a consultant cardiologist/cardio-thoracic surgeon as the principal member of a Heart Team case conference to organise, coordinate and document a meeting which develops a treatment plan where:

(a) The benefit of cardiac surgery or percutaneous treatment, including stenting or device implantation is uncertain due to the severity of the underlying cardiac disease, co-morbidities or patient frailty; or

(b) The best mode of treatment (surgical, percutaneous or medical therapy alone) is uncertain.

For a cardiac patient with:

1. Stable multi-vessel coronary artery disease considered for coronary artery revascularisation.
2. Complex cardiac disease, including valvular heart disease, structural heart disease and cardiac arrhythmias.

The Heart Team case conference must:

1. Be at least of 10 minutes duration.
2. Be attended by a minimum of 3 Cardiac Specialists (including a Cardiac Surgeon and an Interventional Cardiologist where any interventional procedure may be considered) and other medical or allied health practitioners as deemed appropriate by the convenor. At least 1 of the medical practitioners attending must be a non-interventional cardiologist. Attendance should be face to face, this should be in person where possible but may include video telemedicine where necessary.
3. Be documented in a written report that documents the attendees and summarises the patient's condition, relevant investigations, the case conference discussion and agreed recommendation(s). A letter or copy of the recommendation must be provided to the patient's GP if they are not present for the conference.

Item HTCC-Participant

HEART TEAM CASE CONFERENCE PARTICIPANT – Attendance of at least 10 minutes by a medical practitioner (surgeons, specialist or consultant physician in the practice of his or her specialty or a vocationally registered general practitioner, excluding any medical trainees), as a participant in a Heart Team case conference to develop a treatment plan where:

(a) The benefit of cardiac surgery or percutaneous treatment, including stenting or device implantation is uncertain due to the severity of the underlying cardiac disease, co-morbidities or patient frailty; or

(b) The best mode of treatment (surgical, percutaneous or medical therapy alone) is uncertain.

For a cardiac patient with:

1. Stable multi-vessel coronary artery disease considered for coronary artery revascularisation.
2. Complex cardiac disease, including valvular heart disease, structural heart disease and cardiac arrhythmias.

The Heart Team case conference must:

1. Be at least of 10 minutes duration.
2. Be attended by a minimum of 3 Cardiac Specialists (including a Cardiac Surgeon and an Interventional Cardiologist where any interventional procedure may be considered) and other medical or allied health practitioners as deemed appropriate by the convenor. At least 1 of the medical practitioners attending must be a non-interventional cardiologist. Attendance should be face to face, this should be in person where possible but may include video telemedicine where necessary.
3. Be documented in a written report that documents the attendees and summarises the patient's condition, relevant investigations, the case conference discussion and agreed recommendation(s). A letter or copy of the recommendation must be provided to the patient's GP if they are not present for the conference.

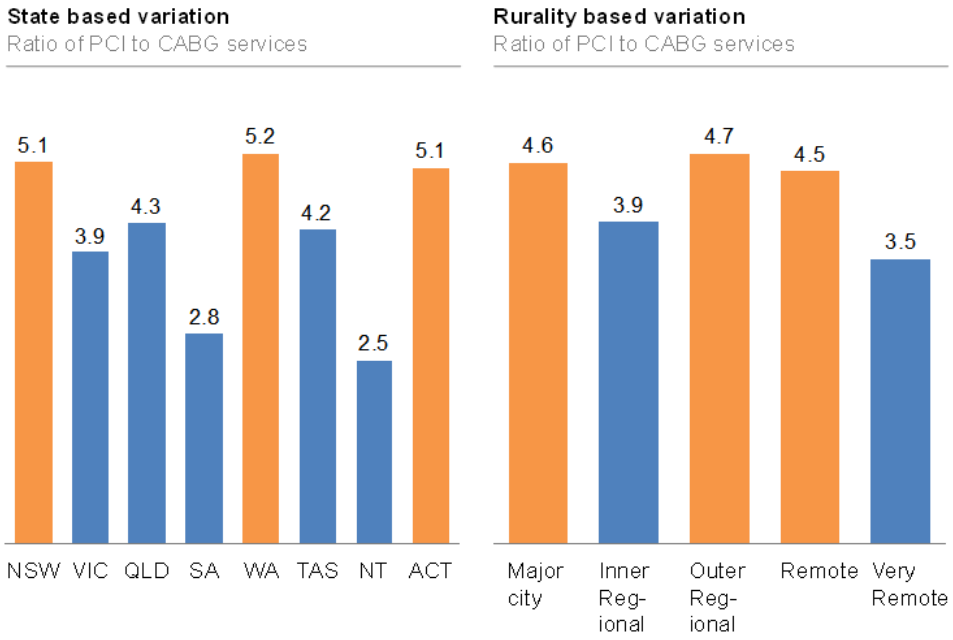
Claimable by up to 5 providers per Heart Team conference.

Rationale

- Δ The Committee recommended creating two new items for Heart Team consultations in order to increase the likelihood that patients receive the most appropriate treatment for their condition.
- Δ Although guideline-based optimal medical therapy (OMT) and risk factor modification are the foundations for the management of stable CAD, revascularisation may be an appropriate supplemental therapeutic approach for symptom relief purposes where OMT is inadequate or not tolerated. International guidelines (class IC) and published literature are now recommending that for patients with more complex stable CAD, a Heart Team including a non-interventionalist, interventional cardiologist and cardiac surgeon should be involved to discuss the most appropriate treatment options (6,7,35). The Committee recommended that a Heart Team should include a minimum of three providers, and that the items should be claimable by a maximum of six providers including the convenor. The conference should include a GP or non-interventional specialist and, where a decision on revascularisation is required, a cardiac surgeon and interventional cardiologist.

- The Committee agreed that there are populations in which PCI or CABG may be the clearly preferred revascularisation option and others where there is clinical equipoise. For example, PCI may be more appropriate for the very elderly, but CABG may be more appropriate for those with a syntax score greater than 22, as the evidence shows that for these patients CABG results in lower rates of MI, death and repeat revascularisation over five years but with higher rates of stroke (35).
- Despite the existence of international clinical guidelines, variation in practice has been demonstrated overseas (36–38). In Australia, MBS data shows that the ratio of PCI versus CABG is variable across states: patients are twice as likely to have PCI in New South Wales or Western Australia than in South Australia or the Northern Territory (Figure 17) (9).

Figure 17: Geographical variation in ratio of PCI to CABG



Data is by date of service extracted on 20 June 2016. Unpublished data for Medicare claims processed between July 1 2014 and April 30 2016 (Department of Health)...
Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file. PCI items 38306. CABG items 38497, 38498, 38500, 38501, 38503, and 38504.

- Although there may be multiple factors driving variation in service volumes, individual provider preference may lead to suboptimal treatment decisions (35). Two studies have investigated guideline compliance. A 2010 study found that in a population with Class I indications which recommended CABG, only 53 per cent were recommended for CABG and 34 per cent were recommended for PCI. This compared with 94 per cent compliance when guideline based indications recommended PCI. In patients meeting guideline indications for both PCI and CABG, only 5 per cent received CABG (39). A subsequent study in 2014 found that out of 9,000 patients who received a diagnostic ICA, the test was performed based on "inappropriate" indications 29 per cent of the time, on average (40).
- Patient preference and level of understanding may also drive this variation. In a recent article, Holmes and Taggart noted that several observational studies have found that patients did not fully understand the likely impacts of their procedures as much as 70–90 per cent of the time (35). This may be due to the health literacy of the population or a lack of information being provided. For example, one study found that 85 per cent of PCI patients and 15 per cent of

CABG patients reported that no alternative treatment options were discussed (41). Even when patients are informed that the risks of death or repeat revascularisation are higher with multi-vessel PCI than with CABG, patients prefer PCI (42). The Committee discussed the issue of patient preferences and noted that a patient may simply refuse the recommended treatment option. Where this is likely, the Heart Team could recommend acceptable alternative treatments, with a requirement for documented patient refusal of the primary recommendation. Members noted that in addition to recommending intervention, the Heart Team may be able to support providers who believe the best management is medical therapy or less invasive approaches but where the patient or family is pushing for more aggressive treatment.

- The Committee agreed that implementation of a Heart Team item would encourage the adoption of an multidisciplinary team approach in private hospitals, which results in the sharing of ideas and views, as well as improved clinical outcomes through the more frequent use of the most appropriate intervention for each patient. The item is specifically required or available for use as an indication for various other items in these recommendations (such as for PCI in stable CAD), and this will assist with uptake during implementation. Unlike other MTD conference items on the MBS (such as the Cancer Care case conference item 871), the proposed Heart Team item does not require allied health attendance. For this reason, an MBS rebate will be available to remunerate participants—one of the perceived barriers to uptake of similar existing items. The Committee acknowledged that full ramp-up may take time, as with all large-scale behaviour change interventions.
- Members acknowledged that the cost of cardiac care is significant, but even if this item is highly utilised, the Committee felt that the net impact would still be positive, due to the effects it would have on provider behaviour. Members agreed that uptake is highly uncertain, with anecdotal evidence suggesting that providers may be reluctant to participate where they feel their preferred treatment option may be challenged. Members agreed that populations where there is clinical equipoise or a high procedure risk should be discussed in a multidisciplinary team setting. It was noted that emerging ICA and PCI recommendations propose Heart Team consultations for certain patient populations. These recommendations are discussed in more detail below.
- Members discussed the appropriate interval between Heart Team conferences. It was suggested that there may be highly complex patients where conditions can change significantly, warranting review of a previous decision, or where additional information is required and a return for repeat conference is recommended. For this reason, the Committee did not recommend a restriction on frequency. It was noted that a broad descriptor increases the economic risk of a new service, and that this may result in the change not being recommended by the Taskforce or implemented by the government.
- The Committee agreed that face-to-face attendance is desirable. However, telemedicine is important for rural and remote access, and the Committee therefore recommended permitting telemedicine attendance by GPs or offsite providers who bring specific expertise to the conference.
- The proposed item does not mirror the item for the TAVI Heart Team currently under consideration by the MSAC as that item will include specific requirements, such as the involvement of a TAVI coordinator.

5.5 Documentation of compliance with prescribed indications

Recommendation 11

Δ For cardiac procedures and investigations with specific indications, require documentation in a written report outlining how the requirements in the descriptor (and the explanatory notes, where relevant) were met.

Rationale

Δ Although documentation and the provision of reports is considered standard practice, the Committee agreed that in order for the recommended changes to be easily auditable, it would be valuable to reinforce the requirement for documentation outlining how the indication requirements in the descriptor were met. This recommendation has been applied to the relevant descriptors throughout the report.

6. CAD-related recommendations

6.1 CAD Working Group membership

The Committee formed a Working Group to consider CAD-related services, including CTCA, ICA and PCI. This Working Group subsumed the PCI Review Working Group, which was created prior to the MBS Review. The CSCC Working Group reviewed and accepted the PCI Review report, which was prepared under the direction of the PCI Review Working Group (43). The PCI Review Report is available online at http://www.health.gov.au/internet/main/publishing.nsf/Content/ReviewsCMFM.

The CAD Working Group included the following members:

- Professor Derek Chew (Chair) – Professor of Cardiology, Flinders University; Regional Director of Cardiology, Southern Adelaide Local Health Network.
- Dr Ruth Arnold – Cardiologist, Orange Health Service; Chair, Rural Working Party, Cardiology, Agency for Clinical Innovation (ACI), New South Wales.
- Associate Professor Jayme Bennetts - Department of Surgery, Flinders University; Director, Cardiac and Thoracic Surgery, Flinders Medical Centre; Chair, Government Relations, Australian and New Zealand Society of Cardiac and Thoracic Surgeons.
- Dr Brett Forge – Cardiologist and General Physician.
- Associate Professor Andrew MacIsaac – Director of Cardiology Services and Deputy Chief Medical Officer, St Vincent's Hospital, Melbourne; Immediate Past President, Cardiac Society of Australia and New Zealand.
- Ms Anne McKenzie – Independent consumer.
- Dr David Muller – Director of Cardiac Catheterisation Laboratories, St Vincent's Hospital, Sydney; Associate Professor of Medicine, University of New South Wales.
- Associate Professor Ian Scott – Director, Internal Medicine and Clinical Epidemiology, Princess Alexandra Hospital; School of Medicine, University of Queensland.
- Associate Professor John Troupis – Adjunct Associate Professor, Department of Medical Imaging & Radiation Science, Monash University; Unit Head Musculoskeletal Imaging and Co Unit Head Cardiac CT, Monash Health.
- Professor Darren Walters – Cardiology Director, The Prince Charles Hospital; Executive Director Heart and Lung Stream, Metro North Hospital and Health Service.
- Dr Noela Whitby AM – General Practitioner; Deputy Chair, RACGP Queensland Faculty Board; Director, the Australian Council on Healthcare Standards.
- Professor Richard Harper (Ex-Officio) – Emeritus Director of Cardiology, Monash Medical Centre; Adjunct Professor of Medicine, Monash University (Ex-Officio).

The following recommendations were developed by the CAD Working Group and accepted unanimously.

The Committee also endorsed the recommendations unanimously.

6.2 Angiography

Current item descriptors and MBS data from FY 2014/15
Item 38200 – Schedule fee: $445.40 Services: 1,409 Total Benefits: $380,027 Average annual growth: 20.2% Right heart catheterisation,, with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurement by any method, shunt detection or exercise stress test (Anaes.)
Item 38203 – Schedule fee: $531.55 Services: 44 Total Benefits: $11,634 Average annual growth: 1.4% Left heart catheterisation by percutaneous arterial puncture, arteriotomy or percutaneous left ventricular puncture with any one or more of the following fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)
Item 38206 – Schedule fee: $642.65 Services: 2,495 Total Benefits: $468,509 Average annual growth: 19.7% Right heart catheterisation with left heart catheterisation via the right heart or by any other procedure with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)
Item 38215 – Schedule fee: $354.90 Services: 5,019 Total Benefits: $1,284,875 Average annual growth: 12.2% Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries, not being a service associated with a service to which item 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38218 – Schedule fee: $532.25 Services: 54,211 Total Benefits: $21,889,745 Average annual growth: 1.3% Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography, not being a service associated with a service to which item 38215, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38220 – Schedule fee: $177.40 Services: 14 Total Benefits: $1,601 Average annual growth: -1.4% Selective coronary graft angiography placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38222 – Schedule fee: $354.90 Services: 13 Total Benefits: $3,154 Average annual growth: 21.1% Selective coronary graft angiography, placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38225 – Schedule fee: $532.35 Services: 114 Total Benefits: $41,966 Average annual growth: -1.7% Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38228 – Schedule fee: $709.90 Services: 95 Total Benefits: $51,498 Average annual growth: 9.3% Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into direct internal mammary

Current item descriptors and MBS data from FY 2014/15
artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38231 – Schedule fee: $887.25 Services: 440 Total Benefits: $312,619 Average annual growth: 6.8% Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into the free coronary graft(s) attached to the aorta (irrespective of the number of grafts), and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38234, 38237, 38240 or 38246 applies (Anaes.)
Item 38234 – Schedule fee: $709.75 Services: 477 Total Benefits: $242,610 Average annual growth: -5.1% Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38237, 38240 or 38246 applies (Anaes.)
Item 38237 – Schedule fee: $887.20 Services: 470 Total Benefits: $321,566 Average annual growth: 0.7% Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38240 or 38246 applies (Anaes.)
Item 38240 – Schedule fee: $1064.60 Services: 4,717 Total Benefits: $3,849,507 Average annual growth: 0% Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237 or 38246 applies (Anaes.)
Item 38241 – Schedule fee: $469.70 Services: 3,692 Total Benefits: $676,644 Average annual growth: 50.3% Use of a coronary pressure wire during selective coronary angiography to measure fractional flow reserve (FFR) and coronary flow reserve (cfr) in one or more intermediate coronary artery or graft lesions (stenosis of 30-70%), to determine whether revascularisation should be performed where previous stress testing has either not been performed or the results are inconclusive (Anaes.)
Item 38243 – Schedule fee: $443.60 Services: 5,479 Total Benefits: $787,641 Average annual growth: 2.2% Placement of catheter(s) and injection of opaque material into any coronary vessel(s) or graft(s) prior to any coronary interventional procedure, not being a service associated with a service to which item 38246 applies (Anaes.)
Item 38246 – Schedule fee: $887.20 Services: 14,729 Total Benefits: $9,865,778 Average annual growth: 6.6% Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography followed by placement of catheters prior to any coronary interventional procedure, not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38243 applies (Anaes.)
Item 59903 – Schedule fee: $114.55 Services: 233 Total Benefits: $18,419 Average annual growth: 14.2%

Current item descriptors and MBS data from FY 2014/15
Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59912 or 59925 applies (R) (K) (Anaes.))
Item 59912 – Schedule fee: $305.20 Services: 13,723 Total Benefits: $3,080,390 Average annual growth: 4.3% Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59903 or 59925 applies (R) (K) (Anaes.)
Item 59925 – Schedule fee: $362.45 Services: 69,508 Total Benefits: $18,438,657 Average annual growth: 1.9% Selective coronary arteriography and angiocardiography, including a service mentioned in item 59903, 59912, 59970, 59974, 61109 or 61110 (R) (K) (Anaes.))
Item 59970 – Schedule fee: $168.30 Services: 698 Total Benefits: $87,665 Average annual growth: -0.4% Angiography and/or digital subtraction angiography with fluoroscopy and image acquisition using a mobile image intensifier, one or more regions including any preliminary plain films, preparation and contrast injection (R) (K) (Anaes.)
Item 59971 – Schedule fee: $57.30 Services: 66 Total Benefits: $3,474 Average annual growth: 45.9% Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59972 or 59973 applies (R) (NK) (Anaes.)
Item 59972 – Schedule fee: $152.60 Services: 918 Total Benefits: $108,256 Average annual growth: 41.8% Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59971 or 59973 applies (R) (NK) (Anaes.)
Item 59973 – Schedule fee: $181.25 Services: 394 Total Benefits: $54,572 Average annual growth: 2.9% Selective coronary arteriography and angiocardiography, including a service mentioned in item 59970, 59971, 59972, 59974, 61109 or 61110 (R) (NK) (Anaes.))

Public data from 2014-15 (Department of Human Services).

Recommendation 12.1

- Consolidate the 23 existing MBS items for ICA into 13 revised items, which are summarised here and outlined with detailed proposed descriptors below.
  - Three items for ICA with native arteries—one for acute coronary syndrome (ACS), one for stable CAD, and one for pre-operative coronary assessment—with three duplicate items for ICA with coronary artery grafts.
  - One item for fractional flow reserve (FFR), as an add-on to ICA or PCI.
  - One item for right heart catheterisation as an add-on to any ICA number.
  - Three items for right, left and bilateral heart catheterisation (not associated with ICA)
  - Items 59970 and 59971 retained for non-cardiology use.

Recommendation 12.2

- The 13 angiography items be created on the DIST and removed from the current locations on the schedule in order to utilise the Diagnostic Imaging Accreditation Scheme to provide accreditation and credentialing.

Table 13: Summary of changes to ICA items

Summary of changes to ICA items
Items 38200, 38203 and 38206: Retained and 3820X added for use with ICA.
Items 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237 and 38240: Replaced with items 38218A–C (native) and 38220A–C (grafts).
Items 38243 and 38246: Incorporated into new PCI items (replacing item 38306).
Item 38241: Retained.
Items 59903, 59912 and 59925: Deleted and incorporated into ICA items.
Items 59970 and 59971: Retained for non-cardiologist use, not to be claimed on the same day as an ICA/PCI item.
Items 59972 and 59973: Deleted and incorporated into the associated procedures.

Item 38218A

Selective coronary angiography, placement of catheters and injection of opaque material with or without left heart catheterisation, left ventriculography or aortography, as part of the management of a symptomatic patient for:

1. Acute coronary syndromes evidenced by: ST segment elevation; or troponin elevation above the local upper reference limit; or resting wall motion abnormalities or perfusion defect at a time when it is too early to document troponin status; or
2. Cardiogenic shock, resuscitated cardiac arrest, ventricular fibrillation or sustained VT.

Claimable once in any 3 month period unless a new ACS or equivalent occurs within this period and meets requirements 1 or 2 above.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Not being a service associated with a service to which items 38218B, 38218C, 38220A–C apply. (Anaes.)

Item 38220A

Selective coronary graft angiography, placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and/or into direct internal mammary artery graft(s), with or without left heart catheterisation, left ventriculography or aortography, as part of the management for:

1. Acute coronary syndromes evidenced by: ST segment elevation; or troponin elevation above the local upper reference limit; or resting wall motion abnormalities or perfusion defect at a time when it is too early to document troponin status; or
2. Cardiogenic shock, resuscitated cardiac arrest, ventricular fibrillation or sustained VT.

Claimable once in any 3 month period unless a new ACS or equivalent occurs within this period and meets requirements 1 or 2 above.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Not being a service associated with a service to which items 38218A–C, 38220B, 38220C apply. (Anaes.)

Item 38218B

Selective coronary angiography, placement of catheters and injection of opaque material with or without left heart catheterisation, left ventriculography or aortography, as part of the management of a patient with suspected or known coronary artery disease who has limiting angina (CCS class II-

IV) despite an adequate trial of optimal medical therapy, and has high risk features including at least one of:

1. Ischaemia involving >10% of left ventricle or >2 myocardial segments, or stress dilatation/dysfunction on functional testing; or
2. Functional testing with high risk features (ST segment elevation or sustained ST depression, hypotension, Duke treadmill score <=-11, or resting wall abnormalities); or
3. CTCA evidence of left main stenosis >50% or evidence of non-LM significant obstructive disease (>50% stenosis) with symptoms consistent with ischaemia despite optimal medical management; or
4. LV dysfunction (EF <40%) with evidence of myocardial viability (PET, CMR, Nuclear, Dobutamine Echo) in dysfunctional segment; or
5. Persistent symptoms despite optimal medical therapy with discordant finding on functional testing (e.g. little (<5%) or no ischaemia with intermediate or high-risk stress ECG changes).

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Claimable once in any 3 month period, including services for 38218 A–C and 38220A–C.

Not being a service associated with a service to which items 38218A, 38218C, 38220A–C apply. (Anaes.)

Item 38220B

Selective coronary graft angiography placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and/or into direct internal mammary artery graft(s), with or without left heart catheterisation, left ventriculography or aortography, as part of the management of a patient with suspected or known coronary artery disease who has limiting angina (CCS class II–IV) despite an adequate trial of optimal medical therapy, and has high risk features including at least one of:

1. Ischaemia involving >10% of left ventricle or >2 myocardial segments, or stress dilatation/dysfunction on functional testing; or
2. Functional testing with high risk features (ST segment elevation or sustained ST depression, hypotension, Duke treadmill score <=-11, or resting wall abnormalities); or
3. CTCA evidence of left main stenosis >50% or evidence of non-LM significant obstructive disease (>50% stenosis) with symptoms consistent with ischaemia despite optimal medical management; or
4. LV dysfunction (EF <40%) with evidence of myocardial viability (PET, CMR, Nuclear, Dobutamine Echo) in dysfunctional segment; or
5. Persistent symptoms despite optimal medical therapy with discordant finding on functional testing (e.g. little (<5%) or no ischaemia with intermediate or high-risk stress ECG changes).

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Claimable once in any 3 month period.

Not being a service associated with a service to which items 38218A–C, 38220A, 38220C apply. (Anaes.)

Item 38218C

Selective coronary angiography, placement of catheters and injection of opaque material with or without left heart catheterisation, left ventriculography or aortography, as part of the management of a symptomatic patient with valvular or other non-coronary structural heart disease for:

1. Pre-operative assessment for planning non-coronary cardiac surgery, including by transcatheter approach.
2. Evaluation of valvular heart disease or other non-coronary structural heart disease where clinical impression is discordant with non-invasive assessment.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Claimable once in any 12 month period.

Not being a service associated with a service to which items 38218A, 38218B, 38220A–C apply. (Anaes.)

Item 38220C

Selective coronary graft angiography, placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and/or into direct internal mammary artery graft(s), with or without left heart catheterisation, left ventriculography or aortography, as part of the management of valvular heart disease or other non-coronary structural heart disease for:

1. Pre-operative assessment for planning non-coronary cardiac surgery, including by transcatheter approach.
2. Evaluation of valvular heart disease or other non-coronary structural heart disease where clinical impression is discordant with non-invasive assessment.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Claimable once in any 12 month period.

Not being a service associated with a service to which items 38218A–C, 38220A, 38220B apply. (Anaes.)

Item 3820X

Right heart catheterisation performed at the same time as invasive coronary angiography, with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurement by any method, shunt detection or exercise stress test.

Claimed in association with invasive coronary angiography (items 38218A–C or 38220A–C). (Anaes.)

Item 38200

Right heart catheterisation, with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurement by any method, shunt detection or exercise stress test.

Not claimed in association with invasive coronary angiography (items 38218A–C or 38220A–C) or left heart catheterisation. (Anaes.)

Item 38203

Left heart catheterisation by percutaneous arterial puncture, arteriotomy or percutaneous left ventricular puncture with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test.

Not claimed in association with invasive coronary angiography (items 38218A–C or 38220A–C) or left heart catheterisation. (Anaes.)

Item 38206

Right heart catheterisation with left heart catheterisation via the right heart or by any other procedure with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test.

Not claimed in association with invasive coronary angiography (items 38218A–C or 38220A–C) or left heart catheterisation. (Anaes.)

Item 38241

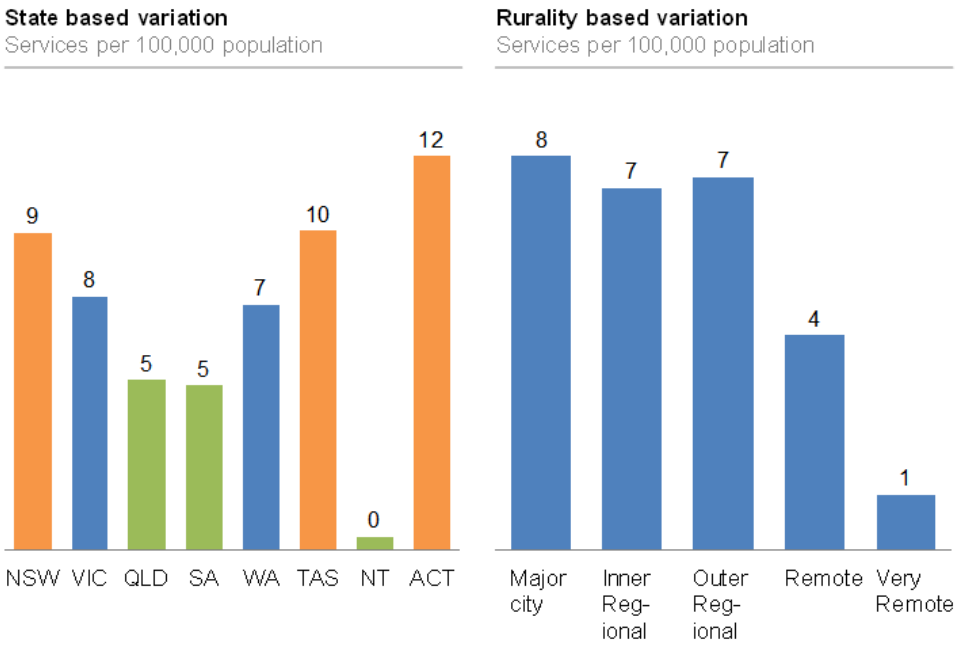
Use of a coronary pressure wire during selective coronary angiography to measure fractional flow reserve (FFR) and coronary flow reserve (CFR) in one or more intermediate coronary artery or graft lesions (stenosis of 90%), to determine whether revascularisation is appropriate where previous stress testing has either not been performed or the results are inconclusive. (Anaes.)

Rationale

The recommendations focus on quality of care and are based on the following observations.

Δ The Committee agreed that despite relatively clear indications for angiography—including appropriateness criteria published by the ACC, the AHA and the Society for Coronary Angiography and Intervention (44)—substantial variation remains in the provision of coronary angiography across Australia (Figure 18). Existing item numbers have been developed to encompass substantial complexity in coronary angiography provision, but these have not captured the indications for these investigations.

Figure 18: Geographical variation in angiography services



ICA items 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240, 38246, 59973, 59925, 59970, and 59971. Unpublished data for services for 2014-15 by date of service extracted on 20 June 2016. (Department of Health). Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.

- The Committee agreed that the current item numbers should be revised to reduce practice variability and align the MBS with contemporary practice. The current item numbers have been rebuilt to capture two dimensions: complexity and indication in line with best practice (44). The coronary angiography item numbers have been divided into three broad indications:
  - Strong practice preferences exist, supported by robust evidence for a high likelihood of revascularisation.
  - There is more limited evidence and a lower likelihood that revascularisation is indicated.
  - The patient is undergoing cardiac surgery and a pre-operative assessment of coronary status is required.
- Each of these indications is then divided into a "simple" coronary angiogram with or without contrast left ventriculography (LV gram) and a "complex" coronary angiogram with or without LV gram with any number and location of grafts. The Committee agreed that due to unique patient anatomy, any ICA may be simpler or more complex than average. As it is impossible to objectively define this distinction, it was agreed that such variation is a 'swings and roundabouts' situation and should be covered by a single item. However, angiograms performed in patients with coronary artery grafts were agreed to generally be more complex, and the Committee therefore recommended differentiating these services to reflect the increased complexity.
- Additional codes have been recommended for right heart catheterisation with and without cardiac output and shunt assessment, and physiologic assessments of lesions have been retained as add-ons. The Committee agreed that these services were not appropriate for inclusion as part of a complete medical service for two reasons. Firstly, right heart catheterisation is not a routine part of angiography, and when performed, it increases the time taken to complete the procedure. As such, the Committee felt that the item would be more appropriately retained as an add-on item. Secondly, although the Committee agreed that FFR for the physiologic assessment of lesions is a clinically valuable study, it felt that it should be retained as an add-on item because: (i) the FFR wire is not available on the Prostheses List and therefore the procedure is costly to perform; (ii) FFR is not available in rural areas that do not have access to an interventional cardiologist; and (iii) it is not appropriate to perform FFR on normal or minimally stenosed vessels.
- The Committee retained stand-alone right and/or left heart catheterisation as a discrete procedure, acknowledging that there are non-coronary indications for these services, including for paediatric populations. These have been consolidated into a single item.
- Additional items will be affected by the proposed restructure of ICA items. Items 59912 and 59925 should be incorporated into the proposed new angiography items in a cost-neutral manner in order to create a complete medical service. Items 59970 and 59971 have been retained, but they should not be co-claimed with any ICA, PCI or cardiac catheterisation items. (Item 59970 is claimed primarily by GPs and non-cardiac surgeons, and item 59971 is claimed primarily by radiologists.) All other codes should be considered obsolete and removed from the MBS.
- The Committee discussed co-claiming ICA (and PCI) with consultations. It noted that ICA is unlike other diagnostic imaging services, as the results are frequently discussed with the patient after the procedure, with changes made to medications and care plans as needed. It was also noted that patients may present for a consultation with acute coronary syndrome (ACS) and be rushed immediately to the catheterisation lab for ICA, with or without PCI. In such instances, it would be appropriate to co-claim a consultation if the provider performing the ICA determined during the consultation that ICA was required. It would not be appropriate if

another provider had determined the need for ICA or PCI and referred the patient to the operator. The Committee agreed that co-claiming a consultation is also not appropriate if the patient has a primary cardiologist who is not the operator for the ICA, except in paediatric angiography (non-coronary). It was agreed that some operators, particularly in paediatric practice, routinely discuss the results of the study (and the implications) with the family at length following a procedure, this is considered part of the procedure and should not be billed as a consult. These recommendations align with the recommendations of the Principles and Rules Committee regarding co-claiming of consultations, aftercare is discussed separately.

- ECG services were also co-claimed in over 35 per cent of episodes. The Committee agreed that these should be considered a core part of the procedure.
- The Committee discussed the creation of an accreditation scheme for procedural services, similar to the Diagnostic Imaging Accreditation Scheme. This was primarily due to concerns that funding reallocation within the DIST had previously occurred, with pressure for some services to have a lower rebate. The Department clarified that the reallocation of funds within the DIST no longer occurs, removing the need for specific 'cordoning-off' of funds. A listing on the DIST means that providers must be accredited to perform the services they are billing, as is the case for echo services. The Diagnostic Imaging Accreditation Scheme manages accreditation, and changes to accreditation requirements are recommended by the multidisciplinary Diagnostic Imaging Advisory Committee. In light of this, the Committee accepted that it would be appropriate for ICA items to be recreated on the DIST to access the accreditation scheme protections.

6.3 PCI and angioplasty

Current item descriptors and MBS data from FY 2014/15
Item 38300 – Schedule fee: $515.35 Services: 1,538 Total Benefits: $322,756 Average annual growth: 6.6% Transluminal balloon angioplasty of 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)
Item 38303 – Schedule fee: $660.80 Services: 222 Total Benefits: $63,254 Average annual growth: 10.8% Transluminal balloon angioplasty of more than 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)
Item 38306 – Schedule fee: $762.35 Services: 26,110 Total Benefits: $8,383,158 Average annual growth: 3.2% Transluminal stent insertion including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding aftertransluminal insertion of stent or stents into 1 occlusional site, including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding aftercare care (Anaes.) (Assist.)
Item 38309 – Schedule fee: $885.45 Services: 27 Total Benefits: $17,103 Average annual growth: 6.2% Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with no stent insertion where:- no lesion of the coronary artery has been stented; and- each lesion of the coronary artery is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)
Item 38312 – Schedule fee: $1132.35 Services: 268 Total Benefits: $228,198 Average annual growth: 9.8% Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with insertion of 1 or more stents, where no lesion of the coronary artery has been stented; and each lesion of the coronary artery is complex and heavily calcified; and balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)
Item 38315 – Schedule fee: $1215.85 Services: 10 Total Benefits: $8,883 Average annual growth: 14.9% Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty with no stent insertion where:- no lesion of the coronary arteries has been stented; and- each lesion of the coronary arteries is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)
Item 38318 – Schedule fee: $1586.35 Services: 49 Total Benefits: $61,181 Average annual growth: 16.3% Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty, with insertion of 1 or more stents, where:- no lesion of the coronary arteries has been stented; and- each lesion of the coronary arteries is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 13.1

- Restructure the seven existing MBS items for PCI into 11 new or amended items that include associated imaging.
  - Three items (for one, two and three vascular territories) for ST elevation myocardial infarction (STEMI), three items for troponin positive ACS, and three items for stable CAD, with the items for revascularisation of STEMI within a door to balloon time of 60 minutes attracting a higher rebate to incentivise rapid revascularisation, offset by a reduction in the rebate for stable PCI.

- One item for rotational atherectomy (rotablation), as an add-on to PCI (amendment to item 38309).
- One item for standalone angioplasty (amendment to item 38303).

Recommendation 13.2

Δ Items 38300, 38306, 38312, 38315 and 38318 should be considered obsolete and removed from the MBS.

Item 38306A

Percutaneous transluminal stent(s) insertion in a single coronary vascular territory (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) for the primary treatment of an ST Elevation Myocardial Infarction (STEMI) within the first 12 hours of symptom onset and performed within 60 minutes of the patient's arrival at or presentation to a PCI accredited hospital.

Including any associated balloon dilatation and angiography.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Not claimable for subsequent procedures in a multi-day staged revascularisation. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: For the purposes of this item, door to balloon time is defined as the time from presentation or arrival at a PCI accredited hospital (door) until reperfusion is achieved (balloon). The time limit of 60 minutes for this item applies from arrival at the PCI accredited hospital, even if the patient is transferred from a previous hospital, with or without prior thrombolysis.

Note that this appears to differ from the current HF/CSANZ guideline and ACS Clinical Care Standard recommending that PCI should be performed within 90 minutes of "first medical contact" and where this is not possible, thrombolysis should be performed. The current item focuses on the more auditable time from hospital arrival (door) to primary PCI, which should be performed within 60 minutes. If door to balloon time is greater than 60 minutes, item 38306D would apply.

If a staged procedure is performed over multiple days during a single admission, the stable codes (38306G-I) should be used for subsequent stages.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Item 38306B

Percutaneous transluminal stent(s) insertion in any two coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) or the Left Main Coronary Artery for the primary treatment of an ST Elevation Myocardial Infarction (STEMI) within the first 12 hours of symptom onset and performed within 60 minutes of the patient's arrival at or presentation to a PCI accredited hospital.

Including any associated balloon dilatation and angiography.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Not claimable for subsequent procedures in a multi-day staged revascularisation. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: For the purposes of this item, door to balloon time is defined as the time from presentation or arrival at a PCI accredited hospital (door) until reperfusion is achieved (balloon). The

time limit of 60 minutes for this item applies from arrival at the PCI accredited hospital, even if the patient is transferred from a previous hospital, with or without prior thrombolysis.

Note that this appears to differ from the current HF/CSANZ guideline and ACS Clinical Care Standard recommending that PCI should be performed within 90 minutes of "first medical contact" and where this is not possible, thrombolysis should be performed. The current item focuses on the more auditable time from hospital arrival (door) to primary PCI, which should be performed within 60 minutes. If door to balloon time is greater than 60 minutes, item 38306D would apply.

If a staged procedure is performed over multiple days during a single admission, the stable codes (38306G-I) should be used for subsequent stages.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Item 38306C

Percutaneous transluminal stent(s) insertion in all three coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) for the primary treatment of an ST Elevation Myocardial Infarction (STEMI) within the first 12 hours of symptom onset and performed within 60 minutes of the patient's arrival at or presentation to a PCI accredited hospital.

Including any associated balloon dilatation and angiography.

Procedure report to include documentation of how the indication requirements of this descriptor were met.

Not claimable for subsequent procedures in a multi-day staged revascularisation. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: For the purposes of this item, door to balloon time is defined as the time from presentation or arrival at a PCI accredited hospital (door) until reperfusion is achieved (balloon). The time limit of 60 minutes for this item applies from arrival at the PCI accredited hospital, even if the patient is transferred from a previous hospital, with or without prior thrombolysis.

Note that this appears to differ from the current HF/CSANZ guideline and ACS Clinical Care Standard recommending that PCI should be performed within 90 minutes of "first medical contact" and where this is not possible, thrombolysis should be performed. The current item focuses on the more auditable time from hospital arrival (door) to primary PCI, which should be performed within 60 minutes. If door to balloon time is greater than 60 minutes, item 38306D would apply.

If a staged procedure is performed over multiple days during a single admission, the stable codes (38306G-I) should be used for subsequent stages.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Item 38306D

Percutaneous transluminal stent(s) insertion in a single coronary vascular territory (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) in patients with a troponin positive acute coronary syndrome (ACS) including any associated balloon dilatation; including associated angiography.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Acute Coronary Syndrome (ACS) is defined as the transient or permanent obstruction of the coronary blood flow leading to myocardial ischaemia and infarction as a result of unstable atheromatous plaques or endothelial disruption.

Serum troponin levels must be elevated greater than the laboratory reference range or item 38306G applies.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Where a multi-day staged procedure is performed, the subsequent procedures should be coded as stable (38306G–I).

Item 38306E

Percutaneous transluminal stent(s) insertion in any two coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) or the Left Main Coronary Artery in patients with a troponin positive acute coronary syndrome (ACS) including any associated balloon dilatation; including associated angiography.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Acute Coronary Syndrome (ACS) is defined as the transient or permanent obstruction of the coronary blood flow leading to myocardial ischaemia and infarction as a result of unstable atheromatous plaques or endothelial disruption.

Serum troponin levels must be elevated greater than the laboratory reference range or item 38306H applies.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Where a multi-day staged procedure is performed, the subsequent procedures should be coded as stable (38306G–I).

Item 38306F

Percutaneous transluminal stent(s) insertion in all three coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) in patients with a troponin positive acute coronary syndrome (ACS) including any associated balloon dilatation and associated angiography.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Acute Coronary Syndrome (ACS) is defined as the transient or permanent obstruction of the coronary blood flow leading to myocardial ischaemia and infarction as a result of unstable atheromatous plaques or endothelial disruption.

Serum troponin levels must be elevated greater than the laboratory reference range or item 38306I applies.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Where a multi-day staged procedure is performed, the subsequent procedures should be coded as stable (38306G–I).

