# 5.17 SOMAPACITAN, Injection 10 mg in 1.5 mL pre-filled pen, Sogroya®, Novo Nordisk Pharmaceuticals Pty Ltd

## 1 Purpose of submission

1.1 The Category 2 submission requested the Section 100 Growth Hormone Program listing for somapacitan for the treatment of adults with growth hormone deficiency (AGHD).

1.2 Listing was requested based on a cost-minimisation analysis versus somatropin.

**Table 1: Key components of the clinical issue addressed by the submission (as stated in the submission)**

| Component | Description |
|---|---|
| Population | Adults with growth hormone deficiency |
| Intervention | Initial treatment with somapacitan using a once-weekly dose of approximately 1.5 mg/week (range, 1.0–2.0 mg/week) for treatment naïve patients or a dose of approximately 2.0 mg/week (range, 1.5–4.0 mg/week) for patients switching from daily growth hormone (somatropin), titrated at intervals of at least 2 weeks or longer by increments of approximately +0.5 mg to +1.5 mg, according to individual patient requirements based on clinical response and serum IGF-I concentrations. |
| Comparator | Somatropin |
| Outcomes | Change in body composition including reduction in truncal fat percentage, fat mass, visceral adipose tissue, and increase in lean body mass and muscle mass, IGF-1 standard deviation score, QoL measures, lipid profile, cardiovascular risk factors, and BMD. Safety assessments including adverse events, injection site reactions, antibodies, and glucose metabolism. |
| Clinical claim | In AGHD, somapacitan is non-inferior in effectiveness and non-inferior in terms of safety compared with somatropin. |

Source: Table 1.1.1, p14 of the submission.
mg = milligram, IGF-1 = insulin-like growth factor 1, QoL = quality of life, AGHD = adult growth hormone deficiency, BMD = bone mineral density.

## 2 Background

### *Registration status*

2.1 Somapacitan was registered on the Australian Register of Therapeutic Goods (ARTG) on 21 February 2022 for the replacement of endogenous GH in adults with AGHD.

## 3 Requested listing

3.1 The abridged requested listing for somapacitan is provided below (for initial treatment of adult-onset GHD, and for continuing treatment).

| Name, Restriction, Manner of administration and form | Max. Qty | №.of Rpts | Approved ex-manufacturer price | Proprietary Name and Manufacturer |
|---|---|---|---|---|
| SOMAPACITAN, 6.7MG/1ML<br>Solution for injection, 10 mg/1.5 mL injection, 1 x 1.5mL pre-filled pen | 1 | 5 | $547.83 ($54.78 per mg) published price<br>$[redacted] ($[redacted] per mg) effective price | Sogroya®, Novo Nordisk Pharmaceuticals Pty Limited |

| | |
|---|---|
| Category/Program: | Section 100 – Growth Hormone Program |
| PBS indication: | Severe growth hormone deficiency |
| Treatment phase: | Initial treatment of adult-onset growth hormone deficiency |
| Restriction: | Authority Required – In Writing |
| Treatment criteria: | Must be treated by an endocrinologist |
| Clinical criteria: | Patient must have adult-onset growth hormone deficiency secondary to organic hypothalamic or pituitary disease, AND<br>Patient must have an insulin tolerance test with maximum serum growth hormone (GH) less than 2.5 micrograms per litre; OR<br>Patient must have an arginine infusion test with maximum serum GH less than 0.4 micrograms per litre; OR<br>Patient must have a glucagon provocation test with maximum serum GH less than 3 micrograms per litre |
| Population criteria: | Patient must be aged 18 years or older. |
| Prescriber instructions: | Grandfathered patient who has previously received non-PBS subsidised treatment with this drug for this condition prior to 1 December 2018 must have met all the initial restriction criteria prior to initiating non-PBS subsidised treatment. Additional information of a baseline serum IGF-1 measurement, including the date of testing and laboratory reference range for age and sex, of less than 12 weeks prior to initiating non-PBS subsidised treatment with this drug for this condition must be provided at the time of application. A Grandfathered patient may qualify for PBS-subsidised treatment under this restriction once only. For continuing PBS-subsidised treatment, a Grandfathered patient must qualify under the Continuing treatment criteria.<br><br>The authority application must be in writing and must include:<br><br>A completed authority prescription form; AND<br>A completed Severe Growth Hormone Deficiency supporting information form; AND<br>Results of the growth hormone stimulation testing, including the date of testing, the type of test performed, the peak growth hormone concentration, and laboratory reference range for age/gender. |

| | |
|---|---|
| Category/Program: | Section 100 – Growth Hormone Program |
| PBS indication: | Severe growth hormone deficiency |
| Treatment phase: | Continuing treatment in a person with a mature skeleton or aged 18 years or older |
| Restriction: | Authority Required – In Writing |
| Treatment criteria: | Must be treated by an endocrinologist |
| Clinical criteria: | The patient has previously received PBS subsidised therapy with this drug for this condition under an initial treatment restriction applying to:<br>A documented childhood-onset growth hormone deficiency due to a congenital, genetic or structural cause in a patient aged 18 years or older; OR<br>Adult-onset growth hormone deficiency secondary to organic hypothalamic or pituitary disease in a patient aged 18 years or older. |
| Population criteria: | Patient must be aged 18 years or older. |

| | |
|---|---|
| Prescriber instructions: | The authority application must be in writing and must include:<br><br>A completed authority prescription form; AND<br>A completed Severe Growth Hormone Deficiency supporting information |

3.2 While somatropin is PBS-listed in a variety of formulations with varying strengths, the proposed PBS listing for somapacitan is for a single formulation (6.7 mg/1 mL [10 mg/1.5 mL device]) of a pre-filled multi-dose disposable pen. Therefore, the frequency of dispensing somapacitan will vary depending on the patient's individual weekly dose. The REAL-1 study demonstrated a mean dose of somapacitan (following dose adjustments) of 2.33 mg per week, where the minimum and maximum doses of somapacitan were set to 0.1 mg and 8 mg weekly, respectively. It was noted in the evaluation that it was unclear in the submission if patients would use all of the drug available in one pen before starting another pen (which may necessitate two injections in one week to make up the correct dose). The evaluation also noted the possibility of taking a full dose of somapacitan using two different pens may represent an important Quality Use of Medicines (QUM) issue, particularly regarding minimising the risk of over- or under-dosing and the prevention of injection site reaction. There may also be quality of life implications if patients are required to have more than one injection in a single day. Additionally, wastage and hence financial implications may also result if pens are discarded with remaining doses. The pre-PBAC response noted the Product Information includes details of what to do if a patient requires a larger dose than that remaining in the pen (i.e. use a new pen or split the dose between the current pen and new pen if patients have been trained/advised by a doctor/nurse). The PBAC considered that prescribers would educate patients about correct dosing in practice which would reduce these QUM concerns.

