MEDICAL POLICY

Medical Policy Title	**Bone Densitometry/Bone Density Studies**
Policy Number	**6.01.05**
Current Effective Date	August 21, 2025
Next Review Date	August 2026

Our medical policies are based on the assessment of evidence based, peer-reviewed literature, and professional guidelines. Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract. (Link to Product Disclaimer)

POLICY STATEMENT(S)

I. Bone mineral density (BMD) testing is considered **medically necessary** when **ONE** of the following methods are used:

A. Dual-energy x-ray absorptiometry (DEXA or DXA),

B. Quantitative computed tomography (QCT),

C. Single-energy x-ray absorptiometry (SEXA),

D. Bone density of the heel using ultrasound, or

E. Quantitative ultrasound (QUS);

AND

F. **One** of the following indications with associated criteria are met:

1. Women with **ANY** of the following indications:

a. Aged 65 years and older, regardless of additional risk factors;

b. Estrogen-deficient women at clinical risk for osteoporosis (please refer to description section for risk factors for osteoporosis in women);

c. Post-menopausal women who have discontinued hormone replacement therapy within the past five (5) years; **or**

2. Post-menopausal women under age 65 years with **EITHER** of the following indications:

a. Who have one (1) or more additional risk factors for osteoporotic fracture (please refer to description section for risk factors for osteoporosis in women); **or**

b. Who are at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool (e.g., FRAX); **or**

3. Men with **ANY** of the following indications:

a. Men aged 50 to 70 years with clinical risk factors for osteoporotic fracture (please refer to description section for risk factors for osteoporosis in men);

b. Aged 70 years and older, regardless of additional risk factors; **or**

c. Diagnosed with prostate cancer who have received either surgical or medical androgen deprivation therapy; **or**

4. Men and post-menopausal women aged 50 years and older with **EITHER** of the following indications:

   a. Other prior fractures and low bone mass (T-score between -1.0 and -2.5 at the femoral neck, total hip, or spine); **or**

   b. Current or prior hip or vertebral fracture; **or**

5. Individuals with **ANY** of the following indications:

   a. Vertebral abnormalities, as demonstrated by an x-ray to be indicative of osteoporosis, osteopenia (low-bone mass), or vertebral fracture;

   b. Primary hyperparathyroidism;

   c. Suspected cases of secondary osteoporosis due to a broad range of disease states (e.g., hyperthyroidism, rheumatoid arthritis, or type 1 diabetes mellitus);

   d. Being monitored to assess the response to, or efficacy of an osteoporosis drug therapy approved by the U.S. Food and Drug Administration (FDA);

   e. Receiving (or expecting to receive) long-term glucocorticoid therapy (e.g., glucocorticoids in a daily dose greater than or equal to 5 mg prednisone or equivalent for greater than or equal to three (3) months);

   f. On a prescribed drug regimen (e.g., anticonvulsants, aromatase inhibitors, cytotoxic drugs, Depo-Provera contraceptive injection, or hormone replacement therapy) posing a significant risk of osteoporosis; **or**

   g. Previously diagnosed as having osteoporosis.

Follow-up Testing

II. Follow-up BMD testing is considered **medically appropriate** for **ANY** of the following indications:

   A. Every two (2) years (if at least 23 months have passed since the month the last BMD testing was performed), except for patients starting on Bisphosphonate therapy, for whom testing every three (3) years after initiation of therapy is recommended;

   B. More frequently than every two (2) years, if medically necessary. Examples include, but are not limited to the following:

      1. The testing is performed to monitor individuals on long-term glucocorticoid (steroid) therapy of more than three (3) months;

      2. The testing is performed to obtain a confirmatory baseline (either central or peripheral) using a different BMD testing technique than was used in a patient's initial BMD test, to permit monitoring of the patient using the newer technique (e.g., if the initial test was

performed using bone sonometry, and monitoring is anticipated using bone densitometry, a baseline measurement using bone densitometry is allowed); **or**

C. For women receiving estrogen replacement therapy (ERT), who should not be precluded from receiving follow-up or repeat BMD testing.

III. Osteoporosis screening procedures that are considered **investigational**, including but not limited to:

A. Pulse-echo ultrasound bone density measurement of the tibia and trabecular bone scoring (TBS);

B. Radiofrequency Echographic Multi Spectrometry (REMS);

C. Screening for vertebral fracture with **ANY** of the following:

1. DEXA;
2. SEXA;
3. Automated analysis of an existing Computed Tomography (CT) study.

RELATED POLICIES

Corporate Medical Policy

11.01.03 Experimental or Investigational Services

POLICY GUIDELINE(S)

I. Refer to the member's subscriber contract to confirm that the member's coverage is subject to the New York State BMD testing mandate.

