



Australian Government

Department of Health

Application 1546:

Abdominoplasty with repair of rectus diastasis (also known as rectus divarication) following pregnancy

Ratified PICO Confirmation

(To guide a new application to MSAC)

(Version 1.0)

Summary of PICO/PPICO criteria to define the question(s) to be addressed in an Assessment Report to the Medical Services Advisory Committee (MSAC)

Component	Description
Patients	<p>Patients with an anterior abdominal wall defect that is a consequence of pregnancy. Additionally, the patient must also:</p> <ul style="list-style-type: none"> • be at least 12 months post-partum; • have a diastasis of at least 3cm (as measured by appropriate diagnostic imaging); and • have documented evidence (in case notes) of functional symptoms of low back pain and daily abdominal discomfort on functional use.
Intervention	Abdominoplasty, with surgical repair of the rectus diastasis
Comparator	Best supportive care, which may include symptomatic management with pain medication, lower back braces, lifestyle changes, physiotherapy and/or exercise.
Outcomes	<p><u>Patient-relevant:</u></p> <ul style="list-style-type: none"> • Reduction in back pain and urinary incontinence; • Improvements in health-related quality of life and general daily functioning; • Improved abdominal muscle strength; • Recurrence; • Quality-adjusted life years; and • Adverse events following surgery, as such as seroma, infections, haematomas and nerve damage. <p><u>Healthcare system</u></p> <ul style="list-style-type: none"> • Number of patients treated each year; • Total cost of abdominoplasty per patient; • Anaesthesia and hospital costs; • Number of additional surgical consults, ultrasounds and associated diagnostic testing; • Costs related to adverse events following surgery; as such as seroma, infections, haematomas and nerve damage; and • Number of patients requiring revision surgery due to recurrent diastasis.

Committee-In-Confidence

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END Committee-In-Confidence

PICO or PICO rationale for therapeutic and investigative medical services only

Population

The proposed population for abdominoplasty with repair of the rectus diastasis are women who developed symptomatic rectus diastasis following pregnancy. The proposed patient population would also be at least 12 months post-partum, have a diastasis of at least 3cm (as measured by appropriate diagnostic imaging); and have documented evidence of functional symptoms of low back pain and daily abdominal discomfort on functional use in the case notes. Patients would likely be referred to a surgeon by their general practitioner or obstetrician.

Rationale

In 2016 this patient group was removed from the MBS item: 30177, due to concerns that the surgery was performed for largely cosmetic reasons and had no significant morbidity or mortality benefit. The removal of these patients resulted in a 32% reduction in the numbers of MBS item 30177 services claimed in 2016 compared to 2015 and produced approximately \$1 million in cost savings to the MBS each year (see Table 7 in Appendix). Item 30177 now exclusively serves patients who have had massive weight loss and are suffering from the sequelae of this.

The applicant requested that patients with postpartum rectus diastasis be reinstated as an eligible patient population for abdominoplasty with repair of the rectus diastasis under item 30176 (which serves patients with rectus diastasis due to surgical removal of large intra-abdominal or pelvic tumours). However, PASC considered that a separate MBS item may be required as abdominoplasty for patients with pregnancy-acquired rectus diastasis would require more complicated clinical restrictions and surgeons are no longer required to seek Medicare Claims Review Panel (MCRP) pre-approval under item 30176. Further, PASC considered a separate MBS item would make it easier to monitor usage and would also distinguish the service from other lipectomy items, which may not require surgical repair of the rectus diastasis. For reference, the relevant current MBS items for abdominoplasty with repair of the rectus diastasis are presented in Table 5 and Table 6 in Appendix.

Background

Rectus diastasis is defined as an abnormal increase in the width of the linea alba, as measured by the IRD between the two rectus muscles [18, 19]. The function of the linea alba is to maintain the

abdominal muscles at a certain proximity to each other [20]. However, intra-abdominal pressure can cause the linea alba to stretch and widen, which results in a midline abdominal budge without a fascial defect [21].

Pregnancy and obesity are the most frequent causes of rectus diastasis [4]. However, the condition can also result from prior abdominal operations and large abdominal and pelvic tumours [4]. Currently, there is no consensus about the risk factors for developing rectus diastasis following pregnancy. However, older age, multiparity, caesarean section, gestational weight gain, high birth weight and multiple pregnancy's have been proposed as risk factors [22].

Rectus diastasis is frequently associated with negative body image [6, 21], musculoskeletal pain [23-28], and urogynecological symptoms [3, 21, 28]. A prospective cohort study of 300 prim-parous women, which followed from pregnancy to 12-month postpartum found that women with rectus diastasis at 12-months post-partum were more likely to report lumbopelvic pain than women without rectus diastasis (46% vs 33%) [3]. Another similar prospective cohort study found that that postpartum women with higher IRD values had significantly reduced abdominal muscle function than women with lower values [2]. Other studies have found an association between rectus diastasis and an increased likelihood of having urinary incontinence symptoms [3] [15].