3.3 The submission requested restriction wording that is mostly the same as the existing listings of somatropin for this indication (PBS item codes 11493X, 11495B, 11650E, and 11895C as at 1 December 2021). The submission did not request initial treatment of childhood onset growth hormone deficiency in a patient who has received PBS-subsidised or non-PBS subsidised treatment as a child, which is currently listed for somatropin under the PBS item codes mentioned above. The PBAC considered that it was reasonable to allow adult patients with documented childhood onset growth hormone deficiency to initiate somapacitan therapy. Therefore, the PBAC considered the restrictions for these treatment phases be included for somapacitan.

3.4 The PBAC considered it reasonable to allow an adult patient who has documented childhood onset GHD to switch between PBS-subsidised somatropin to PBS-subsidised somapacitan under the continuing restriction without being subject to assessment of eligibility under the initial restriction.

3.5 The PBAC considered that switching between growth hormone treatments should only occur when the patient is stable, has previously met the initial restriction criteria of somapacitan or somatropin, and is not concurrently taking any other PBS subsidised therapy for the same indication (i.e. is not taking both somatropin and somapacitan).

The PBAC noted that the concurrent use of both therapies or frequently interchanging between them may represent a QUM issue but considered this should be left to the discretion of the treating endocrinologist in discussion with the patient.

3.6 The PBAC also considered it is appropriate to include a cohort that has onset of growth hormone deficiency diagnosed after skeletal maturity (bone age greater than or equal to 15.5 years in males or 13.5 years in females) but before age 18 years in the restriction. This was consistent with the PBAC's recommendation at the September 2021 intracycle meeting.

3.7 The submission appropriately did not include clinical criteria for patients with Prader-Willi syndrome, for which somatropin has been approved to treat. The PBAC noted that somapacitan is not approved for patients with Prader-Willi syndrome.

3.8 The requested maximum quantity and number of repeats were appropriate for a 1-pack. It was unclear in the submission if listing was being requested for a 1-pack or 5-pack of somapacitan. The PBAC noted that maximum quantity and number of repeats would need to be adjusted if a 5-pack is requested to be listed.

3.9 The submission requested a grandfather restriction for 30 patients who were included in the REAL-1 study. The PBAC noted a separate grandfather restriction would not be required as these patients would be able to transition to PBS subsidised somapacitan under the initial restriction.

# 4 Population and disease

4.1 AGHD is a rare condition in which adults have sustained low levels of growth hormone (GH) and insulin-like growth factor-1 (IGF-1) and is characterised by an adversely altered body composition, reflected in visceral obesity, reduced muscle strength and mass, decreased bone mass, and an adverse metabolic profile which can lead to osteoporosis, fatigue, demotivation, and depression. AGHD can persist from childhood or be newly acquired in adulthood and can be the result of congenital pituitary abnormalities or of acquired loss of pituitary function resulting from tumours, irradiation, intracerebral haemorrhage, and head injuries.

4.2 Somapacitan is proposed to be used as a first-line therapy for AGHD.

4.3 Somapacitan is a novel, long-acting, recombinant GH derivative that reversibly binds to serum albumin to prolong the in vivo half-life of the drug, making it suitable for once-weekly dosing. Somapacitan has over 99% structural similarity to the naturally occurring GH, somatropin, allowing for a small injection volume and administration of the weekly dose in a single injection.

# 5 Comparator

5.1 The submission proposed somatropin as the main comparator. The main argument provided in support of this nomination was that somatropin is the formulation of recombinant human GH currently reimbursed via the Section 100 Growth Hormone

Program of the PBS for a range of indications including AGHD. As somatropin is the only recombinant GH currently available through the PBS Section 100 Growth Hormone Program, there are no relevant secondary or supplementary comparators. The PBAC considered somatropin as an appropriate comparator.

*For more detail on PBAC's view, see section 7 PBAC outcome.*

# 6 Consideration of the evidence

## *Sponsor hearing*

6.1 There was no hearing for this item.

## *Consumer comments*

6.2 The PBAC noted and welcomed the input from individuals (10), health care professionals (1) and organisations (1) via the Consumer Comments facility on the PBS website. The comments, from both patients and carers described the benefits of having a once-weekly GHD treatment available, including improved compliance, an improved ability to manage shift work, fewer injection site effects and reduced damage to skin, and an overall reduced disease burden and improved quality of life.

6.3 The PBAC noted the advice received from the Australian Pituitary Foundation (APF) clarifying the likely use of somapacitan in clinical practice. The PBAC specifically noted the advice that the use of somapacitan may reduce physical irritation and damage at the injection site, reduce the impact of finding a suitable injection site as the treatment reduces subcutaneous fat, and greater flexibility for those living in remote locations (transportation and storage challenges) for shift workers, social interactions, and work trips and holidays. The APF advised that a weekly injection would provide flexibility, increased independence, reduced stress and add a positive impact on quality of life which would flow on to carers and the family of patients.

## *Clinical trials*

6.4 The submission was based on three head-to-head randomised trials comparing somapacitan to somatropin: REAL-1 a randomised trial (double blinded with respect to somapacitan and placebo, but open-label with respect to somatropin, N=239 data used in submission), REAL-2 a randomised open label study (N=310), and REAL-Japan a randomised open label study (N=75). A claim of non-inferior effectiveness was made on the outcome of changes in body fat and quality of life at 87 weeks (REAL-1), and non-inferior safety was made on the outcome of all adverse events at 87 weeks (REAL-2 and REAL-Japan).

6.5 Details of the trials presented in the submission are provided in the table below.

**Table 2: Trials and associated reports presented in the submission**

| Trial ID | Protocol title/ Publication title | Publication citation |
|---|---|---|
| REAL-1 | Johannsson, G., Gordon, M. B., Rasmussen, M. H., et al. Once-weekly somapacitan is effective and well tolerated in adults with GH deficiency: A randomized phase 3 trial. | Journal of Clinical Endocrinology and Metabolism 105(4): E1358-E1376. |
| REAL-2 | Johannsson, G., Feldt-Rasmussen, U., Hakonsson, I. H., et al. Safety and convenience of once-weekly somapacitan in adult GH deficiency: a 26-week randomized, controlled trial. | Eur J Endocrinol 178(5): 491-499. |
| REAL-Japan | Otsuka, F., Takahashi, Y., Tahara, S., et al. Similar safety and efficacy in previously treated adults with growth hormone deficiency randomized to once-weekly somapacitan or daily growth hormone. | Clin Endocrinol (Oxf) 93(5): 620-628. |

Source: Table 2.2.2, pp33-34 of the submission.
GH= growth hormone

6.6 The key features of the trials are summarised in the table below.

**Table 3: Key features of the included evidence**

| Trial | N | Design/ duration | Risk of bias | Patient population | Outcome(s) | Use in modelled evaluation |
|---|---|---|---|---|---|---|
| **Somapacitan vs. somatropin** | | | | | | |
| REAL-1 | 239[a] | R, DB (somapacitan vs placebo); OL (somapacitan vs somatropin) 34 weeks | Moderate | Treatment naïve | Efficacy | Used |
| REAL-2 | 310 | R, OL 26 weeks | High | Previously treated | Safety | Not used |
| REAL-Japan | 75 | R, OL 52 weeks | High | Previously treated | Safety | Not used |

Source: Compiled during the evaluation
DB = double blind; OL = open label; R = randomised, N= number of participants
[a] The sponsor presents data comparing somapacitan (N=120) and somatropin (N=119) at 34 weeks. There is data up to 87 weeks but there was no direct comparison between somapacitan and somatropin reported.

