

5.15 TERIPARATIDE, Injection 250 micrograms per mL, 2.4 mL in multi-dose pre-filled pen, Terrosa[®], Gedeon Richter Australia Pty Ltd

1 Purpose of Submission

- 1.1 The Category 4 submission requested a General Schedule, Authority Required (STREAMLINED) listing of the Terrosa[®] brand of teriparatide injection 250 micrograms per mL, 2.4 mL (hereafter referred to as 'teriparatide 250 mcg') in multi dose pre-filled pen (PFP) under the same conditions as the currently listed Terrosa brand of teriparatide 250 mcg in multi-dose pre-filled cartridge (PFC).
- 1.2 The submission advised that, in addition to its request to list Terrosa PFP on the PBS, the sponsor intends to delist Terrosa PFC by 1 July 2024. The sponsor lodged a separate delisting request for Terrosa PFC.
- 1.3 For clarity, in these minutes “PFP” will be defined as a pack containing a cartridge pre-assembled into a pen device and “PFC” as a pack containing a cartridge and pen device separately where the cartridge must be assembled into the pen device by the user.

2 Background

- 2.1 Terrosa PFC is currently listed on the PBS as a General Schedule, Authority Required (STREAMLINED) listing for severe established osteoporosis (initial and continuing treatment) with a maximum quantity of 1 and a maximum of 5 repeats (PBS code – 12670W).
- 2.2 Teriparatide 250 mcg PFC is the only listed form of teriparatide available on the PBS.
- 2.3 At the November 2023 meeting, the PBAC also considered the Teriparatide Lupin[®] (hereafter referred to as ‘Lupin’) brand of teriparatide 250 mcg PFP for PBS listing.

Registration status

- 2.4 Terrosa PFC was first registered on the Australian Register of Therapeutic Goods (ARTG) on 1 December 2020 for:
 - the treatment of osteoporosis in postmenopausal women and the treatment of primary osteoporosis in men when other agents are considered unsuitable and when there is a high risk of fractures.
 - the treatment of osteoporosis associated with sustained systemic glucocorticoid therapy in women and men at high risk for fracture.

- 2.5 Terrosa PFP was registered on the ARTG on 16 May 2023 as a new form and for the same indications as Terrosa PFC.
- 2.6 The Therapeutic Goods Administration (TGA) approved Product Information states that Terrosa is biosimilar to the originator brand of teriparatide 250 mcg, Forteo®.

Previous PBAC consideration

- 2.7 Terrosa PFP has not been previously considered by the PBAC.
- 2.8 At its March 2021 meeting, the PBAC recommended the listing of Terrosa PFC as an Authority Required (STREAMLINED) listing for the same indications as Forteo PFP. The PBAC recommended listing Terrosa on a cost-minimisation basis to Forteo (Paragraph 6.1, Teriparatide Public Summary Document (PSD), March 2021).
- 2.9 Forteo PFP was delisted from the PBS in June 2022 following a Supply Only period from 1 January to 1 June 2022.

3 Requested listing

- 3.1 The submission requested the listing of Terrosa PFP under the same conditions as the existing listings for Terrosa PFC. A shortened version of the requested listing is presented below in italics.

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MEDICINAL PRODUCT medicinal product pack	PBS item code	Max. qty packs	Max. qty units	No. of Rpts	Available brands
TERIPARATIDE					
Teriparatide 250 microgram/mL injection, 2.4 mL cartridge	12670W MP	1	1	5	Terrosa
Teriparatide 250 microgram/mL injection, 2.4 mL pre-filled pen device	NEW MP	1	1	5	Terrosa
Restriction Summary / Treatment of Concept					
Category / Program: GENERAL – General Schedule (Code GE)					
Prescriber type: <input checked="" type="checkbox"/> Medical Practitioners					
Restriction Type: <input checked="" type="checkbox"/> Authority Required – Streamlined [new/existing code]					
Administrative Advice: No increase in the maximum quantity or number of units may be authorised					
Administrative Advice: No increase in the maximum number of repeats may be authorised.					
Severity: Severe					
Condition: Established osteoporosis					
Indication: Severe established osteoporosis					
Treatment Phase: Initial treatment					
Restriction Summary / Treatment of Concept					
Category / Program: GENERAL – General Schedule (Code GE)					
Prescriber type: <input checked="" type="checkbox"/> Medical Practitioners					
Restriction Type: <input checked="" type="checkbox"/> Authority Required – Streamlined [new/existing code]					
Indication: Severe established osteoporosis					
Treatment Phase: Continuing treatment					

