



Australian Government

Medical Services Advisory Committee

Public Summary Document

Application No. 1347.1 – Left Atrial Appendage Closure for stroke prevention in patients with non-valvular Atrial Fibrillation

Applicant: **THEMA Consulting Pty Ltd on behalf of Boston Scientific Pty Ltd and St. Jude Medical Pty Ltd**

Date of MSAC consideration: **MSAC 67th Meeting, 28-29 July 2016**

Context for decision: MSAC makes its advice in accordance with its Terms of Reference, [visit MSAC website](#)

1. Purpose of application and links to other applications

A resubmission requesting a new Medicare Benefits Schedule (MBS) listing for transcatheter occlusion of left atrial appendage (LAA) for stroke prevention in patients with non-valvular atrial fibrillation (NVAf) was received by the Department of Health from THEMA Consulting Pty Ltd on behalf of Boston Scientific Pty Ltd and St. Jude Medical Australia Pty Ltd.

This public summary document (PSD) should be reviewed in conjunction with the PSD for Application 1347.

2. MSAC's advice to the Minister

After considering the strength of the available evidence in relation to the safety, clinical effectiveness and cost-effectiveness of transcatheter occlusion of LAA for stroke prevention in patients NVAf, MSAC supported listing of transcatheter-implanted left atrial appendage closure (LAAC) devices in a high need population - people with NVAf at moderate to high risk of stroke and lifelong contraindications to both oral anticoagulation therapy (OAT) and dual antiplatelet therapy (DAPT).

MSAC concluded that, when compared with best supportive care (placebo), LAAC had a reasonable safety profile and acceptable clinical and cost effectiveness in this high clinical need population. MSAC suggested there may be room for negotiation on the price of the device. While MSAC was concerned that the number of LAAC procedures may be higher than anticipated, particularly if used in patients who did not fall into the identified high clinical need population, the committee was satisfied that use of a multidisciplinary heart team (MDHT) in addition to appropriate training and accreditation of providers by site would mitigate this risk.

3. Summary of consideration and rationale for MSAC's advice

MSAC noted that most strokes in NVAF are caused by thrombi and that over 90% of these thrombi originate in the left atrial appendage. While OAT or oral antiplatelet therapy (OAP) reduce the risk of stroke, they also increase the risk of bleeding. Closing the left atrial appendage using a closure device aims to prevent stroke by preventing the migration of thrombi to the brain. LAAC requires a transoesophageal echocardiogram (TOE) to assess eligibility. The placement of the closure device is performed under general anaesthesia in a catheterisation lab with TOE and fluoroscopy. Follow-up TOEs occur at discharge, six weeks and six months.

MSAC recalled that it was unable to support MBS listing of LAAC on a previous occasion due to uncertain comparative safety, clinical effectiveness and cost effectiveness in a less targeted population. In the previous submission, eligible patients were classified as those with NVAF who were at moderate to high risk of stroke and had a contraindication to OAT. The comparator in the previous application was OAP but MSAC had expressed reservations about this comparator given that the most common contraindication to OAT - increased bleeding risk - would also make the patient unsuitable for OAP.

Following a stakeholder meeting¹ to identify the most appropriate patient population and comparator, two patient populations were identified as potentially being eligible for LAAC. These were patients with NVAF who have one or more risk factors for stroke and either: a) contraindications to both OAT and DAPT; or b) a lifelong indication for DAPT. Similarly two different comparators were identified as: a) best supportive care which may or may not include aspirin (hereafter referred to as placebo); or b) best supportive care including aspirin (hereafter referred to as aspirin).

During its deliberations, MSAC decided to exclude patients with a lifelong requirement for DAPT as an eligible patient population. MSAC could not identify a clinical circumstance under which patients would require lifelong DAPT and noted that evidence to support the use of LAAC in such a population had not been included in the resubmission.

MSAC agreed with ESC that the comparator for LAAC was placebo or no other intervention for the proposed patient population with contraindications to both OAT and DAPT on the grounds that aspirin is no longer used in clinical practice for these patients.