6.7 There was a high risk of performance and detection bias for REAL-2 and REAL-Japan because they were open-label. This would have affected subjective assessments such as the reporting of adverse events or patient-reported outcome measures and could favour somapacitan. Objective measurements such as changes in body composition assessed by dual energy x-ray absorptiometry (DXA) would not have been affected. It is reasonable that the trials were unblinded as it was not possible to evaluate the benefits of a weekly regimen if patients had to receive many placebo injections. However, the potential for bias remains.

6.8 There was a moderate risk of attrition bias for REAL-1 and REAL2. In REAL-1, 15% of patients did not complete the trial and 16% did not complete the treatment. In REAL-2, 7% of patients did not complete the trial and 8% did not complete the treatment. The submission did not state the reasons for patients not completing the trials. The direction of this bias was uncertain.

6.9 The submission did not provide the characteristics of patients who were lost to follow-up or patients who withdrew from the trial to enable an understanding of whether

patients were likely lost at random. There was potential for bias associated with the loss to follow up and the potential that results would differ for those who were lost. The direction of this bias was uncertain.

## *Comparative effectiveness*

6.10 The REAL-1 study provided data on the change in the pre-specified primary outcome of truncal fat percentage (baseline compared with 34 weeks). This is an objective measure (using DXA) which is a commonly used outcome in growth hormone deficiency trials. This was appropriate.

6.11 The submission noted REAL-1 was powered to test the superiority of somapacitan vs placebo; it was not powered to test the non-inferiority of somapacitan vs somatropin. The evaluation noted that relying on statistical difference when the trial was not powered to determine non-inferiority may not be appropriate.

6.12 The REAL-1 study presented a comparison at Week 87 (extension phase) that included placebo and patients switching from placebo to somapacitan and somatropin to somapacitan. The direct comparison of somapacitan and somatropin is most relevant to the clinical claim of non-inferiority and the Week 34 (main phase) data are most complete for this purpose. Statistical significance was not reported for the mean difference at Week 34 (no reason was provided in the submission for why this was not reported). At Week 87, the differences between variables for somapacitan compared to somatropin were only calculated with a 4-group comparison that also included patient switches, therefore the treatment differences for the direct comparison between somapacitan and somatropin were not able to be reported. The results were unlikely to provide a conclusive understanding of non-inferiority for somapacitan compared to somatropin.

6.13 The submission presented secondary outcomes related to truncal body fat mass, body fat mass, visceral adipose tissue (VAT), android body fat mass, gynoid body fat mass, truncal lean body mass, appendicular skeletal muscle mass, and body lean mass. The evaluation noted that comparisons with placebo at Week 34 and comparisons with treatment switches (placebo to somapacitan and somatropin to somapacitan) at Week 87 were also presented but were less relevant as support for the clinical claim of non-inferiority between somapacitan and somatropin. Information on treatment switching could be relevant as supporting evidence. There was a statistically significant difference between somapacitan and somatropin at Week 34 for the outcome gynoid body fat mass. Given the lack of understanding of what would constitute non-inferiority for the other key body composition parameters, the interpretations were unclear.

6.14 The submission stated the weekly dosing of somapacitan was a benefit compared with daily dosing with somatropin. Patient reported outcomes from REAL-1 were presented in the submission. In general, patient satisfaction and treatment convenience favoured somapacitan. In summary, data from TRIM-AGHD showed that the differences in scores between somapacitan and somatropin were generally in favour

of somapacitan, but none met the minimally important difference (MID) criteria. Similarly, data from the SF-36v2 survey also did not show differences that met the MID criteria. The TSQM-9 results showed a statistically significant difference for treatment convenience in favour of somapacitan. Similarly, REAL-2 reported a statistically significant difference in convenience scores in favour of somapacitan. In contrast, REAL-Japan reported no statistically significant difference in convenience or global satisfaction based on TSQM-9. The three patient reported outcome measures used in the trials (TRIM-AGHD, SF36v2, TSQM-9) did not meet the minimum clinically important difference (MCID) between somapacitan and somatropin.

**Table 4**: **Results of change from baseline in truncal fat percentage from REAL-1**

| REAL-1 | Somapacitan | | | Somatropin | | | Mean difference (95% CI) |
|---|---|---|---|---|---|---|---|
| | Mean baseline | Mean follow up[&] | Mean change* | Mean baseline | Mean follow up[&] | Mean change* | |
| | N=120 | | | N=119 | | | |
| Week 34 | # | 232 days | -1.06 | # | 226 days | -2.23 | 1.17 (0.23, 2.11) |
| | N=114 | | | N=52 | | | |
| Week 87 | # | 355 days | -1.52 | # | 349 days | -2.67 | Not reported |

Source: Table 2.5.1, p74-76 of the submission

Abbreviations: CI, confidence interval

# Mean baseline was not provided in the submission and unable to be sourced from the original publication

& Mean follow-up was not provided in the submission, but data was sourced from the original publication

* Measures of variance around mean percentage changes were not provided and unable to be sourced from the original publication

## *Comparative harms*

6.15 Safety data was presented from the three trials (REAL-1, REAL-2, and REAL-Japan) and is summarised in the table below.

6.16 Most of the safety data from all three trials showed low rates of adverse events (AEs) and a relatively little difference between the somapacitan and somatropin study arms. The exception was the REAL-Japan trial where four serious AEs were reported for the somapacitan arm compared to none in the somatropin arm, which was statistically significant. No further information was given in the submission nor the references supplied regarding the nature of these serious AEs.

6.17 The submission included a development safety update report (DSUR) for the period 1 December 2019 to 30 November 2020. In summary, 580 individuals were exposed to somapacitan. There was no new significant information that would impact the potential benefit-risk balance of somapacitan during the reporting period.

