MEDICAL MUTUAL®

Drug Policy

Policy:	**Forteo (teriparatide)** **Generic teriparatide injection**	**Annual Review Date: 02/15/2024** **Last Revised Date: 02/15/2024**

OVERVIEW

Teriparatide products, recombinant human parathyroid hormone (PTH) [1-34], are indicated for the following uses:[1,2]

- **Glucocorticoid-induced osteoporosis (treatment)**, in men and women at high risk for fracture associated with sustained systemic glucocorticoid therapy (daily dosage equivalent to 5 mg or greater of prednisone).
- **Osteoporosis, treatment of postmenopausal women** at high risk for fracture.
- **Osteoporosis, to increase bone mass in men with primary or hypogonadal osteoporosis** at high risk for fracture.

In general, for all indications, patients at high risk for fracture are defined as those with a history of osteoporotic fractures, have multiple risk factors for fracture, or have failed or are intolerant to other osteoporosis therapy.

Teriparatide products has been used for patients with hypoparathyroidism. Natpara® (parathyroid hormone injection for subcutaneous use) is indicated as an adjunct to calcium and vitamin D to control hypocalcemia in patients with hypoparathyroidism. However, there is a recall of Natpara and Teriparatide products are the main alternatives recommended in a joint guidance statement from the American Society for Bone and Mineral Research (ASBMR) and Endocrine Society for patients with hypoparathyroidism transitioning from Natpara. It is notable that if Teriparatide product therapy is used in this clinical scenario, twice daily or even three times daily injections are usually needed.

POLICY STATEMENT

This policy involves the use of Teriparatide products. Prior authorization is recommended for pharmacy benefit coverage of Teriparatide products. Approval is recommended for those who meet the conditions of coverage in the **Criteria and Initial/Extended Approval** for the diagnosis provided. **Conditions Not Recommended for Approval** are listed following the recommended authorization criteria. Requests for uses not listed in this policy will be reviewed for evidence of efficacy and for medical necessity on a case-by-case basis.

All approvals for initial therapy are provided for the initial approval duration noted below; if reauthorization is allowed, a response to therapy is required for continuation of therapy unless otherwise noted below. **Coverage cumulative with Teriparatide products and/or Tymlos™ (abaloparatide injection for SC use) is recommended for up to 2 years of a patient's lifetime.**

RECOMMENDED AUTHORIZATION CRITERIA

Coverage of Teriparatide products is recommended in those who meet the following criteria:

1. **Osteoporosis Treatment for a Postmenopausal Patient.** Approve Teriparatide products if the patient meets the following criteria (A and B):
   - **A)** The patient meets ONE of the following conditions (i, ii, or iii):
     - **i.** The patient has had a T-score (current or at any time in the past) at or below -2.5 at the lumbar spine, femoral neck, total hip, and/or 33% (one-third) radius (wrist); OR
     - **ii.** The patient has had an osteoporotic fracture or a fragility fracture; OR
     - **iii.** The patient has low bone mass (T-score [current or at any time in the past] between -1.0 and -2.5 at the lumbar spine, femoral neck, total hip and/or 33% [one-third] radius [wrist]) and the physician determines the patient is at high risk for fracture; AND
   - **B)** The patient meets ONE of the following (i, ii, iii, or iv):
     - **i.** The patient has tried one oral bisphosphonate or oral bisphosphonate-containing product and meets one of the following (a, b, or c):
       - **a)** The patient has had an inadequate response to oral bisphosphonate therapy after a trial duration of 12 months as determined by the prescribing physician (e.g., ongoing and significant loss of BMD, lack of BMD increase); OR
       - **b)** The patient has had an osteoporotic fracture or fragility fracture while receiving oral bisphosphonate therapy; OR
       - **c)** The patient has experienced intolerability to an oral bisphosphonate (e.g., severe gastrointestinal [GI]-related adverse effects, severe musculoskeletal-related side effects, a femoral fracture); OR
     - **ii.** The patient cannot take an oral bisphosphonate due to one of the following circumstances (a, b, or c):
       - **a)** The patient cannot swallow or has difficulty swallowing; OR
       - **b)** The patient cannot remain in an upright position post oral bisphosphonate administration; OR
       - **c)** The patient has a pre-existing gastrointestinal (GI) medical condition (e.g., patient with esophageal lesions, esophageal ulcers, or abnormalities of the esophagus that delay esophageal emptying [stricture, achalasia]); OR
     - **iii.** The patient has tried ibandronate injection (Boniva) or zoledronic acid injection (Reclast); OR
     - **iv.** The patient meets one of the following conditions (a, b, or c):
       - **a)** Severe renal impairment (creatinine clearance < 35 mL/min); OR
       - **b)** Chronic kidney disease (CKD); OR
       - **c)** The patient has had an osteoporotic fracture or a fragility fracture.
   - **C)** Use of teriparatide and/or Tymlos does not exceed 2 years during a patient's lifetime.
     Note: Approve the duration necessary to complete a maximum of 2 years of therapy during a patient's lifetime (e.g., a patient who has already received 3 months of treatment with Teriparatide products should be approved for a duration of 21 months. This allows for completion of a maximum of 2 years of therapy).