Studies also find that patients with rectus diastasis who undergo abdominoplasty find symptomatic relief from low back pain [16, 17, 28], improved abdominal strength [24-26, 29] and a reduction in urinary incontinence symptoms [7, 28].

During the PASC meeting, the applicant noted that Toranto (1990) [16], found patients with bulging rectus diastasis with reported symptomatic relief from low back pain following abdominoplasty. PASC noted that the study was unable to identify any structural abnormalities that could explain the patients' low back pain and was doubtful of the patients' response. The applicant stated that abdominoplasty can restore core strength, even without other interventions. The applicant also noted that patients usually realise the condition is rectus diastasis because the pain occurs when the abdominal muscles are contracting.

Classification

There is a lack of consensus in the literature on when rectus diastasis (as measured by the IRD) becomes pathologic and thresholds for surgery are controversial [4]. Further, the literature has not yet reached a consensus on whether it is clinically necessary to surgically close the distance between the rectus muscles [4, 6].

Most studies consider that an IRD (i.e. the width of the linea alba) greater than 22 mm, measured three centimetres above the umbilicus in a relaxed state to be indicative of rectus diastasis [20, 30, 31]. This definition comes from a study by Beer, Schuster et al. (2009) [20], who measured the IRD by ultrasound in 150 nulliparous women, aged 20 to 45 years with a body mass index less than 30 kg m². However, other papers have proposed alternative diagnostic criteria's. For women younger than 45 years an IRD greater than 1 cm at the supra-umbilical level, 2.7 cm at the umbilicus, and 0.9 cm between the pubic symphysis and umbilicus should be considered pathologic. Corresponding values in women older than 45 years were 1.5, 2.7 and 1.4 cm. Another paper by Nahas (2001) [32] proposed

rectus diastasis should be classified according to myofascial deformity and aetiology. These differing diagnostic criteria are summarised in Table 1.

Table 1: Three classification systems to diagnose rectus diastasis

Nahas (2001) [32] classification: based on the myofascial deformity and the aetiology	Deformity	Aetiology	Correction
	Type A	Pregnancy	Anterior sheath plication
	Type B	Myoaponeurotic laxity	External oblique plication
	Type C	Congenital	Rectus abdominis advancement
Type D	Obesity	Anterior sheath plication and rectus abdominis advancement	
	Level	Age ≤ 45 years	Age > 45 years
	Above umbilicus	1 cm	1 cm
At umbilicus	2.7 cm	2.7 cm	
Below umbilicus	0.9 cm	1.4 cm	
Beer, Schuster et al. (2009) [20] classification: based on the normal width of linea alba.	Level		Width
	At Xiphoid		1.5 cm
	3 cm above the umbilicus		2.2 cm
2 cm below the umbilicus		1.6 cm	

Source: Collated based on data from Nahabedian (2018) [21]

The applicant has proposed an IRD of at least 3 cm to be pathologic and the clinical cut-off for surgery. The applicant stated this clinical cut-off was chosen for two reasons. Firstly, anatomical studies by Beer, Schuster et al. (2009) [20] and Rath, Attali et al. (1996) [33] demonstrated that an IRD of 2.2 cm was the upper limit in normal nulliparous women and therefore an IRD greater than 2.2 cm should be considered pathological. Secondly, a randomised control trial by Emanuelsson, Gunnarsson et al. (2016) [25], which compared abdominoplasty to three-months of physiotherapy demonstrated that patients with an IRD \geq 3 cm had significantly reduced health-related quality of life (as measured by the SF-36 survey) compared to the general population. The study also demonstrated that patients who received abdominoplasty had significantly improved SF-36 scores [25].

According to epidemiological studies, approximately 33% [23] to 41% [22] of primiparous women have a rectus diastasis of two or more finger widths (IRD \geq 3cm) at 12-months postpartum. However, only 1% of postpartum women had a rectus diastasis of three or more finger widths (IRD > 4.5 cm). Further, the median IRD of patients in Emanuelsson's trial was 4 cm [25] and the mean IRD reported in an

Australian prospective cohort study, which demonstrated that women who underwent abdominoplasty reported statistically significant improvements in urinary incontinence and back pain was 4.5 cm [28].

The applicant stated that whilst there were no high-quality studies to correlate an increased IRD with worsening symptoms, expert opinion would suggest that there is a strong correlation. The applicant considered that a clinical cut-off of an IRD ≥ 4 cm would restrict the eligible population significantly but would still allow patients with the greatest severity to receive treatment. However, it would also render a significant proportion of women with genuine disability ineligible for treatment.

Clinical assessment

Patients presenting at their GPs' with symptoms of low back pain and abdominal discomfort would have their abdominal muscles assessed for rectus diastasis using the finger-width method. Patients with evident rectus diastasis would then be referred for a diagnostic ultrasound (MBS item: 55812) to measure the diastasis (i.e. IRD). Patients found to have significant rectus diastasis (i.e. IRD ≥ 3 cm) would then be referred to a specialist surgeon. The surgeon would then take a full history and examination of the patient, ensuring the patient meets the proposed MBS criteria.