Item 38306G

Percutaneous transluminal insertion of stent(s) in a single coronary vascular territory (Left Anterior Descending Artery, Circumflex Artery or Right Coronary Artery distribution) in patients: (a) with limiting stable angina or an angina equivalent or an acute coronary syndrome without an elevated troponin; and (b) who have received an adequate trial of optimal medical therapy; and (c) who fulfil at least one of the following conditions in the territory treated:

(a) Has a >90% stenosis in a proximal coronary artery; or

(b) Has myocardial ischaemia demonstrated on stress test affecting >10% of the left ventricular myocardium including the region supplied by the vascular territory to be treated; or

(c) Has a Fractional Flow Reserve (FFR) distal to the lesions that is ≤ 0.80; or

(d) A Heart Team Conference (item HTCCXX) has recommended stenting; or

(e) In single territory disease with a Duke Treadmill Score of <= -11.

Including any associated balloon dilatation, including associated angiography.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated.

Only claimable in patients with triple vessel disease where they meet the indication requirements for item 38306I. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Stable angina or angina equivalent includes chest pain, chest discomfort and/or shortness of breath due to myocardial ischaemia.

Limiting angina includes patients with symptoms that are Canadian Cardiovascular Society (CCS) class II, III or IV.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Item 38306H

Percutaneous transluminal insertion of stent(s) in any two coronary vascular territories (Left Anterior Descending Artery, Circumflex Artery or Right Coronary Artery distribution) in patients: (a) with limiting stable angina or an angina equivalent or an acute coronary syndrome without an elevated troponin; and (b) who have received an adequate trial of optimal medical therapy; and (c) who fulfil at least one of the following conditions in EACH territory treated:

(a) Has a >90% stenosis in a proximal coronary artery; or

(b) Has myocardial ischaemia demonstrated on stress test affecting >10% of the left ventricular myocardium including the region supplied by the vascular territory to be treated; or

(c) Has a Fractional Flow Reserve (FFR) distal to the lesions that is ≤ 0.80; or

(d) A Heart Team Conference (item HTCCXX) has recommended stenting.

Including any associated balloon dilatation, including associated angiography.

Only claimable in patients with triple vessel disease where they meet the indication requirements for item 38306I.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Stable angina or angina equivalent includes chest pain, chest discomfort and/or shortness of breath due to myocardial ischaemia.

Limiting angina includes patients with symptoms that are Canadian Cardiovascular Society (CCS) class II, III or IV.

Item 38306I

Percutaneous transluminal insertion of stent(s) in all three coronary vascular territories (Left Anterior Descending Artery, Circumflex Artery or Right Coronary Artery distribution) or left main coronary artery; in patients: (a) with limiting stable angina or an angina equivalent or an acute coronary syndrome without an elevated troponin; and (b) who have received an adequate trial of optimal medical therapy; and (c) who fulfil at least one of the following conditions:

(a) A Heart Team Conference (item HTCCXX) has recommended coronary stenting; or

(b) In a patient who does not have diabetes mellitus where both of the following are met:

i. EACH territory treated either:

A. Has a >90% stenosis in a proximal coronary artery; or

B. Has myocardial ischaemia demonstrated on stress test affecting >10% of the left ventricular myocardium including the region supplied by the vascular territory to be treated; or

C. Has a Fractional Flow Reserve (FFR) distal to the lesions that is ≤ 0.80.

ii. The multi-vessel coronary artery disease is non-complex, NOT involving any of:

A. A stenosis >50% in the left main coronary artery; or

B. A stenosis <90% in the proximal left anterior coronary artery; or

C. Bifurcation lesions involving side branches with a diameter >2.75mm; or

D. Chronic vessel occlusions (>3 months); or

E. Severely angulated or severely calcified lesions; or

F. SYNTAX score >23.

Including any associated balloon dilatation, including associated angiography.

Requires documentation in the procedure report of how the indication requirements of this descriptor were met for each territory treated. Not claimable with any other PCI item number. (Anaes.) (Assist.)

Explanatory notes: Complex coronary artery disease is defined as (a) a stenosis >50% in the left main coronary artery; (b) >90% in the proximal left anterior coronary artery; (c) bifurcation lesions involving side branches with a diameter >2.75mm; (d) chronic vessel occlusions (>3 months); (e) severely angulated or severely calcified lesions; or (f) SYNTAX score >23. Such disease should only undergo PCI with a documented recommendation from a Heart Team Conference.

Stable angina or angina equivalent includes chest pain, chest discomfort and/or shortness of breath due to myocardial ischaemia.

Limiting angina includes patients with symptoms that are Canadian Cardiovascular Society (CCS) class II, III or IV.

The item number claimed should reflect the number of coronary vascular territories (Left Anterior Descending, Circumflex or Right Coronary Artery distribution) that are stented during the procedure, not the total number of stented territories the patient has received to date.

Item 38303

Percutaneous transluminal coronary balloon angioplasty to 1 or more coronary arteries.

Claimable where: (a) the territory meets the requirements for stenting under a PCI item (38306A–I); and (b) the territory is not included in the count of territories vascularised for a claim under items 38306A–I. Including associated imaging.

Procedure report to include documentation of how the indication requirements of this descriptor were met. (Anaes.) (Assist.)

Explanatory note: This item can be claimed once per patient but cannot be claimed for a territory that is claimed for a stent. For example, if 2 territories are revascularised, one by stent and the other by angioplasty, the item for single territory PCI would be claimed for the first territory and item 38303 for the second territory. This item cannot be claimed with any three territory stent items (38306C/38306F/38306I).

Item 38309

Percutaneous transluminal rotational atherectomy including balloon angioplasty of one or more coronary arteries where the target stenosis within a coronary artery is heavily calcified; and balloon angioplasty with or without stenting is not feasible without rotational atherectomy. Including associated imaging.

Claimed in association with one of items 38306A–I. (Anaes.) (Assist.)

Explanatory note: Percutaneous transluminal coronary rotational atherectomy is suitable for revascularisation of stenoses in heavily calcified coronary artery in the absence of significant lesion angulation or vessel tortuosity in patients for whom coronary artery bypass graft surgery is not indicated.

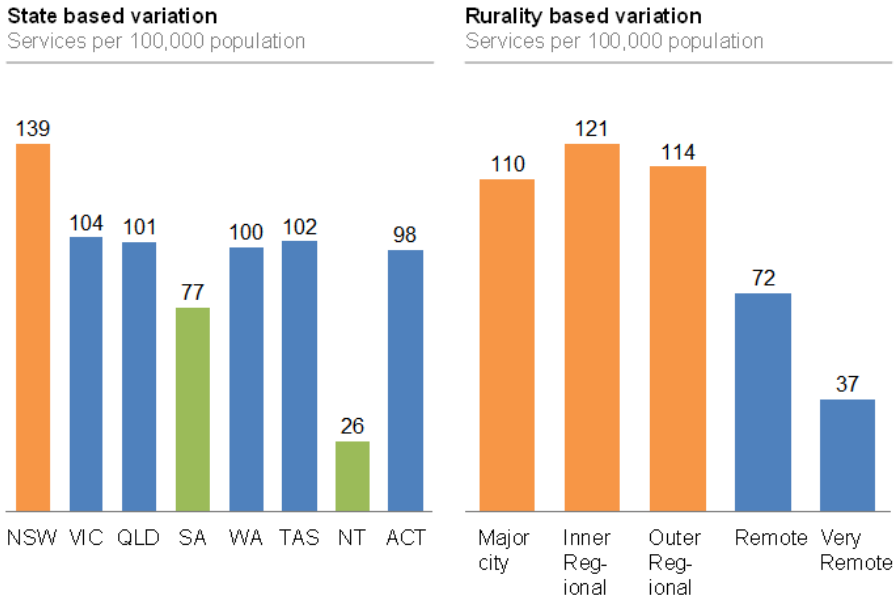
Item 38309 describes an episode of service and can only be claimed once in a single episode.

Rationale

The recommendation focuses on quality of care and is based on the following observations.

- Δ Despite relatively clear indications for percutaneous coronary intervention—including appropriateness criteria published by the ACC, the AHA and the Society for Coronary Angiography and Intervention (44)—substantial variation persists across Australia with NSW performing nearly twice as many PCI per population as SA (Figure 19).

Figure 19: Geographical variation in PCI services



PCI item 38306.
Unpublished data for services in 2014-15 by date of service extracted on 20 June 2016. (Department of Health). Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.

Proposed structure

- The current item numbers have been rebuilt to capture the clinical complexity of treating patients with ACS (compared to treating stable CAD), as well as the complexity of multi-territory PCI during the same procedure (compared to the staged procedures). These descriptors were designed to reflect the best available evidence, and they are intended to reduce procedures that do not align with clinical best practice (7).
- The PCI item numbers have been divided into three broad indications:
  - STEMI, within the context of an acute reperfusion strategy (targeting a door-to-balloon time of less than 60 minutes), among patients with chest pain presenting within 12 hours.
  - Troponin positive ACS (and STEMI outside of 60-minute door-to-balloon time).
  - Stable CAD with evidence of ongoing ischaemia, despite optimal medical management documented on functional testing or FFR. (Note that involvement of the Heart Team in decision-making is advocated.)
- Although compliance with STEMI revascularisation guidelines has been improving, the Committee noted that rates are still below the target level of 75 per cent of patients being re-perfused within 60 minutes of first medical contact. Data from the 2015 Victorian Cardiac Outcomes Registry (VCOR) shows a median door-to-balloon time of 72 minutes, with only four out of 23 hospitals achieving the current target of 75 per cent of reperfusions occurring within 90 minutes (VCOR targets are set at 90 minutes DTB not 60 minutes)(45). It was also suggested by members that some centres, particularly in non-metro areas, do not provide STEMI services.
- The Committee felt that a financial incentive may improve compliance with best practice in this area, although some members expressed disappointment that financial incentives were necessary for standards of care to be followed. It was suggested that patients in Australia

already receive high standards of reperfusion, as noted above, but all improvements in time to reperfusion help, and this may incentivise faster responses. One of the objectives of the Review is to support best-practice care, and the additional data capture would be valuable for monitoring best-practice care and access to timely revascularisation. This change would be cost-neutral, with the higher schedule fee offset by a reduction in the stable PCI fee.

- A concern was raised that this may set a precedent for other services to implement loadings based on guideline compliance. The Committee felt that this was unlikely but could be a positive outcome for the health system. If there are services or procedures with level 1A evidence in Australian and international guidelines that improve patient outcomes and can be encouraged in a cost-neutral way, this would provide additional value for patients and the health system. It was also noted that performing PCI for STEMI is more complex than elective PCI as patients are usually more unwell, which further reduces the likelihood of similar approaches being used elsewhere.
- Each of the clinical indications is divided into one, two and three territory interventions to recognise the increased procedural complexity associated with multi-vessel intervention, and to allow for staged revascularisation over multiple days where clinically indicated. It was noted that the current PCI items allow each stent to be billed separately, which creates perverse incentives—for example, to deploy two short stents rather than one long stent, or to stent additional lesions, in order to obtain a higher rebate. A single averaged item may also create perverse incentives to stage procedures, as the incremental value would be higher. This option would also disadvantage providers who have a more complex casemix. Differentiating the clinical indications into one, two and three territory interventions also allows for improved data capture over time, which may be useful for research and tracking purposes. At present, the MBS does not capture territory data, so VCOR data was used to estimate the proportion of patients likely to fall into each acuity/territory category. When considering the spectrum of solutions, the Committee considered the acceptability of each option to the profession, although it was agreed that this should never compromise patient care.
- The proposed solution still provides a higher rebate for more territories, but it also incorporates numerous other checks and balances to counter the financial incentives, primarily the requirement that each territory meets guideline-based indications for revascularisation. The indications for all PCI items align with the current evidence and international guidelines, as well as the findings of the PCI Review Report (7,43,46,47). This should ensure that providers do not perform inappropriate PCI, as long as they comply with the descriptors.
- The Committee discussed the role of PCI in stable CAD. The PCI Review Report noted that there is limited evidence to support routine revascularisation by PCI rather than OMT in patients with chronic stable angina, in terms of reducing death or recurrent myocardial infarction. The PCI Working Group (formed prior to the MBS Review, which then came under the auspices of the CAD Working Group) agreed with this assessment. Revascularisation with PCI may be appropriate for patients who remain symptomatic despite OMT, providing there is objective evidence of ischaemia related to the lesion(s) being considered for treatment. However, although the evidence shows improved quality of life over the short term (less than 12 months), no difference is seen in the longer term. There was no significant difference between PCI and OMT for any of the late efficacy outcomes assessed in this review (43).
- Examination of the cost-effectiveness of PCI in addition to OMT found that PCI is not cost-effective in patients with stable CAD (43). The PCI Review Report identified two studies examining the COURAGE randomised control trial data, which found that this was not cost-effective in patients with stable CAD, with incremental cost-effectiveness ratios in excess of $150,000/quality adjusted life year (48,49). Two additional observational studies have suggested otherwise, however, particularly in patients with severe symptoms (50,51). The PCI

Review Working Group, the CAD Working Group and the Committee agreed that these findings are based on international studies, which limits their applicability in the Australian context. As a result, it was agreed that without Australian cost-effectiveness analysis, PCI should not be restricted from use in stable CAD.

- The Committee discussed at length the indications for PCI in stable multi vessel disease. Concern was raised by some members about 'ad hoc' PCI (where the decision to perform PCI is made during a diagnostic ICA) and the appropriateness of patient consent in these situations. It was noted—and emphasised by the consumer representative—that it is not appropriate to seek informed consent during a conversation that takes place while the patient is on the table undergoing ICA, particularly with sedation. Informed consent should be obtained prior to the procedure, with various potential outcomes discussed. The Committee considered whether a Heart Team conference should be required prior to PCI in any patient with stable triple vessel disease. It was agreed that the Heart Team should be involved for the majority of patients, although there was debate about the role of the Heart Team for the small group of patients who have non-complex non-diabetic triple vessel disease. In this group, the current evidence shows clinical equipoise between PCI and CABG. While a Heart Team may be valuable and may provide for more informed consent, it was decided that this was an expensive undertaking, particularly as the Committee felt (anecdotally) that most patients choose PCI when given the option. The Committee agreed that fully informed consent was part of the basic standard of care expected from all providers for all patients, and noted that even when not required, a Heart Team can be involved to provide additional input during this process.
- The implications for patients with triple vessel disease are as follows. In patients where CABG and PCI have clinically equivalent outcomes (those that meet 38306I descriptor indication (ii) for non-diabetic, non-complex disease), it was felt that with informed consent, patients will most likely choose PCI, which means that requiring a Heart Team conference is not a high-value use of resources. All other patients with triple vessel disease need a Heart Team recommendation in order to proceed to PCI under 38306I indication (i). For patients in the (i) category, many would have better long-term outcomes from CABG over PCI, but they may not be suitable for surgery or may still prefer PCI once fully informed. The Heart Team is not intended to ensure that these patients have CABG, but to prompt a dialogue between surgeon and interventional cardiologist, as well as the patient, his/her family, the GP and other providers, to determine the best option for the patient.

Co-claiming

- The Committee noted that current co-claiming patterns (Table 14 and Table 15) were not surprising, and that the Review should attempt to reduce this variability through the creation of complete medical services. To this end, the proposed PCI items are intended to provide complete services (including, for example, set-up shots and ECGs). The Committee agreed, however, that if an ICA is performed prior to PCI, a repeat service should not be claimed. For this reason, ICA should not be included in these items and should be claimed only if a diagnostic study has not previously been performed. The Committee agreed that consultations should only be co-claimed where appropriate, as discussed for ICA above.

Table 14: Top 9 items co-claimed with PCI services

Item number and truncated descriptor	Episodes (#)	Episodes (%)
38246: Selective coronary angiography, …with right or left heart catheterisation or both, or aortography …	970	69%
59925: Selective coronary arteriography and angiocardiography...	876	62%
116: Professional attendance by a consultant physician subsequent to the first in a single course of treatment.	721	51%
11700: Twelve-lead electrocardiography, tracing and report	634	45%
110: Professional attendance by a consultant physician, initial attendance in a single course of treatment	429	30%
59912: Selective coronary arteriography…	429	30%
38243: Placement of catheter(s) and injection of opaque material into any coronary vessel(s) or graft(s)…	353	25%
38218: Selective coronary angiography, with right or left heart catheterisation or both, or aortography…	45	3%
38240: Selective coronary angiography, … right or left heart catheterisation … aortography … injection … into free coronary graft(s) attached to the aorta … injection … into direct internal mammary artery graft(s) to one or more coronary arteries …	30	2%

Table 15: Top 10 most frequently claimed item combinations

Co-claimed items	Episodes (%)
59925: Angiography, 38306: PCI, 38246: Angiography & 116: Consult	12%
59925: Angiography 38306: PCI, 38246: Angiography 11700: ECG & 116: Consult	11%
59925: Angiography 38306: PCI & 38246: Angio	7%
59925: Angiography 38306: PCI, 38246: Angiography & 110: Initial consult	7%
59925: Angiography 38306: PCI, 38246: Angiography 11700: ECG & 110: Initial consult	5%
59912: Angiography 38306: PCI, 38243: Angiography 11700: ECG & 116: Consult	5%
59912: Angiography 38306: PCI, & 38243: Angiography	3%
59912: Angiography 38306: PCI, 38243: Angiography & 116: Consult	2%
59912: Angiography 38306: PCI, 38246: Angiography 11700: ECG & 110: Initial consult	2%
59912: Angiography 38306: PCI, 38246: Angiography & 116: Consult	2%

Tables 14 and 15 relate to services by date of service performed between 1 July 2014 and 30 June 2015 processed to 30 June 2016.

Δ Additional codes for angioplasty and rotational atherectomy have been retained. Stand-alone angioplasty is uncommon, but it remains a clinically acceptable treatment option for patients who are not suitable for stenting. Rotational atherectomy is not routinely performed and is not performed by all providers. Patients who are known to have highly calcified lesions may be referred to a provider proficient in rotational atherectomy for their revascularisation. The inclusion of this service as part of a standard PCI would therefore result in inequitable remuneration that does not reflect the additional time and expertise required for rotational atherectomy. Such a change may result in fewer providers performing the service and subsequent access issues for patients.

Aftercare

- Δ The Committee noted that PCI is one of the few procedures on the MBS that is exempt from the inclusion of aftercare. The Committee received guidance from the Chair of the Taskforce that the Principles and Rules Committee is reviewing the rules regarding aftercare, and that the updated rules are intended to be applied to all procedures without exception. The Committee discussed this matter at length and accepted that the challenges faced by cardiologists providing emergency PCI were similar to those of other proceduralists and surgeons providing emergency services. However, on reviewing the draft recommendations of the Principles and Rules Committee, the Committee had significant concerns about the application of these to PCI, and to other surgical and procedure items. These concerns have been conveyed to the Principles and Rules Committee for consideration alongside feedback from public consultation.

6.4 CTCA

Current item descriptors and MBS data from FY 2014/15
Item 57360 – Schedule fee: $700.00 Services: 44,974 Total Benefits: $29,224,450 Average annual growth: N/A Computed tomography of the coronary arteries performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and: the patient has stable symptoms consistent with coronary ischaemia, is at low to intermediate risk of coronary artery disease and would have been considered for coronary angiography; or the patient requires exclusion of coronary artery anomaly or fistula; or the patient will be undergoing non-coronary cardiac surgery (r) (k) (Anaes.)

Recommendation 14

- Δ Split item 57360 into three items: item 57360A for structured access for GPs for the investigation of CAD in a specific population; item 57360B for specialist investigation of CAD; and item 57360C for specialist use for non-CAD related indications. Proposed descriptors for these items are outlined below.
- Δ The MSAC should review this recommendation prior to implementation.

Item 57360A

COMPUTED TOMOGRAPHY OF THE CORONARY ARTERIES performed on a minimum of a 64 slice (or equivalent) scanner, for a patient that: (a) is not known to have coronary artery disease (CAD); and (b) has stable atypical symptoms (suggesting low or intermediate risk of CAD); and (c) has a 5 year Australian Absolute risk of cardiovascular event of ≥10%.

Requested using a form that provides at least the information required on the MBS structured CTCA request form. Formal report to include documentation of how the indication requirements of this descriptor were met.

Not claimable within 5 years following a CTCA that detected no coronary artery disease. (R) (K). (Anaes.)

Explanatory note: Patients with typical angina symptoms or known coronary artery disease should be referred for functional testing and/or referred to a cardiologist or consultant physician for management.

Patients with atypical symptoms and an Australian Absolute risk score of <10% over 5 years should be considered for exercise stress testing.

Heart rate during CTCA should be less than 65 beats per minute wherever possible, and sublingual GTN should be administered immediately prior to scanning where clinically appropriate.

Item 57360B

COMPUTED TOMOGRAPHY OF THE CORONARY ARTERIES performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, for a patient that has stable or acute symptoms consistent with coronary ischaemia, is not known to have coronary artery disease, and is at low to intermediate risk (no cardiac biomarker elevation/no ECG changes indicating ischaemia) of an acute coronary event.

Requested using a form that provides at least the information required on the MBS structured CTCA request form. Formal report to include documentation of how the indication requirements of this descriptor were met.

Not claimable within 5 years following a CTCA that detected no coronary artery disease. (R) (K). (Anaes.)

Explanatory notes: Heart rate during CTCA should be less than 65 beats per minute wherever possible, and sublingual GTN should be administered immediately prior to scanning where clinically appropriate.

Item 57360C

COMPUTED TOMOGRAPHY OF THE CORONARY ARTERIES performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and:

1. The patient has stable symptoms and newly recognised LV systolic dysfunction with unknown aetiology; or
2. The patient requires exclusion of coronary artery anomaly or fistula; or
3. The patient will be undergoing non-coronary cardiac surgery; or
4. Coronary arteries or bypass graft have been unable to be delineated on a recent ICA.

Requested using a form that provides at least the information required on the MBS structured CTCA request form. Formal report to include documentation of how the indication requirements of this descriptor were met. (R) (K). (Anaes.)

Explanatory notes: Heart rate during CTCA should be less than 65 beats per minute wherever possible, and sublingual GTN should be administered immediately prior to scanning where clinically appropriate.

Rationale

The recommendations focus on best practice care and are based on the following observations.

- Δ CTCA item numbers have been modified to reflect the expanding role of this test in the assessment of acute chest pain and stable CAD. The Committee agreed that the investigation was becoming more common as evidence builds of its effectiveness. The Committee agreed that it should be forward-looking in terms of making recommendations to improve the MBS, without overreaching.
- Δ The Committee agreed that the items for specialist access to CTCA for CAD were appropriate and should remain, with the addition of reasonable restrictions on repeats. The Committee felt that a discrete item for specialist access to CTCA for indications other than the investigation of suspected CAD should be created to allow for tracking, however. It recommended the addition of an indication where “coronary arteries of bypass graft have been unable to be delineated on ICA” which is an increase in scope and was agreed to be appropriate in the expert opinion of the Committee.
- Δ The Committee discussed at length the recommendation for GP access to CTCA under certain circumstances. The remainder of the rationale pertains to the recommended new item 57360A which has been created in line with current guidelines(44,52).
- Δ The Committee agreed that CTCA is a robust test with a very strong negative predictive value in terms of outcomes. However, the CTCA item with limited GP access carries the risk of considerable uptake (as the Department noted had occurred with GP access to knee MRI). This risk is expected to be mitigated (to some extent) for the following reasons: (i) many CTCAs ordered by a GP would otherwise have been ordered by a cardiologist; (ii) the test can only be ordered following Absolute risk assessment; and (iii) the test cannot be repeated in patients in whom the result is positive, or within five years of a negative result. Nonetheless, the Committee acknowledged this risk and recommended that the MSAC reviews these changes prior to implementation.

- If the item is not well defined, there is a risk that poorly informed providers will use the test for screening, or for other low-value indications due to pressure from patients. This would result in significant health costs and a flood of patients with low risk or no symptoms, as well as indeterminate findings on CTCA, who are seeking reassurance or advice from specialists or emergency departments.
- Specialist use of CTCA is already increasing rapidly, and a concern was raised about the potential risk of GP overuse of this item leading to significant volume increases, similar to past experiences noted by the Department with GP access to services such as knee MRI. Ensuring GPs and providers strictly comply with the indications for the test is intended to avoid over-usage of the test. To this end, the Committee recommended designing a structured request form to facilitate GP compliance, containing all the descriptor requirements, including information needed to calculate an Australian Absolute risk score. Education of GPs regarding the most appropriate management plan (based on the results of the test) will be critical to obtaining maximum clinical benefit from the investigation. A completely normal study suggests an excellent prognosis with no further cardiac testing required. A test that reveals coronary atherosclerosis but no major obstructive disease (i.e., no lesion greater than 50 per cent) in most instances requires risk factor modification and standard cardio-protective therapy. If symptoms persist, functional testing can be considered to see if symptoms relate to ischaemia, and referral to a cardiologist can be considered at any stage. If the test suggests significant obstructive disease, or if the severity of the obstructive disease cannot be accurately determined, referral to a cardiologist is recommended. In most instances, such patients will then undergo functional testing to determine the presence and extent of ischaemia. Depending on the result and the response to medical therapy, such patients may undergo ICA with a view to revascularisation.
- The Committee agreed that a targeted GP education program should be implemented. Education for GPs, whether provided by professional bodies or the Department, may improve the effectiveness of GPs as gatekeepers and custodians of health system resources. It was also suggested that the ability to refer for the new GP-access CTCA item could be made dependent on the completion of an education module.
- The Committee noted that there is a lack of evidence linking CTCA findings to management decisions, particularly for mild to moderate non-obstructive disease. For example, it is unclear what level of disease warrants the commencement of statins. It was stated that work is underway to develop a consistent CTCA grading system, and evidence is expected to emerge in the near future regarding the use of CTCA results. It was suggested that the current lower rate of follow-up investigations after CTCA in Australia may be an early-use phenomenon. In the United States, for example, there is evidence that the rate of ICA is up to 50 per cent higher post-CTCA (12.2 per cent for the CTCA group versus 8.1 per cent for the functional-testing group) (53,54).
- The Committee discussed the potential outcome benefits that may result from a diagnosis of atherosclerosis by CTCA, as well as the associated impact on patient compliance and behaviour change. However, it did not feel that there was sufficient evidence to warrant broadening the proposed scope.
- The Committee discussed the role of ICA post-CTCA. Unless the CAD is obviously very severe (e.g. left main disease) ICA will generally only be indicated for patients where CTCA suggests significant obstructive CAD, ischaemia is demonstrated on a functional test and the patient has limiting symptoms despite optimal medical therapy. It noted that it would not be appropriate to perform an ICA on a patient with a positive CTCA in a setting not capable of revascularisation with an interventional cardiologist. Although it was suggested that a negative CTCA should exclude ICA, low quality studies should not be considered normal.

- The Committee agreed that the role of CTCA is to exclude disease. For this reason, it is not currently indicated for patients with known CAD or typical chest pain with a high probability of CAD. It was noted that the MSAC recommendation specifically intended to exclude patients with significant disease, with MSAC taking the view that these patients should proceed directly to a trial of optimal medical therapy as the CTCA is unlikely to change management. If this fails, this population should proceed to ICA as it is highly likely that they will require revascularisation. Due to the high cost of CTCA and associated radiation burden, the Committee agreed that CTCA should not be used in patients who have an Australian Absolute risk of cardiovascular event of less than 10 per cent over 5 years (Australian Absolute risk calculator). The Committee agreed that in a population with atypical pain, low to intermediate risk of CAD and a low Absolute risk of cardiovascular event, an EST was a more appropriate first-line investigation. This may change as additional evidence for CTCA emerges and technological advancements reduce the cost of services.
- The Committee agreed that no repeat CTCA should be performed within five years in patients who have received a high-quality study that shows no CAD. As the item is only indicated for patients with no known disease, there should be no repeat studies within five years, as those with an abnormal study will have some evidence of known disease and thus no longer qualify. The Committee felt that this was appropriate, and noted that symptomatic patients with known CAD should generally have functional testing, which is not currently possible with CTCA.
- The Committee agreed that this recommendation for limited GP access to CTCA, even with a specific and restrictive indication, has a risk of cost implications. It therefore recommended referring the issue to the MSAC for consideration for a health technology assessment (HTA), and suggested that The Royal Australian College of General Practitioners and Australian College of Rural and Remote Medicine may be the most appropriate sponsors, with support from CSANZ and The Royal Australian and New Zealand College of Radiologists. The Department also provided advice that a 12-month pilot, with a subsequent impact audit, may be acceptable. Although the Department has limited resources and currently performs a limited number of audits, this may be an appropriate instance in which to conduct one.
- The Committee considered specific recommendations to improve the quality of CTCA studies. Specific rules around heart rate were not applied, noting that a patient's heart rate may fluctuate during a study (e.g., if they become anxious). Such studies are often diagnostic, and the Committee did not want to create an incentive for repeat scanning in order to obtain a rebate, particularly given the radiation exposure. The Committee also noted that newer scanners are able to provide high-quality services at higher heart rates. The Committee recognised that there has been considerable improvement in scanners over recent years, and considered if it would be reasonable for 128-slice to become the minimum standard for MBS rebatable services. However, the Committee also noted that 64-slice scanners are able to provide high quality imaging at low radiation doses. Radiation dose is not dependent on slice thickness or number, but is more dependent of factors such as iterative reconstruction and ability to provide prospective and retrospective acquisition. It was also noted that the DIST already contains provisions to ensure that safe, high-quality services are provided. For this reason, the Committee did not recommend a specific requirement for 128-slice scanners for CTCA.
- One member of the Working Group, Dr Forge, disagreed that the role of CTCA is only to exclude disease and requested this be noted. He suggested that patients with a high probability of CAD on the basis of history and functional testing should have CTCA to guide therapy by confirming the diagnosis, excluding left main disease and establishing plaque burden, prior to the commencement of lifetime medical therapy.

6.5 Other items

Current item descriptors and MBS data from FY 2014/15
Item 38270 – Schedule fee: $912.30 Services: 500 Total Benefits: $339,007 Average annual growth: 25.3% Balloon valvuloplasty or isolated atrial septostomy, including cardiac catheterisations before and after balloon dilatation (Anaes.) (Assist.)
Item 38272 – Schedule fee: $912.30 Services: 379 Total Benefits: $254,333 Average annual growth: 0.9% Atrial septal defect closure, with septal occluder or other similar device, by transcatheter approach (Anaes.) (Assist.)
Item 38273 – Schedule fee: $912.30 Services: 11 Total Benefits: $7,185 Average annual growth: N/A Patent ductus arteriosus, transcatheter closure of, including cardiac catheterisation and any imaging associated with the service (Anaes.) (Assist.)
Item 38274 – Schedule fee: $912.30 Services: None Total Benefits: None Average annual growth: N/A Ventricular septal defect, transcatheter closure of, with imaging and cardiac catheterisation (Anaes.) (Assist.)
Item 38275 – Schedule fee: $298.20 Services: 203 Total Benefits: $38,925 Average annual growth: 21.1% Myocardial biopsy, by cardiac catheterisation (Anaes.)
Item 38359 – Schedule fee: $133.55 Services: 136 Total Benefits: $11,986 Average annual growth: 9.1% Pericardium, paracentesis of (excluding aftercare) (Anaes.)
Item 38362 – Schedule fee: $384.95 Services: 302 Total Benefits: $42,616 Average annual growth: 0% Intra-aortic balloon pump, percutaneous insertion of (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 15.1

Δ Amend item 38274 to exclude "with imaging."

Recommendation 15.2

Δ Amend item 38272 to read:

Item 38272

Atrial septal defect closure, with septal occluder or other similar device, by transcatheter approach, including right and or left heart catheterisation, for congenital heart disease in a patient with documented evidence of right heart overload or paradoxical embolism. (Anaes.) (Assist.)

Explanatory note: This item may be claimed without evidence of right heart overload in highly rare paediatric conditions such as abnormal development of the right heart. Additionally, in patients under 16 years old, risk of paradoxical embolism is sufficient.

Recommendation 15.3

Δ Leave items 38270, 38273, 38275, 38359 and 38362 unchanged.

Rationale

These recommendations are based on the following observations.

- Δ The Committee noted that for item 38274, a second provider is required to perform the imaging services. It therefore felt that it was appropriate for these services to be billed separately. This is a new item, and a fee review may be appropriate if the current fee was set with the expectation that imaging services would be included.
- Δ Regarding item 38272 for atrial septal defect closure, the Committee agreed that this service may be frequently used for the closure of asymptomatic patent foramen ovale (PFO). There is no evidence to support this practice, and it should therefore only be claimable for patients with evidence of right heart overload or paradoxical embolism. The Committee noted that there are unique cases in paediatrics, however, and recommended an explanatory note to clarify that this item is available where clinically appropriate in paediatrics. This item should include associated heart catheterisation whether left, right or both sides of the heart are catheterised.

7. Electrocardiography (ECG) recommendations

7.1 ECG Working Group membership

The Committee formed a Working Group to consider MBS ECG items 11700–11702. The ECG Working Group included the following members:

- Professor Mark Harris – Director, Centre of Obesity Management and Prevention Research Excellence in Primary Health Care (COMPaRE – PHC); Foundation Professor of General Practice and Executive Director, Centre for Primary Health Care and Equity, University of New South Wales.
- Dr Maria Brosnan – Cardiologist, St Vincent's Hospital, Melbourne, and Baker IDI, Melbourne.
- Professor Jonathan Newbury – Professor of Rural Health, Adelaide Rural Clinical School, School of Medicine, University of Adelaide.
- Mr Alex Segler – Independent consumer.
- Professor Richard Harper (Ex-Officio) – Emeritus Director of Cardiology, Monash Medical Centre; Adjunct Professor of Medicine, Monash University.

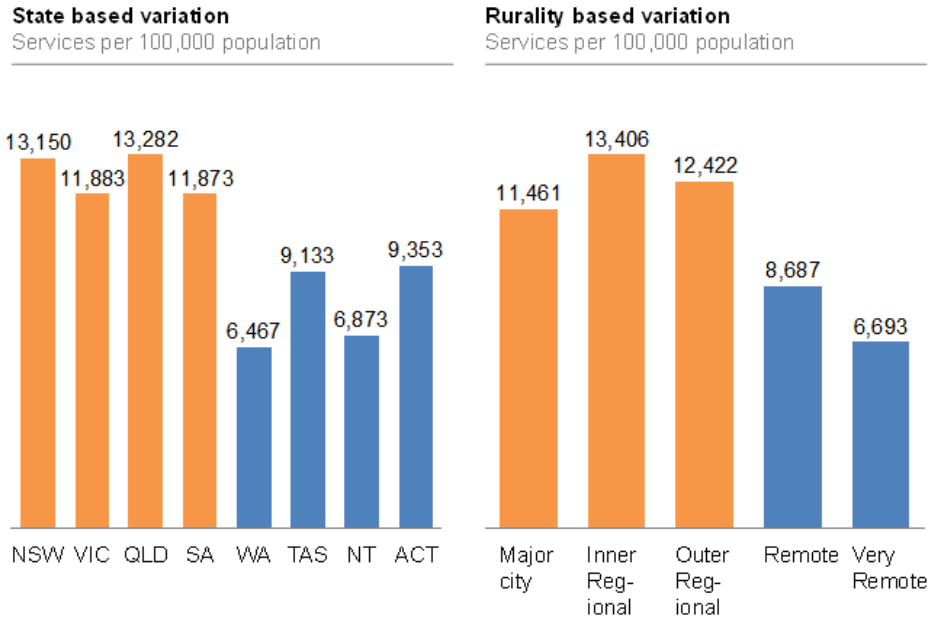
The following recommendations were developed by the ECG Working Group and accepted unanimously.

The Committee also endorsed the recommendations unanimously.

7.2 General considerations

- More than 2.7 million ECG services are claimed under the MBS every year at a cost of over $71 million. Over 98 per cent of these services are claimed as a trace and report. There is considerable variability in ECG services per population with NSW and QLD having twice as many services as WA and the NT. People in remote and very remote areas claim 25–50 per cent fewer services than people in more urban areas. The Committee voiced concern about the volume and variability of ECG claims and the growth 7 per cent per year (well above population growth 1–2 per cent per year). The Committee agreed that growth at this rate is not driven by shifting disease patterns and felt that the substantial and growing investment in a relatively straightforward activity could be better directed to other necessary services.
- The Committee noted that there is significant variation in per-capita services between states, and between urban, regional and remote populations (Figure 20). Drawing on their clinical judgement, Committee members could find no medical explanation for this variation and recommended that it should be addressed.

Figure 20: Geographical variation of ECG services (MBS items 11700, 11701, 11702)



Data is by date of service extracted on 20 June 2016. Unpublished data from 2014-15 (Department of Health). Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file.

- The Committee noted that when the ECG items were introduced, ECG machines were expensive and more complex and time-consuming to operate. Modern ECG machines are more affordable, and technological improvements (such as sticky electrodes, which have replaced suction cups) have reduced the amount of time and effort required to take an ECG trace.
- It was noted that GP clinics must have access to an ECG machine in order to meet accreditation requirements. This is outlined in the Standards for General Practitioners (fourth edition), Standard 5.2, "Equipment for comprehensive care":
  - Criteria 5.2.1 Practice Equipment: "practice has timely access to a spirometer and electrocardiograph." (55)

- The Committee discussed the possibility of removing ECGs from the MBS altogether, as it was agreed that they could now be considered a core part of patient history and examination (similar to taking blood pressure). However, it was ultimately agreed that ECGs do offer clinical value and should remain on the MBS, although steps need to be taken to reduce variability and improve the clinical value of these services.
- The Committee agreed that an ECG has two components: performing the trace and reviewing the trace. These should be considered separately, given that a medical practitioner almost never performs the trace, but should always perform the review (with or without a formal report).
- The Taskforce has indicated it may consider these recommendations in conjunction with other deliberations affect General Practice.

7.3 ECG trace and report

Current item descriptors and MBS data from FY 2014/15
Item 11700 – Schedule fee: $31.25 Services: 2,642,948 Total Benefits: $69,467,252 Average annual growth: 6.5% Twelve-lead electrocardiography, tracing and report

Public data from 2014-15 (Department of Human Services).

Recommendation 16

- Amend the descriptor for item 11700 to read:

Item 11700

Twelve-lead electrocardiography, referred service for performing a trace and providing a formal report, separate to any letter, by a medical practitioner.

A copy of trace and report are provided to the referrer, retained by the provider and made available to other clinicians upon request, with patient consent.

Where the referring practitioner is not a member of a group of practitioners of which the providing practitioner is a member.

Not claimable for a patient admitted to hospital; in association with a consultation; or for a service to which 11701 or 11702 applies.

Explanatory notes: A formal report is separate to any letter and entails interpretation of the trace commenting on the significance of the trace findings and their relationship to clinical decision making for the patient in their clinical context, in addition to any measurements taken or automatically generated.

A GP referral to a cardiologist or consultant physician for a standard consultation should not be regarded as a referral for an ECG.

Rationale

These recommendations focus on improving the value of the MBS and are based on the following observations.

- The Committee determined that item 11700 should remain on the MBS in recognition of the access it gives GPs—particularly rural GPs—to specialist review of a trace. Although all doctors should be capable of interpreting ECGs, the Committee acknowledged that GPs (and other

clinicians) who are concerned about a trace, or are unable to obtain an adequate trace, should be able to seek additional support.

