MEDICAL COVERAGE POLICY

SERVICE:	**Bone Turnover Markers for the Diagnosis and Management of Osteoporosis and Other Conditions Associated with Increased Bone Turnover**
Policy Number:	**030**
Effective Date:	**1/1/2024**
Last Review:	**11/29/2023**
Next Review:	**11/29/2024**

Important note: *Unless otherwise indicated, medical policies will apply to all lines of business.*
Medical necessity as defined by this policy does not ensure the benefit is covered. This medical policy does not replace existing federal or state rules and regulations for the applicable service or supply. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan documents. See the member plan specific benefit plan document for a complete description of plan benefits, exclusions, limitations, and conditions of coverage. In the event of a discrepancy, the plan document always supersedes the information in this policy.

SERVICE: Bone Turnover Markers for the Diagnosis and Management of Osteoporosis and Other Conditions Associated with Increased Bone Turnover

PRIOR AUTHORIZATION: Not applicable. Not required for Medicare lines of business.

POLICY: Please review the plan's EOC (Evidence of Coverage) or Summary Plan Description (SPD) for details.

For Medicare plans, please refer to appropriate Medicare NCD (National Coverage Determination) or LCD (Local Coverage Determination). Medicare NCD or LCD specific InterQual criteria may be used when available. If there are no applicable NCD or LCD criteria, use the criteria set forth below.

NCD 190.19 Collagen Crosslinks, any Method
"Indications: Generally speaking, collagen crosslink testing is useful mostly in "fast losers" of bone. The age when these bone markers can help direct therapy is often pre-Medicare. By the time a fast loser of bone reaches age 65, she will most likely have been stabilized by appropriate therapy or have lost so much bone mass that further testing is useless. Coverage for bone marker assays may be established, however, for younger Medicare beneficiaries and for those men and women who might become fast losers because of some other therapy such as glucocorticoids. Safeguards should be incorporated to prevent excessive use of tests in patients for whom they have no clinical relevance. Collagen crosslinks testing is used to:

1. Identify individuals with elevated bone resorption, who have osteoporosis in whom response to treatment is being monitored.
2. Predict response (as assessed by bone mass measurements) to FDA approved antiresorptive therapy in postmenopausal women.
3. Assess response to treatment of patients with osteoporosis, Paget's disease of the bone, or risk for osteoporosis where treatment may include FDA approved antiresorptive agents, anti-estrogens or selective estrogen receptor moderators"

Limitations and Frequency: "Because of significant specimen to specimen collagen crosslink physiologic variability (15-20%), current recommendations for appropriate utilization include: one or

two base-line assays from specified urine collections on separate days; followed by a repeat assay about 3 months after starting anti-resorptive therapy; followed by a repeat assay in 12 months after the 3-month assay; and thereafter not more than annually, unless there is a change in therapy in which circumstance an additional test may be indicated 3 months after the initiation of new therapy."

For Medicaid plans, please confirm coverage as outlined in the Texas Medicaid Provider Procedures Manual | TMHP (TMPPM). If there are no applicable criteria to guide medical necessity decision making in the TMPPM, refer to InterQual. If there are no applicable criteria to guide medical necessity decision making in the TMPPM or InterQual, use the criteria set forth below.

BSWHP considers the use of non-evidence based bone turnover markers for the diagnosis and management of osteoporosis and other conditions associated with increased bone turnover to be experimental and investigational and not medically necessary.

BACKGROUND:
After cessation of growth, bone is in a constant state of remodeling, (or turnover).

Two basic types of biochemical markers can assess bone turnover:

- Markers of bone resorption, and
- Markers of bone formation.

Additionally, they can be categorized into two groups:

- Markers that measure substances released by osteoblasts and osteoclasts, and
- Markers that measure substances produced during the formation or breakdown of a collagen, a protein found in bone.

Commercially available tests are available to assess some of these markers in urine and/or serum by High Performance Liquid Chromatography (HPLC) or immunoassay. Assessment of bone turnover markers is proposed to supplement bone mineral density (BMD) measurement in the diagnosis of osteoporosis, and aid in treatment decisions. Bone turnover markers could also potentially be used to evaluate treatment effectiveness before changes in BMD can be observed.

Bone turnover is correlated with the presence of certain biochemical markers in serum and/or urine that result from net activity in bone throughout the entire skeleton. In contrast, bone mass measurements (e.g., bone density studies) and radiographs (e.g., x-rays) provide a static picture of a specific skeletal site.