Eligible population

In 2016 there was approximately 132,089 parous women (based on 311,104 live births and an adjusted fertility rate of 2.36 children per a parous woman). Of these women, approximately 43,061 have a rectus diastasis of at least 3 cm. According to Sperstad, Tennfjord et al. (2016) [23] 46% of women with rectus diastasis also experienced lumbopelvic pain. Assuming the number of parous women who have completed having children remains constant at 2016 levels (see Table 8), approximately 19,808 of Australian women would have both lumbopelvic pain and rectus distastes and thus would be eligible for surgery under the applicant's proposed criteria (see Table 2).

The applicant considered that whilst the eligible population is large, uptake will likely to be very low as most patients would not want to undergo major surgery, particularly those with young children. The applicant estimates that reinstating postpartum patients would result in approximately 1,000 more surgeries being performed each year. This estimate is consistent with the observed 1,200 fewer lipectomies being performed in 2016, after postpartum patients were removed from item 30176 (see Table 12). PASC agreed that this estimate was reasonable.

Table 2: Number of patients eligible for surgery each year: Women with pregnancy acquired rectus diastasis and who experience lumbopelvic pain and that have completed having children

	Input	Calculation	Estimate
A	Number parous women who have completed having children in 2016 (ABS)	Table 8	132,089
B	Proportion of women who develop pregnancy acquired rectus diastasis (IRD \geq 3 cm) [23]		32.6%
C	Number of women with pregnancy acquired rectus diastasis	A x B	43,061
D	Proportion of women with pregnancy acquired rectus diastasis and lumbopelvic pain [23]		46%
E	Eligible patient population	C x D	19,808
	Sensitivity analysis: using an IRD \geq 4.5 cm (\geq 3 finger widths)		
F	The proportion of women who develop pregnancy acquired rectus diastasis (IRD \geq 4.5 cm) [29]		1.1%
G	Number of women with pregnancy acquired rectus diastasis	A x F	1,453
H	The proportion of women with pregnancy acquired rectus diastasis and lumbopelvic pain [23]		46%
I	Eligible patient population	G x H	668

Intervention

The medical service proposed by the applicant is the surgical repair of the abdominal wall defect by closing the distance between the rectus muscles. The repair would involve suturing the musculoaponeurotic layer of the abdominal wall and including associated excision of redundant skin and fat and transposition of the umbilicus (radical abdominoplasty). The surgical procedure for postpartum patients would be identical to patients undergoing radical abdominoplasty due to the surgical removal of large intra-abdominal or pelvic tumours (MBS item: 30176). Table 3 outlines the MBS items that would likely be claimed by a patient undergoing lipectomy.

The service would be performed under general anaesthesia in an accredited hospital and would include a one to four-night inpatient stay. The applicant proposes only accredited hospitals and surgeons would perform the surgery. Table 3 outlines the MBS items that would likely be claimed by a patient undergoing lipectomy and Table 4 summarises the associated hospital costs.

Table 3: MBS items claimed by a patient undergoing lipectomy

MBS Item	Description	Fee	Benefit
55812	<i>Diagnostic ultrasound of the patient's abdominal wall to diagnosis rectus diastasis (IRD \geq 3 cm)</i> CHEST OR ABDOMINAL WALL, 1 or more areas, ultrasound scan of, where: (a) the service is not associated with a service to which an item in Subgroups 2 or 3 of this Group applies; and (b) the referring practitioner is not a member of a group of practitioners of which the providing practitioner is a member	\$109.10	75% = \$81.85 85% = \$92.75
	<i>Initial consultation and discussion of procedure</i>	\$86.85	75% = \$65.15 85% = \$75.85

MBS Item	Description	Fee	Benefit
104	Professional attendance at consulting rooms or hospital by a specialist in the practice of his or her speciality after referral of the patient to him or her-each attendance, other than a second or subsequent attendance, in a single course of treatment, other than a service to which item 106, 109 or 16401 applies		
105	<i>Further pre-operative discussion and consenting process (60% of patients may require a second discussion)</i> Professional attendance by a specialist in the practice of his or her speciality following referral of the patient to him or her-an attendance after the first in a single course of treatment, if that attendance is at consulting rooms or hospital, other than a service to which item 16404 applies	\$43.65	75% = \$32.75 85% = \$37.15
20803	INITIATION OF MANAGEMENT OF ANAESTHESIA for all procedures on the nerves, muscles, tendons and fascia of the lower abdominal wall, not being a service to which another item in this Subgroup applies	\$79.20	75% = 59.40 85% = \$67.35
23083	Anaesthesia for a 2 hour procedure.	\$158.40	75% = \$118.80 85% = \$134.65
30176	Lipectomy, radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30177, 30179, 45530, 45564 or 45565 applies, if it can be demonstrated that there is an anterior abdominal wall defect that is a consequence of the surgical removal of large intra-abdominal or pelvic tumours	\$985.70	75% = \$739.30
105	<i>Post-surgical consultation (on average patients require 5 consults)</i> Professional attendance by a specialist in the practice of his or her speciality following referral of the patient to him or her-an attendance after the first in a single course of treatment, if that attendance is at consulting rooms or hospital, other than a service to which item 16404 applies	\$43.65	75% = \$32.75 85% = \$37.15