- The Committee agreed that many ECGs are of low value, particularly those performed without a referral, as the financially objective gatekeeping function is not present in non-referred services. It was also agreed that many providers routinely perform ECGs, screening ECGs or repeat ECGs in the absence of symptoms. There was consensus that defining a service for referred ECGs, particularly in regard to item 11700, would significantly increase the clinical value of the services provided. By involving two providers, there is an element of gatekeeping, which enhances the value of the services. (Appropriate gatekeeping weighs the value of specialist input against the inconvenience to the patient. This function is primarily performed by primary care clinicians and is a cornerstone of the Australian healthcare system.)
- The Committee agreed that storing an ECG trace and report, and making them readily available to other clinicians (with patient consent), provides greater value to the patient and the health system. The Committee has not specified the exact format in which the trace and report should be stored or made available, but it was agreed that uploading the trace and report to a patient's My Health Record would certainly meet the requirement for storage and accessibility. The Committee also emphasised the importance of retaining both the report and a copy of the trace (with sufficient resolution and clarity), so that the trace can be interpreted alongside the report. A formal report should be separate from any referrals or letters, and it should clearly document the relevant measures and findings from the study. The Committee noted that there is value in the extended hours offered by some pathology providers, which allow greater access to previous traces and reports outside standard business hours. Services rendered by providers who are not affiliated with a pathology company but offer an ECG trace and formal report service (including the storage and provision of data to appropriate providers) are of equivalent value.
- The Committee discussed at length the issue of co-claiming an ECG trace and report with a consultation. It noted that a referral to see a specialist physician does not constitute referral for a formal ECG, and it agreed that if an ECG trace is performed in association with a consultation, item 11700 should not be claimed. Instead, item 11702 should be claimed. This acknowledges the time and consumable requirements associated with taking an ECG trace, and the review of the trace is reasonably taken to occur as part of the consultation. Formal reports are not routinely provided nor required for traces reviewed during a consultation.
- The Committee discussed the potential implications this change may have on rural access, noting that many rural GPs serve dual roles in the community, offering consults in their rooms and supporting the local hospital. In the context of ECGs, this was considered to involve three elements: performing an ECG trace, clinical decision-making, and urgent critical care and management.
  - Trace: It was agreed that this would be appropriately remunerated under item 11702 and would not present any issues.
  - Clinical decision-making: A rural GP may review a trace, determine that an acute episode is occurring and requires urgent medical attention, and transfer the patient to hospital. An equivalent process occurs in urban areas. The key distinction is that in an urban environment, the duty of care often ends with the arrival of an ambulance; in a rural environment, the GP often retains duty of care in the hospital setting.
  - Urgent care in hospital: In an urban area, the patient would be managed in hospital by the relevant clinicians on duty. In a rural area, the GP will often assume the role of hospital clinician and provide the appropriate critical care. However, this is not related to ECG

interpretation and would be remunerated through the relevant hospital funding mechanisms.

- Having considered the above, the Committee agreed that although the role of rural GPs is different from the role of their urban colleagues, there was no identified inequality with regards to ECG services that would necessitate a specific rural item or exception.
- The Committee agreed that these changes would improve the clinical value provided by item 11700 and would not restrict patient access to appropriate ECGs.
- The Committee agreed that there was a risk that providers may circumvent the request. For example, providers in large practices may refer to another provider in the same practice. This could also occur with item 11701. It was suggested that referrals could be restricted to GPs only, or to providers who are not located within the same practice. It was agreed that the wording from diagnostic imaging should be used to prevent referrals within a practice.

7.4 ECG report only

Current item descriptors and MBS data from FY 2014/15
Item 11701 – Schedule fee: $15.55 Services: 27,158 Total Benefits: $353,149 Average annual growth: -2% Twelve-lead electrocardiography, report only where the tracing has been forwarded to another medical practitioner, not in association with a consultation on the same occasion

Public data from 2014-15 (Department of Human Services).

Recommendation 17

- Amend the descriptor for item 11701 to read:

Item 11701

Twelve-lead electrocardiography, referred service for a formal report only, by a medical practitioner, separate from any letter, where the tracing has been forwarded by the referring medical practitioner and where the referring practitioner is not a member of a group of practitioners of which the providing practitioner is a member.

A copy of the trace and report are provided to the referrer, retained by the provider and made available to other clinicians upon request, with patient consent. Not claimable in association with a consultation. Claimable for admitted patients in a private hospital only where an unforeseen cardiac problem develops and the attending doctor reviews the trace and requests a second opinion and formal report regarding interpretation of the ECG in the context of clinical decision making. Both the request and report must be in writing and documented in the patient history. Not claimable for routine in hospital ECGs including routine pre-operative ECG.

Claimable up to twice in a day. Not claimable for a trace that has been previously reported; or in association with a service to which 11700 applies.

Explanatory: A formal report is separate to any letter and entails interpretation of the trace commenting on the significance of the trace findings and their relationship to clinical decision making for the patient in their clinical context, in addition to any measurements taken or automatically generated.

Rationale

These recommendations focus on improving the value of the MBS and are based on the following observations.

- The Committee agreed that a specialist review of an ECG trace that cannot be adequately interpreted by the referring clinician is a clinically valuable service, when referred in the appropriate circumstances.
- As with item 11700, the Committee agreed that an ECG trace and report that is not readily available to other clinicians on request is of lower value. The trace and report should therefore be retained and readily available, or stored in an accessible location (e.g., via my Health Record), in order for the service to be claimable.
- The Committee noted that there is a risk that providers could refer within a practice, and it recommended that this should be prevented. A provider could also misuse the item by setting up a service to accept high volumes of digital traces in order to produce high volumes of low-value reports. However, it was noted that there is no financial incentive for referring providers to write referrals for such services, and that the provision of incentives or application of pressure is illegal in contexts such as pathology and diagnostic imaging items. Furthermore, the providers would remain medico-legally responsible for the reports provided, which is a significant risk if simply signing off on automatically generated reports.
- The Committee noted that in some private hospitals, there are wards or entire 'niche hospitals' where the nurses do not have the expertise to perform an ECG, and the hospital does not have the internal capability to perform an ECG. If ECGs are performed, such hospitals may also not have a doctor on site capable of interpreting them. The hospitals compensate for this by outsourcing this service to pathology providers. Several Committee members expressed strong concern that if there was no MBS funding for this, patients may not receive the appropriate care (for example, if they develop post-operative chest pain).

  The Committee noted that all accredited GP clinics are required to be capable of performing an ECG, and stated that this should surely be a basic requirement for the accreditation and credentialing of a hospital. As noted in the recommendation from the Working Group, it was felt that a hospital should only outsource services when this is a more cost-effective solution for the hospital, and that this does not justify additional billings.

  The Committee determined that the recommendation should be amended to allow item 11701 to be retained for inpatient use as a referred service, not associated with consultation, or when a patient is seen by a provider who is capable of interpreting the ECG. The reporting provider should be external to the hospital and not involved in the care of the patient, with no financial or other incentives provided to the referring provider or hospital. This service is intended for patients with an unforeseen heart problem in a private hospital with no on-site cardiologist, or when the attending doctor wants a second opinion. The Committee felt that providing access to the reporting item may also reduce the volume of consults billed, which would be cost-effective as the schedule fee is considerably lower. It should be noted that this service should not be claimable for routine ECGs, including routine pre-operative ECGs.

7.5 ECG trace only

Current item descriptors and MBS data from FY 2014/15
Item 11702 – Schedule fee: $15.55 Services: 106,606 Total Benefits: $1,338,865 Average annual growth: 10.9% Twelve-lead electrocardiography, tracing only

Public data from 2014-15 (Department of Human Services).

Recommendation 18

- Amend the descriptor for item 11702 to read:

Item 11702

Twelve-lead electrocardiography, tracing only, where the trace is clinically indicated to inform clinical decision making and where the trace is reviewed by the provider in a clinically appropriate timeframe.

Not claimable for a patient admitted to a hospital or attending a hospital for the purposes of routine pre-operative assessment.

Rationale

This recommendation focuses on improving the value of the MBS and promoting best practice care. It is based on the following observations.

- The Committee acknowledged that (i) GPs provide a significant proportion of ECG services; (ii) the standard for accreditation requires ECG equipment to be present; and (iii) meeting accreditation standards is currently incentivised through the Practice Incentives Program (PIP). It felt that removing this item from the MBS may result in GPs no longer offering this service, which would mean that all services may become referred services, as occurred with joint injections. This would be detrimental to patients, providers and the health system. As a result, the Committee agreed that it is important to continue remunerating GPs for this service.
- It was acknowledged that although taking an ECG trace is easier than with previous technologies, it still requires time (usually that of a practice nurse) and consumables. For this reason, the Committee did not recommend removing item 11702 from the MBS.
- The Committee discussed whether it would be reasonable to consider an ECG an integral component of a specialist consultation, particularly a cardiologist consultation. Although it was acknowledged that many cardiologist consults do incorporate an ECG, the Committee agreed that the trace still takes time for the specialist or practice nurse to complete. For this reason, it felt that access to this item should not be restricted by provider type.
- The Committee agreed that ECG traces should only be taken where clinically indicated, and to support clinical decision-making. Regardless of the clinical indication for an ECG, there is also a chance that a life-threatening abnormality may be detected. For these reasons, item 11702 should only be claimable if the provider has reviewed the trace. This does not require a formal report, but good clinical practice would include documentation of ECG findings in the patient's medical record.
- The Committee recommended that ECGs not be claimable for routine pre-operative ECGs as these are not evidence based and are not recommended practice(56–60).

7.6 In-hospital ECG

Recommendation 19

- Make items 11700 and 11702 claimable only for patients not admitted to hospital.

Rationale

This recommendation focuses on improving the value of the MBS and is based on the following observations.

- The Committee agreed that the costs of performing an ECG trace—including nurse time and consumable costs—are already included in the accommodation fee for an admission. It was agreed that the care of an admitted patient reasonably includes the review of ECG traces associated with that admission, and that items 11700 and 11702 should therefore not be claimed for an admitted patient. However, it was agreed that there may be instances where a provider requires a second opinion from a specialist on a non-routine inpatient trace (as described above), and that item 11701 should be retained for in-hospital use in these circumstances.
- Consideration was given to a potential exemption from this requirement for paediatric populations. Regarding the ECG trace, these costs are covered under the appropriate accommodation fees in an inpatient setting, and hospitals generally receive a paediatric loading to account for the higher care needs of these patients. Regarding the review of the trace to inform clinical decision-making, the Committee felt that this was not materially different (in terms of either time or skill) compared to when performed on an adult patient. Finally, it was noted that inpatient paediatric ECGs account for less than 0.05 per cent of services. Without significant evidence of a negative impact on patient outcomes, an exception would therefore be inappropriate.
- It was noted that ECG reporting is frequently claimed for the review of traces taken in conjunction with pre-anaesthetic checks. The Committee agreed that anaesthetists should be capable of interpreting an ECG in the acute setting, and that these items should not be claimed for ECGs taken in association with a pre-anaesthetic check.

7.7 Repeat ECG services

Recommendation 20

- Make item 11701 claimable up to twice per day, where each service is clinically necessary.

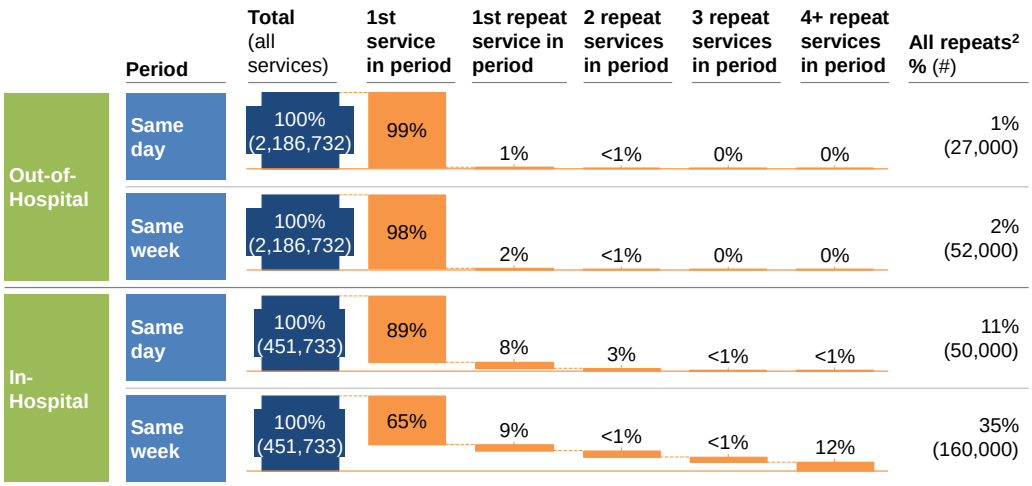
Rationale

This recommendation focuses on improving the value of the MBS and is based on the following observations.

- The Committee agreed that repeat ECGs are of lower value and should be restricted. However, it also noted the relatively low proportion of patients with same-day repeats (8 per cent) and acknowledged that there may be reasonable indications for this.
- It was agreed that the majority of same-day and same-week repeat ECGs are inpatient services, which will be addressed through the above recommendations for items 11700 and 11702. For item 11701, the Committee noted that there are many instances in which multiple ECGs would be appropriate for a patient. However, it felt that it would be reasonable to cap the number of services that are claimable under the MBS, as is done in areas such as intensive care. The Committee agreed that where a subsequent trace is referred for specialist reporting, a formal report must be provided. The Committee also agreed that there should be a maximum of two services claimable per day, as a patient requiring multiple ECGs for ongoing symptoms should have the direct involvement of a clinician capable of managing the patient.

- The Committee agreed that there is little value in screening ECGs in low-risk populations, and that such ECGs should not be funded by the MBS.
- It was noted that repeated screening ECGs could provide some benefits to higher risk patient populations. For instance, the offspring of patients with inherited cardiac disease, such as hypertrophic obstructive cardiomyopathy (HOCM), may receive repeat ECGs as part of evidence-based cascade screening.
- The Committee also reviewed the data presented on repeat ECG services performed in out-of-hospital settings (Figure 21). It noted that although fewer than 2 per cent of services are out-of-hospital same-day repeats, this still represents a significant volume of services (estimated 27,000 services) due to the volume of ECGs performed annually. Various clinical indications for repeat studies were discussed, and the Committee agreed that there are many clinical situations in which a same-day repeat ECG would be a clinically valuable service—for example, where a patient presents with a history of chest pain for review and is found to have a normal ECG, but returns later the same day in acute chest pain and is found to have ischaemic changes. The Committee therefore determined that a maximum of two services per day would be a reasonable limit. However, fewer than 3,000 services would be affected each year by a limit of two claims per patient per day. This would not justify the associated administrative costs and the Committee therefore agreed not to recommend a frequency restriction.

Figure 21: In-hospital and out-of-hospital repeat ECG services



1 Sample population is all ECG trace and report services (item 11700) with date of service in 2014/15. Only includes 11700, excludes additional 11702 (trace only) which may have been performed in the same period. For patients who received both in-hospital and out-of-hospital services on the same day, these counted to their respective categories only.
2 All services except 1st in period by date of service. Trigger services rendered between 1 July 2014 and 30 June 2015 processed to 30 June 2016: Unpublished data from 2014-15 (Department of Health).

8. AECG and electrophysiology recommendations

8.1 AECG and Electrophysiology Working Group membership

The Committee formed a Working Group to consider the AECG and electrophysiology MBS items. This Working Group subsumed the AECG Review Working Group (AECG RWG), which was created prior to the MBS Review. The CSCC Working Group reviewed and accepted the AECG report, which was prepared under the direction of the AECG RWG (61). The AECG Review Report is available online at http://www.health.gov.au/internet/main/publishing.nsf/Content/ReviewsCMFM.

The AECG/EP Working Group included the following members:

- Associate Professor Glenn Young (Chair) – Senior Clinical Lecturer, University of Adelaide; Electrophysiologist, Adelaide Cardiology.
- Associate Professor Andrew McGavigan – Professor of Cardiology, Flinders University; Director of Arrhythmia Services, Flinders Medical Centre, South Australia; Chair EP and Pacing Council, CSANZ.
- Dr David O'Donnell – Director of Electrophysiology, Austin Hospital.
- Dr Elizabeth Marles – Director of Hornsby Brooklyn General Practice Unit. Immediate Past President of the Royal Australian College of General Practitioners (RACGP).
- Dr Hans Tu – Consultant Neurologist, Footscray Hospital and Sunshine Hospital; Research Fellow, Melbourne Brain Centre at the Royal Melbourne Hospital, University of Melbourne.
- Associate Professor Harry Mond – Medical Director Cardioscan Pty Ltd.
- Ms Karen Carey – Member, National Health and Medical Research Council (NHMRC) & Chair, Community and Consumer Advisory Group; Consumer representative.
- Dr Paresh Dawda – GP and Regional Medical Director, Ochre Health; Honorary Associate Professor, Australian National University (ANU) and the University of Canberra.
- Professor Richard Harper – Emeritus Director of Cardiology, Monash Medical Centre; Adjunct Professor of Medicine, Monash University (Ex-Officio).

The following recommendations were developed by the AECG and Electrophysiology Working Group and accepted unanimously.

The Committee also endorsed the recommendations unanimously.

8.2 AECG

8.2.1 Item 11708

Current item descriptors and MBS data from FY 2014/15
Item 11708 – Schedule fee: $127.90 Services: 6,216 Total Benefits: $649,412 Average annual growth: 21.7% Continuous ECG recording of ambulatory patient for 12 or more hours (including resting EECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, involving microprocessor based analysis equipment, interpretation and report of recordings by a specialist physician or consultant physician. Not being a service to which item 11709 applies. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.

Public data from 2014-15 (Department of Human Services).

Recommendation 21

Δ Obsolete – remove item 11708 from the MBS.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observations.

Δ There was consensus that item 11708 should be considered obsolete and removed from the MBS, with the expectation that providers will use item 11709 instead.

Δ The Committee noted that use of items 11708 and 11709 has grown significantly since FY2010/11: 22 per cent annual growth for item 11708, and 11 per cent annual growth for item 11709. However, it was suggested that some providers were using item 11708 in error, instead of item 11709.

8.2.2 Item 11709

Current item descriptors and MBS data from FY 2014/15
Item 11709 – Schedule fee: $167.45 Services: 277,643 Total Benefits: $39,795,143 Average annual growth: 10.9% Continuous ECG recording (Holter) of ambulatory patient for 12 or more hours (including resting ECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, utilising a system capable of superimposition and full disclosure printout of at least 12 hours of recorded ECG data, microprocessor based scanning analysis, with interpretation and report by a specialist physician or consultant physician. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.

Public data from 2014-15 (Department of Human Services).

Recommendation 22

Δ Amend the descriptor for item 11709 to read:

Item 11709

Continuous ECG recording of a patient who is not admitted to an acute hospital, for 12 or more hours (including resting ECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, utilising a system capable of superimposition and full disclosure printout of at least 12 hours of recorded ECG data, microprocessor based scanning analysis, with interpretation and report by a specialist physician or consultant physician.

For the evaluation of syncope, pre-syncopal episodes or palpitations where episodes are occurring greater than once a week or where another asymptomatic arrhythmia is suspected with an expected frequency of greater than once a week. With documentation of the indication for the investigation in the report.

Claimable once in any 4-week period.

Explanatory notes: The following indications would be considered appropriate even in patients who may not experience symptoms more often than once a week.

(a) For the detection of asymptomatic atrial fibrillation (AF) following a transient ischaemic attack (TIA) or cryptogenic stroke.

(b) For the surveillance of paediatric patients following cardiac surgeries that have an established risk of causing dysrhythmia.

(c) For young children and other patients where a cardiac dysrhythmia is suspected, but due to the patient's age, cognitive capacity or expressive language impairment, it is not possible to accurately assess symptom frequency based on medical history.

The frequency restriction does not apply to paediatric patients as it is acknowledged that response to medications may be monitored at shorter intervals than in adults and these patients are often too young to describe their symptoms.

Δ Include an exception to the "once in any four-week period" restriction for paediatric patients, as this service is used more frequently to assess medication responses in children who are too young to provide symptom information. This should be added to the descriptor or explanatory notes.

Rationale

These recommendations focus on modernising and improving the value of the MBS and are based on the following observations.

Δ The Committee discussed the possibility of restricting the indications for AECG but ultimately agreed that this investigation is useful for a broad range of indications. It is not practical to list specific indications, but the Committee agreed that if symptoms are infrequent, the yield and value of the test decreases significantly and alternate longer term monitoring should be used. It also noted that repeat studies are of low yield and value and should not be performed.

Δ The revised descriptor reflects contemporary clinical practice, allowing for studies that last longer than 48 hours if necessary. Repeat studies within 24 hours of a negative result are low yield and of low clinical value, and the Committee agreed that these should not be reimbursed.

Δ The Committee agreed that due to the short duration of monitoring for this AECG service, symptoms/episodes should be appropriately frequent in order to improve the yield of the service. Drawing on their clinical judgement, Committee members felt that it was reasonable to require that episodes occur at least two to three times per week. There will be other relevant clinical indications, and these should be included in the explanatory notes:

- For the detection of asymptomatic atrial fibrillation (AF) following a transient ischaemic attack (TIA) or cryptogenic stroke.
- For the surveillance of paediatric patients following cardiac surgeries that have an established risk of causing dysrhythmia.

- For young children and other patients where a cardiac dysrhythmia is suspected, but due to the patient's age, cognitive capacity or expressive language impairment, it is not possible to accurately assess symptom frequency based on medical history.

Δ There was consensus that restricting the frequency of testing to once in a four-week period would not adversely affect patient outcomes. Although a longer period of exclusion is appropriate in many cases, there may be instances where a repeat study at four weeks would be clinically useful, such as monitoring rate control in atrial fibrillation following medication changes. In FY 2014/15, 13 per cent of repeat AECG claims occurred within four weeks, with a further 30 per cent occurring in each of the following intervals: one to six months, 6 to 12 months and 12 to 18 months.

Δ A concern was raised that repeat studies in less than four weeks may be more common in the paediatric population. Data reveals similar rates of repeat studies in less than four weeks, compared to the adult population, but paediatric cardiologists felt that these services were clinically valuable (Table 16: Paediatric repeat holter monitor services). The Committee sought input from colleagues who specialise in paediatric arrhythmias, and in their clinical judgment, an exception should be created for children up to and including primary school age.

Table 16: Paediatric repeat holter monitor services (items 11709)

	0–4yrs	5–14yrs
Services	1,529	4,491
% of services that are repeats	43%	17%
% of services that are repeats within four weeks	10%	15%

Data is by date of service. Unpublished data from 2014-15 (Department of Health).

Δ If an AECG study produces a negative result, the Committee agreed that repeat studies are exceedingly low yield. However, it was acknowledged that there may be instances where a provider chooses to discretionally conduct a study for less than 48 hours. For this reason, the Committee recommended that no maximum duration should be specified in the descriptor. Studies that last longer than 48 hours should not be claimed multiple times, as these repeats do not reflect value for patients or the health system. If further monitoring after a negative study is required, providers should consider the utility of external loop recorders (ELR; item 11710) or implanted loop recorders (ILR) to facilitate monitoring in the longer term.

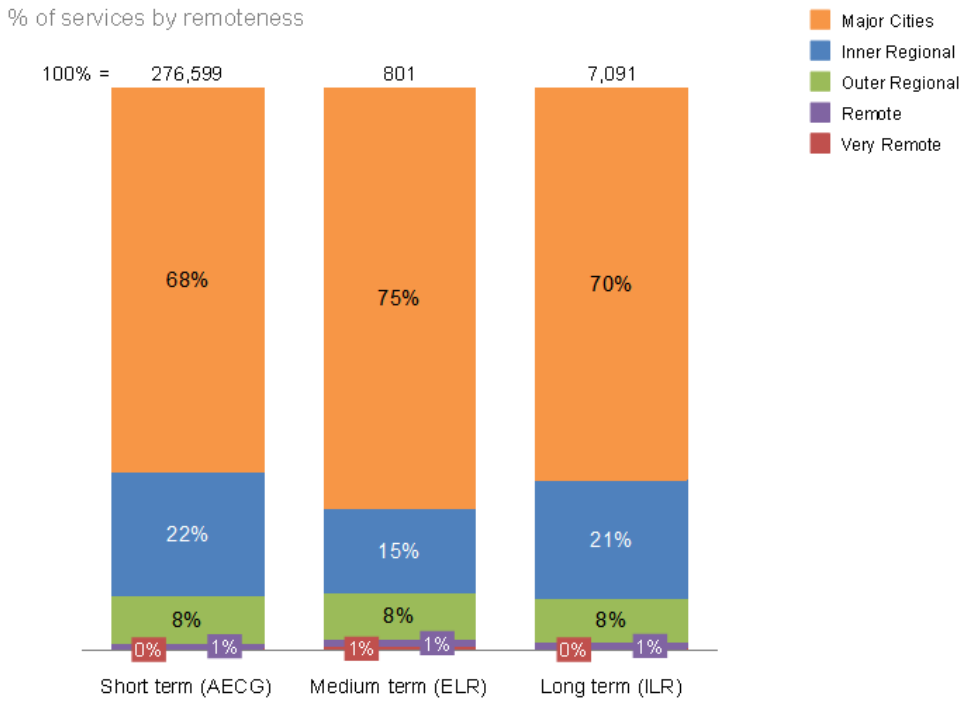
Δ This investigation is intended for outpatient use. It is not intended for inpatients, including patients on cardiac monitoring or telemetry. It was noted that some patients (such as post-syncope patients) benefit from cardiac monitoring, which is sometimes provided by private hospitals by outsourcing a Holter monitor service to a pathology provider. The Committee agreed that inpatients requiring cardiac monitoring can be remunerated through other mechanisms, and that these funds should be used to cover any provider outsourcing of this monitoring.

Δ The Committee discussed the implications of device failure during a study, including the implications for the consumer. There was consensus that device failure should render a service incomplete, which means that it is not claimable on the MBS. The provider should repeat the service, and the patient should incur no additional out-of-pocket costs. Members who have worked extensively with pathology providers indicated that this is already the standard and accepted practice among such providers.

Δ The Committee considered whether rural and remote areas could be disadvantaged by the proposed changes to this item, due to an inability to access longer term monitoring. Figure 22 shows that with the exception of very remote areas, remoteness does not significantly affect per-capita service rates. Furthermore, performing a short-term monitoring study on a patient

with infrequent symptoms was felt to be clinically inappropriate, inconvenient for the patient and of low value and it may result in a missed diagnosis or repeat testing if an appropriate service is not performed. Providers in rural and remote areas who use Holter studies for longer term monitoring of patients with infrequent symptoms will now be incentivised to provide ELR and ILR as longer term options. Where a remote provider is unable or unwilling to do so, it is in the patient's best interests to receive the appropriate investigation at the nearest available location.

Figure 22: Geographical variation by remoteness for different durations of AECG monitoring items



Data is by date of service extracted on 20 June 2016. Unpublished data from 2014-15 (Department of Health). Remoteness Area classes are based on ARIA. Reference: ASGS: Volume 5 – Remoteness Structure Australia July 2011, 1270.0.55.005. The patient postcode is linked to the Remoteness Area Concordance file. AECG items, 11709, ELR item 11711, ILR item 11722.

8.3 External loop/event recorder (ELR)

8.3.1 Item 11710

Current item descriptors and MBS data from FY 2014/15
Item 11710 – Schedule fee: $51.90 Services: 4,308 Total Benefits: $199,735 Average annual growth: 5.2% Ambulatory ECG monitoring, patient activated, single or multiple event recording, utilising a looping memory recording device which is connected continuously to the patient for 12 hours or more and is capable of recording for at least 20 seconds prior to each activation and for15 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period

Public data from 2014-15 (Department of Human Services).

Recommendation 23

Δ Split item 11710 into two items, with the following descriptors:

Item 11710A

Ambulatory ECG monitoring, patient activated, single or multiple event recording, utilising a memory recording device which is connected continuously to the patient for between 7 and 30 days and is capable of recording for at least 20 seconds prior to each activation and for 15 seconds after each activation. Including transmission, analysis, interpretation and report.

For the investigation of recurrent episodes of unexplained syncope, palpitation or other symptoms where a cardiac rhythm disturbance is suspected and where episodes are infrequent. With documentation of the indication for the investigation in the report.

Claimable once in any 3-month period.

Item 11710B

Ambulatory ECG monitoring, patient activated, single or multiple event recording, utilising a memory recording device which is connected continuously to the patient for up to 7 days and is capable of recording for at least 20 seconds prior to each activation and for 15 seconds after each activation. Including transmission, analysis, interpretation and report.

For the investigation of recurrent episodes of unexplained syncope, palpitation or other symptoms where a cardiac rhythm disturbance is suspected and where episodes occur at least weekly. With documentation of the indication for the investigation in the report.

Claimable once in any 3 month period.

- Δ Remove 75 per cent benefit from item 11710 (or 11710A and 11710B if split) as the service is intended for patients not admitted to a hospital.

Rationale

These recommendations focus on modernising and improving the value of the MBS and are based on the following observations.

- Δ The Committee agreed that it was important for the indications for ELR services to remain broad, in order to reflect the wide variety of potential situations for which this investigation is appropriate.
- Δ As with other AECG items, the Committee agreed that this investigation is intended for outpatient use. It is not intended for inpatients, including patients on cardiac monitoring or telemetry.
- Δ The Committee felt that repeat studies were of low clinical value. Various situations that may trigger a repeat study were discussed, and it was agreed that the three-month timeframe is reasonable and will not have a negative impact on patient outcomes.
- Δ A specific concern was raised about patients with very frequent symptoms who may fill a device in a short period of time and require a repeat study in order to complete their seven-day monitoring. However, there was clinical consensus that symptom/ECG correlation could be assessed based on the many captured episodes, and that further monitoring was unlikely to yield new information.
- Δ The Committee agreed that due to the costs associated with holding and losing equipment, these services are often low-profit or loss-making services. As such, misuse is highly unlikely.
- Δ It was agreed that the rebate for item 11710A should be slightly higher due to the longer period of monitoring and additional data for reporting.

8.3.2 Item 11711

Current item descriptors and MBS data from FY 2014/15
Item 11711 – Schedule fee: $28.30 Services: 813 Total Benefits: $21,622 Average annual growth: 20.4% Ambulatory ECG monitoring for 12 hours or more, patient activated, single or multiple event recording, utilising a memory recording device which is capable of recording for at least 30 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period

Public data from 2014-15 (Department of Human Services).

Recommendation 24

- Obsolete – remove item 11711 from the MBS.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observation.

- The Committee agreed that item 11711 is used for devices that lack the ability to provide pre-event recording, rendering the item obsolete. There was consensus that this item should be removed from the MBS, and that providers should use item 11710 instead. The Committee felt that these devices add negligible clinical value and could delay or prevent the use of appropriate contemporary investigations.

8.4 Implanted loop recorder (ILR)

8.4.1 Item 11722

Current item descriptors and MBS data from FY 2014/15
Item 11722 – Schedule fee: $34.75 Services: 7,076 Total Benefits: $212,526 Average annual growth: 27.8% Implanted ECG loop recording for the investigation of recurrent unexplained syncope if: (a) a diagnosis has not been achieved through all other available cardiac investigations; and (b) a neurogenic cause is not suspected; and (c) the patient to whom the service is provided does not have a structural heart defect associated with a high risk of sudden cardiac death; including reprogramming when required, retrieval of stored data, analysis, interpretation and report, not being a service to which item 38285 applies

Public data from 2014-15 (Department of Human Services).

Recommendation 25

- Restrict the claiming frequency of item 11722 to once per month.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observation.

- Analysis of the intervals between repeat studies (up to 18 months) showed that 4 per cent of repeat studies occurred within an interval of less than four weeks in FY 2014/15(9). However, there is a risk that future technologies that enable the live download of data from devices—some of which are already in use—may increase short interval repeat claiming. For this reason, it is recommended that claiming is restricted to once per month. It was agreed that this frequency is reasonable and will not have negative impacts on patient outcomes.

8.4.2 Item 38285

Current item descriptors and MBS data from FY 2014/15
Item 38285 – Schedule fee: $192.90 Services: 1,944 Total Benefits: $262,258 Average annual growth: 29.6% Implantable ecg loop recorder, insertion of, for diagnosis of primary disorder in patients with recurrent unexplained syncope where: - a diagnosis has not been achieved through all other available cardiac investigations; and - a neurogenic cause is not suspected; and - it has been determined that the patient does not have structural heart disease associated with a high risk of sudden cardiac death. Including initial programming and testing, as an admitted patient in an approved hospital (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 26

- Δ Amend the descriptor of item 38285 as proposed below, removing "as an admitted patient in an approved hospital" if an exception is granted by the Prostheses List to allow for outpatient claiming.

Item 38285

Implantable ECG loop recorder, insertion by a specialist or consultant physician, for diagnosis of primary disorder in patients with recurrent unexplained syncope where:

- A diagnosis has not been achieved through all other available cardiac investigations; and
- A neurogenic cause is not suspected; and
- It has been determined that the patient does not have structural heart disease associated with a high risk of sudden cardiac death.

Including initial programming and testing, and documentation of the indication for the investigation in the procedure report. (Anaes.)

- Δ Review the schedule fee for item 38285 in light of new technology.

Rationale

These recommendations focus on modernising and improving the value of the MBS and are based on the following observations.

- Δ This item remains clinically valuable, and the Committee felt that the growth in service volumes reflects previously unmet need in the community.
- Δ Previously, the devices required operative insertion at the level of the pectoralis muscle, with closure in two layers. However, improvements in technology have enabled the safe and effective insertion of ILRs subcutaneously. As a result, requiring patient admission ("as an admitted patient") now serves only to increase the overall financial cost to the health system and adds no clinical value. In order to address this, an exemption would need to be granted by the Prostheses List to allow ILRs to be claimed when not performed in hospital. Without this exception, a significant financial burden would be imposed on the patient or provider when IRLs were inserted as an outpatient service. It should be noted that paediatric patients often have these devices injected under general anaesthetic, and it is therefore recommended that anaesthetic approval be retained.
- Δ In light of the significantly reduced insertion time (a decrease from around one hour to routinely 5–10 minutes), the Committee agreed that the schedule fee for this item should be reviewed to reflect contemporary service requirements.

- The Committee noted that this service is used to investigate neurocardiogenic syncope and agreed that this is likely to be clinically appropriate. The current descriptors and indication restrictions are new and are based on a recent review of the evidence conducted by the MSAC. Cryptogenic stroke is currently undergoing MSAC review, and consideration of this issue is therefore beyond the scope of the MBS Review. The Committee acknowledged that the current restriction on accessibility is partly due to the significant cost associated with inserting a new device, and that there is a need to restrict access to cases where there is high clinical value. This cost–benefit ratio may change over time as the cost of both the device and insertion decline.

8.4.3 Item 38286

Current item descriptors and MBS data from FY 2014/15
Item 38286 – Schedule fee: $173.75 Services: 573 Total Benefits: $52,095 Average annual growth: 14.2% Implantable ecg loop recorder, removal of, as an admitted patient in an approved hospital (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 27

- Amend the descriptor of item 38286 as proposed below, removing the following text: "as an admitted patient in an approved hospital."

Item 38286

Implantable ECG loop recorder, removal of. (Anaes.)

- Review the schedule fee for this item in light of new technology.

Rationale

These recommendations focus on modernising the MBS and are based on the following observations.

- It is now possible to safely remove devices that have been implanted subcutaneously in the outpatient setting for adult patients. Inpatient removal continues to be best practice for the removal of older devices, however, which are implanted at the level of the pectoralis muscle.
- As with ILRs, the amount of time required to remove devices has decreased, although less markedly. The schedule fee for this item should therefore be reviewed to reflect contemporary service requirements.

8.5 Cardiac resynchronisation device

Current item descriptors and MBS data from FY 2014/15
Item 38365 – Schedule fee: $255.45 Services: 401 Total Benefits: $33,080 Average annual growth: 11.4% Permanent cardiac synchronisation device (including a cardiac synchronisation device that is capable of defibrillation), insertion, removal or replacement of, for a patient who: (a) has: (i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) satisfied the requirements mentioned in paragraph (a) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)

Current item descriptors and MBS data from FY 2014/15
Item 38368 – Schedule fee: $1224.60 Services: 1,224 Total Benefits: $915,492 Average annual growth: 10.4% Permanent transvenous left ventricular electrode, insertion, removal or replacement of through the coronary sinus, for the purpose of cardiac resynchronisation therapy, including right heart catheterisation and any associated venogram of left ventricular veins, other than a service associated with a service to which item 35200 or 38200 applies, for a patient who: (a) has: (i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 120 ms; or (b) has: (i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)
Item 38371 – Schedule fee: $287.85 Services: 1,125 Total Benefits: $95,066 Average annual growth: 11.4% Permanent cardiac synchronisation device capable of defibrillation, insertion, removal or replacement of, for a patient who:(a) has:(i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) has:(i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 150 ms (Anaes.)
Item 38654 – Schedule fee: $1224.60 Services: 46 Total Benefits: $29,598 Average annual growth: -2.4% Permanent left ventricular electrode, insertion, removal or replacement of via open thoracotomy, for the purpose of cardiac resynchronisation therapy, for a patient who:(a) has:(i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or(b) has:(i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 28.1

- Allow items 38365 and 38368 to include an assistant.

Recommendation 28.2

- Remove “sinus rhythm” from the inclusion criteria for items 38365 and 38368; and
- Amend the descriptor for items 38365 and 38368 to read:

Item 38368

Permanent transvenous left ventricular electrode, insertion, removal or replacement of via the coronary sinus, including right heart catheterisation and any associated venograms, not associated with service to which item 35200, 38200 or 38212 applies, for a patient with:

- Chronic heart failure of NYHA class III or IV (despite optimised medical therapy), LVEF less than 35% and QRS duration of greater than or equal to 130ms.
- Chronic heart failure of NYHA class II (despite optimised medical therapy), LVEF less than 35% and QRS duration of greater than or equal to 150ms. (Anaes.) (Assist.)

Item 38365

- Δ Permanent cardiac resynchronisation device, insertion, removal or replacement, not being a service for which item 38212 applies, for a patient with:
  - Chronic heart failure of NYHA class III or IV (despite optimised medical therapy), LVEF less than 35% and QRS duration of greater than or equal to 130ms.
  - Chronic heart failure of NYHA class II (despite optimised medical therapy), LVEF less than 35% and QRS duration of greater than or equal to 150ms. (Anaes.) (Assist.)

Recommendation 28.3

- Δ Remove item 38371 from the MBS as the above changes render it redundant.
- Δ Consolidate items 38654, 38470 and 38473 into a single item (detailed in surgical recommendation 52).

Rationale

These recommendations focus on simplifying the MBS and updating the indication criteria to align with contemporary clinical practice and international guidelines. They are based on the following observations.

- Δ Removing "sinus rhythm" from the inclusion criteria aligns with many international clinical guidelines.
- Δ The Committee agreed that the majority of patients who may not be in sinus rhythm would already receive this item, having been classified as having "paroxysmal AF." There is good non-randomised evidence to support the use of cardiac resynchronisation devices in this population(62). The Committee noted that it was aware of patients who underwent direct-current (DC) cardioversion to regain sinus rhythm in order to meet the criteria for these items. It also noted that although 30 per cent of the target patient population has atrial fibrillation, many of these patients are already receiving these services. It would therefore be reasonable to expect that this change would increase volumes by 10 per cent to 20 per cent. It was noted that such a change may impact the cost-effectiveness of the service, and that this may not be acceptable.

  However, if the change improves the cost-effectiveness of the service, a specific note could be added specifying that AF was not an exclusion, instead of removing the sinus rhythm requirement. This would retain an exclusion for patients with other arrhythmias. The Committee felt that this change should be considered for an expedited MSAC review. During such a review, it may be worth considering the latest evidence on QRS duration, noting that new evidence has emerged supporting a higher requirement, as procedures in patients with a QRS of less 130 ms are potentially harmful (63).
- Δ The Committee agreed that items 38365 and 38368 are similar to or more complex than item 38654 and should be permitted to use an assistant.
- Δ The Committee agreed that the descriptor for item 38470 allows for all instances covered by item 38654, and that these items should be consolidated to simplify the MBS. Both procedures are performed almost entirely by cardiothoracic surgeons.

8.6 Electrophysiological studies

Current item descriptors and MBS data from FY 2014/15
Item 38209 – Schedule fee: $825.15 Services: 684 Total Benefits: $333,551 Average annual growth: 0.8% Cardiac electrophysiological study up to and including 3 catheter investigation of any 1 or more of syncope, atrioventricular conduction, sinus node function or simple ventricular tachycardia studies, not being a service associated with a service to which item 38212 or 38213 applies (Anaes.)
Item 38212 – Schedule fee: $1372.45 Services: 10,685 Total Benefits: $7,956,396 Average annual growth: 8.1% Cardiac electrophysiological study 4 or more catheter supraventricular tachycardia investigation; or complex tachycardia inductions, or multiple catheter mapping, or acute intravenous antiarrhythmic drug testing with pre and post drug inductions; or catheter ablation to intentionally induce complete AV block; or intraoperative mapping; or electrophysiological services during defibrillator implantation or testing not being a service associated with a service to which item 38209 or 38213 applies (Anaes.)
Item 38213 – Schedule fee: $408.70 Services: 90 Total Benefits: $27,524 Average annual growth: -24% Cardiac electrophysiological study, for follow-up testing of implanted defibrillator - not being a service associated with a service to which item 38209 or 38212 applies (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 29.1

Δ Leave item 38209 unchanged.

