



Australian Government

Medical Services Advisory Committee

Public Summary Document

Application No. 1369 – Insertion of a synthetic sling for the treatment of male stress urinary incontinence

Applicant: American Medical Systems Australia Pty Ltd

Date of MSAC consideration: MSAC 64th Meeting, 30-31 July 2015

Context for decision: MSAC makes its advice in accordance with its Terms of Reference, see at www.msac.gov.au

1. Purpose of application and links to other applications

An application requesting Medicare Benefits Schedule (MBS) listing of insertion, adjustment and removal of synthetic slings for the treatment of male stress urinary incontinence was received from American Medical Systems Australia Pty Ltd. The evidence for assessment of this application was submitted in March 2015.

2. MSAC's advice to the Minister

After considering the available evidence presented in relation to safety, clinical effectiveness and cost-effectiveness of synthetic slings for the treatment of male stress urinary incontinence, MSAC supported public funding of two new MBS items for insertion and removal of synthetic slings for the treatment of male stress urinary incontinence at the same fee as existing MBS items 37042 and 37341.

MSAC suggested that the Protheses List Advisory Committee (PLAC) may wish to consider negotiating the cost of the synthetic sling with the applicant.

MSAC did not support public funding of the insertion of adjustable male urinary synthetic slings due to their inferior safety. MSAC therefore did not support public funding of an MBS item for synthetic sling adjustment.

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

MSAC noted that the application for insertion, adjustment and removal of male urinary synthetic sling prostheses (adjustable and non-adjustable) proposed three new MBS item numbers with a fee structure for the insertion and removal items higher than that for autologous sling insertion and removal.

MSAC considered the safety, effectiveness and cost effectiveness of insertion, adjustment and removal of synthetic slings (adjustable and non-adjustable) in males with urinary stress incontinence compared to autologous fascial slings. MSAC noted that there were no comparative studies presented and the clinical evidence was sourced from prospective single-arm studies or retrospective analyses. However, there was over ten years of data on the use of male urinary synthetic slings, and the relevant outcomes such as the reduction in the number of pads used per day following successful synthetic and autologous sling insertion appear to be similar. MSAC noted the pre-MSAC response from the applicant, which stated that the use of male urinary synthetic slings was a direct result of sub-optimal clinical outcomes from autologous slings, however there was no comparative evidence presented to support this claim. MSAC understood the rationale to be that, in some cases there may be insufficient fascia found during the procedure to create an autologous sling, and it is not possible to complete the procedure successfully and switching to insert a synthetic sling mid-procedure is not possible. MSAC accepted that it was plausible that, compared with autologous slings, male urinary synthetic slings may be associated with a greater rate of successful procedures.

MSAC agreed that in general there were no additional safety concerns with the insertion of a non-adjustable male urinary synthetic sling compared to an autologous sling. However, MSAC did not consider the safety profile of the adjustable slings to be acceptable due to the much higher incidence of urethral erosion with the adjustable Argus sling (13%) and that bladder perforation was only reported with the adjustable slings (Argus and Remeex). In addition, the Argus sling had the highest removal and adjustment rate of the synthetic slings. Accordingly, MSAC did not support public funding of the insertion of adjustable male urinary synthetic slings and also did not support public funding of an MBS item to adjust a male urinary synthetic sling.

MSAC did not support the request for a higher MBS rebate for the items to insert and remove male urinary synthetic slings, noting that there is no evidence to suggest the male urinary synthetic slings are clinically more effective than autologous slings. MSAC noted that the applicant suggested that the fee structure for male urinary synthetic sling insertion should be higher due to increased surgical time and difficulty.

MSAC also expressed concern over the high price of the male urinary synthetic slings, particularly as no evidence provided demonstrated that male urinary synthetic slings generated better patient outcomes than autologous slings. MSAC considered that the additional cost of the male urinary synthetic sling may not be adequately justified and suggested that PLAC may wish to review the benefit paid for the applicant's sling and the slings of the applicant's competitors.

4. Background

Insertion and removal of autologous and synthetic slings are currently claimed for males and females under MBS item 37042 (insertion) and item 37341 (division or removal). However, given that the descriptor for item 37042 is limited to autologous fascial slings, an MSAC application was initiated to consider MBS funding for the insertion of male urinary synthetic slings. There is currently no relevant MBS item for synthetic sling adjustment, but item 37341 covers division of a sling where there is urethral obstruction or erosion.