II. A DEXA study is representative of one (1) or more sites; therefore, a study of multiple sites should be reported and will be processed as a single unit of service.

III. This policy addresses coverage for adults only. Requests for adolescents and children will be reviewed based on diseases and risk factors that are present. Per the Bone Health and Osteoporosis Foundation (BHOF), BMD measurement is not recommended in children or adolescents.

IV. Individuals are eligible for bone density measurements and tests in accordance with the criteria of the Federal Medicare program and the National Institutes of Health (NIH) for the detection of osteoporosis.

V. Under the Affordable Care Act, non-grandfathered plans or policies are required to cover, in-network, without cost-sharing, the preventive services recommended by the United States Preventive Services Task Force (USPSTF), including osteoporosis screening for patients identified in the above Policy Statements

VI. Changes in BMD may not be detected in less than two (2) years of treatment because of the

measurement technique, but a follow-up scan may be appropriate sooner in selected patients. Follow-up scans can help to detect treatment failure and secondary disease.

VII. The decision to test for BMD should be based on an individual's risk profile. Testing is not indicated unless the results would influence a treatment decision.

VIII. Whenever possible, use of central (axial skeleton) DEXA is preferred, as clinical evidence supports that this method has one of the lowest standard error rates in measurement and predictive accuracy. However, peripheral DEXA may be used as a substitute when technical problems preclude adequate imaging with a central DEXA machine or when a central DEXA machine is unavailable.

DESCRIPTION

Defining Osteoporosis by BMD

The World Health Organization has established the following definitions, based on BMD of the spine, hip or forearm by DEXA. T scores are reported as standard deviations (SD):

- Normal: T-score at -1.0 and above (within 1 SD of a young healthy adult);
- Osteopenia (low bone mass): T-score between -1 to -2.5 (1 to 2.5 SD below that of a young healthy adult);
- Osteoporosis: T-score at or below -2.5 (2.5 SD or more below that of a young healthy adult); and
- Severe osteoporosis: T-score of -2.5 or less with fragility fractures.

Although these definitions are necessary to establish the prevalence of osteoporosis, they should not be used as the sole determinant of treatment decisions.

Risk Factors for Osteoporosis in Women

There are certain symptoms, conditions, physiologic characteristics, and lifestyle factors indicative of a significant risk of osteoporosis. Per the NIH, risk factors for post-menopausal women under age 65 include, but are not limited to:

- Personal history of a non-traumatic fracture as an adult;
- Family history of osteoporosis (e.g., history of early, non-traumatic fracture in first-degree relative);
- Ethnicity - Caucasian and Asian women are at highest risk. African American and Latino women have a lower, but significant, risk;
- Poor health/frailty;
- Cigarette smoking;
- Body size – small, thin-boned women are at greater risk;

- Extended estrogen deficiency;
- Age - Risk increases with age, as bones become less dense and weaker with age;
- Eating disorders such as anorexia nervosa;
- Excessive use of alcohol;
- Low calcium and vitamin D intake (lifelong);
- Long-term use of certain medications, such as glucocorticoids;
- Sedentary lifestyle or extended bed rest; or
- Osteopenia.

Post-Menopause Definition

The American College of Obstetricians and Gynecologists defines post-menopausal as the time in a woman's life when she stops having menstrual periods - specifically, when she has gone 12 consecutive months with no menstrual period. Menopause marks the end of the reproductive years that began in puberty.

Risk Factors for Osteoporosis in Men

There are certain symptoms, conditions, physiologic characteristics or lifestyle factors indicative of a significant risk of osteoporosis. Per the NIH, risk factors for osteoporosis in men include:

- Chronic diseases that affect the kidneys, lungs, stomach, and/or intestines or alters hormone levels;
- Long-term use of certain medications, such as glucocorticoids;
- Low levels of testosterone;
- Unhealthy lifestyle habits (e.g., smoking, excessive alcohol use, low calcium intake, and inadequate physical exercise);
- Age – the older the individual, the greater the risk;
- Race – Caucasian men appear to be at particularly high risk, but all men can develop osteoporosis.

Pulse-echo Ultrasound

Bindex is a handheld pulse-echo ultrasound device used to measure apparent cortical bone thickness at the proximal tibia, to aid the physician in the diagnosis of osteoporosis.