MSAC concluded that LAAC had a reasonable safety profile. Rates of major bleeding were similar for both LAAC and placebo. Among 1,021 patients who were included in the EWOLUTION register, 3.6% (95% confidence interval [CI] 2.5–4.9%) of patients experienced a serious procedure or device adverse event within 30 days of the procedure. MSAC noted that the rate of serious procedure or device adverse events was higher in a smaller study (ASAP; n = 150), which suggested that there may be a learning curve effect.

MSAC accepted that LAAC appears to be as safe in people unable to use OAT as in those who receive OAT. Data from the EWOLUTION register reported a 30-day serious procedure or device adverse event rate of 2.2% in patients ineligible for OAT and 3.8% in those eligible for OAT (p = 0.129).

1

[http://www.msac.gov.au/internet/msac/publishing.nsf/Content/D2766EA512281753CA25801000123BCF/\\$File/Final-Minutes-Stakeholder%20meeting-TranscatheterOcclusion-of-LAA-public-accessible.pdf](http://www.msac.gov.au/internet/msac/publishing.nsf/Content/D2766EA512281753CA25801000123BCF/$File/Final-Minutes-Stakeholder%20meeting-TranscatheterOcclusion-of-LAA-public-accessible.pdf)

MSAC noted that there were no studies, which directly compared LAAC with placebo or aspirin. Instead, the resubmission relied on indirect comparisons of LAAC with either placebo or aspirin using warfarin as the common comparator. To this end, the resubmission presented the results from two randomised controlled trials (RCTs) which directly compared LAAC with warfarin - PROTECT-AF (n = 707) and PREVAIL (n = 407).

MSAC noted that PROTECT-AF and PREVAIL had different findings. PROTECT-AF reported that LAAC was non-inferior to warfarin in terms of the composite endpoint of stroke, systemic embolism and cardiovascular or unexplained death while PREVAIL was unable to demonstrate non-inferiority for the same composite endpoint. However, MSAC noted that the number of events in each study was small (**redacted**) and the differing results could be due to chance.

MSAC accepted there was evidence that LAAC improved some clinical outcomes when compared with placebo. Four RCTs comparing placebo with warfarin (AFASAK, EAFT 1993, SPAF 1991, SPINAF 1992) were used in the indirect comparison of LAAC and placebo. The indirect comparison indicated that LAAC statistically significantly reduced cardiovascular or unexpected death (**redacted**) and all-cause stroke (**redacted**). There were no significant differences in the rates of ischaemic or haemorrhagic stroke between LAAC and placebo. The MSAC noted wide confidence intervals for the point estimate of reduced cardiovascular death rate and that the economic model was sensitive to this.

MSAC considered that LAAC was acceptably cost effective when compared with placebo in this high clinical need population. Modelling conducted using PROTECT-AF data over a five year period indicated that using LAAC would incur an average cost of \$25,282 and lead to a gain of 3.96 QALYs compared with \$3,362 and 3.69 QALYs for placebo, resulting in an incremental cost-effectiveness ratio (ICER) of \$79,895 per QALY. However, over a lifetime, using LAAC would incur an average cost of \$27,481 and lead to a gain of 8.47 QALYs compared with \$8,310 and 7.07 QALYs for placebo, with a resulting ICER of \$13,659 per QALY. MSAC was concerned that the model was sensitive to the time horizon and was based upon trial data that only extended to five years.

MSAC therefore considered that the Markov traces against time of (a) life-years gained in each arm of the model and (b) ICER, presented in the pre-MSAC response were informative in its deliberations regarding the cost-effectiveness of LAAC. With reference to these traces, MSAC focussed on a plausible extrapolated incremental survival gain up to at least a ten-year time horizon, associated with an ICER of approximately \$28,000 per QALY. MSAC considered this to be sufficiently plausible, not substantially more than that observed with longer model durations, and thus acceptably cost-effective for the proposed high clinical need population. MSAC was also reassured that, in univariate sensitivity analyses conducted on the base case model using the lifetime horizon, cost effectiveness remained acceptable even with changes in utility values or changes in the odds of a stroke, bleeding or cardiovascular death.