**Table 5: Summary of key AEs in the trials**

| Trial ID | Somapacitan n with event/N (%) | Somatropin n with event/N (%) | RD (95% CI) |
|---|---|---|---|
| **REAL-1 (main)** | | | |
| Any serious AE | 7/120 (6) | 11/119 (9) | RD: -3 (-10, 3)<br>RR: 0.63 (0.25, 1.57) |
| AE of severe severity | 7/120 (6) | 9/119 (8) | RD: -2 (-8, 5)<br>RR: 0.77 (0.30, 2.00) |
| Any AE resulting in death | 0 | 0 | - |
| AE leading to discontinuation of study medication | 0 | 4/119 (3) | RD: -3 (-7, 0) |
| **REAL-1 (extension)** | **(Somapacitan/somapacitan)** | **(Somatropin/Somatropin)** | |
| Any serious AE | 13/120 (11) | 5/52 (10) | RD: 1(-9, 11)<br>RR: 1.13 (0.42, 3.00) |
| AE of severe severity | 11/120 (9) | 5/52 (10) | RD: 0 (-10, 9)<br>RR: 0.95 (0.35, 2.61) |
| Any AE resulting in death | 0 | 1 (2) | RD: -2 (-6, 2) |
| AE leading to discontinuation of study medication | 2/120 (2) | 0 | RD: 2 (-1, 4) |
| **REAL-2** | | | |
| Any serious AE | 4/61 (7) | 2/31 (7) | RD: 0 (-11, 11)<br>RR: 1.02 (0.20, 5.25) |
| AE of severe severity | 5/61 (8) | 2/31 (7) | RD: 2 (-9, 13)<br>RR: 1.27 (0.26, 6.18) |
| Any AE resulting in death | 0 | 0 | - |
| AE leading to discontinuation of study medication | 1/61 (2) | 1/52 (3) | RD: -2 (-9, 5)<br>RR: 0.51 (0.03, 7.85) |
| **REAL-Japan** | | | |
| Any serious AE | 4/46 (9) | 0 | **RD: 9 (1, 17)** |
| AE of severe severity | 0 | 0 | - |
| Any AE resulting in death | 0 | 0 | - |
| AE leading to discontinuation of study medication | 0 | 1/16 (6) | RD: -6 (-18, 6) |

Source: Table 2.5.9, 2.5.11, pp94-95, 97 of the submission.
**Bold** text is statistically significant.
AE = adverse event; CI = confidence interval; n = number of participants reporting data; N = total participants in group; RD = risk difference; RR = relative risk

## *Benefits/harms*

6.18 As the submission claimed non-inferior comparative effectiveness and safety, a benefit and harms table has not been presented.

6.19 Based on direct evidence presented by the submission, for every 100 patients treated with somapacitan in comparison with somatropin:

- Approximately 9 additional patients would have a serious adverse event (REAL-Japan).

## *Clinical claim*

6.20 The submission described somapacitan as non-inferior in terms of effectiveness compared with somatropin and non-inferior in terms of safety compared to somatropin. The key issues regarding accepting the clinical claim include:

- The submission's clinical claim of non-inferiority was based on REAL-1, a study which was not powered to detect non-inferiority of somapacitan and somatropin.
- In general, patient satisfaction and treatment convenience favoured somapacitan. However, the three patient reported outcome measures used in the trials (TRIM-AGHD, SF36v2, TSQM) did not meet the MCID between somapacitan and somatropin.
- Due to the open-label study designs of the included trials, there is risk of performance and detection biases.
- Incomplete data for serious AEs reported in REAL-Japan.

6.21 The PBAC considered that the claim of non-inferior comparative effectiveness and safety was reasonable.

## *Economic analysis*

6.22 The submission presented a cost-minimisation analysis comparing somapacitan once-weekly versus somatropin once-daily for the treatment of AGHD.

6.23 The key components and assumptions of the cost-minimisation analysis are described in the table below.

**Table 6: Key components and assumptions of the cost-minimisation analysis**

| Component | Claim or assumption |
|---|---|
| Therapeutic claim: effectiveness | Somapacitan once-weekly is assumed to be non-inferior to somatropin once-daily with respect to changes in body fat and quality of life at 87 weeks when used to treat AGHD. |
| Therapeutic claim: safety | Somapacitan once-weekly is assumed to be non-inferior to somatropin once-daily with respect to all AEs at 87 weeks when used to treat AGHD. |
| Evidence base | Direct comparison of somapacitan and somatropin based on the Phase 3 randomised trial (extension phase of the REAL-1 study) |
| Equi-effective doses | 2.33 mg per week of somapacitan = 1.89 mg per week of somatropin (0.27 mg per day)<br><br>Therefore, weekly dose relativity:<br>1.23 mg per week of somapacitan = 1 mg per week of somatropin |
| Direct medicine costs | Based on the proposed effective AEMP for somapacitan ($[redacted] per mg), the weekly drug cost of somapacitan ($[redacted]) is equivalent to the weekly drug cost of somatropin ($[redacted]).<br><br>The submission also presented an additional cost-minimisation analysis if the equi-effective doses were derived from the main phase of the REAL-1 study (2.52 mg per week of somapacitan = 0.33 mg per day of somatropin), which suggested the weekly drug cost of somapacitan ($[redacted]) could be lower than somatropin ($[redacted]).<br><br>The additional analysis using the equi-effective doses derived from the main phase of the REAL-1 study was not justified. |
| Other costs or cost offsets | None |

Source: Table 3.1.1, p 109 of the submission.
AE = adverse event; AEMP = approved ex-manufacturer price; AGHD = adult growth hormone deficiency

6.24 The submission determined the equi-effective doses of somapacitan and somatropin using the mean treatment doses from participants in the extension phase of the REAL-1 study. These doses corresponded to the stable doses at the last titration visit 23 (week 43) of the REAL-1 study and represented steady-state doses.

6.25 The equi-effective doses were somatropin 0.27 mg daily (1.89 mg weekly) and somapacitan 2.33 mg weekly, at the weekly dose relativity of 1 mg somatropin = 1.23 mg somapacitan. This was appropriate.

6.26 The submission did not include additional costs or cost-offsets in the cost-minimisation analysis since there were no significant differences associated with the administration between somapacitan and somatropin and no significant difference in the cost of managing AEs between somapacitan and somatropin. This was appropriate.

6.27 The submission requested a Special Pricing Arrangement (SPA) for somapacitan with a proposed published approved ex-manufacturer price (AEMP) of $547.83 ($54.78 per mg) and an effective AEMP of $ ($ per mg) based on a cost-minimisation to somatropin. Somatropin does not currently have a SPA.

6.28 The AEMP per mg of somatropin is identical across all somatropin PBS items with restrictions for AGHD ($40.29 per mg). The results of the cost-minimisation analysis based on the effective price proposed in the submission are presented in Table 7.