Vertebral Fracture Assessment using Computed Tomography

Vertebral fracture evaluation can be performed using a pre-existing computed tomography dataset via assistive augmented intelligence. It is used for the detection of osteoporosis as evidenced by vertebral compression fractures that are below the threshold for human detection. For example, the data set from a CTA scan of the chest performed for the diagnosis of pulmonary embolism could be

subsequently analyzed by an algorithm created for identification of additional findings such as subtle osteoporotic vertebral fractures.

Trabecular Bone Scoring

The trabecular bone score (TBS) is a diagnostic software tool that analyzes the internal structure of the lumbar spine bones. It is used in conjunction with dual-energy x-ray absorptiometry (DXA), which is an enhanced form of x-ray technology that is performed to measure bone mineral density (BMD). TBS uses standard DXA lumbar spine images to measure the structure of trabecular (cancellous) bone, providing additional information to be used in conjunction with BMD results in calculating fracture risk. Using a software program installed on a standard DXA computer, TBS provides an index of bone structure and quality without requiring additional radiation exposure or scan time. TBS received US FDA approval in 2012 for use as a complement to DXA analysis for the assessment of fracture risk and provides additional utility in fracture risk assessment among people with secondary causes of bone loss and fractures, such as type 2 diabetes.

REMS

REMS by Echolight is a diagnostic, non-invasive, radiation-free, office-based testing for bone density and fracture risk assessment at axial sites. It exploits all the spectral features of the native, unfiltered "raw" signals acquired during echographic scan. The algorithm automatically identifies the target bone interfaces within the sequence of the acquired echographic images, discarding "noisy" acquisitions and artifacts.

SUPPORTIVE LITERATURE

BMD Studies

While there are a number of tests available to assess bone mineral density, clinical evidence supports that DEXA of the hip or lumbar sacral spine and QCT have the lowest standard error in measurement and predictive accuracy. In addition, studies that show reduced fracture with treatment have used results from hip/spine DEXA machines.

Data from several studies showed women treated with bisphosphonates and other pharmacologic treatment benefited from reduced fractures with treatment, even if BMD did not increase. There is no evidence from randomized, controlled trials regarding how often to monitor BMD during osteoporosis treatment. There is moderate-quality evidence suggesting that most women do not need regular monitoring.

Crandall et al (2020) conducted a cohort study assessing the need of a second BMD study approximately 3 years later after initial baseline measurement associated with improved ability to differentiate fracture risk in postmenopausal women. The study included 7,419 women mean age of 66.1 years, mean BMI 28.7 and 1,720 were non-Caucasian. During the follow-up period, 139 women experienced hip fractures, and 732 women experienced major osteoporotic fractures. When assessing the difference in the data between women who experience hip fractures and those who do not, area under the receiver operating characteristic curve (AU-ROC) values were 0.71(95% CI, 0.67-0.75) for baseline total hip BMD, 0.61 (95% CI, 0.56-0.65) for change in total hip BMD, and 0.73 (95% CI,

0.69-0.77) for the combination of baseline total hip BMD and change in total hip BMD. Femoral neck and lumbar spine BMD values had similar discrimination for hip fracture. For discrimination of major osteoporotic fracture, AU-ROC values were 0.61 (95% CI,0.59-0.63) for baseline total hip BMD, 0.53 (95% CI, 0.51-0.55) for change in total hip BMD, and 0.61 (95% CI, 0.59-0.63) for the combination of baseline total hip BMD and change in total hip BMD. Femoral neck and lumbar spine BMD values had similar ability to recognize the differences between women who experienced major osteoporotic fracture and those who did not. The change in bone density and fracture risk did not differ by subgroup, including diabetes, age, race/ethnicity, body mass index, or baseline BMD T score. Limitations for this study included that it was an observational design, and fractures were self-reported. However, strengths included prospective follow-up, large number of participants. The researchers concluded that the evidence suggests that repeat BMD testing in postmenopausal women at three years after baseline BMD should not be routinely performed.