5. Prerequisites to implementation of any funding advice

Currently there are six male urinary synthetic slings available in the Prostheses List (both adjustable and non-adjustable), each with a benefit to be paid by private insurance of \$5,718.

The proposed MBS items for insertion, adjustment or removal of male urinary synthetic slings may be used in combination with any of the ARTG listed male urinary synthetic slings (and implicitly, any male urinary synthetic slings listed in the future).

6. Proposal for public funding

The applicant proposed three new MBS items for male stress urinary incontinence with new fees. The applicant requested a higher MBS fee for items for the insertion and removal of male urinary synthetic slings than autologous slings because the insertion and removal are more complex and time consuming.

The proposed items are as follows:

Proposed MBS item descriptor and MBS fee for insertion of male urinary synthetic sling

Category 3 – Therapeutic procedures
MBS item xxxxx [Item descriptor - to be determined] MBS Fee: \$1,235 Benefit 75% = \$926.25 [Relevant explanatory notes – to be determined, if necessary]

Proposed MBS item descriptor and MBS fee for adjustment of male urinary synthetic sling

Category 3 – Therapeutic procedures
MBS item xxxxx [Item descriptor - to be determined] – including wording ‘with or without replacement of sling’ MBS Fee: \$545 Benefit 75% = \$408.75 [Relevant explanatory notes – to be determined, if necessary]

Proposed MBS item descriptor and MBS fee for removal of male urinary synthetic sling

Category 3 – Therapeutic procedures
MBS item xxxxx [Item descriptor - to be determined] – including wording ‘with or without replacement of sling’ MBS Fee: \$1,235 Benefit 75% = \$926.25 [Relevant explanatory notes – to be determined, if necessary]

The applicant noted there are currently no listed restrictions on the types of patients covered by MBS item 37042, and no restrictions are included in the proposed MBS items requested by the applicant for changes/new listings to the MBS for insertion, removal and adjustment of male urinary synthetic slings. No criteria for patient eligibility were proposed by the applicant, but only men who experience stress urinary incontinence would benefit from the insertion of a urinary sling.

As noted in the assessment report, options for the implementation of funding for synthetic sling insertion, removal and adjustment include the:

- creation of three new items for insertion, removal and adjustment of synthetic slings at the same fees as the corresponding current MBS items 37042 and 37341, and \$408.75 for a new item for the adjustment of synthetic slings;
- creation of three new items, with the first two at a higher fee than the corresponding current autologous items (as requested by applicant); or
- amendment to the two existing autologous sling items to allow for use with either autologous or synthetic slings and create one new item at \$408.75 for the adjustment of synthetic slings.

The assessment report stated that only urologists are able to insert male urinary slings. Patients are referred by their general practitioner to a specialist, who will conduct a range of history/physical examinations including urinalysis, urodynamics assessment and cystoscopy, and also pad weight measurements to determine the severity of stress urinary incontinence before the appropriate therapy is chosen. Urinary slings are mainly indicated for mild to moderate stress urinary incontinence.

The insertion of male urinary synthetic slings must be conducted under anaesthetic and can be conducted in the hospital setting as either day surgery or more commonly as an overnight stay; therefore an anaesthetist must be involved as well as surgical assistants to the urologist. Further, given that the male urinary synthetic sling itself is not covered by the MBS, it must be purchased by the patient, hospital or private health insurer.

7. Summary of Public Consultation Feedback/Consumer Issues

Consumer feedback supported the proposed intervention, noting its 70% success and user satisfaction rate, however did not support the restriction as the intervention was successful on occasions and therefore other options should be available when alternative methods have failed.

8. Proposed intervention's place in clinical management

Stress urinary incontinence is the involuntary loss of urine prompted by a physical movement. In stress incontinence, the sphincter muscle and/or the pelvic diaphragm, which support the bladder and urethra, are weakened or non-functioning. Suboptimal function may be caused by injury to the urethral area, surgery to the prostate or pelvic area etc. The sphincter is not able to prevent urine from flowing when intra-abdominal pressure is raised (such as when the patient coughs, laughs, or lifts heavy objects). Stress incontinence is more common in women than men and is unrelated to physiological stress. Leakage can lead to embarrassment for the patient and impact on quality of life as it may limit ability to work, exercise or restrict social contact.