2. **Osteoporosis in Men to Increase Bone Mass in Patients with Primary or Hypogonadal Osteoporosis.** Approve Teriparatide products if the patient meets the following criteria (A and B):
   - **A)** The patient meets ONE of the following conditions (i, ii, or iii):
     - **i.** The patient has had a T-score (current or at any time in the past) at or below -2.5 at the lumbar spine, femoral neck, total hip and/or 33% (one-third) radius (wrist); OR
     - **ii.** The patient has had an osteoporotic fracture or a fragility fracture; OR

iii. The patient has low bone mass (T-score [current or at any time in the past] between -1.0 and -2.5 at the lumbar spine, femoral neck, total hip and/or 33% [one-third] radius [wrist]) and the physician determines the patient is at high risk for fracture; AND

B) The patient meets one of the following (i, ii, iii, or iv):

i. The patient has tried one oral bisphosphonate or oral bisphosphonate-containing product and meets one of the following (a, b, or c):

a) The patient has had an inadequate response to oral bisphosphonate therapy after a trial duration of 12 months as determined by the prescribing physician (e.g., ongoing and significant loss of bone mineral density [BMD], lack of BMD increase); OR

b) The patient has had an osteoporotic fracture or a fragility fracture while receiving oral bisphosphonate therapy; OR

c) The patient has experienced intolerability to an oral bisphosphonate (e.g., severe GI-related adverse effects, severe musculoskeletal-related side effects, a femoral fracture); OR

ii. The patient cannot take an oral bisphosphonate due to one of the following circumstances (a, b, or c):

a) The patient cannot swallow or has difficulty swallowing; OR

b) The patient cannot remain in an upright position post oral bisphosphonate administration; OR

c) The patient has a pre-existing GI medical condition (e.g., patient with esophageal lesions, esophageal ulcers, or abnormalities of the esophagus that delay esophageal emptying [stricture, achalasia]); OR

iii. The patient has tried zoledronic acid injection (Reclast); OR

iv. The patient meets one of the following conditions (a, b, or c):

a) Severe renal impairment (creatinine clearance < 35 mL/min); OR

b) Chronic kidney disease (CKD); OR

c) The patient has had an osteoporotic fracture or a fragility fracture.

C) Use of teriparatide and/or Tymlos does not exceed 2 years during a patient's lifetime.
Note: Approve the duration necessary to complete a maximum of 2 years of therapy during a patient's lifetime (e.g., a patient who has already received 3 months of treatment with Teriparatide products should be approved for a duration of 21 months. This allows for completion of a maximum of 2 years of therapy).

3. Glucocorticoid-Induced Osteoporosis (GIO) Treatment. Approve Teriparatide products for the treatment of GIO if the patient meets the following criteria (A and B):

A) The patient is either initiating or continuing systemic glucocorticoids (e.g., prednisone); AND

B) The patient meets ONE of the following (i, ii, iii, or iv):

i. The patient has tried one oral bisphosphonate or oral bisphosphonate-containing product and meets one of the following (a, b, or c):

a) The patient has had an inadequate response to oral bisphosphonate therapy after a trial duration of 12 months as determined by the prescribing physician (e.g., ongoing and significant loss of BMD, lack of BMD increase); OR

b) The patient has had an osteoporotic fracture or fragility fracture while receiving oral bisphosphonate therapy; OR

c) The patient has experienced intolerability to an oral bisphosphonate (e.g., severe gastrointestinal [GI]-related adverse effects, severe musculoskeletal-related side effects, a femoral fracture); OR

ii. The patient cannot take an oral bisphosphonate due to one of the following circumstances (a, b, or c):

a) The patient cannot swallow or has difficulty swallowing; OR
b) The patient cannot remain in an upright position post oral bisphosphonate administration; OR
c) The patient has a pre-existing gastrointestinal (GI) medical condition (e.g., patient with esophageal lesions, esophageal ulcers, or abnormalities of the esophagus that delay esophageal emptying [stricture, achalasia]); OR

iii. The patient has tried zoledronic acid injection (Reclast); OR
iv. The patient meets one of the following conditions (a, b, or c):
a) Severe renal impairment (creatinine clearance < 35 mL/min); OR
b) Chronic kidney disease (CKD); OR
c) The patient has had an osteoporotic fracture or a fragility fracture.