Vertebral Fracture Assessment using DEXA

Vertebral fractures are highly prevalent in the elderly populations, and epidemiologic studies have found that these fractures are associated with an increased risk of future spine or hip fractures independent of BMD. Only 20-30% of vertebral fractures are recognized clinically; the rest are discovered incidentally on lateral spine radiographs. Lateral spine x-rays have not been recommended as a component of risk assessment for osteoporosis, because of the cost, the radiation exposure, and the fact that the x-ray would require a separate procedure in addition to the BMD study. However, lateral spine images for vertebral fracture assessment (VFA) can be obtained using DEXA at the same time that a patient is undergoing assessment of BMD. Although VFA may be rapid and convenient, the images obtained are not of sufficient quality to establish the presence or absence of vertebral fractures. Literature suggests that densitometry may not accurately diagnose vertebral fractures in the population of interest (women with osteopenia or normal BMD). There is a lack of evidence that the test is accurate in detecting fractures among subjects without osteoporosis. Available evidence is insufficient to assess what health outcomes would result from VFA using DEXA as a screening test for osteoporosis. Evidence supporting the use of vertebral assessment using DEXA is not strong enough to reach conclusions about its effect on health outcomes.

Vertebral Fracture Assessment using Computed Tomography

There is currently limited research demonstrating the effectiveness of vertebral fracture assessment using CT with assistive augmented intelligence.

Pulse-echo Ultrasound

The use of pulse-echo ultrasonometry is being promoted as a cost-effective screening option to determine appropriateness for DXA measurement. There is limited research, and no randomized, controlled trials, demonstrating the effectiveness of pulse-echo ultrasound as compared to DXA.

Algahtani et al (2025) conducted a comparative study on 168 participants, comparing the pulse-echo ultrasound versus the DXA and how they compare in acceptability, comfort, and preference. A bespoke questionnaire was given out to gather responses from the participants. The questionnaire showed that despite the discomfort from the gel application, the pulse-echo received significantly

higher acceptability and comfort ratings and preferring that it is non-ionizing radiation.

Trabecular Bone Scoring

There is a lack of well-designed clinical trials including diverse populations in the peer-reviewed scientific literature addressing the impact of TBS on patient-specific health outcomes. Future prospective trials evaluating the use trabecular bone score in place of or in addition to established fracture prediction tools should report if long-term patient health outcomes are improved.

Jose et al (2021) conducted a cross-sectional single center study aimed to study the bone microarchitecture (TBS-trabecular bone score) and BMD in a total of 250 postmenopausal women with either morbid obesity, obese or non-obese. The participants were categorized based on body mass index (BMI). In the morbid obesity (BMI ≥ 35 kg/m2) group, with 85 participants was compared to 80 subjects with obesity (BMI ≥ 25–35 kg/m2) and 85 non-obese women (BMI ≤ 25 kg/m2). The BMI cut-off points for obesity were defined as per the Asia-Pacific guidelines by the WHO, suggesting lower thresholds for obesity, in order to identify individuals that are at higher risk at a lower BMI. The BMD and TBS were assessed in all subjects using a Hologic-QDR 4500-W Discovery-A DXA scanner. The mean BMD (gm/cm2) at the femoral neck in women with morbid obesity was found to be significantly lower as compared to the age-matched postmenopausal obese controls (0.723 versus 0.762). The BMD at the lumbar spine and hip showed similar trends but were not statistically significant. The bone microarchitecture was found to be significantly lower in those with morbid obesity (1.205) as compared to obesity (1.244) and non-obese (1.228). Though obesity was associated with a better bone density and bone microarchitecture in postmenopausal women, in those with morbid obesity a lower value was seen. Limitations included the lack of heterogeneity, and lacking details regarding bone reabsorption and formation markers and physical activity. Additional studies are needed to validate this study.

REMS

Al Refaie et al (2023) performed a systematic review of literature to evaluate the most recent data on the REMs technique for assessing bone mineral density. The literature obtained was from 2019 to 2023 using PubMed-Medline, Cochrane Library, ClinicalTrials.gov, and SCOPUS; cases found were cross-sectional observational studies. The authors state that the literature "confirmed diagnostic concordance between BMD values obtained using DXA and REMS. Furthermore, REMS has adequate precision and repeatability characteristics, is able to predict the risk of fragility fractures, and may be able to overcome some of the limitations of DXA". The authors concluded that REMS could become the method of choice for the assessment of bone status in children, women of childbearing age or who are pregnant, and in several secondary osteoporosis conditions due to its good precision and replicability, transportability, and the absence of ionizing radiation. The authors did state that ongoing research is needed to better understand the role of REMS in diagnosis and follow-up in patients with osteoporosis with respect to DXA and understand what population would benefit from REMs versus DXA.

There are ongoing clinical trials but no reported results. The current studies being performed are looking at many different indications that may affect imaging for osteoporosis or may cause

osteoporosis such as osteoarthritis, vitamin D deficiency, osteogenic perfecta, pregnancy. The studies are promising, showing reliable technology and the possibility to lead to earlier interventions for individuals with bone fragility. Further clinical trials are needed along with FDA approval.