Recommendation 29.2

Δ Amend the descriptors of items 38212 and 38213 as described below:

Item 38212

Cardiac electrophysiological study involving 4 or more catheters for:

(a) Supraventricular tachycardia investigation; or

(b) Complex tachycardia inductions; or

(c) Multiple catheter mapping, or

(d) Acute intravenous antiarrhythmic drug testing with pre and post drug inductions; or

(e) Catheter ablation to intentionally induce complete AV block; or

(f) Intraoperative mapping.

Not being a service associated with a service to which item 38209 or 38213 applies. (Anaes.)

Item 38213

Cardiac electrophysiological study performed during the insertion of an implantable defibrillator or for defibrillation threshold testing at a time remote to implantation.

Not being a service associated with a service to which item 38209 or 38212 applies. (Anaes.)

Rationale

These recommendations focus on modernising the MBS and are based on the following observations.

- Item 38212 is clinically excessive for the purpose of defibrillator testing and has become significantly less common in contemporary practice. There was clinical consensus that the item is an historical legacy, and that this is now a very quick procedure that would be more appropriate under item 38213. Removal of this indication from item 38212 requires its addition to item 38213, in order to account for the instances where testing is still required. Testing at the time of insertion should be claimed as item 38213, when needed.
- There is no expected change in the total number of services, but a small volume shift between items 38212 and 38213 is expected.
- Service volumes for item 38212 have been growing at 8 per cent per year for the last five years. The Committee considered this data and felt that the population had been under-serviced historically, in which case this may be 'catch-up' growth. Access may also have improved in regional areas such as Far North Queensland (FNQ), further contributing to increased volumes.

8.7 Implantable cardiac defibrillator (ICD)

Current item descriptors and MBS data from FY 2014/15
Item 11725 – Schedule fee: $189.50 Services: None Total Benefits: None Average annual growth: N/A Implanted defibrillator (including Cardiac Resynchronisation Defibrillator) remote monitoring involving reviews (without patient attendance) of arrhythmias, lead and device parameters, if at least 2 remote reviews are provided in a 12 month period. Payable only once in any 12 month period.
Item 11726 – Schedule fee: $94.75 Services: None Total Benefits: None Average annual growth: N/A Implanted defibrillator testing with patient attendance following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus, not being a service associated with a service to which item 11727 applies.
Item 11727 – Schedule fee: $94.75 Services: 49,842 Total Benefits: $4,017,423 Average annual growth: 11.2% Implanted defibrillator testing involving electrocardiography, assessment of pacing and sensing thresholds for pacing and defibrillation electrodes, download and interpretation of stored events and electrograms, including programming when required, not being a service associated with a service to which item 11700, 11718, 11719, 11720, 11721, 11725 or 11726 applies
Item 38384 – Schedule fee: $1052.65 Services: 1,327 Total Benefits: $610,471 Average annual growth: 9.3% Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for, primary prevention of sudden cardiac death in: - patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)
Item 38387 – Schedule fee: $287.85 Services: 916 Total Benefits: $90,551 Average annual growth: 8.4% Automatic defibrillator generator, insertion or replacement of for, primary prevention of sudden cardiac death in: - patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies, not for defibrillators capable of cardiac resynchronisation therapy (Anaes.) (Assist.)
Item 38390 – Schedule fee: $1052.65 Services: 975 Total Benefits: $494,751 Average annual growth: 4.9%

Current item descriptors and MBS data from FY 2014/15
Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)
Item 38393 – Schedule fee: $287.85 Services: 1,272 Total Benefits: $132,218 Average annual growth: 2.7% Automatic defibrillator generator, insertion or replacement of for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies. (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 30.1

Δ Consolidate items 38384 and 38390, using the following descriptor:

Item 38384X

Implantable defibrillator, insertion of patches for, insertion of transvenous endocardial or extravascular lead in patients with at least one of:

(a) A history of haemodynamically significant ventricular arrhythmias in the presence of structural heart disease; or

(b) Documented high-risk genetic cardiac disease; or

(c) Ischaemic heart disease, LVEF of less than 30% at least one month after myocardial infarction and on optimised medical therapy; or

(d) Patients with chronic NYHA class II or III heart failure, with LVEF less than 35% despite optimised medical therapy.

Not being a service to which item 38212 applies. (Anaes.) (Assist.)

Recommendation 30.2

Δ Consolidate items 38387 and 38393 with the following descriptor:

Item 38387X

Implantable defibrillator generator, insertion, replacement or removal, for patients with at least one of:

(a) A history of haemodynamically significant ventricular arrhythmias in the presence of structural heart disease; or

(b) Documented high-risk genetic cardiac disease; or

(c) Ischaemic heart disease, LVEF of less than 30%, at least one month after myocardial infarction and on optimised medical therapy; or

(d) Patients with chronic NYHA class II or III heart failure, with LVEF less than 35% despite optimised medical therapy.

Not being a service to which item 38212 applies. (Anaes.) (Assist.)

Recommendation 30.3

- Amend the descriptor for item 11727 to specify that it can only be claimed when the doctor is immediately available, and can directly review the patient and can have an impact on patient outcomes.

Item 11727

Implanted defibrillator testing involving electrocardiography, assessment of pacing and sensing thresholds for pacing and defibrillation electrodes, download and interpretation of stored events and electrograms, including programming when required. Performed where a medical practitioner is immediately available to attend the patient and where such testing is clinically indicated.

Not being a service associated with a service to which item 11700, 11718, 11719, 11720, 11721, 11725 or 11726 applies.

Recommendation 30.4

- Items 11725 and 11726 for remote monitoring were recently added to the MBS and were therefore agreed to be beyond the scope of this review.

Rationale

These recommendations focus on simplifying the MBS and aligning descriptors with contemporary clinical practice. They are based on the following observations.

- Adding "high-risk genetic cardiac disease" to the scope of these items is recommended to align the descriptors with contemporary practice. Class 2A or class 1 recommendations exist for this, as reflected in the current CSANZ guidelines (64,65). As new risk markers develop every few years, overly prescriptive descriptors may rapidly become obsolete. The proposed wording allows for future flexibility. The Committee felt that the small number of patients in this category are already being billed under current MBS items, and that budgetary impacts would be minimal as a result.
- The Committee discussed the role of subcutaneous/extravascular lead insertion in relation to items 38384 and 38390. This issue has been recently reviewed by the MSAC, and the original applicants are required to resubmit a new application to the MSAC if new data becomes available to support the service. In light of the recent MSAC review, the Committee agreed that further recommendations on this topic were beyond the scope of the MBS Review.
- The Committee agreed that in the public health system, it is already standard practice for a doctor to be immediately available during the provision of implanted cardiac defibrillator testing. It agreed that this is appropriate to carry across to private practice.

8.8 Ablation of accessory pathways

Current item descriptors and MBS data from FY 2014/15
Item 38287 – Schedule fee: $2098.45 Services: 4,183 Total Benefits: $6,821,196 Average annual growth: 6.8% Ablation of arrhythmia circuit or focus or isolation procedure involving 1 atrial chamber (Anaes.) (Assist.)
Item 38290 – Schedule fee: $2671.95 Services: 3,072 Total Benefits: $6,149,831 Average annual growth: 15.1% Ablation of arrhythmia circuits or foci, or isolation procedure involving both atrial chambers and including curative procedures for atrial fibrillation (Anaes.) (Assist.)

Current item descriptors and MBS data from FY 2014/15
Item 38293 – Schedule fee: $2868.05 Services: 450 Total Benefits: $981,898 Average annual growth: 16.5% Ventricular arrhythmia with mapping and ablation, including all associated electrophysiological studies performed on the same day (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 31

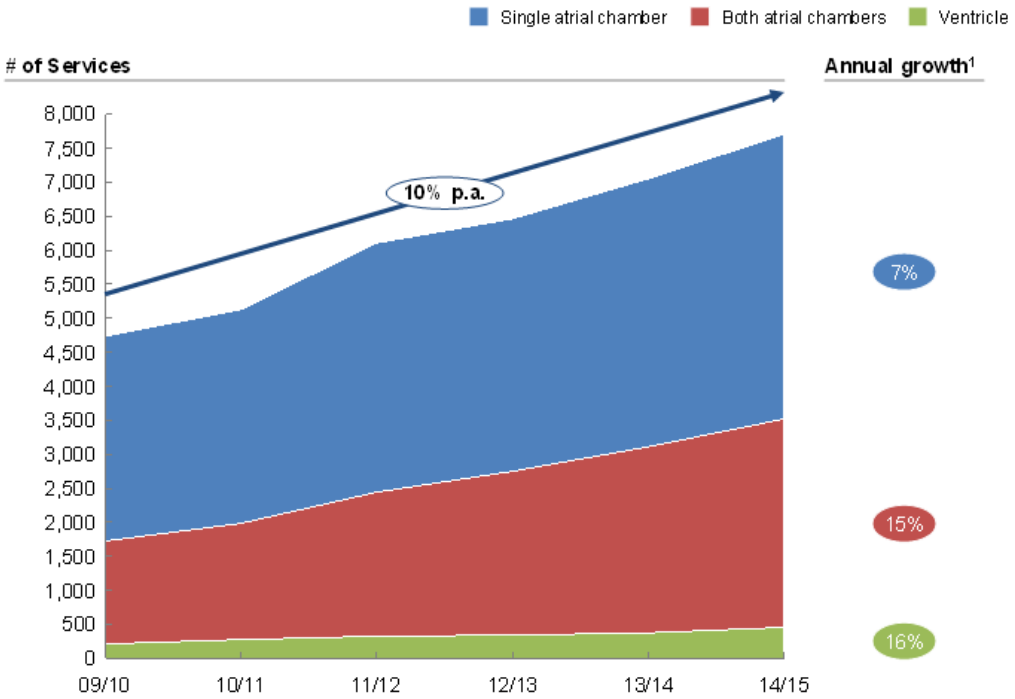
- Leave items 38287, 38290 and 38293 unchanged.

Rationale

These recommendations focus on ensuring the MBS is in line with contemporary practice and are based on the following observations.

- The Committee agreed that atrial flutter is one of the supraventricular tachycardia (SVT) indications for item 38287 and clinically does not warrant a unique item number. Although some ablations for flutter are simple, some single-chamber ablations are more complicated. However, it was felt that the brevity of flutter ablations is balanced by more complex single-chamber ablations, and that there is no evidence of any issue that necessitates a review of the item.
- The Committee felt that the considerable growth in use of these items (Figure 23) reflected (i) the increasing number of electrophysiologists, which is improving access to services; and (ii) a change in clinical guidelines, which now identify ablation as a first-line treatment for a number of arrhythmias.
- Although there has been considerable growth in use of item 38293, this is a significant procedure and there was clinical consensus that no one would perform it unnecessarily. Furthermore, changes in clinical guidelines mean that ablation is now a first-line treatment, and it is likely that this is driving increased use of this item.
- The AECG and Electrophysiology Working Group considered the items for division of accessory pathways however surgeons account for 90 per cent of claims for items 38512 and 38515. For this reason, these items were referred to the Cardiac Surgical Working Group for consideration and are discussed in Section 9.5.4. Item 38518 only had 2 services in 2014/15 and was thought to be potentially obsolete, however was also referred to the Cardiac Surgical Working Group for review and retained as outlined in Section 9.5.4.

Figure 23: Growth of ablation services over five years (includes items 38387, 38290, 38293)



1 Compound annual growth over 5 years.
Data is by date of service. Unpublished data from 2009-15 using claims processed between 1 July 2014 – 30 April 2016 (Department of Health).

8.9 Pacemaker insertion

Current item descriptors and MBS data from FY 2014/15
Item 38350 – Schedule fee: $638.65 Services: 2,796 Total Benefits: $1,002,970 Average annual growth: 6.9% Single chamber permanent transvenous electrode, insertion, removal or replacement of, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)
Item 38353 – Schedule fee: $255.45 Services: 9,871 Total Benefits: $1,117,848 Average annual growth: 5.8% Permanent cardiac pacemaker, insertion, removal or replacement of, not for cardiac resynchronisation therapy, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)
Item 38356 – Schedule fee: $837.35 Services: 6,625 Total Benefits: $4,082,981 Average annual growth: 7.3% Dual chamber permanent transvenous electrodes, insertion, removal or replacement of, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)
Item 11718 – Schedule fee: $34.75 Services: 11,549 Total Benefits: $341,826 Average annual growth: 7.3% Implanted pacemaker testing involving electrocardiography, measurement of rate, width and amplitude of stimulus, including reprogramming when required, not being a service associated with a service to which item 11700, 11719, 11720, 11721, 11725 or 11726 applies
Item 11719 – Schedule fee: $66.85 Services: None Total Benefits: None Average annual growth: N/A Implanted pacemaker (including cardiac resynchronisation pacemaker) remote monitoring involving reviews (without patient attendance) or arrhythmias, lead and device parameters, if at least one remote review is provided in a 12 month period. Payable only once in any 12 month period

Current item descriptors and MBS data from FY 2014/15		
Item 11720 – Schedule fee: $66.85 Services: None	Total Benefits: None	Average annual growth: N/A Implanted pacemaker testing, with patient attendance, following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus including reprogramming when required, not being a service associated with a service to which item 11718 or 11721 applies.
Item 11721 – Schedule fee: $69.75 Services: 140,527	Total Benefits: $8,348,467	Average annual growth: 8.3% Implanted pacemaker testing of atrioventricular (AV) sequential, rate responsive, or antitachycardia pacemakers, including reprogramming when required, not being a service associated with a service to which item 11700, 11718 11719, 11720, 11725 or 11726 applies
Item 38256 – Schedule fee: $267.25 Services: 791	Total Benefits: $86,109	Average annual growth: 7.2% Temporary transvenous pacemaking electrode, insertion of (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 32.1

- Leave items 11719, 11720, 38256, 38350, 38353 and 38356 unchanged. The first two items have only recently been added to the MBS.

Recommendation 32.2

- Remove item 11718 from the MBS. The consensus was that this item is obsolete as devices for which this is appropriate are no longer in use.

Recommendation 32.3

- Amend the descriptor for item 11721 to specify that it can only be claimed when the doctor is immediately available, can directly review the patient and can have an impact on patient outcomes.

Item 11721

Implanted pacemaker testing of atrioventricular (AV) sequential, rate responsive, or antitachycardia pacemakers, including reprogramming when required. Performed where a medical practitioner is immediately available to attend the patient and where such testing is clinically indicated.

Not being a service associated with a service to which item 11700, 11718 11719, 11720, 11725 or 11726 applies.

Rationale

These recommendations focus on modernising the MBS and supporting best practice care and are based on the following observations.

- Regarding item 11721, the Committee agreed that industry representatives perform many of these tests and then pass the information on to clinicians. Although there are benefits to this system, it was agreed that this is not the intent of the item. Specifically, it was felt that the spirit of the item is to cover all the costs of running a pacemaker clinic. The Committee further agreed that it is not good practice to have a device checked without clinician involvement. As a result, the clinical consensus was that the descriptor should be amended to ensure that the item is only claimed when the doctor is immediately available, can review the patient and can directly affect patient outcomes. It felt that this requirement would help to restrict low-value

services and reduce the 7 per cent annual growth seen in recent years. Growth should be monitored to ensure that it remains in line with pacemaker prevalence.

8.10 Extraction of chronically implanted lead

Current item descriptors and MBS data from FY 2014/15
Item 38358 – Schedule fee: $2868.05 Services: 99 Total Benefits: $213,072 Average annual growth: 2.2% Extraction of chronically implanted transvenous pacing or defibrillator lead or leads, by percutaneous method where the leads have been in situ for greater than six months and require removal with locking stylets, snares and/or extraction sheaths in a facility where cardiac surgery is available, in association with item 61109 or 60509 (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 33

Δ Update the descriptor and explanatory notes for item 38358 as proposed below.

Item 38358A

Extraction of chronically implanted transvenous pacing or defibrillator lead or leads, by percutaneous method where the leads have been in situ for greater than six months and require removal with locking stylets, snares and/or extraction sheaths.

Performed:

(a) By an appropriately trained provider; and

(b) With a cardiac surgeon present during lead extraction; and

(c) In a suitable environment in which a thoracotomy can be performed immediately and without transfer.

Claimable in association with item 61109 or 60509. (Anaes.) (Assist.)

Explanatory notes: International guidelines state that delays from injury to open access to the heart of more than 5–10 minutes are often associated with a fatal outcome. Preparations for this procedure should provide for this rare but life threatening circumstance.

Δ Split item 38358 into one item for extraction (as above) and one item for a cardiac surgeon to be present and on standby during lead extraction, in a cost-neutral manner.

Item 38358B

Extraction of chronically implanted transvenous pacing or defibrillator lead or leads. Claimable by a cardiac surgeon providing surgical backup for a provider who is not a cardiac surgeon. Present for the full duration of lead extraction, excluding low risk pre and post extraction phases, and able to immediately scrub and perform a thoracotomy if major complications should occur.

Claimed in association with item 38358. (Anaes.)

Rationale

These recommendations focus on modernising the MBS to reflect contemporary practice and are based on the following observations.

Δ The Committee noted that although this is a small item in terms of absolute volume and benefits, it is a high-risk procedure and is significant for the patients who require it. The

Committee felt that this item is one of the most highly regulated items on the MBS, performed by only nine providers in Australia. Major complications including death occur in 1 to 2 per cent of cases.

- The descriptor currently requires the procedure to be performed "in a facility where cardiac surgery is available," but the Committee felt that this does not sufficiently comply with Australian and international guidelines on the performance of this procedure (66,67). The Committee also heard that there have been a number of recent adverse events, including deaths, and it noted that a recent coronial inquest into one such death commented on the lack of clarity around requirements for the safe performance of this procedure (68). From a consumer perspective, the Committee felt that it was imperative to address any significant safety concerns, and that consumers would be very supportive of recommendations that ensure best-practice safety standards are met.
- If a cardiologist performs the procedure, the Committee agreed that it is accepted best practice to have a cardiac surgeon immediately available to assist in the event of complications. International guidelines developed in 2009 noted that in "the external review of fatal cases around the world, it was the strong consensus that when the superior vena cava was torn or perforated, delays from the injury to having open access to the heart of more than 5–10 minutes were often associated with a fatal outcome. Rescue efforts initiated within this time period have been usually successful."(66) For this reason, the Committee recommended updating the descriptor so that it requires a cardiac surgeon to be present during the lead extraction phase of all procedures. The surgeon does not need to be present during lower risk preparation and post-extraction phases. The surgeon does not need to be scrubbed while on standby, but open access to the heart is required in less than 5-10 minutes and adequate preparations must be in place to ensure this is possible.
- The Committee noted that the role of a surgeon who is physically present and on standby for the procedure is not the same as the role of an assistant (although it is similar). It was also noted that when a cardiac surgeon performs the procedure, a standby surgeon is not required. The Committee considered two options for the remuneration of standby surgeons. The first option was to create a new item for surgeon standby. It was noted that this sets a precedent, however, due to the strict requirement of physical attendance, and it was felt that this would have limited application beyond this procedure. The second option was to continue allowing the surgeon and proceduralist to negotiate an acceptable arrangement, as is the current practice. Current guidelines require a surgeon to be present, and the Committee agreed that this is often the case, although they are generally unpaid for this service. The current MBS descriptor does not require physical attendance, and the Committee felt that altering this would constitute a material change in the requirements. The Committee was concerned that providers billing each other to meet an MBS-mandated requirement could foster perverse relationships, with either party making unreasonable demands of the other. In light of this, the Committee recommended the creation of the specific item, noting that it would be claimed fewer than 100 times per year.
- The Committee discussed, with some contention, whether the item should be created in a cost-neutral way. Some members cited the current high rebate, and the likelihood that it was originally created with a team-supported procedure in mind, as a reason for a cost-neutral approach. However, others felt that this rebate was necessarily high to incentivise providers to up skill in this area, as it has significant accreditation requirements and is only performed by a small number of providers in low volumes. It was also suggested that when the item was originally created, there was no expectation in the guidelines for surgical backup to be present for the procedure, and that this would therefore be a new requirement and should be funded incrementally. Other members suggested that the item was always intended to include surgical

backup with fee splitting. Ultimately, the Committee remained divided, but the majority felt that a fee increase was unlikely to be accepted and that a cost-neutral approach should be taken due to the high rebate.

- In addition to the presence of a surgeon, Australian and international guidelines state that the procedure should be performed in an environment where an emergency thoracotomy can be performed.(66,67) Although a cardiac catheterisation suite (cath lab) is not as ideal a setting as a purpose-built hybrid operating theatre, it was agreed that it is an appropriate environment for the procedure if an emergency thoracotomy can be performed there. It was noted that the current CSANZ guidelines state that this "requirement [for a suitable environment] needs to be balanced against the need for high quality fluoroscopy."(67) The Committee agreed that procedures would not be performed without high-quality fluoroscopy, and that these requirements were not mutually exclusive. For this reason, the Committee has not recommended compromising access to emergency thoracotomy for improved fluoroscopy. It was agreed that transfer to an operating theatre and achieving open access to the heart within 5–10 minutes would not be achievable in this scenario, and the recommendation therefore does not allow for this.

8.11 Cardioversion

Current item descriptors and MBS data from FY 2014/15
Item 13400 – Schedule fee: $96.80 Services: 10,205 Total Benefits: $746,932 Average annual growth: 8.7% Restoration of cardiac rhythm by electrical stimulation (cardioversion), other than in the course of cardiac surgery (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 34

- Restrict item 13400 to a hospital or equivalent setting.

Rationale

This recommendation focuses on ensuring best practice care and is based on the following observations.

- A safety concern was raised regarding the 8 per cent of services that are provided in an outpatient setting. It was suggested that this percentage could reflect the item being claimed when electrical overdrive is performed in a provider's rooms. The Committee agreed that the service described by this item is serious in nature and that performing it outside a hospital or equivalent setting may compromise patient safety.
- There was clinical consensus that growth in the use of this item reflects the increasing burden of AF in the population.

8.12 Signal-averaged ECG

Current item descriptors and MBS data from FY 2014/15
Item 11713 – Schedule fee: $69.75 Services: 5,425 Total Benefits: $315,978 Average annual growth: 57% Signal averaged ECG recording involving not more than 300 beats, using at least 3 leads with data acquisition at not less than 1000Hz of at least 100 QRS complexes, including analysis, interpretation and report of recording by a specialist physician or consultant physician

Public data from 2014-15 (Department of Human Services).

Recommendation 35

- Obsolete – remove item 11713 from the MBS.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observations.

- There is no evidence for use of this service beyond investigating arrhythmogenic right ventricular dysplasia (ARVD), which is a rare condition. Although the guidelines support investigation for this condition, the Committee agreed that removing the item would not affect patient outcomes. Should the item be retained, access to the item should be significantly restricted.
- It was noted that a small number of providers in Western Australia provide more than half of all services. It was suggested that this is related to an ongoing clinical trial. The Committee agreed that the MBS is not intended to cover services for clinical trials, and that this trial does not justify retaining the item.

8.13 Tilt-table testing

Current item descriptors and MBS data from FY 2014/15
Item 11724 – Schedule fee: $168.90 Services: 1,753 Total Benefits: $261,922 Average annual growth: -2.7% Up-right tilt table testing for the investigation of syncope of suspected cardiothoracic origin, including blood pressure monitoring, continuous ECG monitoring and the recording of the parameters, and involving an established intravenous line and the continuous attendance of a specialist or consultant physician — on premises equipped with a mechanical respirator and defibrillator

Public data from 2014-15 (Department of Human Services).

Recommendation 36

- Leave item 11724 unchanged.

Rationale

This recommendation is based on the following observations.

- The Committee agreed that this item is the subject of clinical debate but felt that the test could be valuable if performed by a clinician with a specific interest and expertise in administering the test.
- The test takes a significant amount of time and the fee is relatively small, which means that there are no perverse incentives for administering the test.

8.14 Blood dye – dilution indicator testing

Current item descriptors and MBS data from FY 2014/15
Item 11715 – Schedule fee: $120.75 Services: 16 Total Benefits: $1,480 Average annual growth: -21.6% Blood dye — dilution indicator test

Public data from 2014-15 (Department of Human Services).

Recommendation 37

- Obsolete – remove item 11715 from the MBS.

Rationale

This recommendation focuses on modernising the MBS and is based on the following observations.

- There is no accepted role for this service in contemporary practice, and the item should be removed to prevent any patients being exposed to this clinically unnecessary test.
- The Committee felt that services claimed under this item number may represent coding errors.

9. Cardiac surgery recommendations

9.1 Cardiac Surgery Working Group membership

The Committee formed a Working Group to consider the cardiac surgical MBS items. The Cardiac Surgery Working Group included the following members:

- Professor Paul Bannon (Chair) – Head of Department, Cardiothoracic Unit, The Royal Prince Alfred Hospital; Professorial Chair of Cardiothoracic Surgery, University of Sydney; President, Australian and New Zealand Society of Cardiac and Thoracic Surgeons.
- Associate Professor Jayme Bennetts – Department of Surgery, Flinders University; Director, Cardiac and Thoracic Surgery, Flinders Medical Centre; Chair, Government Relations, Australian and New Zealand Society of Cardiac and Thoracic Surgeons.
- Professor Derek Chew – Professor of Cardiology, Flinders University; Regional Director of Cardiology, Southern Adelaide Local Health Network.
- Associate Professor Andrew MacIsaac – Director of Cardiology Services and Deputy Chief Medical Officer, St Vincent's Hospital, Melbourne; Immediate Past President, Cardiac Society of Australia and New Zealand.
- Mr Alex Segler – Independent consumer.
- Professor Richard Walsh – Specialist Cardiac Anaesthetist, Royal Prince Alfred Hospital, Strathfield Private Hospital and the Mater Hospital.
- Professor David Winlaw – Professor in Paediatric Cardiac Surgery, University of Sydney; Head of Paediatric Cardiothoracic Surgery, Sydney Children's Hospital Network (Westmead and Randwick).
- Professor Richard Harper – Emeritus Director of Cardiology, Monash Medical Centre; Adjunct Professor of Medicine, Monash University (Ex-Officio).

The following recommendations were developed by the Cardiac Surgery Working Group and accepted unanimously.

The Committee also endorsed the recommendations unanimously.

9.2 Restructure of cardiac surgery items as complete medical services

Recommendation 38

- Apply a general rule to the cardiac surgery section of the MBS specifying that the items contained therein are intended to be complete medical services. As such, these items are not to be co-claimed with services outside this section of the MBS.

Rationale

This recommendation focuses on the creation of complete medical services and is based on the following observation.

- The Committee and the Cardiac Surgery Working Group invested significant time in restructuring the MBS to reflect contemporary practice, with each item intended (where possible) to reflect a complete medical service. It was noted that cardiothoracic surgical procedures are regularly co-claimed with items from other areas of the MBS, particularly the vascular and plastics sections. It was agreed that this makes the MBS less user-friendly, requiring providers to search for items and resulting in rebate variability among patients. For this reason, the Committee recommended incorporating current appropriate co-claiming into the restructured items, and applying a rule that limits co-claiming from other sections of the MBS. This aligns with the recommendations of other surgical committees in the MBS Review. Such a restriction would only apply within a single procedure, and would not apply if a patient required multiple procedures or re-operation on the same day. Similarly, in cases such as trauma, where there are multiple simultaneous procedures, there should be no restrictions on providers of other disciplines claiming for the services they have provided during a single operation. It is not, however, intended that an assistant or other provider number be used to circumvent this restriction during a cardiothoracic procedure.
- The Committee is aware that the Principles and Rules Committee is considering changes to the Multiple Operations Rule. In light of the considerable work involved in formulating the recommendations outlined below, the Committee recommended exempting cardiac surgery from future changes. Implementing the recommendations below alongside other significant reforms without due consideration by cardiac surgeons could have significant negative consequences. Should other such reforms be applied to cardiac surgery items, the Committee would consider these surgical recommendations to be rescinded and recommended that it be reconvened to consider the implications of this, and to develop alternative recommendations if necessary.

9.3 Coronary artery bypass

9.3.1 Primary bypass items

Current item descriptors and MBS data from FY 2014/15
Item 38496 – Schedule fee: $623.95 Services: 2,026 Total Benefits: $379,250 Average annual growth: 0.7% Artery harvesting (other than internal mammary), for coronary artery bypass (Anaes.) (Assist.)
Item 38497 – Schedule fee: $2047.60 Services: 582 Total Benefits: $720,403 Average annual growth: 2.9% Coronary artery bypass with cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, not being a service associated with a service to which item 38498, 38500, 38501, 38503 or 38504 apply (Anaes.) (Assist.)

Current item descriptors and MBS data from FY 2014/15
Item 38498 – Schedule fee: $2047.60 Services: 11 Total Benefits: $16,125 Average annual growth: 1.9% Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38500, 38501, 38503, 38504 or 38600 apply (Anaes.) (Assist.)
Item 38500 – Schedule fee: $2200.00 Services: 2,661 Total Benefits: $4,207,925 Average annual growth: 2.3% Coronary artery bypass with cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38501, 38503 or 38504 apply (Anaes.) (Assist.)
Item 38501 – Schedule fee: $2200.00 Services: 181 Total Benefits: $296,861 Average annual growth: -5.3% Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500, 38503, 38504 or 38600 apply (Anaes.) (Assist.)
Item 38503 – Schedule fee: $2388.70 Services: 2,241 Total Benefits: $3,889,421 Average annual growth: 1.5% Coronary artery bypass with cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38500, 38501 or 38504 apply (Anaes.) (Assist.)
Item 38504 – Schedule fee: $2388.70 Services: 184 Total Benefits: $320,731 Average annual growth: 11.2% Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500, 38501, 38503 or 38600 apply (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 39

Δ Restructure the items used for coronary artery graft surgery (items 38497, 38498, 38500, 38501, 38503, 38504 and 38496) to create a complete medical service, and remove the now redundant item numbers, excluding item 38588 (which will be incorporated into all relevant codes but is retained for 12months). The proposed item descriptors are provided below.

Item 38500

Coronary artery bypass including cardiopulmonary bypass, with or without retrograde cardioplegia, with or without vein graft or grafts, including harvesting of left internal mammary artery and/or vein graft material where performed.

Not being a service associated with a service to which items 38497, 38498, 38501, 38503, 38504, 38806, 11700–11702, 45503, 33824 or 18260 apply. (Anaes.) (Assist.)

Item 3850A

Artery harvesting (other than left internal mammary), for coronary artery bypass where more than one arterial graft are required. Claimed in conjunction with 38500.

Item 3850B

Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass. Claimed in conjunction with 38500.

Item 3850X

Creation of a graft to graft anastomosis (including Y-graft, T-graft, and graft to graft extensions) requiring micro-arterial or micro-venous anastomosis using microsurgical techniques. Claimed in conjunction with 38500.

Rationale

The recommendation focuses on the creation of complete medical services to simplify the MBS and reduce rebate variability for patients. It is based on the following observations.

- The Committee noted that one of the goals of this review is to consolidate items into complete medical services, where appropriate. This is particularly relevant to the large number of surgical MBS items, which are co-claimed in highly variable patterns. This variation has multiple implications. For instance, two patients may undergo the same medical service but receive very different rebates due to co-claim variation.
- In general, if one service is an integral part of another service and cannot reasonably be claimed independently, both should be included within the same item number. However, if two services can be provided both separately and in combination, it is logical to retain them as separate services with separate item numbers. For this reason, it makes sense to consolidate coronary artery bypass graft (CABG) items into a complete medical service, but it does not make sense to consolidate CABG and valve replacement items. The Committee felt that some item delineation was an historical legacy and no longer reflected contemporary practice. As the Taskforce and this review encourage the modernisation of the MBS, historical idiosyncrasies should not constrain recommendations. The Committee also agreed that although there are variations between patients, developing a single item that represents a more complete medical service could reduce variation in MBS claiming practices.
- The Committee felt that co-claimed 'bolt-on' items are necessary to account for the added technical difficulty and potential patient outcome benefits associated with specific approaches. Such items would be claimed in addition to the 'base' complete medical service item. When considering the creation of bolt-on items, the Committee considered three criteria (these applied to all restructures, not only those related to bypass):
    1. The element requires a significant increase in the time or complexity of the procedure, which would warrant a higher MBS rebate.
    2. Evidence shows that the performance of this element improves patient outcomes for at least a subset of patients, and access to this service should be retained for those patients.
    3. The element is not performed equally or is not able to be performed by all providers. As a result, the creation of an averaged / 'swings and roundabouts' item would result in some providers being overpaid for simple procedures and others being underpaid for more complex procedures. This would create a disincentive for the provision of more complex services.
- Considering these criteria, the Committee acknowledged that off-pump coronary artery graft surgery (OPCAB) is a more technically difficult and potentially more time-consuming procedure, but noted that it can deliver equivalent cardiac outcomes with a lower stroke risk

when performed by a technically proficient surgeon, particularly among elderly and high-risk patients. (The evidence is unclear regarding the comparative long-term outcomes of on- versus off-pump surgery.) The Committee also noted that cardiac surgery is currently a credentialed profession. Due to the spectrum of patients and the complexity seen in clinical practice, additional specificity in terms of the providers who are able to perform off-pump procedures would be difficult to implement and of unclear value to patients or the health system. It was felt that the additional complexity and improved patient outcomes associated with off-pump surgery support this item being added to the core bypass item.

- When discussing right internal mammary artery (RIMA) and other (rarely gastroepipoleic) harvesting, the Committee agreed that left internal mammary artery (LIMA) harvesting is the standard of care and does not share the complexity or time requirements of the RIMA, and that it should be incorporated into the base item. The RIMA and radial arteries are regularly used for bypass procedures, but these are more time-consuming to perform. Evidence from studies and revised guidelines in the United States shows that bilateral internal mammary grafts in 'T' formation are associated with better patient outcomes (69–72). Bilateral internal mammary artery graft outcomes remain superior, despite the increased risk of sternal wound infection associated with this approach. The Committee acknowledged that radial and RIMA harvesting increase procedural complexity, but felt that removing this item could discourage best-practice care.

- Regarding the Y-graft conduit approach, there is evidence that the use of such approaches allows greater flexibility and makes anaortic procedures (where the aorta is not touched) achievable in more patients, which is associated with better patient outcomes (73–79). This procedure is performed by only a small subset of surgeons and requires a significant amount of time and skill. Although this item could reasonably be considered best practice, it is not standard practice, and it is not performed by the majority of operators. Adding a requirement for the Y-graft approach would therefore result in access issues. For this reason, this item was retained as a bolt-on procedure. The code is derived from the currently co-claimed 45503 plastic surgery item, which is used for all arterial tree grafts. It was agreed that a similar item should be created (although with an appropriately lower schedule fee) and a restriction placed on the co-claiming of other microsurgical items.

- In reviewing the MBS data provided, the Committee was struck by the variability in co-claiming practices, including the co-claiming of items that are clearly integral to the procedure. For example, the insertion of an intercostal catheter (item 38806) was co-claimed with over 10 per cent of item 38500 episodes in FY 2014/15 (9). Other inappropriately co-claimed items included intercostal nerve blocks (18260), thoracoscopy (38436), concomitant lung resection (38440), ECG trace and report (11700), and other items outside the cardiothoracic section of the schedule (excepting anastomosis items currently used for Y-graft procedures). The Committee strongly recommended taking steps to prevent the co-claiming of services that are clearly inherent to the procedure.

- The Committee felt that retrograde cardioplegia (retroplegia) represents best-practice care. Although it is not appropriate for all patient populations, it is now performed in a majority of CAGS and other cardiac procedures, and there is a trend towards more frequent use. The Committee also agreed that retroplegia is not a distinct procedure that would be performed independently. For this reason, it recommended incorporating it into the relevant items (CAGS, valve and aorta-related procedures) in a cost-neutral way, ensuring that the descriptors clearly reflect that this is an optional element of the procedure, to be performed at the surgeon's discretion in order to provide the most appropriate care for each individual patient. Once this item has been fully incorporated into the relevant procedural codes, it could be removed from

the MBS; however in the short term it should be retained to ensure some indications have not be inadvertently missed.

- The Committee acknowledged that many procedures (such as the arterial switch procedure) may be performed with or without retroplegia, particularly in paediatrics. However, it felt that creating a complete medical service specifically for this population would be difficult and of low value, given the diversity of paediatric cardiac surgery and the exceptionally low service volumes. It was agreed that although the rate of retroplegia use is lower in paediatrics, it would still be reasonable to utilise the single item for all patients. This would not result in significant disadvantage for any provider group, and it would have no impact on paediatric patient access or outcomes.

9.3.2 Patent diseased coronary artery

Current item descriptors and MBS data from FY 2014/15
Item 38637 – Schedule fee: $554.55 Services: 80 Total Benefits: $9,058 Average annual growth: -4.4% Patent diseased coronary artery bypass vein graft or grafts, dissection, disconnection and oversewing of (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 40

- Retain item 38687, despite low service volumes.

Rationale

This recommendation is based on the following observation.

- This discrete item number is expected to phase out over time. It is currently utilised in the 'redo' setting, and there is clear evidence that this increases the risk of surgery. This item should be retained as an 'add-on' to the base procedure.

9.3.3 Coronary endarterectomy

Current item descriptors and MBS data from FY 2014/15
Item 38505 – Schedule fee: $277.25 Services: 29 Total Benefits: $1,560 Average annual growth: 5.7% Coronary endarterectomy, by open operation, including repair with 1 or more patch grafts, each vessel (Anaes.) (Assist.)

Public data from 2014-15(Department of Human Services).

Recommendation 41

- Obsolete – delete item 38505 from the MBS.

Rationale

This recommendation focuses on modernising the MBS to reflect contemporary practice and is based on the following observation.

- Historically, this item referred to the removal of the lining from the full length of the vessel. In current practice, however, this item would only be claimed as part of a bypass procedure, rather than as a discrete service. For example, if a vessel was opened for grafting at the site of a lesion, the obstructing materials would be removed. For this reason, the Committee agreed that this is not a stand-alone service, and that it is at the operator's discretion to determine the best approach for performing a CAGS procedure. As a discrete medical service, the item is obsolete and should be removed from the MBS.

9.4 Valvular heart disease and aortic procedures

9.4.1 Primary valve-related items

Current item descriptors and MBS data from FY 2014/15
Item 38475 – Schedule fee: $831.75 Services: 21 Total Benefits: $4,211 Average annual growth: 7% Valve annuloplasty without insertion of ring, not being a service associated with a service to which item 38480 or 38481 applies (Anaes.) (Assist.)
Item 38477 – Schedule fee: $2003.35 Services: 434 Total Benefits: $368,195 Average annual growth: 7.2% Valve annuloplasty with insertion of ring not being a service to which item 38478 applies (Anaes.) (Assist.)
Item 38478 – Schedule fee: $970.40 Services: 710 Total Benefits: $189,812 Average annual growth: 1.9% Valve annuloplasty with insertion of ring performed in conjunction with item 38480 or 38481 (Anaes.) (Assist.)
Item 38480 – Schedule fee: $2003.35 Services: 695 Total Benefits: $723,392 Average annual growth: 3.7% Valve repair, 1 leaflet (Anaes.) (Assist.)
Item 38481 – Schedule fee: $2280.65 Services: 333 Total Benefits: $506,617 Average annual growth: 3.8% Valve repair, 2 or more leaflets (Anaes.) (Assist.)
Item 38483 – Schedule fee: $1720.90 Services: 7 Total Benefits: $3,558 Average annual growth: 7% Aortic valve leaflet or leaflets, decalcification of, not being a service to which item 38475, 38477, 38480, 38481, 38488 or 38489 applies (Anaes.) (Assist.)
Item 38485 – Schedule fee: $817.10 Services: 167 Total Benefits: $28,038 Average annual growth: 5.1% Mitral annulus, reconstruction of, after decalcification, when performed in association with valve surgery (Anaes.) (Assist.)
Item 38487 – Schedule fee: $1720.90 Services: None Total Benefits: None Average annual growth: -100% Mitral valve, open valvotomy of (Anaes.) (Assist.)
Item 38488 – Schedule fee: $1909.60 Services: 2,822 Total Benefits: $2,616,016 Average annual growth: 3.2% Valve replacement with bioprosthesis or mechanical prosthesis (Anaes.) (Assist.)
Item 38489 – Schedule fee: $2271.05 Services: 52 Total Benefits: $61,318 Average annual growth: -6.6% Valve replacement with allograft (subcoronary or cylindrical implant), or unstented xenograft (Anaes.) (Assist.)
Item 38490 – Schedule fee: $554.55 Services: 308 Total Benefits: $39,394 Average annual growth: 4.9% Sub-valvular structures, reconstruction and re-implantation of, associated with mitral and tricuspid valve replacement (Anaes.) (Assist.)
Item 38493 – Schedule fee: $1957.60 Services: 114 Total Benefits: $102,311 Average annual growth: 2.9% Operative management of acute infective endocarditis, in association with heart valve surgery (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 42.1

- Δ Restructure the items used for valve surgery to create more complete medical services, and remove the redundant item numbers, including item 38588 (which will be incorporated into all relevant codes).