Table 4: Hospital costs associated with lipectomy

AR-DRG	Average Cost
G10A: Hernia procedures, major	\$11,337
Cost for a one to four-night stay in hospital	\$2,179 to \$8715

Source: NHDC Round 20

AR-DRG = Australian Refined Diagnosis Related Group; NHDC = National Hospital Cost Data Collection

Comparator

‘Best supportive care’ was nominated as the main comparator. Best supportive care can include symptomatic treatment with pain killers, lower back braces and lifestyle changes. The doctor may also recommend the patient continues with their physiotherapy or exercise program. The applicant stated that whilst physiotherapy and/or exercise is commonly used to treat rectus diastasis [5, 22, 25, 30], it is used much earlier in treatment than abdominoplasty. The applicant reiterated patients generally

only consider surgery after they have exhausted all other treatment options (i.e. patients have already tried and failed multiple exercise/physiotherapy programs).

Outcomes

Patient-relevant

The applicant stated that abdominoplasty in the postpartum patients with a rectus diastasis of at least 3 cm improves health-related quality of life and reduces urinary incontinence symptoms, and lower back and abdominal pain. In support of this clinical claim, the applicant provided a list of studies of that showed patients who underwent abdominoplasty experienced a multitude of health benefits (see Table 9).

Therefore, the following patient relevant outcomes have been identified:

- Reduction in back pain and urinary incontinence;
- Improvements in health-related quality of life and general daily functioning;
- Improved abdominal muscle strength;
- Recurrence;
- Quality-adjusted life years; and
- Adverse events following surgery, as such as seroma, infections, haematomas and nerve damage.

Healthcare system

If abdominoplasty, with surgical repair of the rectus diastasis was to become available to postpartum patients, the resulting healthcare resources and costs will relate to:

- Number of patients treated each year;
- Total cost of abdominoplasty per patient;
- Anaesthesia and hospital costs;
- Number of additional surgical consults, ultrasounds and associated diagnostic testing;
- Costs related to adverse events following surgery; as such as seroma, infections, haematomas and nerve damage; and
- Number of patients requiring revision surgery due to recurrent diastasis.

Current clinical management algorithm for identified population

Currently, there are no MBS-funded treatment options for postpartum patients with rectus diastasis. Therefore, these patients would likely present at their GP's (usually multiple times) with complaints of low back pain and abdominal discomfort. These patients would then be clinically assessed by their GP and referred for diagnostic imaging if it was clinically appropriate. If the ultrasound indicated the patient had rectus diastasis, the GP would then recommend the patient trial conservative treatments, such as physiotherapy, exercise, lifestyle changes and painkillers. Patients who do not respond to conservative treatment would be recommended 'best supportive care', which may include symptomatic treatment with pain medication, lower back braces and lifestyle changes or the patient may be recommended they continue treatment with physiotherapy and/or exercise program. See Figure 1.