It was estimated that net cost to the MBS for LAAC would be approximately **\$redacted** million over five years. These costs were based upon 297 procedures being undertaken at an MBS cost of **\$redacted** million in the first year rising to 1,303 procedures at a cost of **\$redacted** million in year five. MSAC was concerned that the number of procedures could be higher than predicted in the base case estimate. In univariate sensitivity analyses, changing:

- the prevalence of atrial fibrillation in Australia from 0.95% (base case) to 2.5% increased MBS costs to **\$redacted** million in year five

- the proportion of patients with a contraindication to OAT and DAPT from 15% (base case) to 22% increased MBS costs to **\$redacted** million in year five
- the procedure uptake rate from 5% (base case) to 7% increased MBS costs to **\$redacted** million in year five.

The MSAC noted that utilisation and financial impacts would be considerably higher if patients not strictly contraindicated for OAT or DAPT were allowed to receive LAAC.

MSAC noted that costs to private health funds and patients for purchase of the device and hospital admission were likely to be five times greater than MBS costs. MSAC expressed concern about the high cost of the device (**\$redacted**) and suggested that the Prostheses List Advisory Committee (PLAC) be advised of MSAC's concerns with the use of these devices. In particular, that cost-effectiveness of LAAC is only acceptable in the closely targeted population, and the high risk of leakage of using these devices in other patients is a concern because this would mean that use of these devices would not be cost-effective overall.

MSAC noted that a multidisciplinary heart team (MDHT) and training and accreditation of providers and facilities would assist in appropriate patient selection for LAAC. MSAC suggested consultation with stakeholders such as the Cardiac Society of Australia and New Zealand (CSANZ) would be helpful in informing the composition of the MDHT and the training and accreditation processes. MSAC also supported a register for outcome reporting.

Finally, MSAC noted that only transcatheter implanted devices had been considered in the current resubmission. Evidence on the comparative safety and effectiveness of non-catheter devices would need to be reconsidered by MSAC to determine whether non-catheter devices could be implanted using the same procedure code.

4. Background

A stakeholder meeting was held on Friday 5 June 2015 to discuss transcatheter occlusion of the left atrial appendage for patients with non-valvular atrial fibrillation to inform the issues considered by MSAC following its November 2014 consideration of Application 1347. The key objective of the meeting was to ensure that those with knowledge of these devices could be involved in discussing the issues raised by the November 2014 MSAC meeting, particularly the appropriate patient population and comparator, to provide a basis for any re-submission of a public funding proposal. The final minutes from this meeting are available on the MSAC website.

MSAC considered Application 1347 for transcatheter occlusion of the left atrial appendage in patients with non-valvular atrial fibrillation (NVAf) in November 2014. MSAC did not support public funding for LAAC in patients who are contraindicated for oral anticoagulant therapy (OAT) due to uncertain comparative safety and clinical effectiveness in the short and long term and uncertain cost-effectiveness. The PSD for this previous application can be viewed on the MSAC website.

5. Prerequisites to implementation of any funding advice

Devices for LAAC are listed on the Australian Register of Therapeutic Goods (ARTG).

6. Proposal for public funding

The proposed MBS item descriptor and restrictions on the use of the proposed intervention is shown in Table 1.

Table 1 Proposed MBS descriptor (with amendments in red suggested by MSAC)

Category 3 – THERAPEUTIC PROCEDURES
<p>MBS ####</p> <p>Transcatheter occlusion of left atrial appendage, including any associated imaging and cardiac catheterisation performed by the same practitioner, for stroke prevention in a patient who:</p> <ul style="list-style-type: none">• has non-valvular atrial fibrillation, and;• has one or more other risk factors for developing stroke (listed below), and; <p>i) has a contraindication to life-long oral anticoagulation therapy, and dual antiplatelet therapy, OR ii) has a life-long indication for dual antiplatelet therapy</p> <p>(Anaes.) (Assist.)</p> <p>Fee: \$912.30 Benefit: 75%=\$684.25, 85%=\$836.10</p> <p>[Explanatory Notes]</p> <p>Risk factors for developing stroke or systemic ischaemic embolism are:</p> <p>(i) Prior stroke (ischaemic or unknown type), transient ischaemic attack or non-central nervous system (CNS) systemic embolism;</p> <p>(ii) age 65 years or older;</p> <p>(iii) hypertension;</p> <p>(iv) diabetes mellitus;</p> <p>(v) heart failure and/or left ventricular ejection fraction 35% or less.</p> <p>(vi) vascular disease (prior myocardial infarction, peripheral artery disease or aortic plaque)</p> <p>(vii) female sex.</p> <p>“Contraindications for anticoagulation and dual antiplatelet therapy” is defined as:</p> <p>i) a previous major bleeding complication experienced whilst undergoing treatment with oral anticoagulation therapy,</p> <p>ii) a blood dyscrasia, or</p> <p>iii) a vascular abnormality</p> <p>The practitioner is required to undergo appropriate training and credentialing.</p> <p>The procedure is performed as a hospital service.</p>

The fee does not include the cost of the device.