Recommendation 42.2

- Δ The proposed changes for valve replacement items are as follows:
  - Item 38487: Leave this item unchanged.
  - Item 38488: Delete this item, which will be replaced by items 3848A and 3848B.
  - Item 38489: Delete this item, which will be replaced by items 3848A and 3848B.
  - Item 38490: Leave this item unchanged, only claimable with item 3848B.
  - Item 38485: Leave this item unchanged.
  - Create the following items:

Item 3848A

Aortic or pulmonary valve replacement with bioprosthesis or mechanical prosthesis. Including retrograde cardioplegia, where performed. (Anaes.) (Assist.)

Item 3848B

Mitral or tricuspid valve replacement with bioprosthesis or mechanical prosthesis. Including retrograde cardioplegia, where performed. (Anaes.) (Assist.)

Item 3848C

Valve explant of a previous prosthesis performed during valve replacement (3848A/3848B). . (Anaes.) (Assist.)

Recommendation 42.3

- Δ The proposed changes for valve repair items are as follows:
  - Item 38480: Delete this item, which is now included in item 3848E.
  - Item 38481: Delete this item, which is now included in item 3848F.
  - Item 38475: Delete this item, which has been replaced by items 3848E and 3848F.
  - Item 38477: Leave this item unchanged, but add the following explanatory note: "*For congenital surgery, alternative dissolvable options may be used instead of the insertion of permanent fixed rings which may result in negative long term outcomes.*"
  - Item 38478: Delete this item, which has been replaced by items 3848E and 3848F.
  - Item 38493: Leave this item unchanged.
  - Item 38483: Obsolete – delete from the MBS.
  - Create the following items:

Item 3848E

Simple valve repair, with or without annuloplasty, including quadrangular resection, cleft closure, or Alfieri. Including retrograde cardioplegia, where performed. (Anaes.) (Assist.)

Item 3848F

Complex valve repair, with or without annuloplasty, involving one of

(a) Neochords; or

(b) Chordal transfer; or

(c) Patch augmentation; or

(d) Multiple leaflets.

Including retrograde cardioplegia, where performed. (Anaes.) (Assist.)

Item 38477

Valve annuloplasty with insertion of ring, not being a service to which item 3848E or 3848F applies (Anaes.) (Assist.)

Explanatory note: For congenital surgery, alternative dissolvable options may be used instead of the insertion of permanent fixed rings which may result in negative long term outcomes

Recommendation 42.4

Δ Prevent inappropriate co-claiming of services inherent to the relevant procedures for all valve surgery items in this section, both new and amended, including items 38806, 38418, 11700–11702, 33824 and 18260.

Rationale

These recommendations focus on simplifying the MBS and creating complete medical services. They are based on the following observations.

Valve replacement

Δ The Committee agreed that there was an opportunity to modernise the valve procedure items under the MBS, and that these should be constructed as complete medical services, where possible. It was agreed that item 38487 (mitral valvotomy) should remain on the MBS, with no changes required. This item is most commonly performed in Indigenous populations and in some migrant or refugee populations, almost exclusively in public hospitals. Over the last 10 years, 1–10 services have been claimed each year. The Committee agreed that this is a discrete and appropriate service for the relevant patient groups and should be retained.

Δ The Committee agreed that items 38488 and 38489 should be modernised so that they are no longer demarcated by technology. It was noted that some of the technologies listed in the descriptors are no longer available in Australia.

Δ It was agreed that valve replacement items should be demarcated by the valve that is replaced (items 3848A and 3848B). This provides greater transparency for tracking and compliance purposes, particularly where multiple valves are replaced in the same episode of care. This change is complementary with item 38490 for reconstruction of sub-valvular structures.

Δ The Committee noted that there is currently no item or service for valve explant procedures. The removal of a previously inserted bioprosthesis or mechanical prosthesis is complex and increases the duration of a valve replacement by approximately one hour. The Committee agreed that this service is currently under-remunerated, and it recommended that this change

should not be cost-neutral, acknowledging that this may entail an expedited MSAC review (the service is not new). This MSAC application would be most appropriately sponsored by The Australian and New Zealand Society of Cardiac and Thoracic Surgeons.

- The Committee recommended retaining item 38490 as a discrete item as this is not currently standard practice and there may be patients for whom an alternative approach is more appropriate. There is evidence that preserving the subvalvular apparatus may improve short- and long-term outcomes, but this is relatively uncommon in surgical practice. This 'bolt on' item should be retained to incentivise this emerging best practice.
- The Committee acknowledged that allografts can be very complex procedures. However, they are likely to be co-claimed with the relevant aortic/aortic root procedures, and the Committee agreed that this is a reasonable approach.
- It was acknowledged that although paediatric surgeons generally operate under the paediatric section of the MBS, these revised items would not disadvantage them.

Valve repair

- Regarding leaflet repair items 38480 and 38481, the Committee agreed that there was a significant difference between the two procedures. A two-leaflet repair is a more technically complicated procedure, and the Committee was surprised to note that these accounted for approximately 30 per cent of claims in FY 2014/15. The Committee agreed that full valve repair has better outcomes for patients compared with valve replacement. Higher performing facilities will do more complete repairs including the anterior leaflet, and this has better patient outcomes.
- The Committee discussed the lack of clarity in the current item descriptors—and the MBS more broadly—regarding the claiming of attempted services. For example, a repair was attempted in a patient who was then taken off heart lung bypass. The repair was unsuccessful, and a second repair was attempted. The patient was again taken off bypass, but the repair was again found to be unsuccessful. The procedure then progressed to a valve replacement. Both the repair and replacement items were claimed (with the lesser item subject to the multiple services rule). The Committee noted that there is an item for procedures that are aborted for medical reasons, but it did not believe this was appropriate on this occasion. Specifically, it was suggested that this MBS item is intended for procedures that are cancelled prior to commencement. The Department clarified that this is not the intent of the abortive item, as the MBS does not provide funding for cancelled procedures.
- The Committee agreed that in the case of valve repair, clinicians would never intend to do both a repair and a replacement in a single session. For this reason, it felt that there were situations in which co-claiming repair and replacement items would be appropriate, and that this would encourage clinicians to attempt a repair (where appropriate), which may improve patient outcomes. However, it acknowledged that there are also situations in which co-claiming would be considered fraudulent, including attempting a repair for an inadequate amount of time. Providers who have high rates of co-claiming should be subject to compliance measures and audit.
- The Committee agreed that the schedule fees for items 38480 and 38481 are not appropriately distributed and should be reviewed in light of the time and skill required for each procedure. It also felt that there is overlap with the annuloplasty items, and that differentiation by number of leaflets is a poor indication of complexity. (For example, the Alferi procedure involves a suture between two leaflets and is relatively simple, but it attracts the higher rebate for item

38481.) The Committee recommended restructuring the items to create items for simple and complex valve replacements, retaining some additional related items.

- The Committee agreed that performing an annuloplasty with valve repairs represents best practice, although there are instances where this may not be true, particularly in paediatric practice. It agreed that annuloplasty should be consolidated into the new repair items (items 3848E and 3848F), but as a 'with or without' option, performed at the discretion of the surgeon.
- The Committee felt that item 38477 (annuloplasty with ring) should be retained as an appropriate discrete service. The explanatory notes should clarify that alternatives (including dissolvable rings or compression bands) may be used instead of permanent fixed rings for congenital surgery in order to improve long-term outcomes, as these procedures are performed in hearts that are still growing.
- The Committee agreed that item 38483 no longer reflects contemporary clinical practice and has been replaced by items 38480 and 38481. The item was therefore considered obsolete, as there is minimal evidence for aortic valve leaflet repair. If this procedure is performed, it can be claimed under the other valve leaflet repair items. The item is not used in the paediatric population.
- The Committee agreed that item 38493 should remain a discrete service. Although it is not performed in isolation, it is uncommon and is infrequently co-claimed. It is also a significantly more complex and time-consuming procedure.

Co-claiming

- The Committee noted that 14 per cent of valve-related services were co-claimed with one of three items for thoracotomy or sternotomy involving division of adhesions (9). It suggested that this reflects the adoption of minimally invasive approaches for valve procedures via thoracotomy, as opposed to the standard approach via sternotomy. The Committee determined that as with other evolutions in surgical technique (such as the move to laparoscopic procedures), the access required for the procedure is part of the primary item. The surgeon should choose the most appropriate approach for the patient, and additional items should not be claimed to account for specific approach decisions. For example, it is inappropriate to co-claim an item 38418 (exploratory thoracotomy) simply because a cardiac procedure is conducted using a thoracotomy approach instead of sternotomy.
- The Committee noted that closure of atrial septal defect (ASD) services were co-claimed with up to 33 per cent of some valve procedures—well above the expected level (which is 15 per cent, based on anecdotal evidence). The Committee considered including this item in the complete medical services for other valve procedures. However, it ultimately decided that it should be retained as a discrete item because the procedure should not be performed in the majority of cases, and because it requires additional time and specific planning to perform. The Committee also recommended a review of co-claiming patterns for ASD procedures, particularly where rates are significantly greater than 15 per cent.
- The Committee considered including items for the division of accessory pathways into the complete services, but it agreed that this is a discrete service that may be performed at the same time. It also noted that there is evidence that it may improve survival over time. The Committee agreed that the current co-claiming rate of 20 per cent aligned with members' experience, although this is expected to increase over time as more providers become convinced by the increasing weight of international evidence regarding the merits of this combination. The generational shift in surgeons also means that more young surgeons will be trained in the procedure, which will further increase uptake.

- The Committee noted that some inappropriate co-claiming of items (such as insertion of an intercostal catheter) was occurring with valve-related procedures. Steps should be taken by the MBS to prevent the co-claiming of these items (items 38806, 11700–11702, 33824 and 18260).
- The Committee recommended incorporating retroplegia into the valve replacement and repair services, as described for CAGS.
- The Committee agreed that routine CAGs and valve procedures should not be co-claimed with the vascular surgical codes for the repair of major vessels, such as items 33815, 33818 and 33824. It felt that co-claiming these services for true major intraoperative complications would be rare, and not in the order of 10–24 per cent evident in the MBS data. It was noted that these items may be claimed for transcatheter aortic valve implantation (TAVI) procedures to account for wound closure. This would be low volume and should cease with the creation of TAVI items, should they be listed by the MSAC.

9.4.2 Ascending thoracic aorta

Current item descriptors and MBS data from FY 2014/15
Item 38550 – Schedule fee: $2146.15 Services: 89 Total Benefits: $115,184 Average annual growth: 8.6% Ascending thoracic aorta, repair or replacement of, not involving valve replacement or repair or coronary artery implantation (Anaes.) (Assist.)
Item 38553 – Schedule fee: $2719.75 Services: 564 Total Benefits: $1,139,648 Average annual growth: 12.1% Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)
Item 38556 – Schedule fee: $3104.70 Services: 314 Total Benefits: $723,880 Average annual growth: 7.5% Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)
Item 38572 – Schedule fee: $1987.05 Services: 115 Total Benefits: $83,733 Average annual growth: 15.1% Operative management of acute rupture or dissection, in conjunction with procedures on the thoracic aorta (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 43.1

- Create an item for valve-sparing aortic root surgery, using the following proposed descriptor:

Item 385XXA

Valve sparing aortic root surgery with reimplantation of aortic valve and coronary arteries and with replacement of the ascending aorta. Including cardiopulmonary bypass, and including retrograde cardioplegia, where performed. (Anaes.) (Assist.)

Recommendation 43.2

- Leave the descriptors for items 38550, 38553, 38556 and 38572 unchanged, except as described below.

Recommendation 43.3

- Create complete services by including appropriate and necessary procedures in all items in this section, such as vascular anastomoses and retroplegia.

Recommendation 43.4

- Prevent inappropriate co-claiming of services inherent to the relevant procedures (such as intercostal catheter insertion), including items 38806, 38418, 11700–11702, 33824 and 18260.

Rationale

These recommendations focus on the creation of complete medical services and modernising the MBS to reflect contemporary practice. They are based on the following observations.

- The Committee agreed that there is scope for simplifying aortic procedure codes, and that structuring under the themes of ascending, descending and arch-related would provide clear distinctions. It considered a revised structure suggested by one of its members and felt that this provided an appropriate update to the MBS, reflecting contemporary surgical practice.
- To create complete medical services, the Committee recommended a new item (item 385XA) for valve-sparing aortic root surgery. This is only performed by a few surgeons in Australia and is a complex and time-consuming procedure. For this reason, multiple items are often co-claimed (for example, item 38556 with a two-leaflet valve repair, with or without an aortic arch procedure). There would be no expected increase in overall volume or MBS benefits paid, although the fee for this item should be commensurate with the complexity of the procedure. The Committee agreed that retroplegia should be included in these services, and that vascular anastomoses are integral to performing this procedure and should also be incorporated.
- The Committee agreed that item 38572 should be retained as a 'bolt on' item for aortic procedures to reflect the significant time, complexity and risk associated with such procedures.
- It is inappropriate to co-claim certain services (such as the insertion of an intercostal catheter) as they are already included in the schedule fee for the service. Such co-claiming should be prevented.
- It was highlighted that the items for paediatric aortic surgery (items 38706–38712) are significantly limited, and that the same items are used to cover services ranging from 45 minutes to five hours. The current wording of adult items precludes their use in paediatric populations. The proposed wording (in addition to the recommended changes to the paediatric items outlined in Section 9.4.5) will ensure that the MBS more accurately describes the procedures being performed.

9.4.3 Descending thoracic aorta

Current item descriptors and MBS data from FY 2014/15
Item 38568 – Schedule fee: $1862.95 Services: 24 Total Benefits: $23,010 Average annual growth: 3.7% Descending thoracic aorta repair or replacement of, without shunt or cardiopulmonary bypass, by open exposure, percutaneous or endovascular means (Anaes.) (Assist.)
Item 38571 – Schedule fee: $2051.75 Services: 19 Total Benefits: $15,291 Average annual growth: 3.5% Descending thoracic aorta, repair or replacement of, using shunt or cardiopulmonary bypass (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 44.1

- Leave the descriptors of items 38568 and 38571 unchanged.

Recommendation 44.2

- Restrict inappropriate co-claiming of services inherent to the relevant procedures (such as intercostal catheter insertion and thoracotomy approach), including items 38806, 38418, 11700–11702, 33824 and 18260.

Recommendation 44.3

- The Committee also recommended that the Vascular Clinical Committee consider the most appropriate construction of complete medical services.

Rationale

The recommendations focus on modernising the MBS. They are based on the following observation.

- The Committee felt that these items were sufficiently simple. However, steps could be taken to promote a more complete medical service and reduce patient rebate variability, as with the creation of complete medical services for vascular procedures. The Committee agreed that the co-claiming of item 38571 with items 33818 and 38603 was likely to be related to the endoluminal stenting of descending aortic aneurysms. Although the Committee agreed that closure of vascular access for a transluminal procedure should be included in the primary procedure code and not co-claimed, it recommended that the Vascular Clinical Committee consider the most appropriate construction of complete vascular services.

9.4.4 Aortic arch

Current item descriptors and MBS data from FY 2014/15
Item 38559 – Schedule fee: $2531.00 Services: 55 Total Benefits: $100,676 Average annual growth: 3.2% Aortic arch and ascending thoracic aorta, repair or replacement of, not involving valve replacement or repair or coronary artery implantation (Anaes.) (Assist.)
Item 38562 – Schedule fee: $3104.70 Services: 98 Total Benefits: $224,468 Average annual growth: 17.4% Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)
Item 38565 – Schedule fee: $3482.25 Services: 109 Total Benefits: $283,144 Average annual growth: 9.3% Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 45

- In conjunction with the changes made to ascending aorta items, consolidate items 38565, 38559 and 38562 into two items for simple and complex procedures. The proposed item descriptors are provided below.

Item 385XXB

Simple replacement or repair of aortic arch including deep hypothermic circulatory arrest, peripheral cannulation for cardiopulmonary bypass, and antegrade or retrograde cerebral perfusion, where performed. Claimable in association with items 38550, 38553, 38556, 385XA, 38568 and 38571.

Item 385XXC

Complex replacement or repair of aortic arch involving debranching and reimplantation of head and neck vessels. Including deep hypothermic circulatory arrest, peripheral cannulation for

cardiopulmonary bypass, and antegrade or retrograde cerebral perfusion, where performed. Claimable in association with items 38550, 38553, 38556, 385XA, 38568 and 38571.

Rationale

The recommendation focuses on modernising and simplifying the MBS and is based on the following observations.

- The Committee agreed that alongside the changes made to the ascending aorta items, it was appropriate to consolidate aortic arch items into two items, including deep hypothermic circulatory arrest with antegrade or retrograde cerebral perfusion and other relevant items. This would be claimable in addition to the relevant repair item. It was suggested that a separate item should be created for procedures involving debranching and the reimplantation of head and neck vessels as this significantly increases the complexity of the procedure.
- The Committee also noted that retrograde cerebral perfusion is no longer best practice, and that many of the 70 services covered by item 38588 would likely involve anterograde perfusion. Furthermore, other anterograde services may be claimed under peripheral cannulation (femoral/axillary item 38603). Given that the proposed aortic arch item includes retrograde or antegrade cerebral perfusion, the item for retrograde perfusion will no longer be required however the Committee recommended it be retained for 12 months to identify any unexpected uses which it can be incorporated into prior to deletion.
- It was noted that there is a risk of indication drift based on aortic size, with providers performing procedures in patients with minimal dilation. However, it was agreed that this is a small risk, and the Committee felt that it was inappropriate to define indications, given the fluid nature of current guidelines.
- The Committee agreed that it was reasonable for hemi-arch procedures to fall under the scope of item 385XXB.
- As with other items, services such as the insertion of an intercostal catheter are included in the base item and should not be inappropriately co-claimed.

9.4.5 Aortic repair (congenital)

Current item descriptors and MBS data from FY 2014/15		
Item 38706 – Schedule fee: $1822.40 Services: 24	Total Benefits: $32,120	Average annual growth: -1.6%
Aorta, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)		
Item 38709 – Schedule fee: $2134.50 Services: 29	Total Benefits: $36,420	Average annual growth: 3%
Aorta, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)		
Item 38712 – Schedule fee: $2563.15 Services: 2	Total Benefits: $2,884	Average annual growth: -27.5%
Aortic interruption, repair of, for congenital heart disease (Anaes.) (Assist.)		

Public data from 2014-15 (Department of Human Services).

Recommendation 46.1

- Leave items 38706 and 38709 unchanged.

Recommendation 46.2

- Delete item 38712 from the MBS and replace it with item 387XXA, with the following proposed descriptor:

Item 387XXA

Aortic repair involving augmentation of hypoplastic or interrupted aortic arch including use of antegrade cerebral perfusion or deep hypothermic circulatory arrest and associated myocardial preservation including retrograde cardioplegia. Performed in a neonate.

Rationale

The recommendations focus on modernising the MBS and are based on the following observations.

- There was clinical consensus that no changes were required for items 38706 and 38709.
- Item 38712 should be deleted as it no longer reflects contemporary practice and is specifically confined to aortic interruption, which is a rare presentation.
- The paediatric cardiac surgery component of the MBS has not been revised in some time, and there have been important changes in practice that are now widely adopted across Australia, particularly in centres that perform high volumes of neonatal work (Sydney, Melbourne and Brisbane). These include:
  - A drive to definitive repair during the neonatal period, if possible. For example, coarctation with ventricular septal defect is now often fixed as a single procedure as a neonate, rather than coarctation repair with pulmonary artery banding, followed by a second procedure at 6 to 18 months of age for debanding and VSD closure.
  - A drive to improve the quality of aortic arch repair in order to reduce the need for re-intervention, as well as the incidence or severity of later hypertension. This strategy includes a preference for primary repair of aortic interruption, rather than placing interposition grafts and repair of the aorta via sternotomy with cardiopulmonary bypass, to better address hypoplasia of the transverse aortic arch.
- Working on the neonatal aorta via sternotomy on bypass is a skill set that is now standard for surgeons trained in the last 10–15 years. Older surgeons may prefer more conservative approaches. The newer approaches involve bigger and more complex operations, but the long-term outcomes are believed to be superior.
- The proposed descriptor for the item captures the work described for this small subset of patients—estimated at less than 60 per year nationally—and would include patients undergoing two ventricle repairs, as well as first-stage single ventricle operations. Use of the word “augmentation” restricts use of the item to larger operations where best practice requires sternotomy and augmentation with homograft or other tissues. It is unlikely that the new item would incentivise inappropriate use of this approach as it covers a four- to six-hour operation with substantially larger post-operative care requirements, compared to an operation lasting 1.5 hours.
- The descriptor distinguishes these operations from ‘lesser’ operations to repair aortic coarctation, not requiring formal augmentation, which would still be claimed as item 38709 (repair of aorta, on bypass). Item 38709 volumes currently include operations that would move to item 387XXA, as this is currently the only item that can be used for more complex aortic repairs.
- This new item should be listed in the congenital section of the MBS, and could be restricted to neonates (first 30 days of life) to reduce the risk (albeit low) of misuse.
- As this is a novel item, the Committee noted that item 38565 is an analogous adult procedure that does not require valve replacement but involves augmentation of the ascending aorta, arch and descending aorta. This item could be considered when determining the appropriate schedule fee for item 387XXA.

9.5 Other cardiac surgical items

9.5.1 Thoracotomy/sternotomy

Current item descriptors and MBS data from FY 2014/15
Item 38640 – Schedule fee: $958.40 Services: 115 Total Benefits: $42,241 Average annual growth: -0.8% Re-operation via median sternotomy, for any procedure, including any divisions of adhesions where the time taken to divide the adhesions is 45 minutes or less (Anaes.) (Assist.)
Item 38643 – Schedule fee: $1067.40 Services: 999 Total Benefits: $377,450 Average annual growth: 6.7% Thoracotomy or sternotomy involving division of adhesions where the time taken to divide the adhesions exceeds 45 minutes (Anaes.) (Assist.)
Item 38647 – Schedule fee: $2134.50 Services: 751 Total Benefits: $957,977 Average annual growth: 7.8% Thoracotomy or sternotomy involving division of extensive adhesions where the time taken to divide the adhesions exceeds 2 hours (Anaes.) (Assist.)
Item 38656 – Schedule fee: $958.40 Services: 345 Total Benefits: $227,000 Average annual growth: -0.6% Thoracotomy or median sternotomy for post-operative bleeding (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 47.1

- Consolidate items 38640, 38643 and 38647 into a single item, with the following descriptor:

Item 38643

Re-operation via thoracotomy or sternotomy involving the division of adhesions, where the time taken to divide the adhesions exceeds 30 minutes. (Anaes.) (Assist.)

Recommendation 47.2

- Leave item 38656 unchanged.

Rationale

The recommendations focus on simplifying the MBS and are based on the following observations.

- The Committee noted that the growth trends for these items follow the trends for similar items across the MBS, with volumes shifting to longer and higher rebated procedures. The five-year growth rates for items 38643 and 38647 were 7 per cent and 8 per cent, respectively, compared with -1 per cent for item 38640. These growth rates are contrary to the expectation that procedures will become more efficient over time. The Committee also noted that the proportion of services claimed under item 38647 was higher than expected.
- The Committee felt that all three items should be consolidated into item 38643 in a cost-neutral manner. It felt that such a change would be unlikely to significantly affect volumes or costs, as the majority of services are already claimed under the higher value, long-duration division items.
- The Committee agreed that no change was required for item 38656.

9.5.2 Circulatory support

Current item descriptors and MBS data from FY 2014/15
Item 38577 – Schedule fee: $554.55 Services: 70 Total Benefits: $8,631 Average annual growth: 9.2% Cannulation for, and supervision and monitoring of, the administration of retrograde cerebral perfusion during deep hypothermic arrest (Assist.)
Item 38588 – Schedule fee: $416.05 Services: 6,882 Total Benefits: $841,880 Average annual growth: 3.2% Cannulation of the coronary sinus for and supervision of, the retrograde administration of blood or crystalloid for cardioplegia, including pressure monitoring (Assist.)
Item 38600 – Schedule fee: $1532.00 Services: 10 Total Benefits: $9,287 Average annual growth: 0% Central cannulation for cardiopulmonary bypass excluding post-operative management, not being a service associated with a service to which another item in this Subgroup applies (Anaes.) (Assist.)
Item 38603 – Schedule fee: $958.40 Services: 706 Total Benefits: $169,936 Average annual growth: 9.8% Peripheral cannulation for cardiopulmonary bypass excluding post-operative management (Anaes.) (Assist.)
Item 38609 – Schedule fee: $479.15 Services: 57 Total Benefits: $8,491 Average annual growth: -3.5% Intra-aortic balloon pump, insertion of, by arteriotomy (Anaes.) (Assist.)
Item 38612 – Schedule fee: $537.10 Services: 16 Total Benefits: $4,434 Average annual growth: 0% Intra-aortic balloon pump, removal of, with closure of artery by direct suture (Anaes.) (Assist.)
Item 38613 – Schedule fee: $674.05 Services: None Total Benefits: None Average annual growth: N/A Intra-aortic balloon pump, removal of, with closure of artery by patch graft (Anaes.) (Assist.)
Item 38627 – Schedule fee: $669.60 Services: 31 Total Benefits: $9,542 Average annual growth: 14.1% Extra-corporeal membrane oxygenation, bypass or ventricular assist device cannulae, adjustment and re-positioning of, by open operation, in patients supported by these devices (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 48.1

Δ Delete item 38577 and incorporate the procedure into the aortic arch procedures.

Recommendation 48.2

Δ Review item 38588 for potential deletion 12 months after implementation of the recommendations in this report.

Recommendation 48.3

Δ Change the descriptor for item 38603 to read:

Item 38603

Peripheral cannulation for cardiopulmonary bypass excluding post-operative management. Not claimable where peripheral cannulation is used in preference over central cannulation for valve or coronary artery bypass procedures, or as part of a service to which item 385XXB or 38572 applies. (Anaes.) (Assist.)

Recommendation 48.4

- Leave items 38600, 38609, 38612 and 38627 unchanged.

Recommendation 48.5

- Delete item 38613 as item 38612 renders it redundant.

Rationale

The recommendations focus on simplifying the MBS and are based on the following observations.

- Item 38577 is not a stand-alone service and is therefore now included in the items for aortic arch repair and replacement, including retrograde and antegrade cerebral protection.
- Item 38588 is not a stand-alone service, but there was significant discussion around including this item in complete medical services. Although there are a number of instances where the co-claiming of this item is inappropriate, the Committee agreed that the item should be retained and potentially reviewed in 12 months. It felt that excluding routine CAGS and valve procedures, or aortic arch and dissection-related procedures, would significantly reduce the remaining volumes, and it may be appropriate to consider removal at that time. The Committee also noted that there are certain complicated redo procedures where peripheral access can improve patient outcomes, and the retention of an incentive for this may be beneficial.
- Given that aortic arch items now include antegrade cerebral perfusion, item 38603 is now used for femoral access only.
- The Committee noted that item 38613 had exceedingly low service volumes, with just three services provided over the last 10 years. For this reason, it felt that the item should be removed, with item 38612 remaining to ensure that there are no access issues.

9.5.3 Transoesphageal echocardiography

Current item descriptors and MBS data from FY 2014/15
Item 55118 – Schedule fee: $275.50 Services: 15,151 Total Benefits: $3,156,428 Average annual growth: 6.6% Heart, two-dimensional real time transoesophageal examination of, from at least 2 levels, and in more than1 plane at each level: (a) with: (i) real time colour flow mapping and, if indicated, pulsed wave doppler examination; and (ii) recordings on video tape or digital medium; and (b) not being an intra-operative service or a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3 applies (R)(Anaes.) (Anaes.)
Item 55130 – Schedule fee: $170.00 Services: 744 Total Benefits: $92,738 Average annual growth: -13% Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac surgery incorporating sequential assessment of cardiac function before and after the surgical procedure, not being a service associated with a service to which item 55135 applies (R)(Anaes.) (Anaes.)
Item 55135 – Schedule fee: $353.60 Services: 3,387 Total Benefits: $888,818 Average annual growth: 4% Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac valve surgery (replacement or repair) incorporating sequential assessment of cardiac function and valve competence before and after the surgical procedure, not being a service associated with a service to which item 55130 applies (R)(Anaes.) (Anaes.)

Public data from 2014-15 (Department of Human Services).

Recommendation 49.1

- Remove the words “video tape or” from all echocardiogram item descriptors.

Recommendation 49.2

- Update the payment restrictions for items 55135 to reflect the new valve procedure item structure, and specify the new item numbers for valvular surgery, with which this can be claimed.

Rationale

These recommendations focus on modernising the MBS and are based on the following observations.

- The Committee agreed that “video tape” is an historical reference and should be removed.
- In light of the changes to items 55135 and 55136, the restrictions should be updated.

9.5.4 Ablation and division of pathways

Current item descriptors and MBS data from FY 2014/15
Item 38512 – Schedule fee: $2098.45 Services: 483 Total Benefits: $490,426 Average annual growth: 25% Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving 1 atrial chamber only (Anaes.) (Assist.)
Item 38515 – Schedule fee: $2671.95 Services: 295 Total Benefits: $548,398 Average annual growth: 2.8% Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving both atrial chambers and including curative surgery for atrial fibrillation (Anaes.) (Assist.)
Item 38518 – Schedule fee: $2868.05 Services: 2 Total Benefits: $2,933 Average annual growth: 0% Ventricular arrhythmia with mapping and muscle ablation, with or without aneurysmeotomy (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 50

- Leave items 38512, 38515 and 38518 unchanged.

Rationale

This recommendation is based on the following observation.

- These items were referred from the AECG and Electrophysiology Working Group for surgical input. It was the strong consensus of the Committee that these reflect contemporary practice and are under-utilised. For this reason, these items should remain, and there is an expectation that volumes will continue to increase over time.

9.5.5 Cardiac tumour

Current item descriptors and MBS data from FY 2014/15
Item 38670 – Schedule fee: $1909.20 Services: 47 Total Benefits: $34,008 Average annual growth: 10.9% Cardiac tumour, excision of, involving the wall of the atrium or inter-atrial septum, without patch or conduit reconstruction (Anaes.) (Assist.)
Item 38673 – Schedule fee: $2148.85 Services: 27 Total Benefits: $39,485 Average annual growth: 1.6% Cardiac tumour, excision of, involving the wall of the atrium or inter-atrial septum, requiring reconstruction with patch or conduit (Anaes.) (Assist.)

Current item descriptors and MBS data from FY 2014/15
Item 38677 – Schedule fee: $2010.35 Services: 12 Total Benefits: $13,570 Average annual growth: 19.1% Cardiac tumour arising from ventricular myocardium, partial thickness excision of (Anaes.) (Assist.)
Item 38680 – Schedule fee: $2384.55 Services: None Total Benefits: None Average annual growth: -100% Cardiac tumour arising from ventricular myocardium, full thickness excision of including repair or reconstruction (Anaes.) (Assist.)

Public data from 2014-15(Department of Human Services).

Recommendation 51

Δ Leave items 38670, 38673, 38677 and 38680 unchanged.

Rationale

This recommendation is based on the following observation.

Δ These are very low-volume items with specific indications, and no obvious concerns were identified.

9.5.6 Pacemaker insertion

Current item descriptors and MBS data from FY 2014/15
Item 38470 – Schedule fee: $958.40 Services: 136 Total Benefits: $42,137 Average annual growth: 1.1% Permanent myocardial electrode, insertion of, by thoracotomy or sternotomy (Anaes.) (Assist.)
Item 38473 – Schedule fee: $573.70 Services: 18 Total Benefits: $3,587 Average annual growth: -4.8% Permanent pacemaker electrode, insertion by open surgical approach (Anaes.) (Assist.)
Item 38654 – Schedule fee: $1224.60 Services: 46 Total Benefits: $29,598 Average annual growth: -2.4% Permanent left ventricular electrode, insertion, removal or replacement of via open thoracotomy, for the purpose of cardiac resynchronisation therapy, for a patient who:(a) has:(i) moderate to severe chronic heart failure (New York Heart Association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or(b) has:(i) mild chronic heart failure nyha class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 52

Δ Consolidate items 38473 and 38654 into item 38470, with the following descriptor:

Item 38470

Permanent myocardial electrode, insertion, removal or replacement of, by open surgical approach. (Anaes.) (Assist.)

Rationale

This recommendation focuses on simplifying the MBS and is based on the following observations.

- Δ The Committee felt that having two low-volume items for this procedure was unnecessary, and that it was reasonable to consolidate these items into item 38470, with a revised descriptor that includes all approaches.
- Δ The Committee agreed that the descriptor for item 38470 allows for all instances covered by item 38654, and that these should be consolidated to simplify the MBS. Both procedures are performed almost entirely by cardiothoracic surgeons.

9.5.7 Ventricular assist devices

Current item descriptors and MBS data from FY 2014/15
Item 38615 – Schedule fee: $1532.00 Services: 12 Total Benefits: $8,325 Average annual growth: -3% Insertion of a left or right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)
Item 38618 – Schedule fee: $1909.60 Services: 20 Total Benefits: $21,098 Average annual growth: 3.3% Insertion of a left and right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)
Item 38621 – Schedule fee: $762.35 Services: 3 Total Benefits: $1,287 Average annual growth: -9.7% Left or right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)
Item 38624 – Schedule fee: $856.65 Services: 3 Total Benefits: $1,515 Average annual growth: -15.6% Left and right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 53

- Δ Leave items 38615, 38618, 38621 and 38624 unchanged.

Rationale

This recommendation is based on the following observation.

- Δ These items were recently reviewed (prior to the MBS Review) and are therefore beyond the scope of this review.

9.5.8 Intrathoracic vessels

Current item descriptors and MBS data from FY 2014/15
Item 38727 – Schedule fee: $1495.80 Services: 22 Total Benefits: $18,601 Average annual growth: 19.6% Intrathoracic vessels, anastomosis or repair of, without cardiopulmonary bypass, not being a service to which

Current item descriptors and MBS data from FY 2014/15
item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)
Item 38730 – Schedule fee: $2134.50 Services: 12 Total Benefits: $12,407 Average annual growth: -15.6% Intrathoracic vessels, anastomosis or repair of, with cardiopulmonary bypass, not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 54.1

Δ Implement a sunset clause and review on items 38727 and 38730 to determine their ongoing need to remain on the MBS, with descriptors amended to read:

Item 38727

Intrathoracic vessels, anastomosis or repair of, without cardiopulmonary bypass, performed as a primary procedure not as an integral component of another procedure.

Not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease. (Anaes.) (Assist.)

Item 38730

Intrathoracic vessels, anastomosis or repair of, with cardiopulmonary bypass, performed as a primary procedure not as an integral component of another procedure.

Not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease. (Anaes.) (Assist.)

Recommendation 54.2

Δ Create a new item with the following descriptor:

Item 387XXB

Branch pulmonary arteries – left and or right, repair, augmentation or replacement, with cardiopulmonary bypass, for congenital heart disease.

Rationale

The recommendation is based on the following observations.

Δ The Committee proposed a new item (387XXB) for the augmentation or replacement of branch pulmonary arteries, acknowledging that this procedure can be very time-consuming, and that it is materially different to item 38718. Given the complexity of the procedure, a commensurate fee for consideration would be the fee for item 38730. It is estimated that 50 to 70 operations would be performed annually.

Δ Repair or replacement of pulmonary arteries is an important part of paediatric practice. It is particularly necessary in single ventricle operations, where normal development of the intrapulmonary vessels is needed to allow the Fontan circulation (end circulation for single ventricle patients) to work effectively. This can only occur if the conduit vessels—that is, the branch pulmonary arteries (between the main pulmonary artery and the hilum of each lung)—are of satisfactory size. Branch pulmonary arteries can be small for many reasons. For example, they may be congenitally small (asymmetry is common), scarred by previous surgery (e.g., at the site of insertion of shunts or RV-PA conduits) or compressed by the reconstructed aorta.

- At present, there is no immediately obvious route for reimbursement for the significant time required, because item 38730 cannot be claimed with preceding items in the group. However, most operations where branch pulmonary artery augmentation or replacement is required are likely to involve major work and the preceding items. It seems that some surgeons simply use item 38718, although this is specifically described as main (rather than branch) pulmonary artery repair.
- The Committee considered items 38727 and 38730 and felt that they were unlikely to represent discrete medical services, except for the isolated repair of a pulmonary artery, which is an uncommon operation. Co-claiming data showed that 90-95 per cent of these services were co-claimed with other items, however the Committee was not certain that legitimate standalone uses for this procedure did not exist. For this reason, and in light of the addition of item 387XXB, the Committee recommended that the descriptors be amended to clarify that this item should not be claimed when performed as part of another procedure, but only when it is a primary procedure of itself. A subsequent review may find that volumes have dropped to zero at which point the items should be deleted.

9.5.9 Congenital heart disease (atrial septum)

Current item descriptors and MBS data from FY 2014/15		
Item 38739 – Schedule fee: $1924.10 Services: 26	Total Benefits: $13,124	Average annual growth: 5.4%
Atrial septectomy, with or without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)		
Item 38742 – Schedule fee: $1924.10 Services: 511	Total Benefits: $353,576	Average annual growth: 5.3%
Atrial septal defect, closure by open exposure direct suture or patch, for congenital heart disease (Anaes.) (Assist.)		

Public data from 2014-15 (Department of Human Services).

Recommendation 55

- Update the descriptor for item 38742 as outlined below.
- Leave item 38739 unchanged.

Item 38742

Atrial septal defect, closure by open exposure direct suture or patch, for congenital heart disease in a patient with documented evidence of right heart overload or paradoxical embolism. (Anaes.) (Assist.)

Explanatory note: This item may be claimed without evidence of right heart overload in highly rare paediatric conditions.

Rationale

This recommendation focuses on improving the value of the MBS and is based on the following observations.

- The Committee agreed that the rates of co-claiming for item 38472 suggested that a significant proportion of these services are being claimed for the closure of a PFO. It was agreed that routine PFO closure without symptoms or clinical indication should be restricted. PFO closure during a procedure is usually quick and simple to perform and would not warrant a specific item for co-claiming, however there are cases where the defect is significant and considerable time is required to close it (80,81). The Committee agreed that the proposed changes would not restrict appropriate access to this item where clinically indicated.

- There was clinical consensus that item 38739 did not require revision.