PROFESSIONAL GUIDELINE(S)

The U.S. Preventive Services Task Force (USPSTF) 2018 recommendations are in the process of being updated in 2024. Currently, the USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in:

- Women aged 65 years and older.
- Post-menopausal women younger than age 65 years who are at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool.
- The current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis in men.

Bone Health and Osteoporosis Foundation (BHOF), formally known as, The National Osteoporosis Foundation (NOF)). The Clinicians Guide to Prevention and Treatment of Osteoporosis (LeBoff et al 2022), includes recommendation for BMD testing for:

- Women aged 65 years and older and for men aged 70 years and older, regardless of clinical risk factors.
- Post-menopausal women in the menopausal transition and men aged 50 to 69 years based on risk profile.
- Postmenopausal women and men aged greater or equal to 50 years with a history of adult-age fracture; and
- Adults who have a condition (e.g., rheumatoid arthritis) or are taking a medication (e.g., glucocorticoids in a daily dose ≥ 5 mg prednisone or equivalent for ≥ three (3) months) associated with low bone mass or bone loss.
- BMD measurement is not recommended in children or adolescents and is not routinely indicated in healthy young men or pre-menopausal women, unless there is a significant fracture history, or there are specific risk factors for bone loss.
- Follow-up testing is recommended one (1) to two (2) years after initiating medical therapy for osteoporosis and at appropriate intervals thereafter according to clinical circumstances such as high-risk individuals (multiple fractures, older age, very low BMD).
- Vertebral fracture imaging (X-ray or DXA vertebral fracture assessment) should be performed in high-risk individuals to detect subclinical vertebral fractures. Traditionally, conventional lateral thoracic/lumbar spine X-ray has been considered the gold standard for identification of vertebral fractures and minor vertebral deformities. However, DXA-assisted vertebral fracture assessment (DXA-VFA) is emerging as an alternative to radiography for its convenience, low cost, and minimal radiation exposure. Recently performed MRI or CT imaging studies done for other

purposes can and should also be evaluated for presence of vertebral fractures or evidence of vertebral deformity.

American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis (Camacho 2020):

- An update to the guidelines in 2020 includes stratification of women with osteoporosis into high-risk and very-high-risk features to drive choice and duration of initial therapy.

The Endocrine Society Clinical Practice Guideline: Osteoporosis in Men (2012) recommends:

- Testing higher-risk men (men age greater than or equal to 70 years and men aged 50 to 69 years who have risk factors [e.g., low body weight, prior fracture as an adult, smoking, etc.]) using central dual-energy x-ray absorptiometry.
- The guideline suggests measuring forearm DXA (1/3 or 33% radius) when spine or hip BMD cannot be interpreted and for men with hyperparathyroidism or receiving androgen deprivation therapy for prostate cancer.

An expert working group was convened by the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO), a systematic review was completed to review evidence. A total of 96 articles were reviewed and included data on the use of TBS for fracture prediction in men and women, from over 20 countries. The four topics that were reviewed consisted of the use of TBS in fracture risk prediction, treatment initiation and assessing response to pharmacological interventions in postmenopausal osteoporosis, fracture risk in secondary osteoporosis and for assessing response to pharmacological therapies in secondary osteoporosis. The recommendations are as follows:

- TBS should be used in conjunction with BMD and clinical risk factors (strongly recommended).
- TBS results should be interpreted within clinical context of the patient (strongly recommended).
- Reduction in TBS are observed in most secondary osteoporosis-related diseases, and predicts fracture risk in type 2 diabetes, chronic kidney disease, patients treated with glucocorticoids, rheumatological diseases and it is relatively unaffected by spinal changes (strongly recommended).
- TBS adds value when used with BMD in monitoring skeletal effects of aromatase inhibitors, glucocorticoids and response to antiosteoporosis therapy across both primary and secondary osteoporosis (strongly recommended).

REGULATORY STATUS

The New York Insurance Law mandates that coverage be provided for bone density tests, as well as prescription drugs and devices that are approved by the FDA, for the detection and treatment of osteoporosis. The law provides that individuals qualifying for coverage shall, at a minimum, include individuals who have any of the following:

- A previous diagnosis or family history of osteoporosis;

- Symptoms or a condition indicative of the presence or significant risk of osteoporosis;
- A prescribed drug regimen posing a significant risk of osteoporosis;
- Lifestyle factors posing a significant risk of osteoporosis; or
- Age, gender, and/or physiological characteristics posing a significant risk of osteoporosis.