**Table 7: Results of the cost-minimisation analysis**

| Component | Somapacitan | Somatropin |
|---|---|---|
| Mean treatment dose per week | 2.33 mg | 1.89 mg |
| Cost per mg (AEMP) | $ | $ |
| Total medicine cost per week | $ | $ |
| Incremental cost | $0.00 | |

Source: Table 3.4.2, p111 of the submission.
AEMP = approved ex-manufacturer price

6.29 The submission claimed that the effective AEMP requested for somapacitan was potentially conservative. The submission performed a sensitivity analysis whereby the submission used the weekly treatment doses derived from the mean treatment doses in the main phase of the REAL-1 study (as opposed to the extension phase of the REAL-1 study in the base case analysis). At the effective AEMP for somapacitan $ ($ per mg), the submission suggested that somapacitan may be cost-saving if the equi-effective doses from the main phase were used in the cost-minimisation analysis (total medicine cost per week somapacitan $ versus somatropin $). The weekly dose relativity (1 mg somatropin = 1.09 mg somapacitan) would support a higher cost-minimising effective AEMP of $ per mg for somapacitan ($ per week). This was appropriate as a sensitivity analysis, however, the evaluation noted that the base case analysis was more appropriate for the comparative cost estimates between the two medicines given that the estimated equi-effective doses were based on data from the extension phase (which was used to support the clinical claims of non-inferior

effectiveness and safety). The mean treatment doses derived from the extension phase likely represented the steady-state doses for somapacitan and somatropin.

## *Drug cost/patient/year*

6.30 At the requested effective AEMP for somapacitan ($[redacted]), the estimated cost per patient per year of somapacitan was $[redacted] (based on 52 weeks x total medicine cost per week based on the equi-effective dose calculated from the mean weekly treatment doses in the extension phase of the REAL-1 study).

## *Estimated PBS usage & financial implications*

6.31 This submission was not considered by DUSC.

6.32 The submission used a market share approach to estimate the net costs of the proposed PBS/RPBS listing of somapacitan when substituted for somatropin.

6.33 The table below summarises the main components and assumptions of the financial analysis used in the submission.

**Table 8: Data sources and parameter values applied in the utilisation and financial estimates**

| Data | Value | Source | Comment |
|---|---|---|---|
| **Treatment utilisation** | | | |
| Somatropin market growth | Functional form: Logarithmic | The projections of future somatropin market growth over the next six years were based on a logarithmic curve fitting to the historical Medicare Statistics data of dispensed units for somatropin PBS items restricted to AGHD from 2018-2020. The choice of functional form for the market predictions assumed that the future somatropin market growth was likely to plateau. | Uncertain. The submission did not provide appropriate justification for the likely future trend of the somatropin market growth. The data were also likely too immature to predict major future trends in the market. The financial estimates are sensitive to somatropin market growth predictions. |
| Somapacitan substitution rate | Yr 1: 90%<br>Yr 2: 100%<br>Yr 3: 100%<br>Yr 4: 100%<br>Yr 5: 100%<br>Yr 6: 100% | The submission expected that all patients currently taking somatropin will switch to somapacitan. The rate at which somapacitan would substitute for somatropin was expected to be 90% in year 1 and 100% thereafter. The submission stated that these substitution rates reflect the likely preference of the patient population for the greater convenience of weekly dosing. | Uncertain. The submission did not provide appropriate justification for the substitution rate. The financial estimates are sensitive to the substitution rate. |
| Projected volumes of somatropin to be impacted by the introduction of somapacitan | Yr 1: 7,861<br>Yr 2: 9,680<br>Yr 3: 10,341<br>Yr 4: 10,893<br>Yr 5: 11,368<br>Yr 6: 11,783 | The projected volumes of somatropin impacted by the introduction of somapacitan were derived by applying the somapacitan substitution rates to the forecasted dispensed units of somatropin in each year. | Uncertain. The forecasted volume based on the somatropin market growth and the somapacitan substitution rate are uncertain. |
| Mean treatment dose of somapacitan | Weekly:<br>2.33 mg<br>Yearly:<br>121.16 mg | The weekly mean treatment dose of somapacitan was obtained from the extension phase of the REAL-1 study and multiplied by 52 to estimate the treatment dose per year per patient. | Reasonable. |
| Script equivalence of somapacitan and somatropin | 11493X: 0.62<br>11495B: 1.48<br>11650E: 1.23<br>11895C: 0.62 | The script equivalence of somapacitan and somatropin was based on the weekly-dose relativity of the mean treatment doses from participants in the extension phase of the REAL-1 study. | Reasonable. Since the non-inferior efficacy and safety for somapacitan and somatropin was demonstrated in the extension phase of the REAL-1 study, it is reasonable to use the script equivalence of somapacitan and somatropin in the same extension phase to forecast the predicted dispensed units of somapacitan in the financial analysis. The financial estimates are sensitive to the script equivalence. |
| **Costs** | | | |
| Somapacitan (effective DPMQ) | $[redacted] | Requested effective DPMQ | The requested DPMQ is consistent with the submission proposal. |
| Somapacitan (published DPMQ) | $577.52 | Requested published DPMQ | The requested DPMQ is consistent with the submission proposal. |

| Data | Value | Source | Comment |
|---|---|---|---|
| Somatropin (Current DPMQ) | 11493X: $217.29<br>11495B: $510.59<br>11650E: $426.80<br>11895C: $217.29 | Current effective DPMQ | NA |

Source: Table compiled during the evaluation using Attachment 7 - Somapacitan PBAC Section 4 Excel
AGHD = adult growth hormone deficiency; DPMQ = Dispensed Price for Maximum Quantity; NA = not applicable; PBS = Pharmaceutical Benefits Scheme; RPBS = Repatriation Pharmaceutical Benefits Scheme

6.34 The submission assumed a substitution rate of 90% for somapacitan from somatropin in year 1, rising to 100% over the subsequent years. Although the submission stated that these substitution rates reflected the likely preference for the greater convenience of weekly dosing, the submission did not provide appropriate justification or references to support the somapacitan substitution rates in the financial analysis. Assuming high substitution rates may overestimate the uptake of somapacitan in the AGHD patient population.

6.35 The submission estimated the script equivalence of somapacitan for every somatropin PBS item restricted to AGHD based on the weekly-dose relativity of the mean treatment doses from participants in the extension phase of the REAL-1 study. This is appropriate as data from the extension phase represents patients in a steady state and was the same data source used to support the claims of non-inferior effectiveness and safety compared to somatropin. However, it is likely that the financial estimates are sensitive to the script equivalence given the uncertainty in the mean weekly treatment doses for somapacitan (mean: 2.33; 95% CI: 2.10, 2.56) and mean daily treatment doses for somatropin (mean: 0.27; 95% CI: 0.23, 0.31).

6.36 The submission estimated the number of patients treated with somapacitan over the next six years using the equi-effective doses presented in the economic analysis to calculate the script equivalence and using Medicare Statistics data to project future somatropin market growth. This is uncertain due to somapacitan market growth and substitution rate assumptions. Additionally, the estimated number of patients treated with somapacitan is likely to include a small number of patients who are aged 15-17 years with mature skeletons who are not included in the proposed restriction. This is due to calculations of the somapacitan patient population predicated using historical Medicare Statistics data of dispensed units for somatropin PBS items restricted to AGHD from 2018-2020, where under the current PBS Growth Hormone Program, patients aged 15-17 years with mature skeletons are defined as adults.

6.37 A summary of the estimated use and financial implications of somapacitan is presented in the table below. This is based on the effective DPMQ for somapacitan in the submission.