The attendance of an anaesthetist and echocardiologist is preferred for the duration of the procedure. If accredited, a cardiothoracic anaesthetist may perform the imaging in conjunction with anaesthetic duties.

7. Summary of Public Consultation Feedback/Consumer Issues

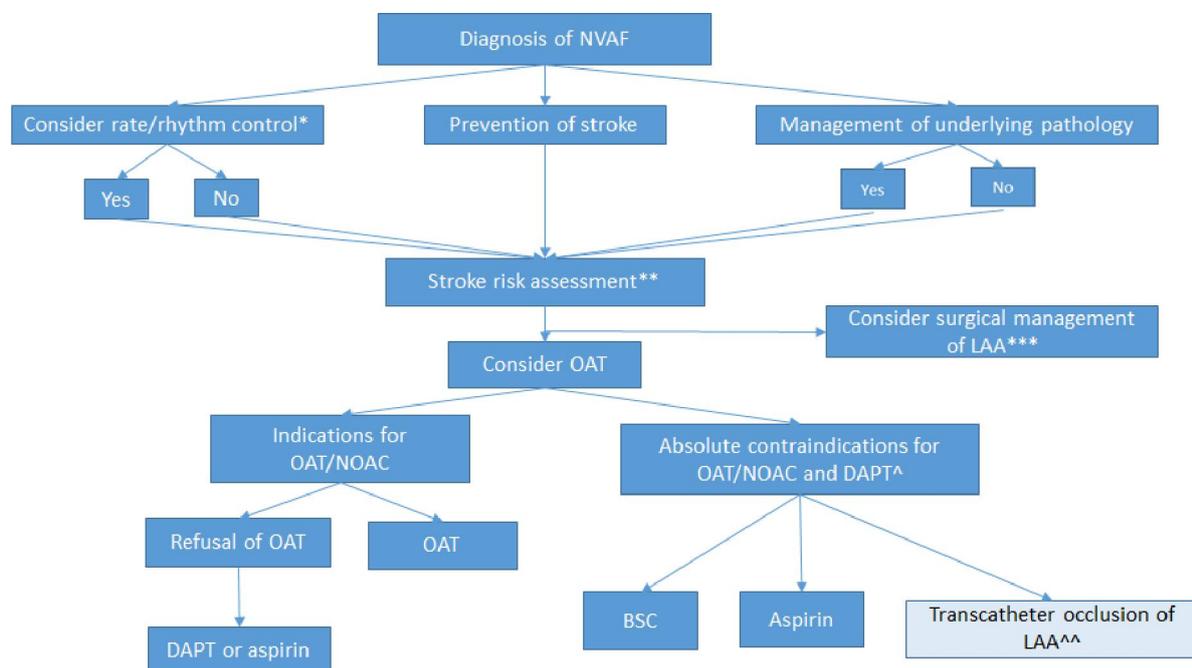
See MSAC Application 1347 Public Summary Document.

8. Proposed intervention's place in clinical management

The proposed clinical management algorithm for stroke prevention in patients with NVAF including LAAC is shown in **Error! Reference source not found.**. The proposed clinical place of LAAC is for patients who have an absolute contraindication (as defined in the proposed MBS item descriptor) to OAT (including warfarin and novel anticoagulants [NOACs]) and dual antiplatelet therapy (DAPT). The only treatment options for these patients would be aspirin (if bleeding risk is not too high) or best supportive care (ie no medical treatment). LAAC would be a treatment option for these patients with a high clinical need and at high risk of stroke.