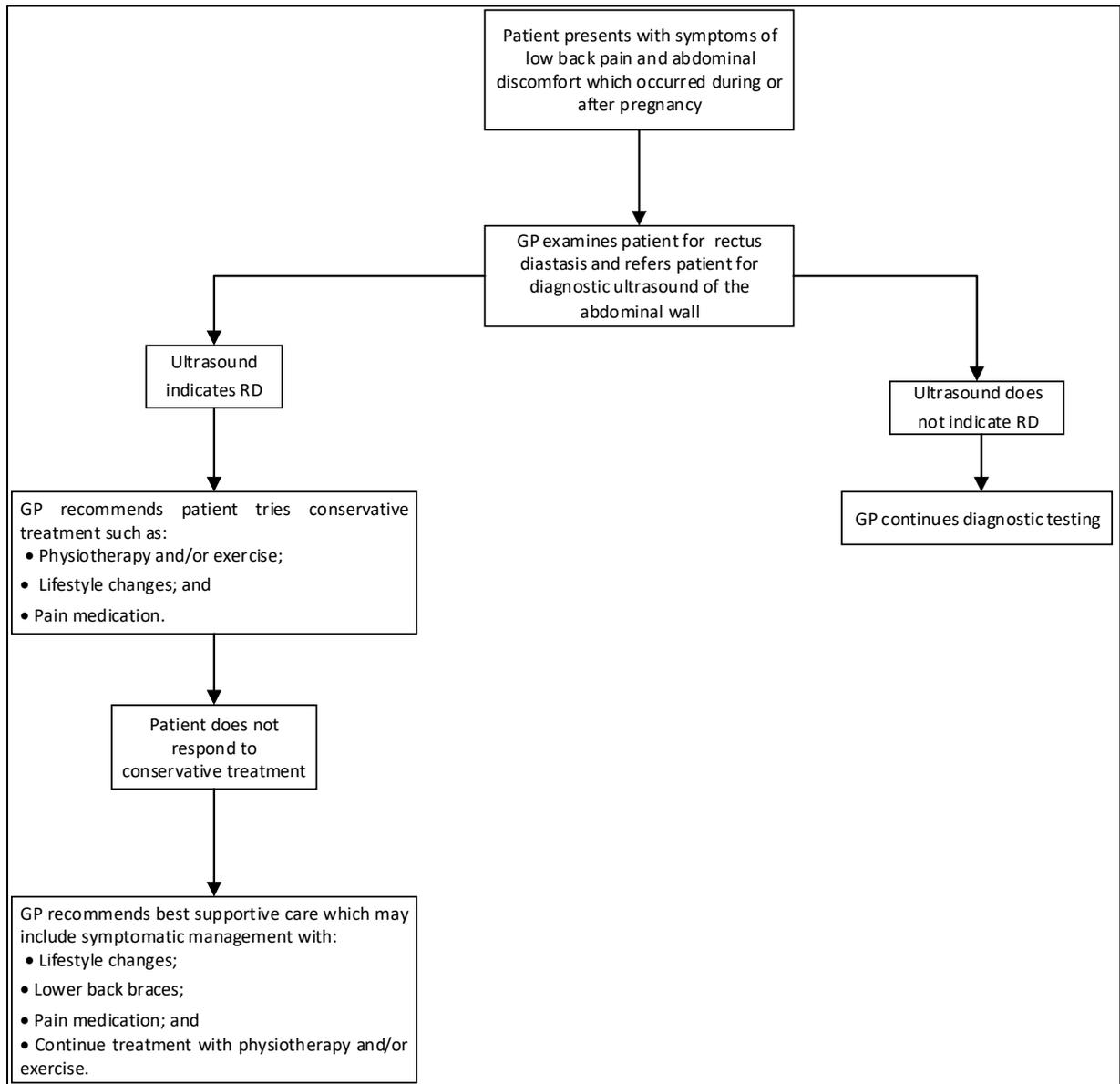


Figure 1: Available treatment options for patients with postpartum rectus diastasis

GP = general practitioner; RD = rectus diastasis

Proposed clinical management algorithm for identified population

Figure 2 presents the proposed treatment options available for postpartum women with rectus diastasis (who failed to respond to conservative treatment) if abdominoplasty is reinstated for this patient group. Patients who fail to respond to conservative treatment would be given the option to either manage symptoms with ‘best supportive care’ or surgery. Patients who opt for surgery would be referred by their GP to a general or plastic surgeon, who would then assess the patient for suitability and eligibility for abdominoplasty.