**Table 9: Estimated use and financial implications (based on the effective DPMQ for somapacitan)**

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| **Estimated extent of use** | | | | | | |
| Total number of patients treated with somapacitan | [redacted][1] | [redacted][1] | [redacted][1] | [redacted][1] | [redacted][1] | [redacted][1] |
| Projected volumes of PBS/RPBS somapacitan | [redacted][2] | [redacted][2] | [redacted][4] | [redacted][4] | [redacted][4] | [redacted][4] |
| **Estimated financial implications of somapacitan** | | | | | | |
| Cost to PBS/RPBS less co-payments ($) | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] |
| **Estimated financial implications of somatropin** | | | | | | |
| Cost to PBS/RPBS less co-payments ($) | -[redacted][3] | -[redacted][3] | -[redacted][3] | -[redacted][3] | -[redacted][3] | -[redacted][3] |
| **Net financial implications** | | | | | | |
| Net cost to PBS/RPBS ($) | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] | [redacted][3] |

Source: Table 4.2.6, p117 of the submission, Table 4.2.7, p118 of the submission, Table 4.2.8, p118 of the submission, Table 4.3.2, p120 of the submission and Table 4.4.1, p120 of the submission

PBS = Pharmaceutical Benefits Scheme; RPBS = Repatriation Pharmaceutical Benefits Scheme

a Assuming a weekly dose relativity of 1 mg somatropin = 1.23 mg somapacitan as estimated by the submission.

The redacted values correspond to the following ranges:

[1] 500 to < 5,000

[2] 5,000 to < 10,000

[3] $0 to < $10 million

[4] 10,000 to < 20,000

6.38 The total net cost to the PBS/RPBS of listing somapacitan was estimated to be $0 to < $10 million in Year 6, and a total of $0 to < $10 million in the first six years of listing. A cost was shown in the submission due to the rounding of price and the script equivalence calculation to two decimal places. Potential additional costs would also result from wastage if pens are discarded with remaining doses. The evaluation noted that the listing of somapacitan should result in a nil cost to government since the equi-effective doses were used to calculate the script equivalence, and the same weekly cost as somatropin is being requested.

6.39 The submission did not propose changes to MBS items since both somapacitan and somatropin are self-administered. This assumption was uncertain given that the frequency of dispensing of the proposed single formulation of somapacitan (and corresponding visitations with endocrinologists) may depend on the individual patient weekly dose.

6.40 The submission conducted a sensitivity analysis to exclude patients aged 15-17 years with mature skeletons from the somapacitan substitution rates used in the base case analysis. The submission did not specifically request somapacitan for this indication/population. The sensitivity analysis showed that the cost of listing somapacitan to the PBS/RPBS is estimated at $0 to < $10 million in year 1, increasing up to $0 to < $10 million in year 6.

6.41 The submission did not include grandfathered patients in the financial estimates. The PBAC considered, given the small number of likely grandfathered patients, noting the

pivotal REAL-1 study included 30 Australian patients, that the additional cost of these grandfathered patients was unlikely to have a substantial effect on the financial estimates.

### *Quality Use of Medicines*

6.42 The submission did not present QUM information and did not propose a post marketing surveillance study. As noted in Section 3, the availability of only one strength of the somapacitan pen poses a potential QUM issue that was not addressed in the submission. The PBAC considered that prescribers would educate patients about correct dosing which would reduce QUM concerns.

6.43 Further considerations should be given to train health professionals regarding the use of this medication, specifically on initiation doses, monitoring needs and instructions for self-administration. The TGA Delegate's Overview provided details of the Risk Management Plan evaluation and recommendations, which included the need for routine pharmacovigilance and risk minimisation.

*For more detail on PBAC's view, see section 7 PBAC outcome.*

## 7 PBAC Outcome

7.1 The PBAC recommended the Section 100 Growth Hormone Program listing of somapacitan for the treatment of growth hormone deficiency (AGHD) in patients aged 18 years and above, and those under 18 years of age with a mature skeleton. The PBAC's recommendation for listing was based on, among other matters, its assessment that the cost-effectiveness of somapacitan would be acceptable if it were cost-minimised to somatropin for the same indication.

7.2 The PBAC advised that the equi-effective doses were somatropin 0.27 mg daily (1.89 mg weekly) and somapacitan 2.33 mg weekly, at the weekly dose relativity of 1 mg somatropin = 1.23 mg somapacitan. This was derived from the mean treatment doses of the extension phase of the REAL-1 study which the PBAC considered to represent the steady-state doses for somapacitan and somatropin.

7.3 The PBAC noted the consumer comments which noted the improved patient satisfaction and treatment convenience of weekly dosing with somapacitan compared to daily dosing with somatropin. The PBAC agreed with the consumer comments that there is clinical need for a once-weekly growth hormone treatment for patients with AGHD.

7.4 The PBAC considered that somapacitan was non-inferior to somatropin in terms of effectiveness and safety. The PBAC noted the submission's clinical claim of non-inferiority in terms of effectiveness was based on REAL-1. Although the study was not powered to detect non-inferiority of somapacitan and somatropin, the PBAC considered the results for changes in body fat and quality of life at 87 weeks when used to treat AGHD were reasonable. The PBAC noted that most data presented in REAL-1 and REAL-2 data showed low rates of adverse events and relatively little

difference between the somapacitan and somatropin study arms. Although four serious adverse events were reported for the somapacitan arm compared to none in the somatropin arm in REAL-JAPAN, which was statistically significant, a development safety update report for the period 1 December 2019 to 30 November 2020 showed no new significant information that would impact the potential benefit-risk balance of somapacitan during the reporting period.

7.5 The PBAC considered that somapacitan should result in a nil cost to government since it is likely that patients currently using daily somatropin would switch to weekly somapacitan and the submission requested the same weekly cost as that of somatropin. The PBAC noted that there may be potential additional costs which were not included in the submission's financial estimates including wastage if pens are discarded with remaining doses, and a small number of grandfathered patients. The PBAC noted that the additional costs would unlikely have a substantial effect on the financial estimates.

7.6 The PBAC considered that it was reasonable to allow adult patients with documented childhood onset GHD to initiate somapacitan therapy. Additionally, the PBAC considered it reasonable to allow an adult patient who has documented childhood onset GHD to switch between PBS-subsidised somatropin to PBS-subsidised somapacitan under the continuing restriction without being subject to assessment of eligibility under the initial restriction. Therefore, the PBAC considered the restrictions for these treatment phases be included for somapacitan.