9.5.10 Congenital heart disease (Ventricular septum)

Current item descriptors and MBS data from FY 2014/15		
Item 38748 – Schedule fee: $2134.50 Services: 5	Total Benefits: $4,403	Average annual growth: 10.8% Ventricular septectomy, for congenital heart disease (Anaes.) (Assist.)
Item 38751 – Schedule fee: $2134.50 Services: 81	Total Benefits: $95,514	Average annual growth: 4.8% Ventricular septal defect, closure by direct suture or patch (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 56

- Leave items38748 and 38751 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.11 Baffles

Current item descriptors and MBS data from FY 2014/15		
Item 38745 – Schedule fee: $2134.50 Services: 40	Total Benefits: $37,322	Average annual growth: -3.2% Intra-atrial baffle, insertion of, for congenital heart disease (Anaes.) (Assist.)
Item 38754 – Schedule fee: $2671.95 Services: 17	Total Benefits: $29,036	Average annual growth: -6.7% Intraventricular baffle or conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 57

- Leave items 38745 and 38754 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.12 Patent ductus arteriosus

Current item descriptors and MBS data from FY 2014/15		
Item 38700 – Schedule fee: $1067.40 Services: 48	Total Benefits: $27,220	Average annual growth: 4.8% Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)
Item 38703 – Schedule fee: $1924.10 Services: 79	Total Benefits: $41,521	Average annual growth: 7.5% Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 58

- Leave items 38700 and 38703 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.13 Main pulmonary artery

Current item descriptors and MBS data from FY 2014/15
Item 38715 – Schedule fee: $1706.30 Services: 13 Total Benefits: $14,397 Average annual growth: 10.2% Main pulmonary artery, banding, debanding or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)
Item 38718 – Schedule fee: $2134.50 Services: 90 Total Benefits: $94,337 Average annual growth: 2.1% Main pulmonary artery, banding, debanding or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 59

Δ Leave items 38715 and 38718 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.14 Vena cava

Current item descriptors and MBS data from FY 2014/15
Item 38721 – Schedule fee: $1495.80 Services: 8 Total Benefits: $7,108 Average annual growth: 32% Vena cava, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)
Item 38724 – Schedule fee: $2134.50 Services: 37 Total Benefits: $42,062 Average annual growth: 14.3% Vena cava, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 60

Δ Leave items 38721 and 38724 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.15 Ventricular surgery

Current item descriptors and MBS data from FY 2014/15
Item 38506 – Schedule fee: $1626.25 Services: 9 Total Benefits: $5,512 Average annual growth: -2.1% Left ventricular aneurysm, plication of (Anaes.) (Assist.)
Item 38507 – Schedule fee: $1909.20 Services: 3 Total Benefits: $1,432 Average annual growth: -15.6% Left ventricular aneurysm resection with primary repair (Anaes.) (Assist.)
Item 38508 – Schedule fee: $2388.70 Services: 14 Total Benefits: $21,778 Average annual growth: 7%

Current item descriptors and MBS data from FY 2014/15
Left ventricular aneurysm resection with patch reconstruction of the left ventricle (Anaes.) (Assist.)
Item 38509 – Schedule fee: $2388.70 Services: 8 Total Benefits: $13,437 Average annual growth: 2.7% Ischaemic ventricular septal rupture repair of (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 61

Δ Consolidate items 38506, 38507 and 38508 into a single item for left ventricular aneurysm repair. The proposed descriptor is as follows:

Item 38508

Left ventricular aneurysm repair or reconstruction including plication, resection, primary and patch repairs. (Anaes.) (Assist.)

Recommendation 62

Δ Leave item 38509 unchanged.

Rationale

These recommendations focus on simplifying the MBS and are based on the following observations.

Δ The Committee felt that these items had very low volumes, and that the redundancy of the items could be addressed by recommending a cost-neutral consolidation of the three LV items. The new item descriptor also incorporates changing techniques, which have developed due to shifts in cardiac pathologies over time. However, it was noted that a patch reconstruction is generally the best-practice approach.

Δ The Committee agreed that item 38509 was a materially different procedure and should be retained.

9.5.16 Pulmonary shunts

Current item descriptors and MBS data from FY 2014/15
Item 38733 – Schedule fee: $1495.80 Services: 6 Total Benefits: $6,170 Average annual growth: -11.4% Systemic pulmonary or cavo-pulmonary shunt, creation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)
Item 38736 – Schedule fee: $2134.50 Services: 39 Total Benefits: $31,483 Average annual growth: 14.3% Systemic pulmonary or cavo-pulmonary shunt, creation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 63

Δ Leave items 38733 and 38736 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.17 Extracardiac conduit

Current item descriptors and MBS data from FY 2014/15
Item 38757 – Schedule fee: $2134.50 Services: 19 Total Benefits: $11,827 Average annual growth: 3.5% Extracardiac conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)
Item 38760 – Schedule fee: $2134.50 Services: 12 Total Benefits: $12,184 Average annual growth: 1.8% Extracardiac conduit, replacement of, for congenital heart disease (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 64

Δ Leave items 38757 and 38760 unchanged.

Rationale

This recommendation is based on clinical consensus.

9.5.18 Other ungrouped surgical items

Current item descriptors and MBS data from FY 2014/15
Item 38763 – Schedule fee: $2134.50 Services: 79 Total Benefits: $57,013 Average annual growth: 1.9% Ventricular myectomy, for relief of ventricular obstruction, right or left, for congenital heart disease (Anaes.) (Assist.)
Item 38766 – Schedule fee: $2134.50 Services: 51 Total Benefits: $24,345 Average annual growth: -0.8% Ventricular augmentation, right or left, for congenital heart disease (Anaes.) (Assist.)
Item 38650 – Schedule fee: $1909.60 Services: 113 Total Benefits: $67,070 Average annual growth: 9.7% Myomectomy or myotomy for hypertrophic obstructive cardiomyopathy (Anaes.) (Assist.)
Item 38653 – Schedule fee: $1909.60 Services: 380 Total Benefits: $211,793 Average annual growth: 18.2% Open heart surgery, not being a service to which another item in this Group applies (Anaes.) (Assist.)

Public data from 2014-15 (Department of Human Services).

Recommendation 65.1

Δ Consolidate item 38650 into item 38763 with the proposed descriptor as follows:

Item 38763

Ventricular myectomy, for relief of ventricular obstruction, right or left. (Anaes.) (Assist.)

Recommendation 65.2

Δ Leave item 38653 unchanged, although compliance should follow up on known co-claiming.

Δ Leave item 38766 unchanged.

Rationale

The recommendations focus on simplifying the MBS and are based on the following observation.

- Δ The Committee felt that a single item for myomectomy was appropriate, given the low volumes of use for the services. The wording of the descriptor was discussed, and the Committee agreed that reference to hypertrophic obstructive cardiomyopathy in item 38650 did not reflect contemporary practice, as Committee members had treated patients without hypertrophic obstructive cardiomyopathy with evidence of outflow track obstruction. The Committee agreed that retaining the indication “for relief of ventricular obstruction” would mean that there was a very low risk of volume shifts or scope creep. This is not a procedure undertaken lightly.

10. Stakeholder impact statement

Both patients and providers are expected to benefit from these recommendations, as 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, all of which were intended to reduce inappropriate access without significantly affecting appropriate access.

When considering various recommendations, the Committee considered what impacts they may have on several specific groups, such as paediatric patients, patients from regional and remote areas, and patients from disadvantaged backgrounds. In some instances, recommendations were amended to minimise potential impacts, and specific exceptions may have been granted in rare circumstances, such as for patients with complex congenital heart disease.

Where items have been recommended for deletion, alternative items have been proposed or created when needed. Items that are obsolete have been recommended for deletion without replacement.

The Committee also considered each recommendation's impact on provider groups to ensure that the changes are reasonable and fair. Where 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. Reductions in inappropriate use and low-value care are expected to deliver savings for the health system, but a number of cost-neutral changes have also been recommended, including the restructuring of several item groups. The Committee considered the potential financial implications for specific provider groups and took steps (such as the creation of bolt-on items) to ensure that any changes are as fair and reasonable as possible. Some business models, whether using the current items in line with their intended purposes or not, may need to change or adapt to the proposed changes.

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12. Glossary

Term	Description
ABS	Australian Bureau of Statistics
Absolute risk score	Australian Absolute cardiovascular disease risk over 5 years is the numerical probability of a cardiovascular event occurring within a five-year period calculated using the methodology of the National Vascular Disease Prevention Alliance.
ACC	American College of Cardiology
ACS	Acute coronary syndrome
AECG	Ambulatory Electrocardiogram, also referred to as 'Holter' monitor. (Usually refers to MBS items 11708, 11709, 11710 and 11711).
AF	Atrial fibrillation – a type of abnormal heart rhythm (arrhythmia).
AHA	American Heart Association
ARIA	Accessibility and Remoteness index of Australia
ASD	Atrial septal defect is a congenital hole in the wall that separates the top two chambers of the heart. This defect allows blood to leak between the oxygen-rich and oxygen-poor blood chambers in the heart.
CAD	Coronary artery disease
CAGR	Compound annual growth rate, or the average annual growth rate over a specified time period.
Cardiovascular event	Normally includes myocardial infarction, stroke, death from a vascular cause (including coronary, pulmonary embolism, haemorrhage) or any arterial revascularisation procedure.
Committee, The	The Cardiac Services Clinical Committee
CABG	Coronary artery bypass graft, also referred to as CAGS. (Usually refers to MBS items 38498, 38500, 38501, 38503 and 38504).
CAGS	Coronary artery graft surgery, also referred to as CABG. (Usually refers to MBS item 38497).
Cost neutral	Usually achieved with a weighted fee adjustment so that the net cost of the service, after considering volumes and multiple services rule applications, will be unchanged. Unless specifically noted, all restructuring or consolidation of items is intended to be cost neutral in this manner.
CTCA	Computed Tomography of the coronary artery. (Usually refers to MBS items 57360 and 57361).
CSANZ	Cardiac Society of Australia and New Zealand
Department, The	Australian Government Department of Health
DHS	Australian Government Department of Human Services
DICC	Diagnostic Imaging Clinical Committee
DIST	Diagnostic Imaging Services Table
Door-to-balloon time	For patients suffering a heart attack, unblocking the blood vessel within 90 minutes leads to much better outcomes. This is measured from the time the patient arrives at the hospital 'door' to the time the blocked artery is re-opened which is achieved with angioplasty or a 'balloon'. Door-to-balloon time is the time between these two points in time.
ECG	Electrocardiography is the process of recording the electrical activity of the heart over a period of time using electrodes placed on the skin. Refers to a standard 12-lead ECG unless otherwise specified. (Usually refers to MBS items 11700 -11702).
Echo	An echocardiogram is an ultrasound test that uses sound waves to see images of the heart in real-time. (Usually refers to MBS items in the range 55113 to 55123).

Term	Description
ELR	External loop recorder. A device that allows ambulatory electrocardiography (ECG) documentation over a longer period of time. The ELR comprises a pager like device that fastens to the patient's belt, from which 2 leads are attached to electrodes on the chest. (Usually refers to MBS items 11710 and 11711).
ESC	European Society of Cardiology
EST	Exercise Stress Testing is a walking treadmill test primarily performed to aid in the diagnosis of coronary artery disease, though it can also assist in the investigation of cardiac arrhythmias. The patient walks on the treadmill while undergoing ECG monitoring. Also referred to as a stress ECG or standard stress test. (Usually refers to MBS item 11712).
FFR	Fractional flow reserve is a technique used in coronary catheterization to measure pressure differences across a coronary artery stenosis (narrowing, usually due to atherosclerosis) to determine the likelihood that the stenosis impedes oxygen delivery to the heart muscle (myocardial ischaemia). (Usually refers to MBS item 38241).
FY	Financial year
GP	General Practitioner
GTN	Glyceryl trinitrate, a commonly used medication for the treatment of angina.
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.
Holter	See AECG
ICA	Invasive Coronary Angiography. During coronary angiography, a small catheter (a thin hollow tube with a diameter of 2-3 mm) is inserted through the skin into an artery in the groin or the arm. Guided with the assistance of a fluoroscope (x-ray viewing instrument), the catheter is then advanced to the opening of the coronary arteries. Next, a small amount of radiographic contrast is injected into each coronary artery. The images reveal the extent and severity of all coronary arterial blockages and other abnormalities. (Usually refers to MBS items 59903, 59925, 59971 and 59973); Note: this is distinct from Invasive Coronary Angioplasty (angioplasty). A procedure in which a balloon catheter is used and inflated to widen a narrowed or blocked artery identified during angiography. (Usually refers to MBS items 38300, 38303, 38309, 38312, 38315 and 38318).
IHD	Ischaemic heart disease also known as coronary artery disease, is an insufficient blood supply to the heart muscle.
ILR	Implanted loop recorder, also known as an insertable cardiac monitor. A small machine that works as an electrocardiogram (ECG), continuously picking up electrical signal from the heart. (Usually refers to MBS items 11722 and 38285).
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.
LIMA	Left internal mammary artery.
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.
LVEF	Left ventricular ejection fraction is the measurement of how much blood is being pumped out of the left ventricle of the heart (the main pumping chamber) with each contraction.
LV gram	Left ventriculogram is a coronary catheterisation procedure in which a thin tube (called a catheter) is threaded through an artery up toward your heart. An x-ray contrast solution is injected through the catheter so that an X-ray can capture images of the blood flow.
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.

Term	Description
MBS service	The actual medical consultation, procedure or test to which the relevant MBS item refers.
MPS	Myocardial perfusion scan. A nuclear medicine procedure in which a small amount of a radiopharmaceutical or radioactive tracer is injected into a vein. The scan is used to evaluate the heart's function and blood flow. (Usually refers to MBS items 61302, 61303, 61306 and 613070).
MSAC	Medical Services Advisory Committee
NICE	The National Institute for Health and Care Excellent
NMWG	Nuclear Medicine Working Group (of the DICC)
Obsolete services	Services that should no longer be provided as they do not represent current clinical best practice and have been superseded by superior tests or procedures.
OMT	Optimal Medical Therapy
OPCAB	Off-pump coronary artery bypass or off-pump coronary artery graft surgery.
PBS	Pharmaceutical Benefits Scheme
PCI	Percutaneous coronary intervention is a procedure that uses a catheter (a thin flexible tube) to place a small device called a stent to open up blood vessels in the heart that have been narrowed and are causing restricted blood flow to the heart muscle. (Usually refers to MBS items 38300, 30803, 38306, 38309, 38312, 38315 & 38318).
PFO	Patent foramen ovale is a hole in the heart that didn't close the way it should after birth.
Retroplegia	Retrograde cardioplegia
RIMA	Right internal mammary artery
Services average annual growth	The average growth per year, over five years to 2014/15, in utilisation of services. Also known as the compound annual growth rate (CAGR).
Standard echo	See Echo
Standard EST	See EST.
STEMI	ST elevation myocardial infarction is one type of heart attack that can be defined as a development of full thickness cardiac muscle damage resulting from an acute interruption of blood supply to a part of the heart and can be demonstrated by ECG change in a specific pattern called ST-segment elevation.
Stress echo	An abbreviation for stress echocardiogram is an ultrasound of the heart performed at rest and after a stress has been applied to increase heart rate. Unless specifically mentioned, the stress applied is usually on an exercise treadmill. Drug infusions can also be used as the stressor. (Usually refers to MBS item 55116 for exercise stress or item 55117 for drug stress)
Taskforce, The	The MBS Review Taskforce
TAVI	Transcatheter aortic valve implantation
TIA	Transient ischaemic attack
TOE	A transoesophageal echocardiogram is an ultrasound of the heart using a special probe that scans the heart from inside the oesophagus. (Usually refers to items 55130, 55131, 55135, and 55136).
Total benefits	Total benefits paid in 2014/15 unless otherwise specified.
VCOR	Victorian Cardiac Outcomes Registry

Appendix A Summary for consumers

This table describes the medical services for which changes have been recommended, the specific recommendation(s) of the clinical experts and the reasons for the recommendation(s). Additional information for consumers (written in plain English) is available in the consumer impacts summary in Section 3.4. The Committee has made extensive recommendations, many of which are highly specific and technical in nature or will have minimal impact on consumers. This table was prepared with the consumer representative and includes the major recommendations of the Committee.

Section 4: Cardiac imaging recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendations 1 and 1.2 Echocardiograms (echo) 55113; 55114; 55115	An echo is an ultrasound of the heart, used to identify congenital defects, damage or disease that affects the structure or function of the heart.	Restructure the existing echo items to make it clear when tests should be ordered. Add all cardiac imaging items to the DHS MBS online checker tool.	Repeat tests will be more likely to be performed in line with best-practice guidelines. Specific items have been created for complex congenital heart disease, conditions that need frequent echos and other rare circumstances. These changes would ensure that all patients who have a clinically appropriate need for an echo receive one. Doctors will be able to use the online checker tool to ensure patients are eligible for a Medicare benefit for the test before requesting or performing it.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. Patients were sometimes receiving echo tests too frequently, potentially wasting the time and money of patients, and offering low value for the health system. Rules have been added because the Committee did not feel that there was any other way to reduce unnecessary, low-value use.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendations 2 and 3 Exercise stress test 11712	This is usually a treadmill test, which helps doctors to see how the patient's heart responds to stress. The patient exercises (usually for up to 15 minutes) to determine if exercise makes his/her chest pain worse. Sometimes medication is used in patients who cannot exercise.	Change the descriptor for 11712 and make exercise stress test the first test for patients who have 'atypical' chest pain and are at low risk of having a heart attack or another serious problem over the next five years. This means that patients will not receive a stress echo (ultrasound) or nuclear study of the heart as their first test.	If a doctor feels that a patient who has atypical pain and is at low risk of heart attack needs to have a test, the first test would be an exercise stress test, not an echo or nuclear test.	To align the items with best-practice guidelines to ensure that patients experiencing 'atypical' chest pain have access to the most appropriate tests for their individual symptoms and condition. If a patient's chest pain feels different from the way chest pain usually feels ('atypical'), it means that his/her risk of blockages in the blood vessels of the heart is not high. Many patients do not need any tests because taking their medical history is the best way to work out if the pain is from the heart. If a doctor is still worried that it might be heart pain, many patients get an echo or nuclear test because they are assumed to be 'better' tests. In some patients an exercise stress test is just as useful as a stress echo and a nuclear test in low-risk patients. It also does not expose the patient to radiation (unlike a nuclear test), and it is a lot cheaper than a nuclear test or a stress echo. For this reason, an exercise stress test is the most appropriate test to start with in low-risk patients, followed by other tests if needed.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendations 4, 5.1, 5.2, and 6. Stress echo and nuclear tests (myocardial perfusion scans or MPS) Stress echo 11712 with 55116; or 55117; MPS 61302, 61303, 61306 and 61307	Stress echos and nuclear tests are similar to an exercise stress test, but they also provide images that can give extra information to help diagnose or rule out a heart problem. For the majority of low-risk patients, both stress echo and nuclear tests give the same information about their heart disease. Nuclear tests involve some radiation, whereas stress echo is an ultrasound with no radiation. Stress echo is more expensive than an exercise stress test, and a nuclear test is more expensive than a stress echo.	Restructure stress echo items into complete medical services that reflect a focussed stress echo study for each appropriate indication. Changes made to encourage these tests to be used in patients who are likely to have heart disease or patients who are known to have heart disease with changing symptoms. Discouraging them from being used where there is no evidence of benefit, such as every year as part of a routine check-up, or for screening, or for patients without symptoms. Nuclear tests are being restricted to situations where a stress echo is not available or not possible. Additionally, a note is being added to remind doctors to consider the cost of these tests and the radiation involved with nuclear tests, as well as patient factors, when deciding which test to use. The Committee recommends that research should be undertaken focused on understanding the cost-effectiveness of cardiac investigations and intervention in Australia.	These tests would not be used as the first line test for patients who are unlikely to have heart disease. Patients would only receive repeat tests when they need them, in line with best-practice guidelines. Patients who are clinically suitable for a stress echo or nuclear test and who have access to and can afford the stress echo, will have this instead of a nuclear test.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. These tests are most likely being done too often, and when they are used inappropriately they provide low-value care. These changes will help to prevent some of this low-value use. For certain patients, a nuclear test is a better test, and they should have this test instead of a stress echo. For many patients, stress echo and nuclear tests provide the same information. This means that doctors can choose the test that avoids radiation exposure and is less expensive, but still receive equivalent information about their patient. However, in some regional areas, wait times are much shorter for nuclear tests, and they are more likely to be bulk billed, which means that the doctor might decide that the nuclear test is preferred for these reasons. These changes will encourage use of stress echo, with no radiation, where it is appropriate, and include exceptions to ensure that specific patient groups who might have difficulty getting a stress echo can still choose, with their GP, to have an MPS instead.

Section 5: General recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 7: Implement a process of ongoing review of the MBS to ensure it remains in line with contemporary clinical practice.	Ongoing review of the MBS will ensure patients have access to contemporary services and MBS item descriptors support this.	Implement a review process, and more specifically, review recommendations 1 to 5 to ensure intended outcomes are achieved and whether further revision is necessary.	MBS items for cardiac services would remain aligned with contemporary practice over time.	Clinical guidelines and research are continually changing. There is currently no ongoing review process for the MBS. As clinical practice changes, the MBS items become out of date.
Recommendation 8: Create structured request forms for cardiac investigations.	The patient's doctor writes a referral for a patient to give to a specialist for investigation/s of heart problems. The referral will be in a specific format and require relevant information to be included so the best investigations are performed.	Create structured request forms for cardiac investigation referrals.	Doctors will complete structured request forms to refer their patients for cardiac investigations. Doctors receiving referrals will have sufficient information to determine the most appropriate investigations for their patient, reducing low value tests and saving patients and the system time and resources.	Structured request forms for cardiac tests will encourage best-practice care as the requesting doctor will consider and provide sufficient information for the service provider to determine the correct investigation/study. Test providers, not referrers are required to comply with MBS item descriptors and will require sufficient information from the referring provider in order to determine if the patient is eligible for an MBS rebate.
Recommendation 9: Restrict co-claiming of consultations with cardiac imaging and procedural services.	A Medicare benefit is payable for a consultation between a doctor and patient where it is necessary for the ongoing care of the patient. Imaging and procedural items include relevant consultations before, during and immediately after the service. The exception to this is where the decision to perform a test or procedure is made by the clinician during a consultation and was not previously determined to be necessary.	Add instructions for cardiac imaging and procedural services to reinforce that an extra consultation should not be claimed, unless necessary for planning the ongoing care of the patient.	Patients will only be billed for a consultation when the doctor performing the cardiac investigation or study is also planning or providing their ongoing care beyond what would reasonably be expected of another provider performing the same service.	Discussion between the patient and service provider on performance or results of the requested investigation or procedure forms part of provision of the service and does not constitute the billing of a separate consultation. That is unless the service provider will be providing ongoing care of the patient and the consultation covers care planning which another provider would not reasonably have provided as part of the investigation or procedure service. (i.e. explaining results of a procedure would not constitute a consultation.)

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 10: Heart Team case conference	A Heart Team case conference brings together an interventional cardiologist (one who does procedures on the heart), a cardiac surgeon, and a non-interventional cardiologist to discuss the best treatment for a patient. The conference can include the patient and the patient's GP (but it does not have to), and a letter must be given to the patient's GP outlining the discussion and treatment recommendations.	Create new items to fund Heart Team conferences and allow this conference to be held for some procedures.	Specialists would be able—and sometimes required—to have a Heart Team conference before deciding the best treatment for a patient.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate treatment (medication, surgery or stenting) for their individual symptoms and condition. For some patients, surgery may be better than a stent, and in other patients the opposite might be true. Evidence shows that patients who only get one opinion are more likely to get a treatment that is not necessarily the best treatment for them. Some patients are also asked to give consent during a procedure or when they have taken medications that make them drowsy, which prevents them from giving proper informed consent. This Heart Team case conference item ensures that doctors are paid when they have Heart Team conferences for their patients. Making it a requirement of some items also ensures that patients understand all their options and are able to give fully informed consent when deciding the most appropriate treatment.
Recommendation 11: Reports with results of cardiac procedures/investigations that have specific indications should outline how the requirements in the item description were met.	The report on the outcome of a patient's cardiac procedure/investigation for a specific indication/s will outline how the requirements listed in the MBS item were met.	Reports for cardiac procedures/investigations with specific indications, will require documentation in a written report outlining how the requirements in the descriptor (and explanatory notes, where relevant) were met.	Audits will be able to be used to ensure that the requirements of MBS items are being met.	To ensure patients have access to the most appropriate interventions or procedures and that the MBS is supporting high value care.

Section 6: CAD-related recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 12 Invasive coronary angiogram (ICA) Items 38200 to 38206, 38215 to 38246	A catheter (tube) is inserted into a blood vessel in the groin or wrist and goes up to the heart. X-ray pictures of the heart are taken while X-ray dye is injected through the catheter into the blood vessels supplying oxygen to the heart. Doctors look at the X-rays as they are taken to see if there are any blockages.	This procedure should only be performed: (i) when a patient is having a heart attack, (ii) when there is evidence that the patient has significant heart disease, or (iii) before cardiac surgery.	Patients should be more likely to receive this procedure in line with best-practice guidelines. At present, some patients may undergo this procedure when it is not necessary.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. This procedure has a small chance of serious complications and involves radiation. It is also quite expensive. Patients should not receive this procedure if they do not need it. These changes encourage this procedure to only be done in line with best-practice guidelines. This should improve patient safety and reduce unnecessary procedures.
Recommendation 13 Percutaneous coronary intervention (PCI) also known as 'stenting' or 'angioplasty' Items 59903 to 59973.	This procedure is done if a patient has a heart problem caused by a full or partial blockage in a coronary artery, which is a blood vessel that feeds oxygen to the heart. PCI opens the blockage and restores normal blood flow to the heart. A catheter (tube) with a balloon at the end is inserted into a blood vessel in the groin or wrist. The tube goes into the blocked artery and is inflated, stretching the artery back open (angioplasty). A metal tube or coil is usually put in the artery to help keep it open (stent).	This procedure should only be performed: (i) when a patient is having a heart attack, or (ii) when a patient has ongoing symptoms, despite a long trial of heart medications. When the procedure is performed, it is only claimable for the arteries where there is evidence that the heart is not getting enough blood or oxygen (ischaemia) due to a narrowing in that artery. PCI will be paid for each blood vessel treated, not for each stent inserted.	Patients should be more likely to only receive this procedure if there is evidence that a blood vessel is causing symptoms or heart problems, in line with best-practice guidelines. This change would mean that patients receive fewer unnecessary stents. The changes also mean that if a doctor chooses one long stent for their patient instead of two short stents, the MBS rebate doesn't change. Ensuring they can decide what is best for their patient.	To align the items with best-practice guidelines to ensure that PCI is only performed on patients where stenting is their best treatment option based on their individual symptoms and condition. Some patients were receiving stents that they did not need, which may not have led to better outcomes. Stents have some risks and should not be put in when they are not needed. These changes encourage best-practice of only treating vessels where there is evidence that there is a blockage which is affecting blood flow to the heart. There were financial implications for the number of stents used to treat a vessel and this is not a helpful incentive so these changes remove that incentive by making the same fee for whatever number and length of stents are used to treat each vessel.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 14 CT coronary angiogram (CTCA) MBS items 57360 and 57361	This is a CT scan of the heart after an injection of X-ray dye, which shows the blood vessels supplying oxygen to the heart. The X-ray pictures show any blockages in these blood vessels.	At present, this test can only be ordered by specialists. The Committee has recommended that GPs and other doctors should be able to order this test for patients with atypical symptoms (see exercise stress test – recommendations 2 & 3) and risk factors that mean that the risk of heart attack or another serious problem in the next five years is greater than 10 per cent.	Patients who meet the requirements would not have to see a specialist to have this test.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. For patients with atypical symptoms but risk factors that make them higher risk of having a heart attack within 5 years, this test could be used instead of an exercise stress test. This test is very expensive and is only available in very specific situations. It is a good test for ruling out disease, and the Committee recommends it for patients who are unlikely to have pain caused by heart disease. To prevent this expensive test (which involves radiation) being used inappropriately in lots of patients, the Committee recommends that it should only be allowed to be ordered by GPs for patients who have a lot of risk factors for having a heart attack such as smoking or high cholesterol. As more evidence is published for this test, as technology improves and as it becomes more cost-effective, it may be appropriate to allow it to be used for more patients.
Recommendation 15.1 Amend MBS item 38274 Closure of ventricular septal defect	This procedure closes the hole in the wall that separates the two lower chambers of the heart.	The Committee recommends that the item be amended so that the imaging component can be billed separately by the imaging provider.	The schedule fee would be reviewed to remove the imaging component and the patient will be billed by both the proceduralist and the imaging provider for their separate services. A new imaging item would also be required.	The Committee noted that a second provider is required to perform the imaging part of this service.
Recommendation 15.2 Amend MBS item 38274 Closure of atrial septal defect	This procedure closes the hole in the wall that separates the two upper chambers of the heart.	The Committee recommends that only patients with evidence of significant symptoms or complications undergo this procedure.	Asymptomatic patients would not be eligible for the operation as there is no supporting evidence for this practice. Doctors performing the operation for eligible patients will be required to keep documented evidence of their condition.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition.

Section 7: Electrocardiography (ECG) recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 16 11700 – ECG trace and report	Sticky dots are put on the chest to take an electrical picture of the heart. This item includes putting the dots on and printing the result (trace), as well as interpreting and reporting the trace (report).	This item should be a referred service. A copy of the trace and report needs to be kept by the service provider and also provided to the referring practitioner. A copy can be made available to another practitioner with the patient's consent.	Almost all of the 2.75 million ECGs done each year are claimed as this item. Most of them do not have a formal report provided. The patient would be referred to a specialist for an ECG trace and report where necessary. Alternatively, the GP might perform the ECG trace and send it to a specialist for a formal report if needed (see recommendation 17 below).	To ensure that patients have access to the most appropriate tests for their individual symptoms and condition, and that a written report of the test is available to guide the patient's diagnosis and treatment. Most of these ECGs are done by doctors in their rooms. Some are looked at and put in the patient's file, and others are done only as a 'baseline' test with no indication or review. Many of these tests are of low value and some may be inappropriate. The Committee agreed that the doctor should get paid for taking the trace (normally done by a nurse), but it felt that looking at that trace was a standard part of a consultation and was not the same as providing a formal report. The Committee thought about removing this item completely, particularly because new ECG machines make it much easier to do an ECG. However, the Committee felt that it was important for providers, particularly GPs and providers in rural and remote areas, to be able to refer for an expert second opinion where necessary.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendations 17 and 20 11701 – ECG report only	This item allows providers to send an ECG trace to be reported by an expert. It is particularly intended for providers in rural and remote areas where access to formal ECG services may be limited.	Clarify the requirements of a formal report and ensure that it is available to other providers, with patient consent. Add a restriction to only allow benefits to be paid for a maximum of two services on the same day.	This would ensure that all reports include interpretation of the trace, as well as comment on how significant the findings are for the specific patient. Patients will not be able to have Medicare pay for more than 2 ECGs in a day.	Some reports are written without the expert receiving any clinical information about the patient or the reason for the ECG being done. This lack of information means that the expert is less able to assess whether any findings are significant for that patient and can't comment on this in the report. By requiring this interpretation to be in the report, it will encourage giving clinical information to the expert reporting the trace and should mean that GPs and requesting doctors get more detailed and useful reports back. The Committee felt that some patients may be getting more ECGs than is clinically required.
Recommendation 18 11702 – ECG trace only	This item covers taking an ECG (as described above), but only if the trace is not formally reported by an expert.	Retain this item without referral because it can be a clinically valuable service. Require the provider to review the trace for patient safety reasons.	Most providers review all their ECG traces already but this change will encourage all providers to do this.	Despite new technology making ECG traces much easier to do, The Committee recommends that this item should be kept because ECGs can be clinically valuable tests when done for the right reasons. The Committee recommends that all ECGs should be reviewed by the provider for patient safety because even when an ECG is done for a low-risk reason, it might detect a potentially life threatening condition which is important not to miss.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 19 Items 11701, 11702	As above	Items 11700 and 11702 will not be claimable for patients admitted to hospital. Item 11701 (for the report only) will still be available for patients admitted to hospital if a provider requests a second opinion on a non-routine trace.	Hospitals would no longer be able to bill the MBS for ECG traces. This should not affect patients receiving clinically appropriate ECGs, and expert reports will be available where clinically necessary.	Reviewing an ECG trace when necessary is a core part of caring for an admitted patient and should be a standard part of a doctor reviewing their patient. The ECG trace is taken by a nurse and for admitted patients; nurse and consumable costs are not covered by the MBS. There is no medical cost that the MBS would cover for taking an ECG trace. Some hospitals may not have a doctor on site that is confident in interpreting ECG traces. If the doctor caring for the patient reviews a trace and wants an expert second opinion, they can request that the trace be sent for a formal report under item 11701.

Section 8: AECG and electrophysiology recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendations 22 and 23 and 25 Ambulatory ECG Items 11709 and 11710	These items are for monitoring the electrical activity of the heart short term (less than 24hrs, longer term monitoring up to many months can be done with implanted devices, item 11722) to detect unusual heart rhythms that are not there all the time. Short term monitors involve sticky dots and a monitor that is carried which stores data to be downloaded. The data is reviewed to look for unusual rhythms, beats or 'events.'	Restructure these items with specific indications that encourage the most appropriate test for the patient. For example, if a patient has symptoms once every few weeks, monitoring for 7 to 30 days may be the most appropriate option, given that a 24-hour monitor may not be worn on a day when the patient has symptoms.	Changes will encourage patients to receive the most appropriate monitor for their situation. This reduces inconvenience for patients having multiple tests and means they should get the most appropriate test.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. Many tests are negative because the wrong test is ordered for the patient, and some patients have multiple repeat tests instead of the more appropriate longer term test.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 26 Implanted ECG loop recorders Items 11722, 38285 and 38286	These items are for an implanted cardiac resynchronisation device which resynchronises the contractions of the heart's ventricles by sending tiny electrical impulses to the heart muscle, to help the heart pump blood throughout the body more efficiently.	Allow implanted monitors (implanted loop recorders, item 11722) to be inserted in consulting rooms, not just in hospitals (and item 38285 if an exception to the Prostheses List is granted). Restrict benefit for item 11722 to once per month. Allow implanted monitor removal item 38286 to be performed without admission to hospital. As for recommendations 22 and 23, these changes will encourage the most appropriate test for the patient.	Patients would no longer need to be admitted to hospital to receive an implanted monitor or have it removed. This would save the patient an admission gap payment and reduce private health insurer admission costs. As for recommendations 22 and 23, these changes will encourage patients to receive the most appropriate monitor for their situation. This reduces inconvenience for patients having multiple tests and means they should get the most appropriate test.	Inserting an implanted monitor used to require surgery because the device was inserted under the chest muscles. New technology means this can now be safely and quickly injected or removed in a consulting room. This means that an admission is a low-value use of resources. As for recommendations 22 and 23, these changes align the items with best-practice guidelines to ensure that patients have access to the most appropriate tests for their individual symptoms and condition. Many tests are negative because the wrong test is ordered for the patient, and some patients have multiple repeat tests instead of the more appropriate longer term test.
Recommendation 27. Removal of implantable ECG loop recorder Item 38286	This item is for the removal of a small cardiac monitor that is implanted just under the skin of the chest to record the heart's electrical activity.	Remove the requirement that the device can only be removed when the patient is admitted into hospital.	Adult patients with new devices will have the choice to have their implanted device removed as an outpatient.	New devices are implanted just under the skin which can be removed safely out of hospital, avoiding significant additional costs and inefficiencies. Inpatient removal continues to be best practice for older devices which are implanted deeper in the chest muscle.
Recommendations 28.1 and 28.2 Cardiac resynchronisation device Items 38365 and 38368	These items are for an implanted cardiac resynchronisation device which resynchronises the contractions of the heart's ventricles by sending tiny electrical impulses to the heart muscle, to help the heart pump blood throughout the body more efficiently.	Update the item descriptions to align them with international guidelines. Create a benefit for an assistant surgeon at these operations.	The item descriptions would be modernised to align with international guidelines.	Although the items specifically list sinus rhythm amongst other patient criteria, removal of this wording would not prevent the items being claimed.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 28.3 Cardiac resynchronisation device Item 38371	This item is for the insertion, removal or replacement of implanted cardiac resynchronisation device which resynchronises the contractions of the heart's ventricles by sending tiny electrical impulses to the heart muscle, to help the heart pump blood throughout the body more efficiently.	Remove item 38371 from the MBS as the changes made to items 38365 and 38365 make the item redundant.	The insertion, removal or replacement of implanted cardiac resynchronisation devices would now be claimed under a different number.	Implanted cardiac resynchronisation device is more appropriately claimed under the new revised items.
Recommendation 29.2 Electrophysiological studies Items 38212 and 38213	A cardiac electrophysiology study (EP test or EP study) is a minimally invasive procedure that tests the electrical conduction system of the heart to assess the electrical activity and conduction pathways of the heart.	Amend items 38212 to remove defibrillator testing. Amend item 38213 to specifically include defibrillator testing.	Defibrillator testing would now be claimed using a different item number.	Defibrillator testing is more appropriately claimed using item 38213 given the requirements of the procedure.
Recommendations 30.1, 30.2 and 30.3 Implanted defibrillators and pacemakers Items 38384, 38390, 38387, 38393 and 11727.	These items are for inserting different devices that monitor the heart, some of which deliver a shock when a dangerous rhythm is detected.	Update the indications for these items in line with best-practice clinical guidelines.	Some patients who could not receive these devices easily would now be eligible. Some other patients would no longer be eligible.	To align the items with best-practice guidelines to ensure that patients have access to the most appropriate implanted defibrillators and pacemakers for their individual symptoms and condition. New evidence has been published about when devices are safe and effective. There is also new evidence that they may cause more harm than good in certain patients.
Recommendation 32.3 Item 11721	This item is for testing an implanted pacemaker and is performed on behalf of the doctor by a technician.	The item be amended so it can only be claimed when the doctor is immediately available to attend the patient where clinically indicated.	Patients would receive a better service.	Changes will ensure a doctor will be available to influence the patient's outcome if the result of the test indicated an urgent review was required.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 33 Item 38358	This item is for complex, minimally invasive removal of implanted pacemaker or defibrillator leads that have been in place for longer than six months.	The Committee recommends the item be split into two. One for the provider who performs the procedure, and the other item to be billed by a cardiac surgeon providing support if a cardiologist is performing the procedure. The second item is for the surgeon to be present and ready to immediately surgically open the chest wall if required. The changes also provide greater clarity on the requirements for performing the procedure safely, in line with contemporary clinical practice.	There should be no discernible difference for the patient. Providers will have greater clarity on the expected safety requirements for performing this procedure. The vast majority of procedures are already believed to be performed in line with best practice.	The Committee recommends that new arrangements would more accurately reflect how the procedure is performed. Surgical standby and performance of the procedure in a setting capable of immediate emergency surgery is already the expected standard of clinical practice however the current MBS item was not clear on what level of support was required.
Recommendation 34 Item 13400	Restores normal heart rhythm by delivering an electrical shock to the heart.	This item should only be claimed in a hospital or an equivalent setting.	The service would be performed in a safe environment.	Patient safety will be increased.