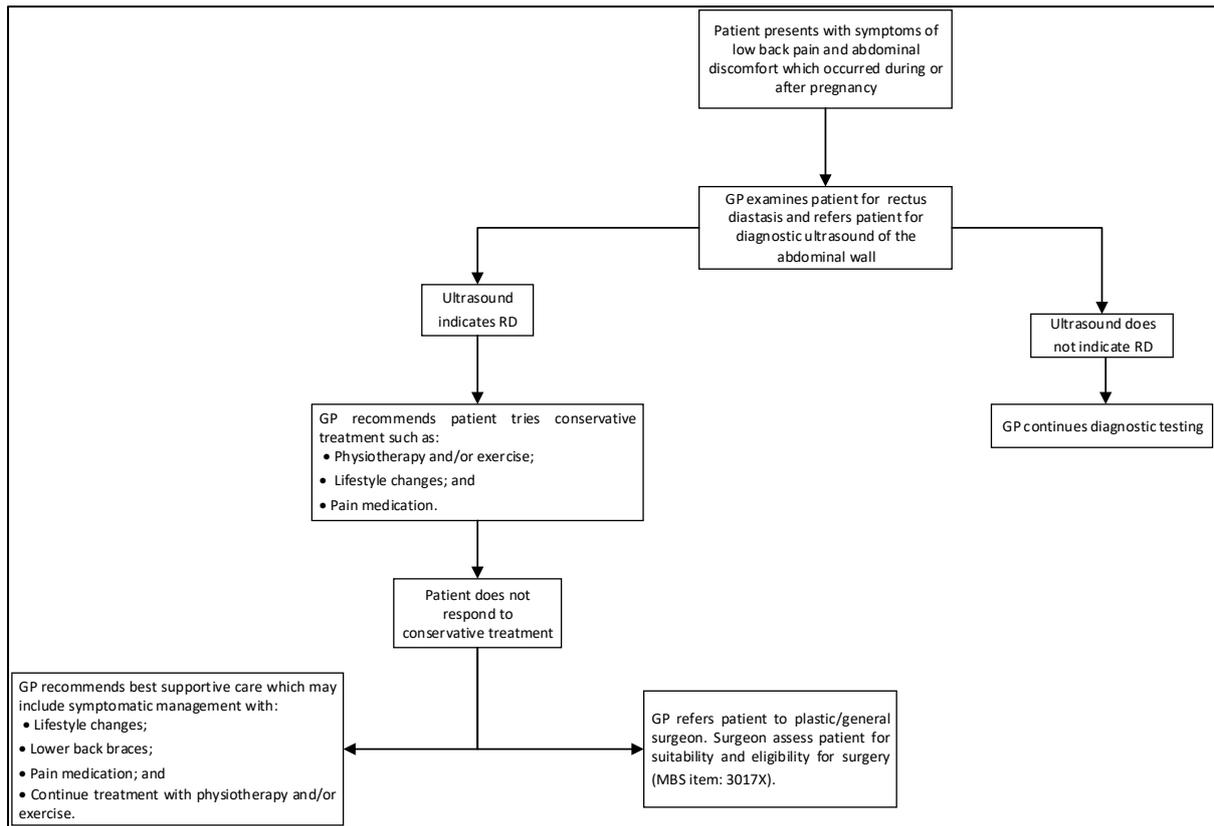


Figure 2: Available treatment options for patients with postpartum rectus diastasis if this patient group is reinstated for abdominoplasty

GP = general practitioner; RD = rectus diastasis

Proposed economic evaluation

The overall clinical claim proposed by the applicant is superiority to best supportive care. The appropriate type of economic evaluation is likely to be a cost-utility analysis, with best supportive care used as the comparator.

PASC advised that the use of imaging would help prevent leakage to people wanting the procedure for cosmetic reasons, and consideration should be given to adding a requirement in the descriptor for pre-procedure imaging (to rule out cosmetic use). PASC advised that the cost of this requirement should be analysed for Budget impact during the assessment phase.

Proposed item descriptor

As discussed previously, the application originally requested that Item 30176 be expanded to include patients with an anterior abdominal wall defect due to pregnancy. However, PASC considered a separate item number may be more appropriate. PASC also considered that the procedure should be restricted to 'once in a lifetime'. The proposed item descriptor was updated to reflect PASC's proposed changes.

Proposed updated wording to existing Item 30176 – Category 3 – Therapeutic Procedures

Group T – surgical operations

Subgroup 1 – general

Lipectomy, radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30177, 30179, 45530, 45564 or 45565 applies, and where it can be demonstrated that one of the following conditions is present:

- a) anterior abdominal wall defect that is a consequence of the surgical removal of large intra-abdominal or pelvic tumours; or
- b) anterior abdominal wall defect that is a consequence of pregnancy and the patient must:
 - I. not be receiving this service within 12 months after the end of a pregnancy (once in a lifetime);
 - II. have a diastasis of at least 3 cm (measured by appropriate pre-procedure diagnostic imaging); and
 - III. have documented functional symptoms (in the case notes) of lower back pain, combined with daily pain or discomfort at the site of the diastasis in the abdominal wall during functional use

(H)

Multiple Operation Rule (Anaes.) (Assist.)

Fee: \$985.70 Benefit: 75% = \$739.30

Proposed item descriptor: Category 301XX – Category 3 – Therapeutic Procedures

Group T – surgical operations

Subgroup 1 – general

Lipectomy, radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30176, 30177, 30179, 45530, 45564 or 45565 applies, and where it can be demonstrated, by pre-procedure imaging, that the patient has an abdominal wall defect as a consequence of pregnancy and must:

- a) not be receiving this service within 12 months after the end of a pregnancy (once in a lifetime);
- b) have a diastasis of at least 3cm (measured by appropriate diagnostic imaging); and
- c) have documented functional symptoms (in the case notes) of lower back pain, combined with daily pain or discomfort at the site of the diastasis in the abdominal wall during functional use

(H)

Multiple Operation Rule (Anaes.) (Assist.)

Fee: \$985.70 Benefit: 75% = \$739.30

Claims for item 301XX should be lodged with the Department of Human Services for referral to the National Office of the Department of Human Services for assessment by the Medicare Claims Review Panel (MCRP). Claims should be accompanied by full clinical details, including pre-operative colour photographs. Where digital photographs are supplied, the practitioner must sign each photograph to certify that the digital photograph has not been altered. Practitioners may also apply to the Department of Human Services for prospective approval for proposed surgery.