- 3.2 Terrosa PFP, like Forteo, is a cartridge pre-assembled into a pen, whereas the currently listed Terrosa PFC is a cartridge with a reusable pen that the user has to assemble the cartridge into.
- 3.3 Despite the difference in presentation, the PBAC previously considered Terrosa PFC equivalent to Forteo PFP for the purposes of substitution prior to the delisting of Forteo from the PBS. The submission requested that Terrosa PFP be considered as equivalent to Terrosa PFC for the purposes of substitution.
- 3.4 Lupin PFP, like Terrosa PFP and Forteo PFP, is a cartridge pre-assembled into a pen. The pre-PBAC response noted that the TGA considered Lupin PFP a new chemical entity to the chemical in the reference brand, Forteo, primarily because Lupin is of synthetic origin while Forteo (and Terrosa) is of biologic (recombinant deoxyribonucleic acid) origin. The pre-PBAC response noted that Lupin PFP is not biosimilar to Forteo PFP and according to TGA guidelines is required to, for a period of 5 years, be included in the black triangle scheme, aimed at reminding health professionals and consumers to report suspected adverse events related to new medicines. On this basis, the pre-PBAC response asserted that Lupin PFP should not be considered equivalent to Terrosa PFP for the purposes of substitution.

4 Comparator

- 4.1 The submission nominated Terrosa PFC as the comparator. This was appropriate.

5 Consideration of the evidence

Sponsor hearing

- 5.1 There was no sponsor hearing.

Consumer comments

- 5.2 The PBAC noted that no consumer comments were received for this item.

Clinical claim

- 5.3 The submission's clinical claim is based the dosing and administration of the drug, and the TGA's evaluation.
- 5.4 The submission claimed that Terrosa PFP is non-inferior to Terrosa PFC in terms of clinical safety on the basis that both can subcutaneously administer a 20mcg dose of teriparatide daily over a period of 4 weeks (28 days).
- 5.5 The submission stated that the key difference between the Terrosa PFP and the Terrosa PFC is the device that holds the medicine; the Terrosa PFC requires the assembly of the cartridge while the Terrosa PFP comes pre-assembled.
- 5.6 The submission noted that the TGA found Terrosa to be biosimilar to Forteo and has therefore claimed that Terrosa PFP and Terrosa PFC are non-inferior in terms of clinical effectiveness.
- 5.7 The submission did not provide any studies comparing the Terrosa PFC device to the Terrosa PFP device, however, the PBAC has seen other submissions that have relied solely on the TGA assessment of the clinical effectiveness and safety. For example, at its July 2020 meeting, the PBAC considered that guselkumab 100 mg PFP and pre-filled syringe were likely to be equivalent in efficacy and safety based on the TGA evaluation (paragraph 6.2, guselkumab PSD, July 2020).
- 5.8 The PBAC considered that the claim of non-inferior comparative effectiveness and safety to Terrosa PFC based on the TGA evaluation was adequately supported.

Economic analysis

- 5.9 The submission presented a cost-minimisation analysis of Terrosa PFP compared with Terrosa PFC. The analysis showed that the cost of treatment with Terrosa PFP was not different to that of Terrosa PFC (Table 1).
- 5.10 The submission claimed that the differences between the subcutaneous injection devices (i.e. cartridge versus pen) would not result in additional resource use.

5.11 The submission requested the same approved ex-manufacturer price (AEMP) and dispensed price for maximum quantity (DPMQ) for Terrosa PFP as that of the currently listed Terrosa PFC.