Collagen cross links are generally reliable markers of bone resorption because they are stable in serum and urine. These markers links bind three molecules of collagen in the bone and are released from the bone matrix after resorption, either free or bound to the N- or C- telopeptide of collagen. Collagen cross links may be detected using either high-pressure liquid chromatography (HPLC)-fluorometric assays (Pyr, D-Pyr), or immunoassays (Pyr, D-Pyr, CTx, NTx). In addition to collagen cross links, ALP is a commonly used marker due to its ease of measurement; however, it lacks sensitivity and specificity for detecting osteoporosis since only about half of the ALP activity is derived from bone. Bone-specific alkaline phosphatase (B-ALP) is a better marker of bone formation than ALP. Serum osteocalcin is a small noncollagenous protein that is a product of osteoblasts and thus increased levels reflect bone formation. Tartrate-resistant acid phosphatase (TRAP) is produced by osteoclasts; it is thought to be active in bone matrix degradation.

The literature suggests that alternative measures of bone strength have the potential to assess individual responses to treatment or identify individuals at high risk of future fracture, thereby potentially altering clinical management. However, there is insufficient evidence that current methods for measuring bone turnover markers are sufficiently sensitive to reliably determine individual treatment responses. Measurement of bone turnover has not been shown to improve health outcomes.

MANDATES: None

CODES:

Important note:
CODES: Due to the wide range of applicable diagnosis codes and potential changes to codes, an inclusive list may not be presented, but the following codes may apply. Inclusion of a code in this section does not guarantee that it will be reimbursed, and patient must meet the criteria set forth in the policy language.

CPT Codes	82523 Collagen cross links, any method (Medicare lines of business ONLY)
CPT Codes NOT covered:	82523 Collagen cross links, any method 82607 Cyanocobalamin (Vitamin B-12) 82608 Cyanocobalamin (Vitamin B-12); unsaturated binding capacity 83090 Homocysteine 83937 Osteocalcin (bone g1a protein)

ICD-10 codes	M80.00X+ - M81.8 Age-related osteoporosis with or without current pathological fracture N25.0 Renal osteodystrophy [for persons receiving serotonergic anti-depressants] Q78.0 Osteogenesis imperfecta Z13.820 Encounter for screening for osteoporosis

POLICY HISTORY:

Status	Date	Action
New	1/6/2010	New policy
Reviewed	12/6/2011	Reviewed.
Reviewed	10/25/2012	Reviewed.
Reviewed	10/3/2013	Minor changes. Added NCD from 2003 190.19 for reference
Reviewed	07/24/2014	No changes
Reviewed	08/11/2015	No changes
Reviewed	08/18/2016	No changes
Reviewed	08/08/2017	No significant changes
Reviewed	05/29/2018	No significant changes
Reviewed	08/22/2019	No significant changes. Added ICD-10 codes
Reviewed	09/22/2020	Re-formatted for SWHP / FirstCare
Reviewed	09/23/2021	No changes
Reviewed	09/22/2022	No changes
Reviewed	11/29/2023	Formatting changes, added hyperlinks to NCD and TMPPM, beginning and ending note sections updated to align with CMS requirements and business entity changes

REFERENCES:

The following scientific references were utilized in the formulation of this medical policy. BSWHP will continue to review clinical evidence related to this policy and may modify it at a later date based upon the evolution of the published clinical evidence. Should additional scientific studies become available and they are not included in the list, please forward the reference(s) to BSWHP so the information can be reviewed by the Medical Coverage Policy Committee (MCPC) and the Quality Improvement Committee (QIC) to determine if a modification of the policy is in order.

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***Note**:*
Health Maintenance Organization (HMO) products are offered through Scott and White Health Plan dba Baylor Scott & White Health Plan, and Scott & White Care Plans dba Baylor Scott & White Care Plan. Insured PPO and EPO products are offered through Baylor Scott & White Insurance Company. Scott and White Health Plan dba Baylor Scott & White Health Plan serves as a third-party administrator for self-funded employer-sponsored plans. Baylor Scott & White Care Plan and Baylor Scott & White Insurance Company are wholly owned subsidiaries of Scott and White Health Plan. These companies are referred to collectively in this document as Baylor Scott & White Health Plan.

RightCare STAR Medicaid plans are offered through Scott and White Health Plan in the Central Managed Care Service Area (MRSA) and STAR and CHIP plans are offered through SHA LLC dba FirstCare Health Plans (FirstCare) in the Lubbock and West MRSAs.