C) Use of teriparatide and/or Tymlos does not exceed 2 years during a patient's lifetime.
Note: Approve the duration necessary to complete a maximum of 2 years of therapy during a patient's lifetime (e.g., a patient who has already received 3 months of treatment with Teriparatide products should be approved for a duration of 21 months. This allows for completion of a maximum of 2 years of therapy).

Initial Approval/ Extended Approval.
A) *Initial Approval:* 1 year (365 days)
B) *Extended Approval:* 1 year (365 days)
***Note: Maximum cumulative approval duration of Teriparatide products is 2 years.**

OTHER USES WITH SUPPORTIVE EVIDENCE

4. **Chronic Hypoparathyroidism, Patients who are Natpara Naive.** Approve Teriparatide products if the patient meets the following criteria (A, B, C, D, E, F, G, H, I, J, K, and L):

A) Natpara (parathyroid hormone injection) is not available. (Note: Approval for this use is a unique circumstance and the other criterion regarding the other indications do not apply.); AND
B) Not well-controlled on calcium supplements and active forms of vitamin D alone; AND
C) 25-hydroxyvitamin D stores are sufficient (before initiating Natpara therapy) per the prescribing physician; AND
D) Serum calcium concentration is > 7.5 mg/dL before initiating Natpara therapy; AND
E) Creatinine clearance > 30 mL/min on two separate measurements OR creatinine clearance > 60 mL/min AND serum creatinine < 1.5 mg/dL; AND
F) Age ≥18 years; AND
G) History of hypoparathyroidism for >18 months; AND
H) Prescribed by or in consultation with an endocrinologist; AND
I) No history of Paget's disease of bone or unexplained elevations of alkaline phosphatase; AND
J) No open epiphyses; AND
K) No hereditary disorders predisposed to osteosarcoma; AND
L) No prior history of external beam or implant radiation involving the skeleton.

5. **Chronic Hypoparathyroidism, Previous Natpara users.** Approve Teriparatide products if the patient meets the following criteria (A, B, C, D, and E):

A) The patient has tried Natpara; AND
B) Natpara (parathyroid hormone injection) is not available. (Note: Approval for this use is a unique circumstance and the other criterion regarding the other indications do not apply.); AND
C) Age ≥18 years; AND
D) Prescribed by or in consultation with an endocrinologist; AND
E) The patient is responding to therapy (e.g., reduction in the patient's oral calcium dose; reduction in the patient's active vitamin D dose; maintenance of a stable albumin-corrected total serum calcium concentration), as determined by the prescriber.

Initial Approval/ Extended Approval.
A) *Initial Approval:* 1 year (365 days)
B) *Extended Approval:* 1 year (365 days)
***Note: Maximum cumulative approval duration of Teriparatide products is 2 years.**

CONDITIONS NOT RECOMMENDED FOR APPROVAL

Teriparatide products have not been shown to be effective, or there are limited or preliminary data or potential safety concerns that are not supportive of general approval for the following conditions. (Note: This is not an exhaustive list of Conditions Not Recommended for Approval).

1. **Patients with acute post-surgical hypoparathyroidism.** Natpara was only studied in patients with chronic hypoparathyroidism.

2. **Patients with hypoparathyroidism caused by calcium-sensing receptor mutations.** Natpara was not studied in this patient population.

3. **Osteoporosis Prevention.** Teriparatide has not been studied in this patient population. The benefits and risks of building bone with Teriparatide products in a condition in which substantial bone loss has not occurred have not been investigated.

4. **Previous Use of Teriparatide products For a Combined Total No Greater than 2 Years Duration During a Patient's Lifetime.** Cumulative use of Teriparatide products for > 2 years during a patient's lifetime is not recommended. This is related to the risk of osteosarcoma.

5. **Concurrent Use of Teriparatide products with Other Medications for Osteoporosis** (e.g., Prolia [denosumab for SC injection], bisphosphonates [alendronate, risedronate, ibandronate, zoledronic acid injection {Reclast}], calcitonin nasal spray, Tymlos™ [abaloparatide injection for SC use]), except calcium and Vitamin D.

6. Coverage is not recommended for circumstances not listed in the Recommended Authorization Criteria. Criteria will be updated as new published data are available.