Table 1: Cost minimisation analysis

	Terrosa PFP	Terrosa PFC
AEMP	\$149.55	\$149.55
Administrations per day	1	1
Cost of medicine per day	\$5.34 [\$149.55/28]	\$5.34 [\$149.55/28]
Total medicine cost per month	\$162.57 [\$5.34 x [365.25/12]]	\$162.57 [\$5.34 x [365.25/12]]
Difference in cost per month	\$0.00	

Source: Table 4 of the submission main body. *This table was incorrectly referred to as Table 6 within the submission text.*
 Abbreviations: AEMP = Approved ex-manufacturer price, PFP = pre-filled pen, PFC = pre-filled cartridge

5.12 As a Category 4 submission, the economic analysis has not been independently evaluated.

Estimated PBS usage and financial implications

5.13 The submission used a market share approach to estimate the financial impact of listing Terrosa PFP. The submission assumed that Terrosa PFP would directly substitute Terrosa PFC, unit for unit, and therefore considered that, based on the proposed equivalent AEMP, the listing of teriparatide PFP would not result in a cost to the PBS/RPBS.

5.14 Table 2 presents the estimated usage, cost and net financial implications of listing Terrosa PFP to the PBS/RPBS.

Table 2: Prescriptions and financial implications for the PBS/RPBS (based on published price)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Substituted prescriptions						
Prescriptions	1 ¹	4 ⁴	4 ⁴	4 ⁴	4 ⁴	4 ⁴
Terrosa pre-filled pen						
Cost PBS/RPBS	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²
Co-payment	-\$ ³	-\$ ³	-\$ ³	-\$ ³	-\$ ³	-\$ ³
Total PBS/RPBS	\$²	\$²	\$²	\$²	\$²	\$²
Terrosa pre-filled cartridge						
Cost PBS/RPBS	-\$ ³	-\$ ³	-\$ ³	-\$ ³	-\$ ³	-\$ ³
Co-payment	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²
Total PBS/RPBS	-\$³	-\$³	-\$³	-\$³	-\$³	-\$³
Net impact to the R/PBS						
Cost R/PBS	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²
Co-payment	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²	\$ ²
Net PBS/RPBS	\$²	\$²	\$²	\$²	\$²	\$²

Source: Table 5 provided in the submission main body. Table was modified to include PBS.

Abbreviations: PBS = Pharmaceutical Benefits Schedule; RPBS = Repatriation Pharmaceutical Benefits Schedule

The redacted values correspond to the following ranges:

¹ 500 to < 5,000

² \$0 to < \$10 million

³ net cost saving

⁴ 5,000 to < 10,000

- 5.15 The submission estimated that 500 to < 5,000 prescriptions would be substituted in Year 1, increasing to 5,000 to < 10,000 prescriptions in Year 6 (Table 2).
- 5.16 The submission estimated that the anticipated substitution between Terrosa PFP and Terrosa PFC with co-payments would result in a total cost to the PBS/RPBS of \$0 to < \$10 million over a period of 6 years (\$0 to < \$10 million in Year 1 and \$0 to < \$10 million in Year 6).
- 5.17 The submission considered that there would be no changes in the cost to Services Australia, the MBS or other health budgets. The submission therefore claimed that the cost to PBS/RPBS for listing Terrosa PFP would be offset by the cost savings resulting from its substitution with Terrosa PFC and would result in nil net financial impact to the PBS/RPBS.
- 5.18 As a Category 4 submission, the financial estimates have not been independently evaluated.