7.7 The PBAC noted that the submission did not explicitly include a small group of paediatric patients with growth hormone deficiency due to a congenital, genetic, or structural cause (CO-GHD) who may reach skeletal maturity at the age of 15-17 (transition patients). The PBAC noted the estimated number of patients treated with somapacitan is likely to include a small number of patients <18 years and it was important to allow these patients access to weekly treatment if this was the treatment being used in the paediatric setting. The PBAC considered that there was a clinical need for once-weekly growth hormone therapy in patients with a mature skeleton who are under 18 years of age, and that somapacitan may be a clinically suitable treatment for this population. The PBAC therefore considered that the restrictions should include patients with a mature skeleton (i.e. bone age greater than or equal to 15.5 years in males or 13.5 years in females) who are not aged 18 years or older, and that this inclusion be consistent with the PBAC recommendation made for somatropin at the September 2021 intra-cycle meeting.

7.8 The PBAC noted that when switching from a once daily injection of somatropin to a once weekly injection of somapacitan, there are QUM risks that patients may use somatropin concurrently with somapacitan or that there may be frequent interchange between the therapies. The PBAC considered this risk to be low. However, the PBAC considered that patients who initiate on somatropin or somapacitan for GHD should be allowed to switch therapy under the continuing restriction, without having to be

re-assessed for eligibility under the initial restriction criteria, providing they meet the requirement to continue treatment with PBS-subsidised growth hormone therapy.

7.9 The PBAC also noted that patients taking a weekly dose greater than 5 mg may need to inject more than one injection per week on certain weeks and that this may be a QUM issue due to the potential of over- or under-dosing and injection site reaction. The PBAC considered that specialist prescribers would ensure that appropriate dosages are used when transitioning patients from somatropin to somapacitan or vice versa and would educate the patients on the appropriate use of the pens to ensure safe dosing and minimise the risk of injection site reaction.

7.10 The PBAC noted that the Early Supply Rule cannot currently be applied to Growth Hormone program listings and therefore considered that it should not apply to somapacitan.

7.11 The PBAC considered that somapacitan is not suitable for inclusion in the PBS medicines for prescribing by nurse practitioners, noting that somatropin can only be prescribed by an endocrinologist for this indication.

7.12 The PBAC noted that its recommendation was on a cost-minimisation basis and advised that, because somapacitan is not expected to provide a substantial and clinically relevant improvement in efficacy, or reduction of toxicity, over somatropin, or not expected to address a high and urgent unmet clinical need given the presence of an alternative therapy, the criteria prescribed by the *National Health (Pharmaceuticals and Vaccines – Cost Recovery) Regulations 2009* for Pricing Pathway A were not met.

7.13 The PBAC advised, under section 101 (3BA) of the Act, that somapacitan should not be treated as interchangeable on an individual patient basis with any other drugs.

7.14 The PBAC noted that this submission is not eligible for an Independent Review as it was recommended for listing.

**Outcome:**
Recommended

# 8 Recommended listing

8.1 Add new medicinal product as follows:

| MEDICINAL PRODUCT<br>medicinal product pack | PBS item code | Max. qty packs | Max. qty units | №.of Rpts | Available brands |
|---|---|---|---|---|---|
| SOMAPACITIN | | | | | |
| somapacitan 10 mg/1.5 mL injection, 1.5 mL pen device | NEW | 1 | 1 | 5 | Sogroya |
| | | | | | |
| **Restriction Summary [new 1] / Treatment of Concept: [new 2]** | | | | | |
| | **Category / Program:** Section 100 – Growth Hormone Program | | | | |
| | **Prescriber type:** ☒ Medical Practitioners | | | | |
| | **Restriction type:** ☒ Authority Required (in writing only via post/HPOS upload) **CAR FULL** | | | | |

| | |
|---|---|
| | |
| | **Administrative advice:** Special Pricing Arrangements apply |
| | **Administrative advice:** No increase in the maximum number of repeats may be authorised. |
| | |
| | **Indication:** Severe growth hormone deficiency |
| | |
| | **Treatment phase:** Initial PBS treatment of late onset growth hormone deficiency |
| | |
| | **Treatment criteria:** Must be treated by an endocrinologist<br>AND<br>[NEW TC] Patient must be undergoing treatment for the stated indication with only one drug at a time where multiple drugs are PBS-listed for the stated indication |
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have late onset growth hormone deficiency secondary to organic hypothalamic or pituitary disease diagnosed at a chronological age of 18 years or older; or |
| | Patient must have a documented childhood onset growth hormone deficiency due to a congenital, genetic or structural cause in a patient with a mature skeleton and chronological age of 18 years or older; or |
| | Patient must have onset of growth hormone deficiency diagnosed after skeletal maturity (a bone age greater than or equal to 15.5 years in males or 13.5 years in females) and before the chronological age of 18 years. |
| | **AND** |
| | **Clinical criteria** |
| | Patient must have/have had a diagnostic insulin tolerance test with maximum serum growth hormone (GH) less than 2.5 micrograms per litre prior to initiating/having initiated this drug; or |
| | Patient must have/have had a diagnostic arginine infusion test with maximum serum GH less than 0.4 micrograms per litre prior to initiating/having initiated this drug; or |
| | Patient must have/have had a diagnostic glucagon provocation test with maximum serum GH less than 3 micrograms per litre prior to initiating/having initiated this drug |
| | |
| | **Prescribing instructions:** The authority application must be in writing and must include:<br>1. A completed authority prescription form; AND<br>2. A completed Severe Growth Hormone Deficiency supporting information form; AND<br>3. Results of the growth hormone stimulation testing, including the date of testing, the type of test performed, the peak growth hormone concentration, and laboratory reference range for age/gender. |
| | |
| | **Administrative advice:** Any queries concerning the arrangements to prescribe may be directed to Services Australia on 1800 700 270 (hours of operation 8 a.m. to 5 p.m. Monday to Friday).<br>Prescribing information (including Authority Application forms and other relevant documentation as applicable) is available on the Services Australia website at www.servicesaustralia.gov.au<br>Applications for authority to prescribe should be submitted online using the form upload facility in Health Professional Online Services (HPOS) at www.servicesaustralia.gov.au/hpos<br>Or mailed to:<br>Services Australia<br>Complex Drugs<br>Reply Paid 9826<br>HOBART TAS 7001 |
| | **Administrative advice:** A patient who is transitioning from non-PBS to PBS-subsidised supply of this drug for this condition must have met all the initial restriction criteria prior to initiating non-PBS subsidised treatment. Additional information of a baseline serum IGF-1 measurement and laboratory reference range for age and sex must be provided at the time of application. The date of the additional information must be no more than 12 weeks old at the time the first non-PBS subsidised dose of this drug for this condition was administered. A patient may qualify for PBS-subsidised treatment under this restriction once only. For continuing PBS-subsidised treatment, a patient must qualify under the 'Continuing treatment' criteria. For a patient switching from an existing PBS-listed benefit to this benefit, a patient must qualify under this drug's 'Continuing treatment' restriction. |