Perineal slings are used to treat mild to moderate stress incontinence. Synthetic mesh (sling) is inserted surgically around the urethral bulb, slightly compressing the urethra and with the aim of improving urinary stress incontinence. Whilst the aim of insertion of a sling would be to cure incontinence, the result may only be an improvement in incontinence, thus pad therapy or use of condom catheters may be a continuing co-administered intervention.

The clinical management algorithms of the management of stress urinary incontinence are similar with and without male urinary synthetic slings. The main difference between the two algorithms is that, after stress incontinence has been diagnosed and the severity defined

(based on pad weight measurement), male urinary synthetic slings may be used as an alternative to autologous slings and Macroplastique injections in mild incontinence, as well as an alternative to autologous slings, condom catheters and artificial urinary sphincters in moderate to severe incontinence. However, it is unclear whether male urinary synthetic slings are an appropriate therapy for severe urinary incontinence, as there is evidence that the success rate of urinary slings in severe urinary incontinence (> 6 pads per day) is poor (Castle et al 2005).

Funding for Macroplastique injections is available under MBS item 37339 and the agent itself is covered by private health insurance and listed in the Prostheses List. For the artificial urinary sphincter (AUS), funding is similar to the urinary sling where the procedure to implant the AUS is funded via the MBS (MBS items 37381, 37384, 37387 and 37390), but the actual sphincter is covered by private health insurance and listed in the Prostheses List. Limited funding by the Australian Government under the Continence Aids Payment Scheme (CAPS) is provided for purchases of pads for pad therapy or condom catheter accessories, and there are also state government initiatives which may provide further funding or support for incontinence services.

The proposed changes to the MBS items are unlikely to alter the clinical algorithm, as male urinary synthetic slings are currently funded through private or public means. The proportion of men assumed to undertake treatment for stress urinary incontinence via use of the male urinary sling, Macroplastique and artificial urinary sphincters can be elucidated from current MBS item claims. However, with respect to male urinary slings, it would be difficult to identify the use of autologous versus synthetic slings. The proportion opting to cope with symptoms of urinary incontinence via the use of pads or condom catheters would also be difficult to estimate.

9. Comparator

The assessment report identified the autologous sling as the appropriate comparator for the assessment. However, no studies were identified that directly compared any of the marketed male urinary synthetic slings with autologous slings. There were also no comparative studies located that compared across different male urinary synthetic slings.

10. Comparative safety

No studies were identified that directly compared any of the marketed male urinary synthetic slings with autologous slings. No studies were identified that directly compared across different male urinary synthetic slings.

Complications associated with sling implantation are generally not major. The Argus sling appears to be associated with a higher incidence of urethral erosion and higher removal rate.

Common complications reported in the reviewed studies are summarised below:

- Infection - The incidence of infection was variable across studies but was generally < 10%. There was no clear difference in incidence between the various urinary slings.
- Urinary retention - Incidence figures for urinary retention were highly variable. In the majority of cases the retention was transient and settled with intermittent catheterization over a period of days or weeks. There was no clear difference in incidence between the various urinary slings.

- Perineal pain, numbness and parasthesiae were reported commonly. These symptoms were generally transient, although prolonged symptoms occurred in a small proportion of subjects.
- A variety of urinary symptoms such as urgency, urge incontinence and dysuria were reported. Again, there was no clear difference in incidence between the various urinary slings.
- Urethral erosion - The incidence of this complication appeared low with most of the urinary slings (< 3%). However, the Argus adjustable male urinary synthetic sling appeared to be associated with a higher incidence (up to 13%).
- Bladder perforation was reported only with the adjustable male urinary synthetic slings (Argus and Remeex).

11. Comparative effectiveness

Most studies reported on the proportion of subjects who were ‘dry’ or ‘cured’, and the proportion of subjects who were ‘improved’. In most studies, the majority of subjects fell into one of these two categories. In most studies, the procedure was deemed a ‘failure’ in < 30% of subjects.

Several studies reported on change in pad use (average number of pads per day) and pad weight measurement. The sling procedures resulted in significant reductions in average daily pad use, and significant reductions in average pad weight. The table below shows that the reductions in use of pads per day were similar across single-arm studies for autologous and synthetic slings.