6 PBAC Outcome

- 6.1 The PBAC recommended the listing of Terrosa PFP under the same circumstances as the PBS-listed Terrosa PFC on a cost-minimisation basis.
- 6.2 The PBAC considered that the claim of non-inferior comparative effectiveness and safety to Terrosa PFC was appropriate.
- 6.3 The PBAC noted that the TGA Delegate had confirmed that Terrosa PFP was the same as Terrosa PFC except for the device type; the PFP contains a cartridge pre-assembled into a pen device while the PFC contains a cartridge and pen device that are separate and requires that the cartridge be assembled into the pen device by the user.
- 6.4 The PBAC considered that were Terrosa PFP to list at the same price as Terrosa PFC, there would be no net financial implications to the PBS/RPBS, as it is expected to directly substitute Terrosa PFC unit for unit and not expected to increase the market.
- 6.5 The PBAC noted that the sponsor's intent is to replace Terrosa PFC with the PFP and delist the PFC in 2024.
- 6.6 The PBAC noted the concerns raised in the pre-PBAC response regarding the equivalence of Lupin PFP to Terrosa PFP. The PBAC considered that Terrosa PFC/PFP and Lupin PFP are equivalent for the purposes of substitution under section 101(4AACD) of the Act on the basis that the TGA considered Lupin did not present any new safety concerns and was comparable to Forteo in its pharmacodynamic, pharmacokinetic and toxicological properties. The PBAC noted that the TGA considered Lupin to be bioequivalent to Forteo and noted that the primary reason the TGA was not able to consider Lupin a generic or biosimilar of the reference brand, Forteo (to which Terrosa is equivalent), was because it is of synthetic origin while Forteo is of biologic origin.

- 6.7 The PBAC noted that Terrosa PFC and Terrosa PFP do not share the same form and that they would be listed under different PBS item codes and different pharmaceutical items on the Schedule. As such, the PBAC advised that an administrative note be added to both listings to allow cross-prescribing and to state that the cartridge form is equivalent to the pen device form for the purpose of substitution. The PBAC noted that Lupin PFP and Terrosa PFP share the same form and considered that, should Lupin PFP list, it would share the same PBS item code and pharmaceutical item on the Schedule as Terrosa PFP.
- 6.8 The PBAC noted that its recommendation was on a cost-minimisation basis and advised that, because Terrosa PFP is not expected to provide a substantial and clinically relevant improvement in efficacy, or reduction of toxicity, over Terrosa PFC, 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 2022* for Pricing Pathway A were not met.
- 6.9 The PBAC noted that this submission is not eligible for an Independent Review because it received a positive recommendation.

Outcome:

Recommended

7 Recommended listing

- 7.1 Add new form as follows: As per the existing listing of Terrosa PFC

MEDICINAL PRODUCT medicinal product pack	PBS item code	Max. qty packs	Max. qty units	No. of Rpts	Available brands
TERIPARATIDE					
Teriparatide 250 microgram/mL injection, 2.4 mL pen device	NEW MP	1	1	5	Terrosa
Restriction Summary/ Treatment of Concept					
Category / Program: GENERAL – General Schedule (Code GE)					
Prescriber type: <input checked="" type="checkbox"/> Medical Practitioners					
Restriction Type: <input checked="" type="checkbox"/> Authority Required – Streamlined [new/existing code]					
Administrative Advice: No increase in the maximum quantity or number of units may be authorised					
Administrative Advice: No increase in the maximum number of repeats may be authorised.					
Administrative Advice Pharmaceutical benefits that have the form teriparatide 250 microgram/mL injection, 2.4 mL cartridge and the pharmaceutical benefits that have the form teriparatide 250 microgram/mL injection, 2.4 mL pen device are equivalent for the purposes of substitution.					
Severity: Severe					
Condition: Established osteoporosis					
Indication: Severe established osteoporosis					

	Treatment Phase: Initial treatment
Restriction Summary/ Treatment of Concept	
	Category / Program: GENERAL – General Schedule (Code GE)
	Prescriber type: <input checked="" type="checkbox"/> Medical Practitioners
	Restriction Type: <input checked="" type="checkbox"/> Authority Required – Streamlined [new/existing code]
	Indication: Severe established osteoporosis
	Treatment Phase: Continuing treatment

- 7.2 Flow on changes will apply to the listing of Terrosa PFC to include the following administrative advice:

Pharmaceutical benefits that have the form teriparatide 250 microgram/mL injection, 2.4 mL cartridge and the pharmaceutical benefits that have the form teriparatide 250 microgram/mL injection, 2.4 mL pen device are equivalent for the purposes of substitution.

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

8 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.

9 Sponsor's Comment

The sponsor had no comment.