| | |
|---|---|
| | |
| **Restriction Summary [new 3] / Treatment of Concept: [new 4]** | |
| | **Category / Program:** Section 100 – Growth Hormone Program |
| | **Prescriber type:** ☒ Medical Practitioners |
| | **Restriction type:** ☒ Authority Required (telephone/online PBS Authorities system) **CAR** |
| | |
| | **Administrative advice:** An increase in maximum quantity may be authorised when a patient is prescribed somapacitan at a weekly dose of greater 2.5 mg |
| | |
| | **Indication:** Severe growth hormone deficiency |
| | |
| | **Treatment phase:** Continuing treatment in a person with a mature skeleton or aged 18 years or older |
| | |
| | **Treatment criteria:** |
| | Must be treated by an endocrinologist<br>AND<br>[NEW TC] Patient must be undergoing treatment for the stated indication with only one drug at a time where multiple drugs are PBS-listed for the stated indication |
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have received PBS-subsidised growth hormone therapy for this condition under an initial treatment restriction applying to a documented childhood onset growth hormone deficiency due to a congenital, genetic or structural cause in a patient with a mature skeleton and chronological age of 18 years or older; or |
| | Patient must have received PBS-subsidised growth hormone therapy for this condition under an initial treatment restriction applying to late onset growth hormone deficiency secondary to organic hypothalamic or pituitary disease in a patient aged 18 years or older; or |
| | Patient must have received PBS-subsidised growth hormone therapy for this condition under an initial treatment restriction applying to late onset of growth hormone deficiency diagnosed after skeletal maturity (bone age greater than or equal to 15.5 years in males or 13.5 years in females) and before chronological age of 18 years. |
| | |
| | **Administrative advice:** Applications for authorisation under this restriction may be made in real time using the Online PBS Authorities system (see www.servicesaustralia.gov.au/HPOS) or by telephone by contacting Services Australia on 1800 700 270 (hours of operation 8 a.m. to 5 p.m. Monday to Friday). |
| | |
| **Restriction Summary [new 5] / Treatment of Concept: [new 6]** | |
| | **Category / Program:** Section 100 – Growth Hormone Program |
| | **Prescriber type:** ☒ Medical Practitioners |
| | **Restriction type:** ☒ Authority Required (in-writing only via post/HPOS upload) **CAR** |
| | |
| | **Indication:** Severe growth hormone deficiency |
| | |
| | **Treatment phase:** Initial treatment of childhood onset growth hormone deficiency in a patient who has received PBS-subsidised growth hormone treatment as a child |
| | |
| | **Treatment criteria:** |
| | Must be treated by an endocrinologist<br>AND<br>[NEW TC] Patient must be undergoing treatment for the stated indication with only one drug at a time where multiple drugs are PBS-listed for the stated indication |
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have a documented childhood onset growth hormone deficiency due to a congenital, genetic or structural cause |

| | |
|---|---|
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have received PBS-subsidised treatment with a growth hormone therapy for this indication as a child |
| | **AND** |
| | **Population criteria:** |
| | Patient must have a mature skeleton |
| | |
| | **Prescribing instructions:** The authority application must be in writing and must include:<br>1. A completed authority prescription form; AND<br>2. A completed Severe Growth Hormone Deficiency supporting information form. |
| | |
| | **Administrative advice:** Any queries concerning the arrangements to prescribe may be directed to Services Australia on 1800 700 270 (hours of operation 8 a.m. to 5 p.m. Monday to Friday).<br>Prescribing information (including Authority Application forms and other relevant documentation as applicable) is available on the Services Australia website at www.servicesaustralia.gov.au<br>Applications for authority to prescribe should be submitted online using the form upload facility in Health Professional Online Services (HPOS) at www.servicesaustralia.gov.au/hpos<br>Or mailed to:<br>Services Australia<br>Complex Drugs<br>Reply Paid 9826<br>HOBART TAS 7001 |
| | |
| **Restriction Summary [new 7] / Treatment of Concept: [new 8]** | |
| | **Category / Program:** Section 100 – Growth Hormone Program |
| | **Prescriber type:** ☒ Medical Practitioners |
| | **Restriction type:** ☒ Authority Required (in writing only via post/HPOS upload) **CAR** |
| | |
| | **Indication:** Severe growth hormone deficiency |
| | |
| | **Treatment phase:** Initial treatment of childhood onset growth hormone deficiency in a patient who has received non-PBS subsidised treatment as a child |
| | |
| | **Treatment criteria:** Must be treated by an endocrinologist<br>AND<br>[NEW TC] Patient must be undergoing treatment for the stated indication with only one drug at a time where multiple drugs are PBS-listed for the stated indication |
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have a documented childhood onset growth hormone deficiency due to a congenital, genetic or structural cause |
| | **AND** |
| | **Clinical criteria:** |
| | Patient must have received non-PBS subsidised treatment with a growth hormone therapy for this indication as a child |
| | **AND** |
| | **Clinical criteria** |
| | Patient must have/have had a diagnostic insulin tolerance test with maximum serum growth hormone (GH) less than 2.5 micrograms per litre; or |
| | Patient must have/have had a diagnostic arginine infusion test with maximum serum GH less than 0.4 micrograms per litre; or |
| | Patient must have/have had a diagnostic glucagon provocation test with maximum serum GH less than 3 micrograms per litre |
| | **AND** |
| | **Population criteria:** |

| | |
|---|---|
| | Patient must have a mature skeleton |
| | |
| | **Prescribing instructions:** The authority application must be in writing and must include:<br>1. A completed authority prescription form; AND<br>2. A completed Severe Growth Hormone Deficiency supporting information form; AND<br>3. Results of the growth hormone stimulation testing, including the date of testing, the type of test performed, the peak growth hormone concentration, and laboratory reference range for age/gender. |
| | |
| | **Administrative advice:** Any queries concerning the arrangements to prescribe may be directed to Services Australia on 1800 700 270 (hours of operation 8 a.m. to 5 p.m. Monday to Friday).<br>Prescribing information (including Authority Application forms and other relevant documentation as applicable) is available on the Services Australia website at www.servicesaustralia.gov.au<br>Applications for authority to prescribe should be submitted online using the form upload facility in Health Professional Online Services (HPOS) at www.servicesaustralia.gov.au/hpos<br>Or mailed to:<br>Services Australia<br>Complex Drugs<br>Reply Paid 9826<br>HOBART TAS 7001 |

8.2 Flow-on changes to PBS items for somatropin (11493X, 11495B, 11650E, 11895C) to update their continuing restriction, to replace the existing text 'therapy with this drug' to read as 'growth-hormone therapy'.

***This restriction may be subject to further review. Should there be any changes made to the restriction the sponsor will be informed.***

# 9 Context for Decision

The PBAC helps decide whether and, if so, how medicines should be subsidised through the Pharmaceutical Benefits Scheme (PBS) in Australia. It considers applications regarding the listing of medicines on the PBS and provides advice about other matters relating to the operation of the PBS in this context. A PBAC decision in relation to PBS listings does not necessarily represent a final PBAC view about the merits of the medicine or the circumstances in which it should be made available through the PBS. The PBAC welcomes applications containing new information at any time.

# 10 Sponsor's Comment

The sponsor had no comment.