	N	FU (m)	Statistic	Pre-op PPD	Post-op PPD	p-value
AUTOLOGOUS SLING						
Heidari 1191	28	12	Mean ± SD	5.6 ± 1.9	0.3 ± 0.5	<0.001
SYNTHETIC SLINGS						
InVance sling						
Comiter 2005	48	48	Mean ± SD	4.6 ± 2.1	1.0 ± 1.7	<0.01
Gallagher 2007	31	15	Mean (IQR)	3.0 (2 – 5.5)	1.0 (0 – 3.5)	<0.01
Carmel 2010	45	36	Median ± SD	7.0 ± 1.0	1.0 ± 2.5	nr
AdVance sling						
Rehder 2010	118	12	Mean ± SD	2.3 ± 1.2	0.7 ± 0.8	<0.001
Soljanik 2012	178	20.8	Mean ± SD	5.4 ± 3.3	1.7 ± 2.4	<0.001
Cornu 2011	136	21	Mean ± SD	2.1 ± 1.2	0.6 ± 1.0	<0.001
Rehder 2012	156	36	Mean (IQR)	4.0 (2 – 6)	1.0 (0 – 2)	<0.0001
Li 2012	50	23.8	Mean ± SD	2.8 ± 2.4	1.8 ± 2.6	= 0.0004
Berger 2011	26	22	Mean (range)	5.6 (2 – 12)	1.1 (0 – 7)	<0.001
Suskind 2011	36	18.8	Mean (range)	2.1 (1 – 5.5)	1.2 (0 – 6)	nr
Mueller 2012	32	9	Mean (range)	5.1 (2-10)	1.8 (0 – 10)	<0.001
Torrey 2013	37	17.3	Median	1.5	0.0	nr

			(IQR)	(1-2.5)	(0 – 1)	
ADJUSTABLE SYNTHETIC SLINGS						
Argus sling						
Lim 2014	20	24.7	Mean ± SD	-	2.2 ^a ± 0.8 (change)	nr
Remeex sling						
Sousa-Esc' 2007	51	32	Mean ± SD	4.5 nr	1.4 nr	nr

FU = average duration of follow up; **IQR** = interquartile range; **m** = months; **N** = number of subjects; **nr** = not reported; **PPD** = pads per day; **SD** = standard deviation;

a Lim 2014 reported the average change in PPD from baseline, without giving pre-op and post-op values.

A number of studies reported on the proportion of patients who were 'satisfied' with the results of their surgery. Several studies also presented results of the patient global impression of improvement (PGI-I), which asks patients to rate their level of improvement. In most studies, the proportion of patients who were satisfied with the procedure was high (> 70%).

Various quality of life measures were used in the reviewed studies. Results from the studies that used the incontinence quality of life questionnaire (I-QoL), which consists of 22 items covering three domains - avoidance and limiting behaviour, psychosocial impact and social embarrassment, indicated that the procedures resulted in significant improvements in quality of life. Other QoL measures generally demonstrated an improvement in QoL post-op compared to baseline.

Rates of removal and revision or adjustment were reported, however no studies reported on the rate of replacement of male urinary slings in the long term. The most common reason for removal was infection. Other reasons were urethral erosion, persistent pain, irritation symptoms, persistent retention, misplaced sling and inflammation of the pubic symphysis. Based on the data presented it appears that the Argus adjustable male urinary synthetic sling may be associated with higher rates of removal.

Revision rates for non-adjustable male urinary synthetic slings were variable. The most common reason for attempted revision was persistent incontinence. However, the practice of attempting revision varied between studies. With failure of an implanted male urinary sling, alternative treatments (e.g. the AUS) were used rather than attempting a sling revision. Other reasons given for sling revision were persistent retention/obstruction and bone screw dislodgement. Rates of adjustment for the adjustable male urinary synthetic slings were high.

Many of the reviewed studies examined the effect of severity of incontinence at baseline on effectiveness outcomes and consistently found a decreasing level of effectiveness with increasing severity of baseline incontinence. However, the differences did not always reach statistical significance. High success rates were observed in patients with severe incontinence in some studies (e.g. Soljanik 2012, Bochove-Overgaauw 2011, Sousa-Escandon 2007).