Appendix

Table 5: Related MBS item descriptors

MBS Item	Description	
30176	Lipectomy, radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30177, 30179, 45530, 45564 or 45565 applies, if it can be demonstrated that there is an anterior abdominal wall defect that is a consequence of the surgical removal of large intra-abdominal or pelvic tumours	Fee: \$985.70 Benefit: 75% = \$739.30
30177	Lipectomy, excision of skin and subcutaneous tissue associated with redundant abdominal skin and fat that is a direct consequence of significant weight loss, in conjunction with a radical abdominoplasty (Pitanguy type or similar), with or without repair of musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30176, 30179, 45530, 45564 or 45565 applies, if: (a) there is intertrigo or another skin condition that risks loss of skin integrity and has failed 3 months of conventional (or non-surgical) treatment; and (b) the redundant skin and fat interferes with the activities of daily living; and (c) the weight has been stable for at least 6 months following significant weight loss prior to the lipectomy	Fee: \$985.70 Benefit: 75% = \$739.30

Source: MBS website

Claims for item 30177 should be lodged with the Department of Human Services for referral to the National Office of the Department of Human Services for assessment by the Medicare Claims Review Panel (MCRP). Claims should be accompanied by full clinical details, including pre-operative colour photographs. Where digital photographs are supplied, the practitioner must sign each photograph to certify that the digital photograph has not been altered. Practitioners may also apply to the Department of Human Services for prospective approval for proposed surgery. As of 1st November 2018, claims for item 30176 no longer require MCRP pre-approval.

Table 6: MBS item history for abdominoplasty with repair of the rectus diastasis in postpartum women

MBS Item	Description	
30177 (prior to 1 November 2015)	LIPECTOMY radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of musculoaponeurotic layer and transposition of umbilicus, not being a service performed within 12 months after the end of a pregnancy and not being a service associated with a service to which item 45564, 45565 or 45530 applies (Anaes.) (Assist.) (See para T8.8 of explanatory notes to this Category)	Fee: \$985.70 Benefit: 75% = \$739.30
30178 (proposed by	LIPECTOMY, radical abdominoplasty (Pitanguy type or similar), with excision of skin and subcutaneous tissue, repair of	Not described

MBS Item	Description	
the RWG, not supported by the DoH)	<p>musculoaponeurotic layer and transposition of umbilicus, not being a service associated with a service to which item 30165, 30168, 30171, 30172, 30177, 30179, 45564, 45565 or 45530 applies, and where it can be demonstrated that one of the following conditions is present:</p> <p>a) anterior abdominal wall defect that is a consequence of the surgical removal of large intra-abdominal or pelvic tumours; or</p> <p>b) anterior abdominal wall defect that is a consequence of pregnancy that has had no response to at least 6 months of conservative non-surgical treatment such as physiotherapy, and, is causing physical impairment, when performed not less than 1 year, after the end of most recent pregnancy. Once in a lifetime.</p>	

Source: MBS website

DoH = Department of Health; RWG = review working group

Table 7: Number of MBS items 30176 and 30177 processed and benefits paid by Medicare from 2013 to 2017

Items	2013	2014	2015	2016	2017
Item: 30176					
Number of items processed				2	4
Total Benefits Paid				\$1,479	\$2,957
Item: 30177 ¹					
Number of items processed	3,387	3,594	3,703	2,504	2,488
Change in the number of items processed due to the removal of postpartum patients				-1,199	-1,215
Total Benefits Paid	\$2,386,903	\$2,524,435	\$2,601,030	\$1,757,590	\$1,750,998
Estimated cost savings due to the removal of postpartum patients				\$843,440	\$850,032

Source: Medicare Statistics

¹ Patients with postpartum rectus diastasis were removed as an eligible patient group in 2016

Table 8: Method for calculating the number of parous women who have completed having children in Australia in 2016

	Input	Calculation	Estimated
A	Average number of births per an Australian woman		1.79
B	Proportion of women who never give birth		24%
C	Average number of children per a parous Australian woman	$A / (1-B)$	2.36
D	Number of births		311,104
E	Number parous women who have completed having children in 2016	D / C	132,089

Source: Australian Bureau of Statistics

Table 9: Review of the literature for abdominoplasty's impact on urinary incontinence

Study	Study type	Measurements	Improvements in key outcomes (pain, reoccurrence, and AE following lipectomy)
Taylor, Merten et al. (2018) [28]	A prospective cohort study of 214 PP Australian patients who underwent abdominoplasty. The study included all presenting patients. Mean (SD) IRD = 4.5 cm (1.4) IRD range = 0 to 9 cm Mean parity = 2.5	Patients filled out questionnaires at pre-opt, 6 weeks post-op and 6 months post-op. The study used validated questionnaires: ODI for back pain and the ICIQ-UI for UI symptoms.	Back pain ODI mean (SD): -pre-op = 10.9 (7.31) -6-week post-op = 3.97 (5.64) -6 months 1.58 (3.49) UI symptoms ICIQ: -pre-op 6.22 (5.36) -6 week post-op = 1.63 (2.87); - 6-months post-op = 1.60 (2.92) Increased IRD was not a predictor of UI or back pain.
Carruthers, Kocak et al. (2014) [7]*	Retrospective analysis of 100 women who underwent abdominoplasty, consisting of 50 patients had preoperative urinary incontinence (cases) and 50 patients with no preoperative urinary incontinence (controls). Response rate = 40%. Mean age = 40.8 yrs. Parous women = 92%	The questionnaire collected information on symptoms related to stress or urgency incontinence, the severity of incontinence, and any changes in incontinence symptoms following abdominoplasty. The publication only reported results for SUI	Of the 100 subjects who responded, 50 subjects reported preoperative symptoms of SUI. Of these, 30 subjects (60%) noted improvement in their symptoms following abdominoplasty. 13 subjects (26%) reported no change in SUI symptoms and 7 (14%) reported worsening of SUI symptoms.
Solanki, Duffield et al. (2010) [14]*	Retrospective analysis of 46 Australian women who underwent	Self-reported questionnaire used a Likert scale to assess symptoms of urinary	Of the 27 patients with preoperative urinary incontinence, 26% noted improvements following surgery;