Section 9: Cardiac surgery recommendations

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 38 All Cardiac Surgery procedures	This group of items in the MBS are for patients having cardiac surgery.	Apply a general rule to the cardiac surgery section of the MBS specifying that the items contained therein are intended to be complete medical services.	The new items would not be able to be claimed with services outside the cardiac surgery section of the MBS.	Cardiothoracic surgical procedures are regularly claimed with other items from other areas of the MBS, particularly the vascular and plastics sections. Items were already intended to be complete medical services and should generally not have been co-claimed in this way. This can also mean that patients having the same procedures can be eligible for different MBS rebates,

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 39 Coronary artery bypass grafting (also known as bypass surgery, CAGS or CABG) Items 38496, 38497, 38498, 38500, 38501, 38503 and 38504.	This procedure uses grafts (pieces of other blood vessels) to provide a path for blood to go around blockages in the blood vessels of the heart.	Restructure items as complete medical services.	Currently, doctors claim very different combinations of MBS items for the same procedure. These changes would mean that all patients who have the procedure would have the same MBS items claimed and would therefore receive the same rebate.	Simplifies the MBS items to align with best practice guidelines Previous MBS items were often added together in different ways because of how the schedule was designed, with providers claiming more items for a procedure to get higher MBS rebates. The new structure is clearer and simpler, with a single item for bypass surgery, and some add-on items for specific things that make the surgery longer or more difficult but might be needed in some patients.
Recommendation 42.1 All Cardiac Surgery procedures	This group of items in the MBS are for patients having cardiac surgery.	Restructure all cardiac surgery items as complete medical services.	Currently, doctors claim very different combinations of MBS items for the same procedure. These changes would mean that all patients who have the procedure would have the same MBS items claimed and would therefore receive the same rebate.	Simplifies the MBS items to align with best practice guidelines Previous MBS items were often added together in different ways because of how the schedule was designed, with providers claiming more items for a procedure to get higher MBS rebates. The new structure is clearer and simpler, with a single item for bypass surgery, and some add-on items for specific things that make the surgery longer or more difficult but which may be clinically needed in some patients.
Recommendation 42.2, 42.3 and 42.4 Primary valve replacement items.	These procedures involve repairing or replacing any of the primary valves in the heart.	Restructure the existing items into three new items to make them stand alone or complete medical services.	The changes would ensure patients receive the same rebate for equivalent procedures.	The changes are designed to reduce variation in rebates for similar procedures.
Recommendation 43 Valve repair and replacement items: Items 38550, 38553, 38556 and 38572	These procedures involve repairing or replacing any of the valves in the heart.	Restructure items as complete medical services and add new items for valve replacement, including removing (explanting) a previous valve prosthesis.	The changes would ensure patients receive the same rebate for equivalent procedures. Surgeons would have an item that reflects the additional time and complexity of repeat valve replacements.	The changes are designed to reduce variation in claims (as above), and to ensure that longer and more complex repeat valve surgeries are fairly rebated for the extra time or expertise required for the surgery.
Recommendation 44.2 Cardiac surgery items 38568, 38571	These procedures involve repairing or replacing the aorta – a major artery of the heart.	Not allow the claiming of other item numbers for services which are already part of the procedure being performed.	Patients undergoing similar procedures would be eligible for the same rebate.	The change recognises that the fee for the item already includes all services necessary to perform the procedure.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 44.3 All cardiac valvular surgery items	This group of items in the MBS are for patients having cardiac surgery.	The Vascular Clinical Committee will be asked to review the cardiac valvular surgical items to construct complete medical services.	Another Clinical Committee of the Taskforce will be asked to review the items to ensure that they are standalone items.	Creating standalone items or complete medical services for each item will reduce the variability of benefits paid to patients for the same service.
Recommendation 45 Cardiac surgery items on the aortic arch. Items 38559, 38562, 38565.	These procedures involve repairing or replacing the aortic arch – a part of a major artery of the heart.	Consolidate items 38565, 38559 and 38562 into two items- one for simple and another for complex procedures.	There would only be two items instead of three for this procedure.	This change will simplify and modernise the MBS.
Recommendations 46.2 Cardiac surgery items -congenital heart disease. Items 38706, 38709, 38712.	These procedures involve repairing of the aorta for on young patients with congenital heart disease.	Delete 38712 from the MBS and replace with a new item.	The new item will includes more detail on the process and indications for this complex procedure.	Paediatric cardiac surgery items on the MBS have not been revised for some time and the changes reflect contemporary clinical practice.
Recommendation 47.1 Other cardiac surgical items. Items 38640, 38643, 37647 and 38656	These three items involve cutting adhesions around the heart. Adhesions are abnormal scar-like bands that form between two surfaces inside the body. In this case, the surgery is performed to allow normal movement of the heart or to allow access to the heart to perform other surgical procedures.	The Committee recommends consolidating the three items into one item.	There would be only one MBS item instead of three items for this procedure. The current items are differentiated by the amount of time taken to divide the adhesions.	This change is designed as a cost-neutral change. The time tiered items were originally designed to reflect the effort involved but this creates an incentive for longer procedures which may not be better for patients. By creating a single average item, there is no reward for operating slowly.
Recommendations 48.1, 48.2 and 48.3. Other surgical items – circulatory support Items 38577, 38588, 38600, 38603, 38609, 38612, 38613, 38627	Cardiopulmonary bypass items is a procedure that temporarily takes over the function of the heart and lungs during sur gery, maintaining the circulation of blood and the oxygen content of the patient's body.	Delete item 38577 and incorporate into the aortic arch procedures. Review 38588 for potential deletion 12 months after implementation of the recommendations in this report. Amend item descriptor for 30603.	Cardiopulmonary bypass services will be included as part of the items for cardiac surgical procedures so only one item number has to be claimed.	These bypass items should be used as part of other surgical procedures so merging them simplifies the MBS. People who need bypass without cardiac surgery can still use other MBS items intended for those situations.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 48.5 Intra-aortic balloon pump Item 38613	The Intra-aortic balloon pump is a small balloon that increases blood flow to the coronary arteries and is often used to transition patients after cardio pulmonary bypass.	Delete item 38613 as item 38612 renders it redundant.	There will an alternative item to claim for intra-aortic balloon pump procedures.	The proposed changes will simplify and modernise the MBS.
Recommendation 49.1 and 49.2 Transoesophageal echocardiogram (TOE). Items 55118, 55130, 55135.	A transoesophageal echocardiogram is an ultrasound of the heart using a special probe that scans the heart from inside the oesophagus.	The Committee recommends the removal of the word 'video tape" from items 55118, 55130, 55135. Update the co-claiming restrictions for item 55135 to reflect the new valve item structure.	There will not be any noticeable differences because of these recommendations.	Video tape is a historical reference and is no longer relevant to current practice, recordings should be digital. A claiming restriction is currently in place for TOE services with 55130. This restriction will continue to be reflected in the new items.
Recommendation 52 Pacemaker insertion Items 38470, 38473, 38654	For the insertion, removal and or replacement of an artificial pacemaker. A pacemaker is a medical device which uses electrical impulses, delivered by electrodes contracting the heart muscles, to regulate or resynchronise the beating of the heart.	The Committee recommends consolidating items 38473, 38654, and 38470 into one item.	There will be one item to claim for pacemaker services.	This change will simplify the MBS and consolidate to include all approaches.
Recommendations 54.1, 54.2 and 55 Congenital heart disease (hole in the heart disease) Items 38727 and 38730; items 38739 and 38742.	These procedures mend the hole between the heart chambers for children with born with a heart condition.	The Committee recommends revising the current items for repair of the heart with and without cardiopulmonary bypass. In addition the Committee recommends creating a new item for the repair of pulmonary arteries in addition to item 38727 and 38730. The committee also recommends reviewing items 38727 and 38730 at a later date to see if they remain a contemporary service.	A new item will be available for a specific complex paediatric surgery which is currently not well described by existing items. Some items that were being claimed inappropriately as part of other procedures will now only be used when they are the primary procedure.	Repair or replacement of pulmonary arteries are important paediatric procedures and the current schedule and claim patterns do not reflect contemporary clinical practice.

Item #/ Item Group	What it does	Committee recommendation	What would be different	Why
Recommendation 61 Ventricular surgery Items 38506-08	Surgery on the left ventricular repair is sometimes used to treat heart failure.	The Committee recommends consolidating items 38506-08 into a single item for left ventricular aneurysm repair.	There will be one item to claim for left ventricular repair.	This change will simplify the MBS and consolidate to include all approaches.
Recommendation 65.1 Other ungrouped surgical items Item 38650	This item relates to a surgical procedure where there's an obstruction of blood leaving the heart.	The Committee recommends consolidating item 38650 into item 38763.	There will only be one item to claim for myomectomy.	This change focuses on modernising and simplifying the item number to reflect best clinical practice for patients.

No change: Items where the Committee recommended no changes as the items remained current or were recent additions to the MBS

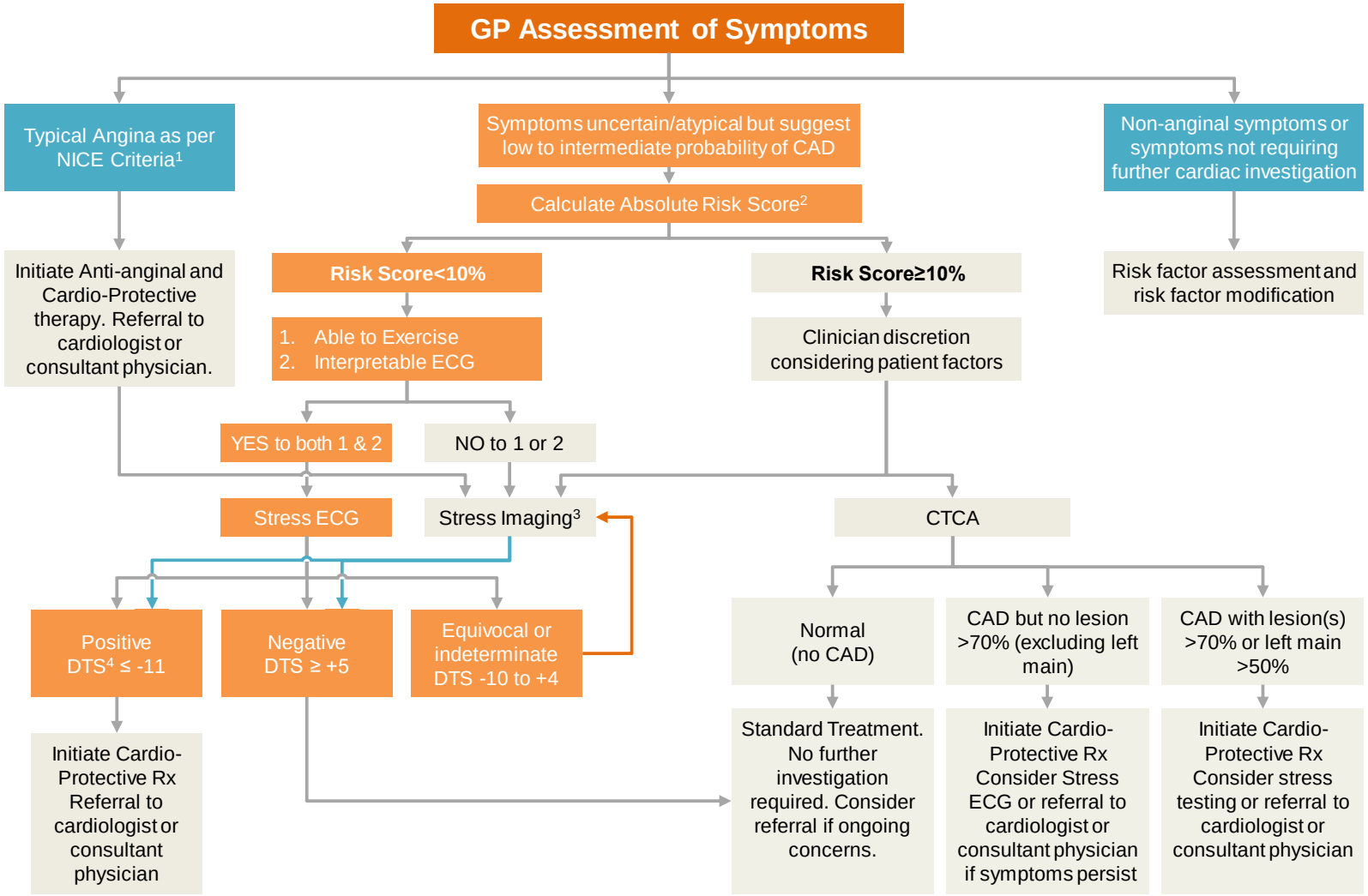
Recommendation	Item numbers
15.3	38270, 38273, 38275, 38359, & 38362
29.1	38209.
30.4	11725 and 11726
31	38287, 38290 & 38293
32.1	11719, 11720, 38256, 38350, 38353 & 38356.
36	11724
40	38687
41	38505
44.1	38568 & 38571
46.1	38706 & 38709.
47.2	38656.
48.4	38600, 38609, 38612 & 38627
50	38512, 38515 & 38518
51	38670, 38673, 38677, 38680
53	38615, 38618, 38621, 38624.
55	38739
56	38748 & 38751
57	38745 & 38754
58	38700 & 38703
59	38715 & 38718
60	38721 & 38724
62	38509
63	38733 & 38736

Recommendation	Item numbers
64	38757 & 38760
65.2	38653 & 38766.

Obsolete: Items which no longer reflect contemporary practice and will be removed from the MBS

Recommendation	Item numbers
13.2	38300, 38306, 38312, 38315 & 38318
21	11708
24	11711
32.2	11718
35	11713
37	11715

Appendix B Visual representation of gatekeeper to functional imaging recommendation



1 Typical angina is all 3 of: constricting discomfort in the front of the chest, or in the neck, shoulders, jaw, or arms; AND precipitated by physical exertion; AND relieved by rest or GTN within about 5 minutes. Otherwise symptoms are atypical/uncertain.
2 Australian Absolute risk score, 5 year risk of cardiovascular event
3 Stress echo or MPS, considering cost, patient factors, local access and radiation exposure
4 Duke Treadmill Score

Appendix C MBS items considered by the Committee

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
11700	Twelve-lead electrocardiography, tracing and report	$31.25	2,642,948	$69,467,252	2,767,858	$72,596,493.00
11701	Twelve-lead electrocardiography, report only where the tracing has been forwarded to another medical practitioner, not in association with a consultation on the same occasion	$15.55	27,158	$353,149	27,484	$357,710.00
11702	Twelve-lead electrocardiography, tracing only	$15.55	106,606	$1,338,865	114,039	$1,419,236.00
11708	Continuous ECG recording of ambulatory patient for 12 or more hours (including resting EECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, involving microprocessor based analysis equipment, interpretation and report of recordings by a specialist physician or consultant physician. Not being a service to which item 11709 applies. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.	$127.90	6,216	$649,412	6,487	$679,069.00
11709	Continuous ECG recording (Holter) of ambulatory patient for 12 or more hours (including resting ECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, utilising a system capable of superimposition and full disclosure printout of at least 12 hours of recorded ECG data, microprocessor based scanning analysis, with interpretation and report by a specialist physician or consultant physician. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.	$167.45	277,643	$39,795,143	294,350	$42,124,069.00
11710	Ambulatory ECG monitoring, patient activated, single or multiple event recording, utilising a looping memory recording device which is connected continuously to the patient for 12 hours or more and is capable of recording for at least 20 seconds prior to each activation and for15 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period	$51.90	4,308	$199,735	7,279	$328,364.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
11711	Ambulatory ECG monitoring for 12 hours or more, patient activated, single or multiple event recording, utilising a memory recording device which is capable of recording for at least 30 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period	$28.30	813	$21,622	799	$20,779.00
11712	Multi channel ECG monitoring and recording during exercise (motorised treadmill or cycle ergometer capable of quantifying external workload in watts) or pharmacological stress, involving the continuous attendance of a medical practitioner for not less than 20 minutes, with resting ECG, and with or without continuous blood pressure monitoring and the recording of other parameters, on premises equipped with mechanical respirator and defibrillator	$152.15	464,040	$60,685,140	471,291	$61,474,360.00
11713	Signal averaged ECG recording involving not more than 300 beats, using at least 3 leads with data acquisition at not less than 1000Hz of at least 100 QRS complexes, including analysis, interpretation and report of recording by a specialist physician or consultant physician	$69.75	5,425	$315,978	6,087	$355,256.00
11715	Blood dye — dilution indicator test	$120.75	16	$1,480	14	$1,622.00
11718	Implanted pacemaker testing involving electrocardiography, measurement of rate, width and amplitude of stimulus, including reprogramming when required, not being a service associated with a service to which item 11700, 11719, 11720, 11721, 11725 or 11726 applies	$34.75	11,549	$341,826	12,092	$357,148.00
11719	Implanted pacemaker (including cardiac resynchronisation pacemaker) remote monitoring involving reviews (without patient attendance) or arrhythmias, lead and device parameters, if at least one remote review is provided in a 12 month period. Payable only once in any 12 month period	$66.85	None	None	3,939	$252,027.00
11720	Implanted pacemaker testing, with patient attendance, following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus including reprogramming when required, not being a service associated with a service to which item 11718 or 11721 applies.	$66.85	None	None	252	$14,662.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
11721	Implanted pacemaker testing of atrioventricular (AV) sequential, rate responsive, or antitachycardia pacemakers, including reprogramming when required, not being a service associated with a service to which item 11700, 11718 11719, 11720, 11725 or 11726 applies	$69.75	140,527	$8,348,467	146,798	$8,728,761.00
11722	Implanted ECG loop recording for the investigation of recurrent unexplained syncope if: (a) a diagnosis has not been achieved through all other available cardiac investigations; and (b) a neurogenic cause is not suspected; and (c) the patient to whom the service is provided does not have a structural heart defect associated with a high risk of sudden cardiac death; including reprogramming when required, retrieval of stored data, analysis, interpretation and report, not being a service to which item 38285 applies	$34.75	7,076	$212,526	9,711	$291,188.00
11724	Up-right tilt table testing for the investigation of syncope of suspected cardiothoracic origin, including blood pressure monitoring, continuous ECG monitoring and the recording of the parameters, and involving an established intravenous line and the continuous attendance of a specialist or consultant physician — on premises equipped with a mechanical respirator and defibrillator	$168.90	1,753	$261,922	1,894	$278,011.00
11725	Implanted defibrillator (including Cardiac Resynchronisation Defibrillator) remote monitoring involving reviews (without patient attendance) of arrhythmias, lead and device parameters, if at least 2 remote reviews are provided in a 12 month period. Payable only once in any 12 month period	$189.50	None	None	2,844	$475,549.00
11726	Implanted defibrillator testing with patient attendance following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus, not being a service associated with a service to which item 11727 applies.	$94.75	None	None	242	$19,520.00
11727	Implanted defibrillator testing involving electrocardiography, assessment of pacing and sensing thresholds for pacing and defibrillation electrodes, download and interpretation of stored events and electrograms, including programming when required, not being a service associated with a service to	$94.75	49,842	$4,017,423	52,924	$4,261,975.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	which item 11700, 11718, 11719, 11720, 11721, 11725 or 11726 applies					
13400	Restoration of cardiac rhythm by electrical stimulation (cardioversion), other than in the course of cardiac surgery (Anaes.)	$96.80	10,205	$746,932	11,168	$816,962.00
38200	Right heart catheterisation, with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurement by any method, shunt detection or exercise stress test (Anaes.)	$445.40	1,409	$380,027	1,583	$442,460.00
38203	Left heart catheterisation by percutaneous arterial puncture, arteriotomy or percutaneous left ventricular puncture with any one or more of the following fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)	$531.55	44	$11,634	52	$14,814.00
38206	Right heart catheterisation with left heart catheterisation via the right heart or by any other procedure with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)	$642.65	2,495	$468,509	2,687	$503,867.00
38209	Cardiac electrophysiological study up to and including 3 catheter investigation of any 1 or more of syncope, atrioventricular conduction, sinus node function or simple ventricular tachycardia studies, not being a service associated with a service to which item 38212 or 38213 applies (Anaes.)	$825.15	684	$333,551	658	$331,396.00
38212	Cardiac electrophysiological study 4 or more catheter supraventricular tachycardia investigation; or complex tachycardia inductions, or multiple catheter mapping, or acute intravenous antiarrhythmic drug testing with pre and post drug inductions; or catheter ablation to intentionally induce complete AV block; or intraoperative mapping; or electrophysiological services during defibrillator implantation or testing not being a service associated with a service to which item 38209 or 38213 applies (Anaes.)	$1372.45	10,685	$7,956,396	10,898	$8,076,072.00
38213	Cardiac electrophysiological study, for follow-up testing of implanted defibrillator - not being a service associated with a service to which item 38209 or 38212 applies (Anaes.)	$408.70	90	$27,524	71	$21,034.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38215	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries, not being a service associated with a service to which item 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	$354.90	5,019	$1,284,875	5,702	$1,324,558.00
38218	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography, not being a service associated with a service to which item 38215, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	$532.25	54,211	$21,889,745	52,996	$21,340,836.00
38220	Selective coronary graft angiography placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	$177.40	14	$1,601	9	$1,029.00
38222	Selective coronary graft angiography, placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	$354.90	13	$3,154	14	$2,733.00
38225	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	$532.35	114	$41,966	121	$42,504.00
38228	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38231,	$709.90	95	$51,498	125	$66,237.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	38234, 38237, 38240 or 38246 applies (Anaes.)					
38231	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into the free coronary graft(s) attached to the aorta (irrespective of the number of grafts), and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38234, 38237, 38240 or 38246 applies (Anaes.)	$887.25	440	$312,619	462	$324,655.00
38234	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38237, 38240 or 38246 applies (Anaes.)	$709.75	477	$242,610	434	$221,557.00
38237	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38240 or 38246 applies (Anaes.)	$887.20	470	$321,566	375	$257,213.00
38240	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218,	$1064.60	4,717	$3,849,507	4,392	$3,575,185.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	38220, 38222, 38225, 38228, 38231, 38234, 38237 or 38246 applies (Anaes.)					
38241	Use of a coronary pressure wire during selective coronary angiography to measure fractional flow reserve (ffr) and coronary flow reserve (cfr) in one or more intermediate coronary artery or graft lesions (stenosis of 30-70%), to determine whether revascularisation should be performed where previous stress testing has either not been performed or the results are inconclusive (Anaes.)	$469.70	3,692	$676,644	4,130	$757,963.00
38243	Placement of catheter(s) and injection of opaque material into any coronary vessel(s) or graft(s) prior to any coronary interventional procedure, not being a service associated with a service to which item 38246 applies (Anaes.)	$443.60	5,479	$787,641	5,735	$823,045.00
38246	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography followed by placement of catheters prior to any coronary interventional procedure, not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38243 applies (Anaes.)	$887.20	14,729	$9,865,778	14,640	$9,737,103.00
38256	Temporary transvenous pacemaking electrode, insertion of (Anaes.)	$267.25	791	$86,109	1,050	$111,010.00
38270	Balloon valvuloplasty or isolated atrial septostomy, including cardiac catheterisations before and after balloon dilatation (Anaes.) (Assist.)	$912.30	500	$339,007	798	$539,335.00
38272	Atrial septal defect closure, with septal occluder or other similar device, by transcatheter approach (Anaes.) (Assist.)	$912.30	379	$254,333	371	$254,323.00
38273	Patent ductus arteriosus, transcatheter closure of, including cardiac catheterisation and any imaging associated with the service (Anaes.) (Assist.)	$912.30	11	$7,185	21	$14,366.00
38274	Ventricular septal defect, transcatheter closure of, with imaging and cardiac catheterisation (Anaes.) (Assist.)	$912.30	None	None	0	$0.00
38275	Myocardial biopsy, by cardiac catheterisation (Anaes.)	$298.20	203	$38,925	148	$27,436.00
38285	Implantable ecg loop recorder, insertion of, for diagnosis of primary disorder in patients with recurrent unexplained syncope where: - a	$192.90	1,944	$262,258	2,269	$305,411.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	diagnosis has not been achieved through all other available cardiac investigations; and - a neurogenic cause is not suspected; and - it has been determined that the patient does not have structural heart disease associated with a high risk of sudden cardiac death. Including initial programming and testing, as an admitted patient in an approved hospital (Anaes.)					
38286	Implantable ecg loop recorder, removal of, as an admitted patient in an approved hospital (Anaes.)	$173.75	573	$52,095	768	$72,312.00
38287	Ablation of arrhythmia circuit or focus or isolation procedure involving 1 atrial chamber (Anaes.) (Assist.)	$2098.45	4,183	$6,821,196	4,198	$6,834,027.00
38290	Ablation of arrhythmia circuits or foci, or isolation procedure involving both atrial chambers and including curative procedures for atrial fibrillation (Anaes.) (Assist.)	$2671.95	3,072	$6,149,831	3,213	$6,435,632.00
38293	Ventricular arrhythmia with mapping and ablation, including all associated electrophysiological studies performed on the same day (Anaes.) (Assist.)	$2868.05	450	$981,898	539	$1,180,622.00
38300	Transluminal balloon angioplasty of 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	$515.35	1,538	$322,756	1,570	$329,424.00
38303	Transluminal balloon angioplasty of more than 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	$660.80	222	$63,254	218	$60,895.00
38306	Transluminal stent insertion including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding aftertransluminal insertion of stent or stents into 1 occlusional site, including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding aftercare care (Anaes.) (Assist.)	$762.35	26,110	$8,383,158	26,068	$8,375,823.00
38309	Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with no stent insertion where no lesion of the coronary artery has been stented; and- each lesion of the coronary	$885.45	27	$17,103	22	$13,271.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	artery is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)					
38312	Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with insertion of 1 or more stents, where no lesion of the coronary artery has been stented; and each lesion of the coronary artery is complex and heavily calcified; and balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	$1132.35	268	$228,198	319	$271,256.00
38315	Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty with no stent insertion where no lesion of the coronary arteries has been stented; and each lesion of the coronary arteries is complex and heavily calcified; and balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	$1215.85	10	$8,883	10	$10,364.00
38318	Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty, with insertion of 1 or more stents, where no lesion of the coronary arteries has been stented; and each lesion of the coronary arteries is complex and heavily calcified; and balloon angioplasty with or without stenting is not suitable, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	$1586.35	49	$61,181	62	$77,110.00
38350	Single chamber permanent transvenous electrode, insertion, removal or replacement of, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)	$638.65	2,796	$1,002,970	3,004	$1,071,661.00
38353	Permanent cardiac pacemaker, insertion, removal or replacement of, not for cardiac resynchronisation therapy, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)	$255.45	9,871	$1,117,848	10,266	$1,157,858.00
38356	Dual chamber permanent transvenous electrodes, insertion, removal or replacement of, including cardiac	$837.35	6,625	$4,082,981	6,985	$4,298,024.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	electrophysiological services where used for pacemaker implantation (Anaes.)					
38358	Extraction of chronically implanted transvenous pacing or defibrillator lead or leads, by percutaneous method where the leads have been in situ for greater than six months and require removal with locking stylets, snares and/or extraction sheaths in a facility where cardiac surgery is available, in association with item 61109 or 60509 (Anaes.) (Assist.)	$2868.05	99	$213,072	123	$247,171.00
38359	Pericardium, paracentesis of (excluding aftercare) (Anaes.)	$133.55	136	$11,986	162	$14,161.00
38362	Intra-aortic balloon pump, percutaneous insertion of (Anaes.)	$384.95	302	$42,616	245	$37,973.00
38365	Permanent cardiac synchronisation device (including a cardiac synchronisation device that is capable of defibrillation), insertion, removal or replacement of, for a patient who: (a) has: (i) moderate to severe chronic heart failure (New York Heart Association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) satisfied the requirements mentioned in paragraph (a) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)	$255.45	401	$33,080	476	$42,020.00
38368	Permanent transvenous left ventricular electrode, insertion, removal or replacement of through the coronary sinus, for the purpose of cardiac resynchronisation therapy, including right heart catheterisation and any associated venogram of left ventricular veins, other than a service associated with a service to which item 35200 or 38200 applies, for a patient who: (a) has: (i) moderate to severe chronic heart failure (New York Heart Association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 120 ms; or (b) has: (i) mild chronic heart failure (New York Heart Association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%;	$1224.60	1,224	$915,492	1,262	$960,469.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	and(iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)					
38371	Permanent cardiac synchronisation device capable of defibrillation, insertion, removal or replacement of, for a patient who:(a) has:(i) moderate to severe chronic heart failure (New York Heart Association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) has:(i) mild chronic heart failure (New York Heart Association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 150 ms (Anaes.)	$287.85	1,125	$95,066	1,217	$111,282.00
38384	Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for, primary prevention of sudden cardiac death in patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)	$1052.65	1,327	$610,471	1,330	$626,714.00
38387	Automatic defibrillator generator, insertion or replacement of for, primary prevention of sudden cardiac death in: - patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies,	$287.85	916	$90,551	974	$92,156.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	not for defibrillators capable of cardiac resynchronisation therapy (Anaes.) (Assist.)					
38390	Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)	$1052.65	975	$494,751	957	$491,295.00
38393	Automatic defibrillator generator, insertion or replacement of for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies. (Anaes.) (Assist.)	$287.85	1,272	$132,218	1,210	$128,547.00
38470	Permanent myocardial electrode, insertion of, by thoracotomy or sternotomy (Anaes.) (Assist.)	$958.40	136	$42,137	147	$44,459.00
38473	Permanent pacemaker electrode, insertion by open surgical approach (Anaes.) (Assist.)	$573.70	18	$3,587	16	$4,589.00
38475	Valve annuloplasty without insertion of ring, not being a service associated with a service to which item 38480 or 38481 applies (Anaes.) (Assist.)	$831.75	21	$4,211	37	$8,730.00
38477	Valve annuloplasty with insertion of ring not being a service to which item 38478 applies (Anaes.) (Assist.)	$2003.35	434	$368,195	447	$370,966.00
38478	Valve annuloplasty with insertion of ring performed in conjunction with item 38480 or 38481 (Anaes.) (Assist.)	$970.40	710	$189,812	687	$170,935.00
38480	Valve repair, 1 leaflet (Anaes.) (Assist.)	$2003.35	695	$723,392	674	$680,632.00
38481	Valve repair, 2 or more leaflets (Anaes.) (Assist.)	$2280.65	333	$506,617	364	$550,396.00
38483	Aortic valve leaflet or leaflets, decalcification of, not being a service to which item 38475, 38477, 38480, 38481, 38488 or 38489 applies (Anaes.) (Assist.)	$1720.90	7	$3,558	5	$2,904.00
38485	Mitral annulus, reconstruction of, after decalcification, when performed in association with valve surgery (Anaes.) (Assist.)	$817.10	167	$28,038	159	$26,773.00
38487	Mitral valve, open valvotomy of (Anaes.) (Assist.)	$1720.90	None	None	3	$2,581.00
38488	Valve replacement with bioprosthesis or mechanical prosthesis (Anaes.) (Assist.)	$1909.60	2,822	$2,616,016	2,673	$2,477,862.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38489	Valve replacement with allograft (subcoronary or cylindrical implant), or unstented xenograft (Anaes.) (Assist.)	$2271.05	52	$61,318	59	$76,208.00
38490	Sub-valvular structures, reconstruction and re-implantation of, associated with mitral and tricuspid valve replacement (Anaes.) (Assist.)	$554.55	308	$39,394	332	$41,380.00
38493	Operative management of acute infective endocarditis, in association with heart valve surgery (Anaes.) (Assist.)	$1957.60	114	$102,311	149	$126,460.00
38496	Artery harvesting (other than internal mammary), for coronary artery bypass (Anaes.) (Assist.)	$623.95	2,026	$379,250	2,247	$402,805.00
38497	Coronary artery bypass with cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, not being a service associated with a service to which item 38498, 38500, 38501, 38503 or 38504 apply (Anaes.) (Assist.)	$2047.60	582	$720,403	466	$568,108.00
38498	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38500, 38501, 38503, 38504 or 38600 apply (Anaes.) (Assist.)	$2047.60	11	$16,125	2	$3,071.00
38500	Coronary artery bypass with cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38501, 38503 or 38504 apply (Anaes.) (Assist.)	$2200.00	2,661	$4,207,925	2,436	$3,831,430.00
38501	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500,	$2200.00	181	$296,861	205	$336,422.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	38503, 38504 or 38600 apply (Anaes.) (Assist.)					
38503	Coronary artery bypass with cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38500, 38501 or 38504 apply (Anaes.) (Assist.)	$2388.70	2,241	$3,889,421	2,491	$4,346,240.00
38504	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500, 38501, 38503 or 38600 apply (Anaes.) (Assist.)	$2388.70	184	$320,731	185	$317,385.00
38505	Coronary endarterectomy, by open operation, including repair with 1 or more patch grafts, each vessel (Anaes.) (Assist.)	$277.25	29	$1,560	27	$1,508.00
38506	Left ventricular aneurysm, plication of (Anaes.) (Assist.)	$1626.25	9	$5,512	5	$4,269.00
38507	Left ventricular aneurysm resection with primary repair (Anaes.) (Assist.)	$1909.20	3	$1,432	3	$1,790.00
38508	Left ventricular aneurysm resection with patch reconstruction of the left ventricle (Anaes.) (Assist.)	$2388.70	14	$21,778	14	$20,194.00
38509	Ischaemic ventricular septal rupture, repair of (Anaes.) (Assist.)	$2388.70	8	$13,437	11	$18,811.00
38512	Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving 1 atrial chamber only (Anaes.) (Assist.)	$2098.45	483	$490,426	555	$543,661.00
38515	Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving both atrial chambers and including curative surgery for atrial fibrillation (Anaes.) (Assist.)	$2671.95	295	$548,398	289	$550,381.00
38518	Ventricular arrhythmia with mapping and muscle ablation, with or without aneurysmeotomy (Anaes.) (Assist.)	$2868.05	2	$2,933	0	$0.00
38550	Ascending thoracic aorta, repair or replacement of, not involving valve	$2146.15	89	$115,184	81	$106,434.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	replacement or repair or coronary artery implantation (Anaes.) (Assist.)					
38553	Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)	$2719.75	564	$1,139,648	526	$1,068,167.00
38556	Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)	$3104.70	314	$723,880	281	$650,623.00
38559	Aortic arch and ascending thoracic aorta, repair or replacement of, not involving valve replacement or repair or coronary artery implantation (Anaes.) (Assist.)	$2531.00	55	$100,676	73	$134,887.00
38562	Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)	$3104.70	98	$224,468	95	$216,658.00
38565	Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)	$3482.25	109	$283,144	125	$316,120.00
38568	Descending thoracic aorta, repair or replacement of, without shunt or cardiopulmonary bypass, by open exposure, percutaneous or endovascular means (Anaes.) (Assist.)	$1862.95	24	$23,010	29	$33,739.00
38571	Descending thoracic aorta, repair or replacement of, using shunt or cardiopulmonary bypass (Anaes.) (Assist.)	$2051.75	19	$15,291	24	$15,813.00
38572	Operative management of acute rupture or dissection, in conjunction with procedures on the thoracic aorta (Anaes.) (Assist.)	$1987.05	115	$83,733	100	$72,212.00
38577	Cannulation for, and supervision and monitoring of, the administration of retrograde cerebral perfusion during deep hypothermic arrest (Assist.)	$554.55	70	$8,631	88	$11,353.00
38588	Cannulation of the coronary sinus for, and supervision of, the retrograde administration of blood or crystalloid for cardioplegia, including pressure monitoring (Assist.)	$416.05	6,882	$841,880	6,834	$801,814.00
38600	Central cannulation for cardiopulmonary bypass excluding post-operative management, not being a service associated with a service to which another item in this Subgroup applies (Anaes.) (Assist.)	$1532.00	10	$9,287	15	$15,196.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38603	Peripheral cannulation for cardiopulmonary bypass excluding post-operative management (Anaes.) (Assist.)	$958.40	706	$169,936	761	$184,390.00
38609	Intra-aortic balloon pump, insertion of, by arteriotomy (Anaes.) (Assist.)	$479.15	57	$8,491	45	$6,376.00
38612	Intra-aortic balloon pump, removal of, with closure of artery by direct suture (Anaes.) (Assist.)	$537.10	16	$4,434	14	$4,240.00
38613	Intra-aortic balloon pump, removal of, with closure of artery by patch graft (Anaes.) (Assist.)	$674.05	None	None	0	$0.00
38615	Insertion of a left or right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)	$1532.00	12	$8,325	12	$8,618.00
38618	Insertion of a left and right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)	$1909.60	20	$21,098	23	$29,294.00
38621	Left or right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)	$762.35	3	$1,287	4	$1,858.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38624	Left and right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)	$856.65	3	$1,515	7	$3,052.00
38627	Extra-corporeal membrane oxygenation, bypass or ventricular assist device cannulae, adjustment and re-positioning of, by open operation, in patients supported by these devices (Anaes.) (Assist.)	$669.60	31	$9,542	41	$14,815.00
38637	Patent diseased coronary artery bypass vein graft or grafts, dissection, disconnection and oversewing of (Anaes.) (Assist.)	$554.55	80	$9,058	60	$7,576.00
38640	Re-operation via median sternotomy, for any procedure, including any divisions of adhesions where the time taken to divide the adhesions is 45 minutes or less (Anaes.) (Assist.)	$958.40	115	$42,241	103	$39,688.00
38643	Thoracotomy or sternotomy involving division of adhesions where the time taken to divide the adhesions exceeds 45 minutes (Anaes.) (Assist.)	$1067.40	999	$377,450	1,123	$431,858.00
38647	Thoracotomy or sternotomy involving division of extensive adhesions where the time taken to divide the adhesions exceeds 2 hours (Anaes.) (Assist.)	$2134.50	751	$957,977	890	$1,156,804.00
38650	Myomectomy or myotomy for hypertrophic obstructive cardiomyopathy (Anaes.) (Assist.)	$1909.60	113	$67,070	104	$66,555.00
38653	Open heart surgery, not being a service to which another item in this Group applies (Anaes.) (Assist.)	$1909.60	380	$211,793	453	$252,590.00
38654	Permanent left ventricular electrode, insertion, removal or replacement of via open thoracotomy, for the purpose of cardiac resynchronisation therapy, for a patient who:(a) has:(i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or(b) has:(i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.) (Assist.)	$1224.60	46	$29,598	47	$27,637.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38656	Thoracotomy or median sternotomy for post-operative bleeding (Anaes.) (Assist.)	$958.40	345	$227,000	319	$209,971.00
38670	Cardiac tumour, excision of, involving the wall of the artrium or inter-atrial septum, without patch or conduit reconstruction (Anaes.) (Assist.)	$1909.20	47	$34,008	42	$24,152.00
38673	Cardiac tumour, excision of, involving the wall of the atrium or inter-atrial septum, requiring reconstruction with patch or conduit (Anaes.) (Assist.)	$2148.85	27	$39,485	34	$49,294.00
38677	Cardiac tumour arising from ventricular myocardium, partial thickness excision of (Anaes.) (Assist.)	$2010.35	12	$13,570	14	$14,971.00
38680	Cardiac tumour arising from ventricular myocardium, full thickness excision of including repair or reconstruction (Anaes.) (Assist.)	$2384.55	None	None	2	$3,577.00
38700	Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1067.40	48	$27,220	46	$27,555.00
38703	Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1924.10	79	$41,521	97	$44,377.00
38706	Aorta, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1822.40	24	$32,120	23	$31,436.00
38709	Aorta, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$2134.50	29	$36,420	46	$59,232.00
38712	Aortic interruption, repair of, for congenital heart disease (Anaes.) (Assist.)	$2563.15	2	$2,884	0	$0.00
38715	Main pulmonary artery, banding, debanding or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1706.30	13	$14,397	6	$3,839.00
38718	Main pulmonary artery, banding, debanding or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$2134.50	90	$94,337	125	$106,495.00
38721	Vena cava, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1495.80	8	$7,108	4	$2,744.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38724	Vena cava, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$2134.50	37	$42,062	31	$34,819.00
38727	Intrathoracic vessels, anastomosis or repair of, without cardiopulmonary bypass, not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)	$1495.80	22	$18,601	30	$24,682.00
38730	Intrathoracic vessels, anastomosis or repair of, with cardiopulmonary bypass, not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)	$2134.50	12	$12,407	20	$22,413.00
38733	Systemic pulmonary or cavo-pulmonary shunt, creation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1495.80	6	$6,170	10	$11,219.00
38736	Systemic pulmonary or cavo-pulmonary shunt, creation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$2134.50	39	$31,483	31	$24,414.00
38739	Atrial septectomy, with or without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	$1924.10	26	$13,124	31	$12,989.00
38742	Atrial septal defect, closure by open exposure direct suture or patch, for congenital heart disease (Anaes.) (Assist.)	$1924.10	511	$353,576	567	$366,881.00
38745	Intra-atrial baffle, insertion of, for congenital heart disease (Anaes.) (Assist.)	$2134.50	40	$37,322	38	$41,158.00
38748	Ventricular septectomy, for congenital heart disease (Anaes.) (Assist.)	$2134.50	5	$4,403	5	$4,803.00
38751	Ventricular septal defect, closure by direct suture or patch (Anaes.) (Assist.)	$2134.50	81	$95,514	95	$96,364.00
38754	Intraventricular baffle or conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)	$2671.95	17	$29,036	25	$48,073.00
38757	Extracardiac conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)	$2134.50	19	$11,827	32	$20,162.00
38760	Extracardiac conduit, replacement of, for congenital heart disease (Anaes.) (Assist.)	$2134.50	12	$12,184	7	$6,003.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
38763	Ventricular myectomy, for relief of ventricular obstruction, right or left, for congenital heart disease (Anaes.) (Assist.)	$2134.50	79	$57,013	119	$83,228.00
38766	Ventricular augmentation, right or left, for congenital heart disease (Anaes.) (Assist.)	$2134.50	51	$24,345	76	$34,799.00
55113	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of cardiac failure, or suspected or known ventricular hypertrophy or dysfunction, or chest pain: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	$230.65	697,638	$142,206,653	746,229	$151,786,295.00
55114	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of suspected or known acquired valvular, aortic, pericardial, thrombotic or embolic disease or heart tumour: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	$230.65	146,935	$29,508,939	143,424	$28,771,167.00
55115	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of congenital heart disease: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and	$230.65	56,377	$10,829,483	57,589	$11,050,068.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
	(b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (r)					
55116	Exercise stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before exercise (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at, or immediately after, peak exercise; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	$261.65	243,163	$54,370,194	265,411	$59,035,248.00
55117	Pharmacological stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before drug infusion (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at least twice during drug infusion, including a recording at the peak drug dose; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	$261.65	8,793	$2,041,809	9,535	$2,209,185.00
55118	Heart, two-dimensional real time transoesophageal examination of, from at least 2 levels, and in more than1 plane at each level: (a) with: (i) real time colour flow mapping and, if indicated, pulsed wave doppler examination; and (ii) recordings on video tape or digital medium; and (b) not being an intra-operative service or a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3 applies (R) (Anaes.) (Anaes.)	$275.50	15,151	$3,156,428	16,162	$3,385,769.00
55119	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real	$115.35	102	$10,239	76	$7,714.00