Studies that examined the effect of prior radiotherapy on effectiveness outcomes generally found that subjects who had received prior radiotherapy had worse outcomes than those who had not received prior radiotherapy. The differences in outcome were not always statistically significant. Despite the worse outcomes generally, high cure/success rates were observed in irradiated subjects in some studies (Onur 2004, Hubner 2011).

Overall, male urinary sling procedures have reduced effectiveness in subjects with severe stress urinary incontinence and those who have previously received radiotherapy. However, some studies report high success rates in these subjects and the procedure may therefore be of value for subjects in whom other treatment options have been unsuccessful or are not viable.

12. Economic evaluation

An economic analysis was not conducted for this application because it was considered outside of the scope of the fit-for-purpose review.

13. Financial/budgetary impacts

Prostheses List data indicates that there were 244 claims for the insertion of male urinary synthetic slings associated with item 37042 in 2013-14.

The table below shows the projected volume of services for the insertion of male urinary synthetic slings for stress urinary incontinence based on current usage trends of item 37042 in association with a synthetic sling listed in the Prostheses List.

Projected usage of item 37042 for synthetic sling insertion for male bladder stress incontinence for 2014 to 2020

2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
291	314	337	360	384	407

Based on the current usage of the division and removal item and rates of division and removal of synthetic slings in the clinical literature, the table below shows the projected usage of a division and removal item for male urinary synthetic slings.

Projected usage of new MBS Items for male urinary synthetic slings, by financial year, for revision/adjustment and removal predicted usage for 2014 to 2020

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Revision/Adjustment	2	2	2	2	2	2
Removal	2	2	2	2	2	2

The projected future use and cost to the MBS for the MBS items for autologous slings was used to model the MBS impact based on two scenarios:

- **Option 1:** Create 3 new items (two at same fee as existing MBS items 37042 and 37341 for the insertion and removal of male urinary synthetic slings and) and one new item for the adjustment of male urinary synthetic slings at \$408.75.

This was projected to result in an estimated \$2,087 saving over the forward estimates. The saving would be a result of a shift of use from the more expensive MBS item 37341 to a less expensive new item for the adjustment of synthetic slings.

- **Option 2:** Create two new items for the insertion and removal of male urinary synthetic slings at a higher cost than the current autologous items as requested by applicant and one new item for the adjustment of synthetic slings at \$408.75.

This was projected to result in an estimated cost of \$317,237 over the forward estimates. The cost would be a result of the higher fee for the new items for insertion and removal of synthetic slings compared to fees for the current items (37042 and 37341).

The assessment report noted that the use of a male urinary synthetic sling rather than an autologous sling would have an additional financial impact.

The pre-MSAC response from the applicant stated that option 2 would be the preferred option, with the higher fee based on the increased operating time and technical difficulty of insertion of male urinary synthetic slings versus autologous slings.

14. Key issues from ESC for MSAC

ESC did not consider that there was sufficient evidence to support higher fees for male urinary synthetic slings compared with autologous slings. ESC further noted that the Prostheses List costs of male urinary synthetic slings (borne by insurers and patients) were significant, considering there was no strong evidence that male urinary synthetic slings are safer or clinically effective than autologous slings.

ESC considered that the current item descriptors could be amended to include synthetic slings, or new items could be adopted to collect data and enable future comparison of synthetic and autologous sling usage.

15. Other significant factors

Nil

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

American Medical Systems accepts MSAC's advice to the Minister. We are pleased that it is now acknowledged that AMS provided a letter from the Australian and New Zealand Association of Urological Surgeons in support of higher fees. This was based on the increased surgical time and difficulty of inserting a synthetic sling:

ANZAUS is of the view that the descriptor should be changed and the reimbursement should be increased for the reasons noted below:

“2. The insertion of a synthetic sling is technically more demanding and time consuming than an autologous sling in view of the use of trocars, dissection and mobilisation of the bulbar urethra to the perineal body and repositioning of the bulbar urethra to support the urogenital diaphragm. The passage of the trocars is technically more demanding in that potential risks of pelvic bleeding from the obturator vessels must be managed within the description of the procedure as well. “

We believe further consideration could be given to increasing the MBS fee.

17. Further information on MSAC

MSAC Terms of Reference and other information are available on the MSAC Website at: www.msac.gov.au.