An additional relevant eligible population for consideration of public funding of LAAC includes “any patient who has a life-long indication for dual oral anti-platelet therapy”. These are patients with NVAF who have a requirement to take life-long DAPT due to other reasons (for example because they have previously received a coronary stent with ongoing concern that they are at high risk of late stent thrombosis). These patients represent a small population who would also be eligible for LAAC based on the proposed indication. The proposed place in therapy for this subgroup of patients is considered separate from the algorithm in **Error! Reference source not found.**

Figure 1 Proposed clinical management algorithm for including LAAC



An additional subgroup of patients with NVAF, with a life-long indication for DAPT due to other reasons, would also be candidates for transcatheter occlusion of LAA.

Abbreviations: AF, atrial fibrillation; BSC, best supportive care; DAPT, dual antiplatelet therapy; LAA, left atrial appendage; NOAC, novel anticoagulants; NVAF, non-valvular atrial fibrillation; OAT, oral anticoagulant therapy.
NB OAT/NOAC currently includes warfarin, rivaroxaban, apixaban and dabigatran.

* Rate control strategies may include antiarrhythmic drugs such as beta-blockers, and atrioventricular node ablation with implant of permanent pacemaker. Rhythm control strategies may include left atrial catheter ablation and antiarrhythmic drugs, which are used in conjunction with cardioversion.

** Stroke risk can be assessed by CHADS1, CHADS2 or CHA2DS2-VASc scoring system. Based on CHADS2, risk factors for stroke are history of stroke or transient ischaemic attack, cardiac failure and/or left ventricular ejection fraction $\leq 35\%$, hypertension, diabetes mellitus and age ≥ 75 years. Clinical judgement will play a major role in the final decision of identifying patients with high stroke risk, once they have any of these risk factors for stroke.

*** Surgical closure of LAA may be performed concomitantly with other open or percutaneous surgical procedures (e.g. mitral valve replacement). Devices, such as AtriClip may be used for LAA exclusion; however, these procedures are performed under direct visualisation.

^ Contraindications to OAT and DAPT refers to absolute contraindications (refer to Section A). Patients with a life-long contraindication to DAPT, are not necessarily contraindicated to DAPT in the short term (3–6 months).

^^ Assessment to determine eligibility for LAAC (i.e. transoesophageal echocardiogram [TOE]). Patients receive x-ray and/or TOE prior to discharge from hospital. At 6 weeks to 6 months post-implantation, another TOE is performed. Some patients may require repeated imaging, if post procedural adverse events are suspected.

9. Comparator

The main comparators nominated in the resubmission were a) best supportive care which may or may not include aspirin (hereafter referred to as placebo); or b) best supportive care including aspirin (hereafter referred to as aspirin).

MSAC agreed with ESC that the comparator for LAAC was placebo or no other intervention for the proposed patient population with contraindications to both OAT and DAPT on the grounds that aspirin is no longer used in clinical practice for these patients.

10. Comparative safety

The resubmission assessed safety based on the rate of major bleeding. While most included RCTs reported major bleeding events, non-major bleeding events were poorly and not consistently reported across trials. Most trials considered a life-threatening event as a major bleeding event.

The resubmission provided 5-year comparative data to support the safety of LAAC relative to warfarin based on the pivotal randomised controlled trials, PROTECT-AF and PREVAIL.

LAAC versus placebo, via warfarin

The results from the indirect comparison showed that there was no statistically significant difference in the proportion of patients experiencing a major bleeding event between LAAC and placebo (**redacted**). The results excluding procedure related major bleeding events produced indicated that over time, LAAC is associated with similar risk of bleeding to that of placebo (**redacted**). The critique noted that the confidence intervals around the point estimates are wide. The critique provided the results of the indirect analyses using a random effects model calculated during the evaluation.

Table 1 Results from the indirect comparison of LAAC versus placebo, via warfarin - redacted

The resubmission also provided safety data from single arm, LAAC observational studies and patient registries conducted in a population contraindicated to OAT, consistent with those for whom listing is sought. The results indicated that the LAAC procedure is safe and similar to that reported in the RCTs presented above:

- The rate of serious procedure or device-related events in the small cohort study (ASAP) was 8.7 per cent compared with 3.6 per cent in the larger, more recent registry (EWOLUTION) (at 30-days).
- A significantly lower incidence of serious adverse events through 30 days was reported for subjects deemed ineligible for OAT compared with subjects eligible for OAT (6.5% versus 10.2%, $p=0.042$) in EWOLUTION. These results suggest that the LAAC procedure is at least as safe in patients' ineligible for OAT (and DAPT) as in those eligible for OAT.
- The overall rate of major bleeding during 22.6 months of follow-up in the study by Santoro et al was 2.3 per cent, corresponding to an annual rate of major bleeding of 1.3 per cent. In Wiebe et al the annual rate of major bleeding was 1.9 per cent.