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	time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of symptoms or signs of cardiac failure, or suspected or known ventricular hypertrophy or dysfunction, or chest pain (r) (nk)					
55120	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of suspected or known acquired valvular, aortic, pericardial, thrombotic, or embolic disease, or heart tumour (r) (nk)	$115.35	75	$6,584	90	$8,588.00
55121	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of symptoms or signs of congenital heart disease (r) (nk)	$115.35	44	$3,978	44	$4,086.00
55122	Exercise stress echocardiography performed in conjunction with item 11712, with two-dimensional recordings before exercise (baseline) from at least three acoustic windows and matching recordings from the same windows at, or immediately after, peak exercise, not being a	$130.85	None	None	1	$120.00

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	service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup applies (with the exception of items 55118, 55125, 55130 and 55131). recordings must be made on digital media with equipment permitting display of baseline and matching peak images on the same screen (r) (nk)					
55123	Pharmacological stress echocardiography performed in conjunction with item 11712, with two-dimensional recordings before drug infusion (baseline) from at least three acoustic windows and matching recordings from the same windows at least twice during drug infusion, including a recording at the peak drug dose not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup, applies (with the exception of items 55118, 55125, 55130 and 55131). recordings must be made on digital media with equipment permitting display of baseline and matching peak images on the same screen (r) (nk)	$130.85	3	$362	0	$0.00
55125	Heart, 2 dimensional real time transoesophageal examination of, from at least two levels, and in more than one plane at each level:(a) with: (i) real time colour flow mapping and, if indicated, pulsed wave doppler examination; and (ii) recordings on video tape or digital medium; and(b) not being an intra-operative service or a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, applies (r) (nk) (Anaes.)	$137.75	2	$173	58	$5,918.00
55130	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac surgery incorporating sequential assessment of cardiac function before and after the surgical procedure, not being a service associated with a service to which item 55135 applies (R)(Anaes.) (Anaes.)	$170.00	744	$92,738	783	$97,281.00
55131	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac surgery incorporating sequential assessment	$85.00	2	$162	2	$274.00

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	of cardiac function before and after the surgical procedure - not associated with items 55135 and 55136 (r) (nk) (Anaes.)					
55135	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac valve surgery (replacement or repair) incorporating sequential assessment of cardiac function and valve competence before and after the surgical procedure, not being a service associated with a service to which item 55130 applies (R)(Anaes.) (Anaes.)	$353.60	3,387	$888,818	3,458	$905,951.00
55136	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac valve surgery (repair or replacement) incorporating sequential assessment of cardiac function and valve competence before and after the surgical procedure - not associated with items 55130 and 55131 (r) (nk) (Anaes.)	$176.80	2	$280	0	$0.00
57360	Computed tomography of the coronary arteries performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and: the patient has stable symptoms consistent with coronary ischaemia, is at low to intermediate risk of coronary artery disease and would have been considered for coronary angiography; or the patient requires exclusion of coronary artery anomaly or fistula; or the patient will be undergoing non-coronary cardiac surgery (r) (k) (Anaes.)	$700.00	44,974	$29,224,450	50945	$33,065,580.00
57361	Computed tomography of the coronary arteries performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and: the patient has stable symptoms consistent with coronary ischaemia, is at low to intermediate risk of coronary artery disease and would have been considered for coronary angiography; or the patient requires exclusion of coronary artery anomaly or fistula; or the patient will be undergoing non-coronary cardiac surgery (r) (nk) (Anaes.)	$350.00	2	$651	8	$2,655.00

Item #	Descriptor	Schedule Fee	Services 2014/15	Benefits 2014/15	Services 2015/16	Benefits 2015/16
59903	Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59912 or 59925 applies (R) (K) (Anaes.))	$114.55	233	$18,419	287	$22,664.00
59912	Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59903 or 59925 applies (R) (K) (Anaes.)	$305.20	13,723	$3,080,390	14036	$3,120,758.00
59925	Selective coronary arteriography and angiocardiography, including a service mentioned in item 59903, 59912, 59970, 59974, 61109 or 61110 (R) (K) (Anaes.))	$362.45	69,508	$18,438,657	68152	$17,779,433.00
59970	Angiography and/or digital subtraction angiography with fluoroscopy and image acquisition using a mobile image intensifier, one or more regions including any preliminary plain films, preparation and contrast injection (R) (K) (Anaes.)	$168.30	698	$87,665	668	$84,351.00
59971	Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59972 or 59973 applies (R) (NK) (Anaes.)	$57.30	66	$3,474	69	$3,281.00
59972	Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59971 or 59973 applies (R) (NK) (Anaes.)	$152.60	918	$108,256	582	$64,352.00
59973	Selective coronary arteriography and angiocardiography, including a service mentioned in item 59970, 59971, 59972, 59974, 61109 or 61110 (R) (NK) (Anaes.))	$181.25	394	$54,572	237	$31,382.00
61302	Single stress or rest myocardial perfusion study - planar imaging(R)	$448.85	107	$44,849	77	$31,943.00
61303	Single stress or rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken (R)	$565.30	6,630	$3,484,260	7296	$3,849,465.00
61306	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging (R)	$709.70	106	$70,283	93	$61,939.00
61307	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission	$834.90	74,831	$58,475,142	70119	$54,780,082.00

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	tomography and with planar imaging when undertaken (R)					
61651	Single stress or rest myocardial perfusion study - planar imaging (r) (nk)	$224.45	None	None	0	$0.00
61652	Single stress or rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken (r) (nk)	$282.65	None	None	0	$0.00
61653	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging (r) (nk)	$354.85	None	None	0	$0.00
61654	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission tomography and with planar imaging when undertaken (r) (nk)	$417.45	1	$392	4	$1,582.00

Appendix D Index of MBS items and recommendation numbers

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
11700	Twelve-lead electrocardiography, tracing and report	19	change
11701	Twelve-lead electrocardiography, report only where the tracing has been forwarded to another medical practitioner, not in association with a consultation on the same occasion	20	change
11702	Twelve-lead electrocardiography, tracing only	19	change
11708	Continuous ECG recording of ambulatory patient for 12 or more hours (including resting EECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, involving microprocessor based analysis equipment, interpretation and report of recordings by a specialist physician or consultant physician. Not being a service to which item 11709 applies. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.	21	obsolete
11709	Continuous ECG recording (Holter) of ambulatory patient for 12 or more hours (including resting ECG and the recording of parameters), not in association with ambulatory blood pressure monitoring, utilising a system capable of superimposition and full disclosure printout of at least 12 hours of recorded ECG data, microprocessor based scanning analysis, with interpretation and report by a specialist physician or consultant physician. The changing of a tape or batteries does not constitute a separate service. Where a recording is analysed and reported on and a decision is made to undertake a further period of monitoring, the second episode is regarded as a separate service.	22	change
11710	Ambulatory ECG monitoring, patient activated, single or multiple event recording, utilising a looping memory recording device which is connected continuously to the patient for 12 hours or more and is capable of recording for at least 20 seconds prior to each activation and for15 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period	23	change
11711	Ambulatory ECG monitoring for 12 hours or more, patient activated, single or multiple event recording, utilising a memory recording device which is capable of recording for at least 30 seconds after each activation, including transmission, analysis, interpretation and report — payable once in any 4 week period	24	obsolete

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
11712	Multi-channel ECG monitoring and recording during exercise (motorised treadmill or cycle ergometer capable of quantifying external workload in watts) or pharmacological stress, involving the continuous attendance of a medical practitioner for not less than 20 minutes, with resting ECG, and with or without continuous blood pressure monitoring and the recording of other parameters, on premises equipped with mechanical respirator and defibrillator	2	change
11713	Signal averaged ECG recording involving not more than 300 beats, using at least 3 leads with data acquisition at not less than 1000Hz of at least 100 QRS complexes, including analysis, interpretation and report of recording by a specialist physician or consultant physician	35	obsolete
11715	Blood dye — dilution indicator test	37	obsolete
11718	Implanted pacemaker testing involving electrocardiography, measurement of rate, width and amplitude of stimulus, including reprogramming when required, not being a service associated with a service to which item 11700, 11719, 11720, 11721, 11725 or 11726 applies	32.2	obsolete
11719	Implanted pacemaker (including cardiac resynchronisation pacemaker) remote monitoring involving reviews (without patient attendance) or arrhythmias, lead and device parameters, if at least one remote review is provided in a 12 month period. Payable only once in any 12 month period	32.1	unchanged
11720	Implanted pacemaker testing, with patient attendance, following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus including reprogramming when required, not being a service associated with a service to which item 11718 or 11721 applies.	32.1	unchanged
11721	Implanted pacemaker testing of atrioventricular (AV) sequential, rate responsive, or antitachycardia pacemakers, including reprogramming when required, not being a service associated with a service to which item 11700, 11718 11719, 11720, 11725 or 11726 applies	32.3	change
11722	Implanted ECG loop recording for the investigation of recurrent unexplained syncope if: (a) a diagnosis has not been achieved through all other available cardiac investigations; and (b) a neurogenic cause is not suspected; and (c) the patient to whom the service is provided does not have a structural heart defect associated with a high risk of sudden cardiac death; including reprogramming when required, retrieval of stored data, analysis, interpretation and report, not being a service to which item 38285 applies	25	change
11724	Up-right tilt table testing for the investigation of syncope of suspected cardiothoracic origin, including blood pressure monitoring, continuous ECG monitoring and the recording of the parameters, and involving an established intravenous line and the continuous attendance of a specialist or consultant physician — on premises equipped with a mechanical respirator and defibrillator	36	unchanged

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
11725	Implanted defibrillator (including Cardiac Resynchronisation Defibrillator) remote monitoring involving reviews (without patient attendance) of arrhythmias, lead and device parameters, if at least 2 remote reviews are provided in a 12 month period. Payable only once in any 12 month period	30.4	unchanged
11726	Implanted defibrillator testing with patient attendance following detection of abnormality by remote monitoring involving electrocardiography, measurement of rate, width and amplitude of stimulus, not being a service associated with a service to which item 11727 applies.	30.4	unchanged
11727	Implanted defibrillator testing involving electrocardiography, assessment of pacing and sensing thresholds for pacing and defibrillation electrodes, download and interpretation of stored events and electrograms, including programming when required, not being a service associated with a service to which item 11700, 11718, 11719, 11720, 11721, 11725 or 11726 applies	30.3	change
13400	Restoration of cardiac rhythm by electrical stimulation (cardioversion), other than in the course of cardiac surgery (Anaes.)	34	change
38200	Right heart catheterisation, with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurement by any method, shunt detection or exercise stress test (Anaes.)	12.3	unchanged
38203	Left heart catheterisation by percutaneous arterial puncture, arteriotomy or percutaneous left ventricular puncture with any one or more of the following fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)	12.3	unchanged
38206	Right heart catheterisation with left heart catheterisation via the right heart or by any other procedure with any one or more of the following: fluoroscopy, oximetry, dye dilution curves, cardiac output measurements by any method, shunt detection or exercise stress test (Anaes.)	12.3	unchanged
38209	Cardiac electrophysiological study up to and including 3 catheter investigation of any 1 or more of syncope, atrioventricular conduction, sinus node function or simple ventricular tachycardia studies, not being a service associated with a service to which item 38212 or 38213 applies (Anaes.)	29.1	unchanged
38212	Cardiac electrophysiological study 4 or more catheter supraventricular tachycardia investigation; or complex tachycardia inductions, or multiple catheter mapping, or acute intravenous antiarrhythmic drug testing with pre and post drug inductions; or catheter ablation to intentionally induce complete AV block; or intraoperative mapping; or electrophysiological services during defibrillator implantation or testing not being a service associated with a service to which item 38209 or 38213 applies (Anaes.)	29.2	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38213	Cardiac electrophysiological study, for follow-up testing of implanted defibrillator - not being a service associated with a service to which item 38209 or 38212 applies (Anaes.)	29.2	change
38215	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries, not being a service associated with a service to which item 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38218	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography, not being a service associated with a service to which item 38215, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38220	Selective coronary graft angiography placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38222	Selective coronary graft angiography, placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38225, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38225	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38228, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38228	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38231, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38231	Selective coronary angiography, placement of catheters and injection of opaque material into the native coronary arteries and placement of catheter(s) and injection of opaque material into the free coronary graft(s) attached to the aorta (irrespective of the number of grafts), and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38234, 38237, 38240 or 38246 applies (Anaes.)	12.2	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38234	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38237, 38240 or 38246 applies (Anaes.)	12.2	change
38237	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38240 or 38246 applies (Anaes.)	12.2	change
38240	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography and placement of catheter(s) and injection of opaque material into free coronary graft(s) attached to the aorta (irrespective of the number of grafts) and placement of catheter(s) and injection of opaque material into direct internal mammary artery graft(s) to one or more coronary arteries (irrespective of the number of grafts), not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237 or 38246 applies (Anaes.)	12.2	change
38241	Use of a coronary pressure wire during selective coronary angiography to measure fractional flow reserve (ffr) and coronary flow reserve (cfr) in one or more intermediate coronary artery or graft lesions (stenosis of 30-70%), to determine whether revascularisation should be performed where previous stress testing has either not been performed or the results are inconclusive (Anaes.)	12.2	unchanged
38243	Placement of catheter(s) and injection of opaque material into any coronary vessel(s) or graft(s) prior to any coronary interventional procedure, not being a service associated with a service to which item 38246 applies (Anaes.)	12.2	changed
38246	Selective coronary angiography, placement of catheters and injection of opaque material with right or left heart catheterisation or both, or aortography followed by placement of catheters prior to any coronary interventional procedure, not being a service associated with a service to which item 38215, 38218, 38220, 38222, 38225, 38228, 38231, 38234, 38237, 38240 or 38243 applies (Anaes.)	12.2	changed
38256	Temporary transvenous pacemaking electrode, insertion of (Anaes.)	32.1	unchanged
38270	Balloon valvuloplasty or isolated atrial septostomy, including cardiac catheterisations before and after balloon dilatation (Anaes.) (Assist.)	15.3	unchanged
38272	Atrial septal defect closure, with septal occluder or other similar device, by transcatheter approach (Anaes.) (Assist.)	15.2	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38273	Patent ductus arteriosus, transcatheter closure of, including cardiac catheterisation and any imaging associated with the service (Anaes.) (Assist.)	15.3	unchanged
38274	Ventricular septal defect, transcatheter closure of, with imaging and cardiac catheterisation (Anaes.) (Assist.)	15.1	change
38275	Myocardial biopsy, by cardiac catheterisation (Anaes.)	15.3	unchanged
38285	Implantable ecg loop recorder, insertion of, for diagnosis of primary disorder in patients with recurrent unexplained syncope where: - a diagnosis has not been achieved through all other available cardiac investigations; and - a neurogenic cause is not suspected; and - it has been determined that the patient does not have structural heart disease associated with a high risk of sudden cardiac death. Including initial programming and testing, as an admitted patient in an approved hospital (Anaes.)	26	change
38286	Implantable ecg loop recorder, removal of, as an admitted patient in an approved hospital (Anaes.)	27	change
38287	Ablation of arrhythmia circuit or focus or isolation procedure involving 1 atrial chamber (Anaes.) (Assist.)	31	unchanged
38290	Ablation of arrhythmia circuits or foci, or isolation procedure involving both atrial chambers and including curative procedures for atrial fibrillation (Anaes.) (Assist.)	31	unchanged
38293	Ventricular arrhythmia with mapping and ablation, including all associated electrophysiological studies performed on the same day (Anaes.) (Assist.)	31	unchanged
38300	Transluminal balloon angioplasty of 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.2	obsolete
38303	Transluminal balloon angioplasty of more than 1 coronary artery, percutaneous or by open exposure, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.1	change
38306	Transluminal stent insertion including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding after transluminal insertion of stent or stents into 1 occlusional site, including associated balloon dilatation for coronary artery, percutaneous or by open exposure, excluding associated radiological services and preparation, and excluding aftercare care (Anaes.) (Assist.)	13.2	obsolete
38309	Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with no stent insertion where:- no lesion of the coronary artery has been stented; and- each lesion of the coronary artery is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.1	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38312	Percutaneous transluminal rotational atherectomy of 1 coronary artery, including balloon angioplasty with insertion of 1 or more stents, where no lesion of the coronary artery has been stented; and each lesion of the coronary artery is complex and heavily calcified; and balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.2	obsolete
38315	Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty with no stent insertion where:- no lesion of the coronary arteries has been stented; and- each lesion of the coronary arteries is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable; excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.2	obsolete
38318	Percutaneous transluminal rotational atherectomy of more than 1 coronary artery, including balloon angioplasty, with insertion of 1 or more stents, where: - no lesion of the coronary arteries has been stented; and- each lesion of the coronary arteries is complex and heavily calcified; and- balloon angioplasty with or without stenting is not suitable, excluding associated radiological services or preparation, and excluding aftercare (Anaes.) (Assist.)	13.2	obsolete
38350	Single chamber permanent transvenous electrode, insertion, removal or replacement of, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)	32.1	unchanged
38353	Permanent cardiac pacemaker, insertion, removal or replacement of, not for cardiac resynchronisation therapy, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)	32.1	unchanged
38356	Dual chamber permanent transvenous electrodes, insertion, removal or replacement of, including cardiac electrophysiological services where used for pacemaker implantation (Anaes.)	32.1	unchanged
38358	Extraction of chronically implanted transvenous pacing or defibrillator lead or leads, by percutaneous method where the leads have been in situ for greater than six months and require removal with locking stylets, snares and/or extraction sheaths in a facility where cardiac surgery is available, in association with item 61109 or 60509 (Anaes.) (Assist.)	15.3	unchanged
38359	Pericardium, paracentesis of (excluding aftercare) (Anaes.)	15.3	unchanged
38362	Intra-aortic balloon pump, percutaneous insertion of (Anaes.)	15.3	unchanged

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38365	Permanent cardiac synchronisation device (including a cardiac synchronisation device that is capable of defibrillation), insertion, removal or replacement of, for a patient who: (a) has: (i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) satisfied the requirements mentioned in paragraph (a) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)	28.1 &2	change
38368	Permanent transvenous left ventricular electrode, insertion, removal or replacement of through the coronary sinus, for the purpose of cardiac resynchronisation therapy, including right heart catheterisation and any associated venogram of left ventricular veins, other than a service associated with a service to which item 35200 or 38200 applies, for a patient who: (a) has: (i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 120 ms; or (b) has: (i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.)	28.1 & 28.2	change
38371	Permanent cardiac synchronisation device capable of defibrillation, insertion, removal or replacement of, for a patient who:(a) has:(i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or (b) has:(i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and(iv) a qrs duration greater than or equal to 150 ms (Anaes.)	28.3	delete
38384	Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for, primary prevention of sudden cardiac death in: - patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)	30.1	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38387	Automatic defibrillator generator, insertion or replacement of for, primary prevention of sudden cardiac death in: - patients with a left ventricular ejection fraction of less than or equal to 30% at least one month after a myocardial infarct when the patient has received optimised medical therapy; or - patients with chronic heart failure associated with mild to moderate symptoms (nyha ii and iii) and a left ventricular ejection fraction less than or equal to 35% when the patient has received optimised medical therapy. Not being a service associated with a service to which item 38213 applies, not for defibrillators capable of cardiac resynchronisation therapy (Anaes.) (Assist.)	30.3	change
38390	Automatic defibrillator, insertion of patches for, or insertion of transvenous endocardial defibrillation electrodes for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies (Anaes.) (Assist.)	30.1	change
38393	Automatic defibrillator generator, insertion or replacement of for - not for patients with heart failure or as primary prevention for tachycardia arrhythmias. Not being a service associated with a service to which item 38213 applies. (Anaes.) (Assist.)	30.3	change
38470	Permanent myocardial electrode, insertion of, by thoracotomy or sternotomy (Anaes.) (Assist.)	28.3	change
38473	Permanent pacemaker electrode, insertion by open surgical approach (Anaes.) (Assist.)	28.3	change
38475	Valve annuloplasty without insertion of ring, not being a service associated with a service to which item 38480 or 38481 applies (Anaes.) (Assist.)	42.3	delete
38477	Valve annuloplasty with insertion of ring not being a service to which item 38478 applies (Anaes.) (Assist.)	42.3	change
38478	Valve annuloplasty with insertion of ring performed in conjunction with item 38480 or 38481 (Anaes.) (Assist.)	42.3	delete
38480	Valve repair, 1 leaflet (Anaes.) (Assist.)	42.3	delete
38481	Valve repair, 2 or more leaflets (Anaes.) (Assist.)	42.3	delete
38483	Aortic valve leaflet or leaflets, decalcification of, not being a service to which item 38475, 38477, 38480, 38481, 38488 or 38489 applies (Anaes.) (Assist.)	42.3	obsolete
38485	Mitral annulus, reconstruction of, after decalcification, when performed in association with valve surgery (Anaes.) (Assist.)	42.2	unchanged
38487	Mitral valve, open valvotomy of (Anaes.) (Assist.)	42.2	unchanged
38488	Valve replacement with bioprosthesis or mechanical prosthesis (Anaes.) (Assist.)	42.2	delete
38489	Valve replacement with allograft (subcoronary or cylindrical implant), or unstented xenograft (Anaes.) (Assist.)	42.2	delete

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38490	Sub-valvular structures, reconstruction and re-implantation of, associated with mitral and tricuspid valve replacement (Anaes.) (Assist.)	42.2	change
38493	Operative management of acute infective endocarditis, in association with heart valve surgery (Anaes.) (Assist.)	42.3	unchanged
38496	Artery harvesting (other than internal mammary), for coronary artery bypass (Anaes.) (Assist.)	39	change
38497	Coronary artery bypass with cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, not being a service associated with a service to which item 38498, 38500, 38501, 38503 or 38504 apply (Anaes.) (Assist.)	39	change
38498	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using saphenous vein graft or grafts only, including harvesting of vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38500, 38501, 38503, 38504 or 38600 apply (Anaes.) (Assist.)	39	change
38500	Coronary artery bypass with cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38501, 38503 or 38504 apply (Anaes.) (Assist.)	39	change
38501	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using single arterial graft, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500, 38503, 38504 or 38600 apply (Anaes.) (Assist.)	39	change
38503	Coronary artery bypass with cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, not being a service associated with a service to which items 38497, 38498, 38500, 38501 or 38504 apply (Anaes.) (Assist.)	39	change
38504	Coronary artery bypass with the aid of tissue stabilisers, performed without cardiopulmonary bypass, using 2 or more arterial grafts, with or without vein graft or grafts, including harvesting of internal mammary artery or vein graft material where performed, either via a median sternotomy or other minimally invasive technique and where a stand-by perfusionist is present, not being a service associated with a service to which items 38497, 38498, 38500, 38501, 38503 or 38600 apply (Anaes.) (Assist.)	39	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38505	Coronary endarterectomy, by open operation, including repair with 1 or more patch grafts, each vessel (Anaes.) (Assist.)	41	obsolete
38506	Left ventricular aneurysm, plication of (Anaes.) (Assist.)	61	change
38507	Left ventricular aneurysm resection with primary repair (Anaes.) (Assist.)	61	change
38508	Left ventricular aneurysm resection with patch reconstruction of the left ventricle (Anaes.) (Assist.)	61	change
38509	Ischaemic ventricular septal rupture, repair of (Anaes.) (Assist.)	62	unchanged
38512	Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving 1 atrial chamber only (Anaes.) (Assist.)	50	unchanged
38515	Division of accessory pathway, isolation procedure, procedure on atrioventricular node or perinodal tissues involving both atrial chambers and including curative surgery for atrial fibrillation (Anaes.) (Assist.)	50	unchanged
38518	Ventricular arrhythmia with mapping and muscle ablation, with or without aneurysmeotomy (Anaes.) (Assist.)	50	unchanged
38550	Ascending thoracic aorta, repair or replacement of, not involving valve replacement or repair or coronary artery implantation (Anaes.) (Assist.)	43.2	changed
38553	Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)	43.2	changed
38556	Ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)	43.2	changed
38559	Aortic arch and ascending thoracic aorta, repair or replacement of, not involving valve replacement or repair or coronary artery implantation (Anaes.) (Assist.)	45	change
38562	Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, without implantation of coronary arteries (Anaes.) (Assist.)	45	change
38565	Aortic arch and ascending thoracic aorta, repair or replacement of, with aortic valve replacement or repair, and implantation of coronary arteries (Anaes.) (Assist.)	45	change
38568	Descending thoracic aorta, repair or replacement of, without shunt or cardiopulmonary bypass, by open exposure, percutaneous or endovascular means (Anaes.) (Assist.)	44.1	unchanged
38571	Descending thoracic aorta, repair or replacement of, using shunt or cardiopulmonary bypass (Anaes.) (Assist.)	44.1	unchanged
38572	Operative management of acute rupture or dissection, in conjunction with procedures on the thoracic aorta (Anaes.) (Assist.)	43.2	changed

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38577	Cannulation for, and supervision and monitoring of, the administration of retrograde cerebral perfusion during deep hypothermic arrest (Assist.)	48.1	delete
38588	Cannulation of the coronary sinus for, and supervision of, the retrograde administration of blood or crystalloid for cardioplegia, including pressure monitoring (Assist.)	42.1	change
38600	Central cannulation for cardiopulmonary bypass excluding post-operative management, not being a service associated with a service to which another item in this Subgroup applies (Anaes.) (Assist.)	48.4	unchanged
38603	Peripheral cannulation for cardiopulmonary bypass excluding post-operative management (Anaes.) (Assist.)	48.3	change
38609	Intra-aortic balloon pump, insertion of, by arteriotomy (Anaes.) (Assist.)	48.4	unchanged
38612	Intra-aortic balloon pump, removal of, with closure of artery by direct suture (Anaes.) (Assist.)	48.4	unchanged
38613	Intra-aortic balloon pump, removal of, with closure of artery by patch graft (Anaes.) (Assist.)	48.5	delete
38615	Insertion of a left or right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)	53	unchanged
38618	Insertion of a left and right ventricular assist device, for use as:(a) a bridge to cardiac transplantation in patients with refractory heart failure who are: (i) currently on a heart transplant waiting list, or (ii) expected to be suitable candidates for cardiac transplantation following a period of support on the ventricular assist device; or (b) acute post cardiotomy support for failure to wean from cardiopulmonary transplantation; or (c) cardio-respiratory support for acute cardiac failure which is likely to recover with short term support of less than 6 weeks; not being a service associated with the use of a ventricular assist device as destination therapy in the management of patients with heart failure who are not expected to be suitable candidates for cardiac transplantation (Anaes.) (Assist.)	53	unchanged
38621	Left or right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)	53	unchanged
38624	Left and right ventricular assist device, removal of, as an independent procedure (Anaes.) (Assist.)	53	unchanged

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38627	Extra-corporeal membrane oxygenation, bypass or ventricular assist device cannulae, adjustment and re-positioning of, by open operation, in patients supported by these devices (Anaes.) (Assist.)	48.4	unchanged
38637	Patent diseased coronary artery bypasses vein graft or grafts, dissection, disconnection and oversewing of (Anaes.) (Assist.)	40	unchanged
38640	Re-operation via median sternotomy, for any procedure, including any divisions of adhesions where the time taken to divide the adhesions is 45 minutes or less (Anaes.) (Assist.)	47.1	change
38643	Thoracotomy or sternotomy involving division of adhesions where the time taken to divide the adhesions exceeds 45 minutes (Anaes.) (Assist.)	47.1	change
38647	Thoracotomy or sternotomy involving division of extensive adhesions where the time taken to divide the adhesions exceeds 2 hours (Anaes.) (Assist.)	47.1	change
38650	Myomectomy or myotomy for hypertrophic obstructive cardiomyopathy (Anaes.) (Assist.)	65.1	change
38653	Open heart surgery, not being a service to which another item in this Group applies (Anaes.) (Assist.)	65.2	unchanged
38654	Permanent left ventricular electrode, insertion, removal or replacement of via open thoracotomy, for the purpose of cardiac resynchronisation therapy, for a patient who:(a) has:(i) moderate to severe chronic heart failure (new york heart association (nyha) class iii or iv) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 120 ms; or(b) has:(i) mild chronic heart failure (new york heart association (nyha) class ii) despite optimised medical therapy; and (ii) sinus rhythm; and (iii) a left ventricular ejection fraction of less than or equal to 35%; and (iv) a qrs duration greater than or equal to 150 ms; or (c) satisfied the requirements mentioned in paragraph (a) or (b) immediately before the insertion of a cardiac resynchronisation therapy device and transvenous left ventricle electrode (Anaes.) (Assist.)	28.3	change
38656	Thoracotomy or median sternotomy for post-operative bleeding (Anaes.) (Assist.)	47.2	unchanged
38670	Cardiac tumour, excision of, involving the wall of the artrium or inter-atrial septum, without patch or conduit reconstruction (Anaes.) (Assist.)	51	unchanged
38673	Cardiac tumour, excision of, involving the wall of the atrium or inter-atrial septum, requiring reconstruction with patch or conduit (Anaes.) (Assist.)	51	unchanged
38677	Cardiac tumour arising from ventricular myocardium, partial thickness excision of (Anaes.) (Assist.)	51	unchanged
38680	Cardiac tumour arising from ventricular myocardium, full thickness excision of including repair or reconstruction (Anaes.) (Assist.)	51	unchanged

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38700	Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	58	unchanged
38703	Patent ductus arteriosus, shunt, collateral or other single large vessel, division or ligation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	58	unchanged
38706	Aorta, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	46.1	unchanged
38709	Aorta, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	46.1	unchanged
38712	Aortic interruption, repair of, for congenital heart disease (Anaes.) (Assist.)	46.2	delete
38715	Main pulmonary artery, banding, debanding or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	59	unchanged
38718	Main pulmonary artery, banding, debanding or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	59	unchanged
38721	Vena cava, anastomosis or repair of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	60	unchanged
38724	Vena cava, anastomosis or repair of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	60	unchanged
38727	Intrathoracic vessels, anastomosis or repair of, without cardiopulmonary bypass, not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)	54.1	change
38730	Intrathoracic vessels, anastomosis or repair of, with cardiopulmonary bypass, not being a service to which item 38700, 38703, 38706, 38709, 38712, 38715, 38718, 38721 or 38724 applies, for congenital heart disease (Anaes.) (Assist.)	54.1	change
38733	Systemic pulmonary or cavo-pulmonary shunt, creation of, without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	63	unchanged
38736	Systemic pulmonary or cavo-pulmonary shunt, creation of, with cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	63	unchanged
38739	Atrial septectomy, with or without cardiopulmonary bypass, for congenital heart disease (Anaes.) (Assist.)	55	unchanged
38742	Atrial septal defect, closure by open exposure direct suture or patch, for congenital heart disease (Anaes.) (Assist.)	55	change
38745	Intra-atrial baffle, insertion of, for congenital heart disease (Anaes.) (Assist.)	57	unchanged
38748	Ventricular septectomy, for congenital heart disease (Anaes.) (Assist.)	56	unchanged

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
38751	Ventricular septal defect, closure by direct suture or patch (Anaes.) (Assist.)	56	unchanged
38754	Intraventricular baffle or conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)	57	unchanged
38757	Extracardiac conduit, insertion of, for congenital heart disease (Anaes.) (Assist.)	64	unchanged
38760	Extracardiac conduit, replacement of, for congenital heart disease (Anaes.) (Assist.)	64	unchanged
38763	Ventricular myectomy, for relief of ventricular obstruction, right or left, for congenital heart disease (Anaes.) (Assist.)	65.1	change
38766	Ventricular augmentation, right or left, for congenital heart disease (Anaes.) (Assist.)	65.2	unchanged
55113	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of cardiac failure, or suspected or known ventricular hypertrophy or dysfunction, or chest pain: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	1.2	change
55114	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of suspected or known acquired valvular, aortic, pericardial, thrombotic or embolic disease or heart tumour: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	1.2	change
55115	M-mode and two-dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows for the investigation of symptoms or signs of congenital heart disease: (a) with: (i) measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques; and (ii) real time colour flow mapping from at least 2 acoustic windows; and (iii) recordings on video tape or digital media; and (b) not being a service associated with a service to which an item in subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (r)	1.2	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
55116	Exercise stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before exercise (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at, or immediately after, peak exercise; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	4	change
55117	Pharmacological stress echocardiography performed in conjunction with item 11712: (a) with: (i) two-dimensional recordings before drug infusion (baseline) from at least 3 acoustic windows; and (ii) matching recordings from the same windows at least twice during drug infusion, including a recording at the peak drug dose; and (iii) recordings on digital media with equipment permitting display of baseline and matching peak images on the same screen; and (b) not being a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3, or another item in this subgroup (except items 55118 and 55130), applies (R)	4	change
55118	Heart, two-dimensional real time transoesophageal examination of, from at least 2 levels, and in more than1 plane at each level: (a) with: (i) real time colour flow mapping and, if indicated, pulsed wave doppler examination; and (ii) recordings on video tape or digital medium; and (b) not being an intra-operative service or a service associated with a service to which an item in Subgroup 1 (except item 55054) or 3 applies (R) (Anaes.) (Anaes.)	49.1	change
55119	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of symptoms or signs of cardiac failure, or suspected or known ventricular hypertrophy or dysfunction, or chest pain (r) (nk)	49.1	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
55120	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of suspected or known acquired valvular, aortic, pericardial, thrombotic, or embolic disease, or heart tumour (r) (nk)	49.1	change
55121	M-mode and 2 dimensional real time echocardiographic examination of the heart from at least 2 acoustic windows, with measurement of blood flow velocities across the cardiac valves using pulsed wave and continuous wave doppler techniques, and real time colour flow mapping from at least 2 acoustic windows, with recordings on video tape or digital medium, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup (with the exception of items 55118, 55125, 55130 and 55131), applies, for the investigation of symptoms or signs of congenital heart disease (r) (nk)	49.1	change
55122	Exercise stress echocardiography performed in conjunction with item 11712, with two-dimensional recordings before exercise (baseline) from at least three acoustic windows and matching recordings from the same windows at, or immediately after, peak exercise, not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup applies (with the exception of items 55118, 55125, 55130 and 55131). recordings must be made on digital media with equipment permitting display of baseline and matching peak images on the same screen (r) (nk)	4	change
55123	Pharmacological stress echocardiography performed in conjunction with item 11712, with two-dimensional recordings before drug infusion (baseline) from at least three acoustic windows and matching recordings from the same windows at least twice during drug infusion, including a recording at the peak drug dose not being a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, or another item in this subgroup, applies (with the exception of items 55118, 55125, 55130 and 55131). recordings must be made on digital media with equipment permitting display of baseline and matching peak images on the same screen (r) (nk)	4	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
55125	Heart, 2 dimensional real time transoesophageal examination of, from at least two levels, and in more than one plane at each level:(a) with: (i) real time colour flow mapping and, if indicated, pulsed wave doppler examination; and (ii) recordings on video tape or digital medium; and(b) not being an intra-operative service or a service associated with a service to which an item in subgroups 1 (with the exception of items 55026 and 55054) or 3, applies (r) (nk) (Anaes.)	49.1	change
55130	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac surgery incorporating sequential assessment of cardiac function before and after the surgical procedure, not being a service associated with a service to which item 55135 applies (R)(Anaes.) (Anaes.)	49.1	change
55131	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac surgery incorporating sequential assessment of cardiac function before and after the surgical procedure - not associated with items 55135 and 55136 (r) (nk) (Anaes.)	49.1	change
55135	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac valve surgery (replacement or repair) incorporating sequential assessment of cardiac function and valve competence before and after the surgical procedure, not being a service associated with a service to which item 55130 applies (R)(Anaes.) (Anaes.)	49.1& 49.2	change
55136	Intra-operative 2 dimensional real time transoesophageal echocardiography incorporating doppler techniques with colour flow mapping and recording onto video tape or digital medium, performed during cardiac valve surgery (repair or replacement) incorporating sequential assessment of cardiac function and valve competence before and after the surgical procedure - not associated with items 55130 and 55131 (r) (nk) (Anaes.)	49.1& 49.2	change
57360	Computed tomography of the coronary arteries performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and: the patient has stable symptoms consistent with coronary ischaemia, is at low to intermediate risk of coronary artery disease and would have been considered for coronary angiography; or the patient requires exclusion of coronary artery anomaly or fistula; or the patient will be undergoing non-coronary cardiac surgery (r) (k) (Anaes.)	14	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
57361	Computed tomography of the coronary arteries performed on a minimum of a 64 slice (or equivalent) scanner, where the request is made by a specialist or consultant physician, and: the patient has stable symptoms consistent with coronary ischaemia, is at low to intermediate risk of coronary artery disease and would have been considered for coronary angiography; or the patient requires exclusion of coronary artery anomaly or fistula; or the patient will be undergoing non-coronary cardiac surgery (r) (nk) (Anaes.)	14	change
59903	Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59912 or 59925 applies (R) (K) (Anaes.))	12.2	delete
59912	Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59903 or 59925 applies (R) (K) (Anaes.)	12.2	delete
59925	Selective coronary arteriography and angiocardiography, including a service mentioned in item 59903, 59912, 59970, 59974, 61109 or 61110 (R) (K) (Anaes.))	12.2	delete
59970	Angiography and/or digital subtraction angiography with fluoroscopy and image acquisition using a mobile image intensifier, one or more regions including any preliminary plain films, preparation and contrast injection (R) (K) (Anaes.)	12. 2	change
59971	Angiocardiography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59972 or 59973 applies (R) (NK) (Anaes.)	12. 2	change
59972	Selective coronary arteriography, including the service mentioned in item 59970, 59974, 61109 or 61110, not being a service to which item 59971 or 59973 applies (R) (NK) (Anaes.)	12.2	delete
59973	Selective coronary arteriography and angiocardiography, including a service mentioned in item 59970, 59971, 59972, 59974, 61109 or 61110 (R) (NK) (Anaes.))	12.2	delete
61302	Single stress or rest myocardial perfusion study - planar imaging(R)	5.1	change
61303	Single stress or rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken (R)	5.1	change
61306	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging (R)	5.1	change
61307	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission tomography and with planar imaging when undertaken (R)	5.1	change

Item #	Descriptor	Recommendation number	Type (change, unchanged, delete or obsolete)
61651	Single stress or rest myocardial perfusion study - planar imaging (r) (nk)	5.1	change
61652	Single stress or rest myocardial perfusion study - with single photon emission tomography and with planar imaging when undertaken (r) (nk)	5.1	change
61653	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - planar imaging (r) (nk)	5.1	change
61654	Combined stress and rest, stress and re-injection or rest and redistribution myocardial perfusion study, including delayed imaging or re-injection protocol on a subsequent occasion - with single photon emission tomography and with planar imaging when undertaken (r) (nk)	5.1	change