Documentation Requirements:

The Company reserves the right to request additional documentation as part of its coverage determination process. The Company may deny reimbursement when it has determined that the drug provided or services performed were not medically necessary, investigational or experimental, not within the scope of benefits afforded to the member and/or a pattern of billing or other practice has been found to be either inappropriate or excessive. Additional documentation supporting medical necessity for the services provided must be made available upon request to the Company. Documentation requested may include patient records, test results and/or credentials of the provider ordering or performing a service. The Company also reserves the right to modify, revise, change, apply and interpret this policy at its sole discretion, and the exercise of this discretion shall be final and binding.

REFERENCES

1. Forteo® injection for subcutaneous use [prescribing information]. Indianapolis, IN: Eli Lilly and Company; October 2016. Literature updated March 8, 2017.
2. Neer RM, Arnaud CD, Zanchetta JR, et al. Effect of parathyroid hormone (1-34) on fractures and bone mineral density in postmenopausal women with osteoporosis. *N Engl J Med*. 2001;344:1434-1441.
3. Orwoll ES, Scheele WH, Paul S, et al. The effect of teriparatide [human parathyroid hormone (1-34)] therapy on bone density in men with osteoporosis. *J Bone Miner Res*. 2003;18(1):9-17.
4. Saag KG, Shane E, Boonen S, et al. Teriparatide or alendronate in glucocorticoid-induced osteoporosis. *N Engl J Med*. 2007;357:2028-2039.
5. Cosman F, De Beur SJ, LeBoff MS, et al. Clinicians guide to prevention and treatment of osteoporosis. *Osteoporos Int*. 2014;25:2359-2381.
6. Camacho PM, Petak SM, Binkley N, et al. American Association of Clinical Endocrinologists and American College of Endocrinology clinical practice guidelines for the diagnosis and treatment of postmenopausal osteoporosis. *Endocrin Pract*. 2016;22(Suppl 4):1-42. Available at: http://journals.aace.com/doi/pdf/10.4158/EP161435.GL. Accessed on June 15, 2018.
7. Qaseem A, Forciae MA, McLean RM, et al, for the Clinical Guidelines Committee of the American College of Physicians. Treatment of low bone density or osteoporosis to prevent fractures in men and women: a clinical practice guideline update from the American College of Physicians. *Ann Intern Med*. 2017;166(11):818-837.
8. Watts NB, Adler RA, Bilezikian JP, et al. Osteoporosis in men: an endocrine society clinical practice guideline. *J Clin Endocrinol Metab*. 2012;97(6):1802-1822.
9. Buckley L, Guyatt G, Fink HA, et al. 2017 American College of Rheumatology guideline for the prevention and treatment of glucocorticoid-induced osteoporosis. *Arthritis Rheumatol*. 2017;69(8):1521-1537. Available at: https://www.rheumatology.org/Portals/0/Files/Guideline-for-the-Prevention-and-Treatment-of-GIOP.pdf. Accessed on June 15, 2018.
10. Shoback D. Hypoparathyroidism. *N Eng J Med*. 2008;359:391-403.
11. Winer KK, Yanovski JA, Sarani B, Cutler GB. A randomized, cross-over trial of once-daily versus twice-daily parathyroid hormone 1-34 in treatment of hypoparathyroidism. *J Clin Endocrinol Metab*. 1998;83:3480-3486.
12. Winer KK, Yanovski JA, Cutler GB. Synthetic human parathyroid hormone 1-34 vs calcitriol and calcium in the treatment of hypoparathyroidism. Results of a short-term randomized crossover trial. *JAMA*. 1996;276:631-636.
13. Winer KK, Ko CW, Reynolds JC, et al. Long-term treatment of hypoparathyroidism: a randomized controlled study comparing parathyroid hormone-(1-34) versus calcitriol and calcium. *J Clin Endocrinol Metab*. 2003;88:4214-4220.
14. Angelopoulos NG, Goula A, Tolis G. Sporadic hypoparathyroidism treated with teriparatide: a case report and literature review. *Exp Clin Endocrinol Diabetes*. 2007;115(1):50-54.
15. Cusano NE, Rubin MR, Sliney J, Bilezikian JP. Mini-review: new therapeutic options in hypoparathyroidism. *Endocrine*. 2012;41(3):410-414.
16. Tymlos™ injection for subcutaneous use [prescribing information]. Waltham, MA: Radius Health; April 2017.
17. Bonsity® injection for subcutaneous use [prescribing information]. San Diego, CA: Pfenex; October 2019.