Study	Study type	Measurements	Improvements in key outcomes (pain, reoccurrence, and AE following lipectomy)
	abdominoplasty, consisting of 27 (59%) patients had preoperative urinary incontinence (cases) and 19 (41%) without preoperative urinary incontinence (controls). Most patients were parous. Median age = 42.7 years	incontinence. No description of incontinence type (stress vs urgency)	70.4% reported no change and 3.7% reported worsening of symptoms.

AE = adverse events; IRD = inter rectus distance; LA = linea alba; M = months; post-op = post-operation; PP = post-partum; SF-36 = 36-item Short Form Survey; RD = rectus diastasis; UI = urinary incontinence, VAS = visual analogue scale; VHPQ = Ventral Hernia Pain Questionnaire

* Presented previously to the Department of Health by the Lipectomy Review

Table 10: Review of the literature for abdominoplasty's impact on health-related quality of life and abdominal strength

Study	Study type	Measurements	Improvements in key outcomes (pain, reoccurrence, and AE following lipectomy)
Emanuelsson, Gunnarsson et al. (2014) [26]	Randomised control trial of 57 patients with an IRD > 3 cm and had related clinical symptoms were included in a prospective randomised study (Mesh vs Quil) ¹	All patients completed a validated questionnaire for pain assessment (VHPQ); muscle strength (VAS) and for quality of life (SF36) at baseline and 3 M post-surgery. IRD was assessed using ultrasound	AE: 25% wound infection; seroma (16%); recurrent RD (2%) Patients reported statically significant improvements in measures: VPHQ, SF36 and VAS for muscle strength. Patients' SF36 scores were significantly below Swedish norms prior to surgery but reached Swedish post-surgery
Emanuelsson, Gunnarsson et al. (2016) [25]	Randomised three-arm trial that compared two surgical techniques used in <u>abdominoplasty</u> ¹ to 3 M of <u>physiotherapy</u> . 97 patients with an IRD > 3 cm; ≥12 month PP and experienced abdominal wall	All patients completed a validated questionnaire for pain assessment (VHPQ); muscle strength (VAS) and for quality of life (SF36) at baseline and 3 M post-surgery or exercise. Muscle strength was also objectively assessed using Biodex System-4.	All patients experienced improvements in VPHQ; VAS and SF-36. However, improvements were much greater in patients undergoing surgery. Surgical patients' SF36 scores reached Swedish population norms at follow up; whilst physio patient's SF-36 score were below population norms. The authors concluded exercise objectively improves muscle strength but does not reduce pain or discomfort and does not result in

Study	Study type	Measurements	Improvements in key outcomes (pain, reoccurrence, and AE following lipectomy)
	discomfort or tenderness		the same improvements in quality of life

AE = adverse events; IRD = inter rectus distance; LA = linea alba; M = months; post-op = post-operation; PP = post-partum; SF-36 = 36-item Short Form Survey; RD = rectus diastasis; UI = urinary incontinence, VAS = visual analogue scale; VHPQ = Ventral Hernia Pain Questionnaire

¹ Abdominoplasty using retromuscular polypropylene mesh to repair the diastasis compared to double-row plication with Quill technology

Table 11: Review of the literature for abdominoplasty's impact on chronic lower back pain and/or lumbopelvic pain

Study	Study type /Measurements	Improvements in key outcomes (pain, reoccurrence, and AE following lipectomy)
Oneal, Mulka et al. (2011) [17]*	Case-study of 8 patients (follow-up 2-11 years). All patients had chronic low back pain that was unresponsive to conservative treatment and marked lower abdominal wall muscular laxity. 7 (88%) were parous women	Abdominal wall contour and lower abdominal muscle tone was evaluated. Patients reported reduced back pain as measured and improved muscle tone at follow-up
Toranto (1990) [16]	Retrospective case series of 24 patients who reported had severe chronic low back pain (LBP) preoperatively and RD with bulging. All patients reported that it was disruptive to their normal life and had failed conservative treatment. 11 (44%) had undergone previous spinal surgery. All patients stated symptoms improved with a brace or corset. 24 (96%) had pain when pressure was applied to the abdomen during physical examination.	Following abdominoplasty, 21/25 subjects (84%) reported complete resolution of lower back pain without recurrence at long-term follow-up. 3 (12%) reported significant decreases in back pain and 1 (4%) reported no change. 23 (92%) reported their level of activity to be unrestricted.

RD = rectus diastasis

* Presented previously to the Department of Health by the Lipectomy Review

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