11. Comparative effectiveness

The resubmission provided indirect comparisons of LAAC versus its comparators, aspirin and placebo, via warfarin, including randomised controlled trials (RCTs) conducted in patients with NVAf.

LAAC versus placebo, via warfarin

The resubmission presented efficacy and safety results from the indirect comparison of LAAC versus placebo, via warfarin, shown in Table 5.

Table 5 Overview of results from the indirect comparison of LAAC versus placebo, via warfarin (ITT) - REDACTED
The results of the indirect comparison of LAAC (PROTECT-AF and PREVAIL trials) versus placebo, via warfarin, show that LAAC was associated with significantly superior outcomes for all-stroke and cardiovascular death compared with placebo. When comparing ischaemic stroke, the indirect comparison showed that LAAC was numerically in favour of placebo, albeit no statistical significant difference was identified.

The critique provided the results of the indirect analyses using a random effects model calculated during the evaluation. For the indirect analyses of LAAC compared to placebo using the random effects model the summary statistics are not greatly altered. The relative risk ratio for all stroke favours LAAC (**redacted**); however, it does not reach significance for ischaemic or haemorrhagic stroke separately. The relative risk ratio for cardiovascular or unknown death favours LAAC (**redacted**).

12. Economic evaluation

The economic evaluation was based on the model considered by MSAC at the November 2014 meeting. Relevant changes include the evidence (inclusion of PREVAIL in the indirect comparison) and the comparator (now aspirin and placebo).

The resubmission presented a stepped cost-utility analysis. The base-case economic evaluation had a lifetime projection, with a 5-year 'trial-based' analysis included as a sensitivity analysis.

The incremental cost per QALY gained in the base-case economic analysis was estimated to be \$17,128 for LAAC versus aspirin and \$13,659 for LAAC versus placebo, as shown in Table 6. The critique noted that the incremental cost-effectiveness ratio (ICER) is very sensitive to the time horizon.

Table 6 Incremental cost-effectiveness for base-case analysis

Resource item description	LAAC implantation	Aspirin	Placebo	Incremental vs Aspirin	Incremental vs placebo
Cost per LYG – lifetime; base-case					
Cost	\$27,481.38	\$9,372.19	\$8,310.66	\$18,109.19	\$19,170.72
Effect (LYs)	8.91	8.23	7.86	0.68	1.05
Cost per LYG				\$26,093	\$18,287
Cost per QALY gained – lifetime; base-case					
Cost	\$27,481.38	\$9,372.19	\$8,310.66	\$18,109.19	\$19,170.72
Effect (QALYs)	8.47	7.44	7.07	1.03	1.40
Cost per QALY gained				\$17,128	\$13,659

Abbreviations: LAAC, left atrial appendage closure; LY, life year; LYG, life years gained; QALY, quality-adjusted life year

The results for the 5-year economic evaluation estimated the incremental cost per QALY to be \$79,895 for the LAAC versus placebo comparison, as shown in Table 7.

Table 7 Step 1a and 1b results of the 5-year economic evaluation, discounted

Resource item description	LAAC implantation	Aspirin	Placebo	Incremental vs Aspirin	Incremental vs placebo
Step 1(a): 5-year economic evaluation (PROTECT-AF only)					
Cost	\$25,282.14	\$3,875.12	\$4,471.85	\$21,407.01	\$20,810.28
LYs	4.07	3.91	3.84	0.1547	0.2314
QALYs	3.9612	3.7196	3.5936	0.2416	0.3676
IC/LY				\$138,420	\$89,945
IC/QALY				\$88,589	\$56,604
Step 1(b): 5-year economic evaluation (PROTECT-AF and PREVAIL)					
Cost	\$25,282.14	\$3,416.98	\$3,362.73	\$21,865.16	\$21,919.41
LYs	4.07	3.95	3.87	0.1210	0.1921
QALYs	3.9612	3.7746	3.6869	0.1866	0.2744
IC/LY				\$180,721	\$114,111
IC/QALY				\$117,157	\$79,895

Abbreviations: LAAC, left atrial appendage closure; LY, life year; LYG, life years gained; QALY, quality-adjusted life year

In response to a request from the ESC, the applicant provided information in Figure 2 (Markov Traces) and Figure 3 (Cost per QALY per year of model duration) in the pre-MSAC response, to enable consideration of the model time horizon. The Markov traces show the outcomes Event-free Survival and Overall Survival for both the base case and sensitivity

analysis (the latter assuming that the efficacy/effectiveness of LAAC ceases after five years). Patients receiving LAAC (orange traces) show improved survival compared to placebo (grey traces), though the benefit is more modest both in the sensitivity analysis and when looking at OS.

The plot of cost per QALY per year of model duration shows a reduction in ICER with use of increasing time horizon in the model. The model gives ICERs of \$80,091; \$27,689; \$17,659; and \$14,654 for model durations of 5, 10, 15 and 20 years, respectively.

Figure 2 Markov Traces: Survival outcomes per year of model duration - REDACTED

Figure 3 Cost per QALY vs. model duration - REDACTED

13. Financial/budgetary impacts

The resubmission estimated that approximately 297 LAAC procedures would be performed in the first year increasing to 1,303 procedures in year five. The estimated total additional cost per procedure was \$redacted for LAAC implantation, excluding costs of the LAA occluder and hospital admission, which are borne by private health funds.

The resubmission estimated that LAAC-related procedural MBS costs would increase from \$redacted in Year 1 to \$redacted in Year 5, as shown in Table 8.

The MSAC noted that utilisation and financial impacts would be considerably higher if patients not strictly contraindicated for OAT or DAPT were allowed to receive the LAAC.

Table 8 Estimated total cost of proposed intervention to the MBS

	Year 1	Year 2	Year 3	Year 4	Year 5
Uptake estimate	5%	10%	15%	20%	25%
Anticipated number of LAAC procedures per year	297	573	831	1,074	1,303
Total additional cost to MBS	\$redacted	\$redacted	\$redacted	\$redacted	\$redacted

LAAC, left atrial appendage closure; MBS, medicare benefits schedule.

14. Key issues from ESC for MSAC

Comparative Safety

The resubmission only considered major bleeding as a comparative safety event. The full (evidence-based) range of safety issues with the intervention/comparator should be identified.

Cost Effectiveness

Information on cost effectiveness should include device and procedure related complications. These have downstream costs that should be captured for economic modelling.

MBS item descriptor issues

The recommendations from the June 2015 stakeholder meeting should be adopted to clarify the item descriptor.

With regards to the resubmission, ESC noted the following:

- Aspirin is no longer used in clinical practice or recommended in the European Guidelines for the proposed patient population because of the lack of evidence for efficacy in reducing stroke related to non-valvular atrial fibrillation and advised that the comparator is therefore placebo or no other intervention. The stroke rate in the newer PREVAIL study is unexpectedly low.
- The newer economic analysis paper is reassuring in terms of real life costs in a small cohort in the UK.
- Clinical effectiveness in the resubmission appears to be clear when considering ‘placebo’ as a comparator.
- The ICER at different time points may be informative – linear extrapolation is used to prolong the duration of health benefits estimated by the model. A Markov trace of ICER against time would convey this information succinctly. Likewise Markov traces of the proportion remaining alive for each arm of the model against time would convey useful information to help MSAC judge the biological plausibility of the model. ESC suggested that the applicant consider providing these traces in its pre-MSAC response.
- There is potential benefit in having two MBS item descriptors for the two different patient populations. This may help address concerns around service leakage.
- From the consumer perspective, this procedure could have long term complications and might have issues in relation to access/equity.

15. Other significant factors

Nil.

16. Applicant’s comments on MSAC’s Public Summary Document

The Applicant is pleased with the decision made by MSAC to recommend listing of LAAC on the MBS for patients with NVAf with a high clinical need. The applicant is pleased the responses provided during the evaluation process resolved the issues identified by ESC to the satisfaction of MSAC.

17. Further information on MSAC

MSAC Terms of Reference and other information are available on the MSAC Website, [visit MSAC website](#).