Several DEXA central bone densitometers have been approved by the FDA, such as the Norland XR 46 DXA (Central) Bone Densitometer. Several bone ultrasonometers have been cleared for marketing by the FDA, such as Myriad's Soundscan (approved May 1998) and Hologic's Sahara Clinical Bone Sonometer (approved March 1998). To perform vertebral fracture assessment on DEXA devices, additional software is needed and must also have Section 510(k) marketing clearance from the FDA.

Bone Index Finland, Ltd. received Section 510(k) approval from the FDA in May 2016 for Bindex BI-100 and Bindex BI-2 in January 2017.

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CPT Codes

Code	Description
76977	Ultrasound bone density measurement and interpretation, peripheral site(s), any method
76999*	Unlisted ultrasound procedure (e.g., diagnostic, interventional) (*Consider E/I when used to report pulse-echo ultrasound for bone density measurement testing.)
77078	Computed tomography, bone mineral density study, 1 or more sites, axial skeleton (e.g., hips, pelvis, spine)
77080	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; axial skeleton (e.g., hips, pelvis, spine)
77081	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; appendicular skeleton (peripheral) (e.g., radius, wrist, heel)

Code	Description
77085	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; axial skeleton (e.g., hips, pelvis, spine), including vertebral fracture assessment
77086 (E/I)	Vertebral fracture assessment via dual-energy X-ray absorptiometry (DXA)
77089 (E/I)	Trabecular bone score (TBS), structural condition of the bone microarchitecture; using dual X-ray absorptiometry (DXA) or other imaging data on gray-scale variogram, calculation, with interpretation and report on fracture-risk
77090 (E/I)	Trabecular bone score (TBS), structural condition of the bone microarchitecture; technical preparation and transmission of data for analysis to be performed elsewhere
77091 (E/I)	Trabecular bone score (TBS), structural condition of the bone microarchitecture; technical calculation only
77092 (E/I)	Trabecular bone score (TBS), structural condition of the bone microarchitecture; interpretation and report on fracture-risk only by other qualified health care professional
0554T (E/I)	Bone strength and fracture risk using finite element analysis of functional data, and bone-mineral density, utilizing data from a computed tomography scan; retrieval and transmission of the scan data, assessment of bone strength and fracture risk and bone mineral density, interpretation and report
0555T (E/I)	retrieval and transmission of the scan data
0556T (E/I)	assessment of bone strength and fracture risk and bone mineral density
0557T (E/I)	interpretation and report
0691T (E/I)	Automated analysis of an existing computed tomography study for vertebral fracture(s), including assessment of bone density when performed, data preparation, interpretation, and report
0743T (E/I)	Bone strength and fracture risk using finite element analysis of functional data and bone-mineral density (BMD), with concurrent vertebral fracture assessment, utilizing data from a computed tomography scan, retrieval and transmission of the scan data, measurement of bone strength and BMD and classification of any vertebral fractures, with overall fracture risk assessment, interpretation and report
0815T (E/I)	Ultrasound-based radiofrequency echographic multi-spectrometry (REMS), bone-density study and fracture-risk assessment, 1 or more sites, hips, pelvis, or spine

HCPCS Codes

Code	Description
G0130	Single energy x-ray absorptiometry (SEXA) bone density study, one or more sites; appendicular skeleton (peripheral) (e.g., radius, wrist, heel)

ICD10 Codes

Code	Description
E21.0-E21.5	Hyperparathyroidism and other disorders of parathyroid gland (code range)
E24.0-E24.9	Cushing's syndrome (code range)
E28.310-E28.319	Premature menopause (code range)
E28.39	Other primary ovarian failure
E29.1	Testicular hypofunction
E34.2	Ectopic hormone secretion, not elsewhere classified
E89.40	Asymptomatic postprocedural ovarian failure
E89.41	Symptomatic postprocedural ovarian failure
E89.5	Postprocedural testicular hypofunction
N91.0-N91.2	Amenorrhea (code range)
N92.4	Excessive bleeding in the premenopausal period
N95.0-N95.9	Menopausal and other perimenopausal disorders (code range)
M48.50-M48.58	Collapsed vertebra, not elsewhere classified (code range)
M80.0-M80.8	Age-related osteoporosis with current pathological fracture (code range)
M81.0-M81.8	Osteoporosis without current pathological fracture (code range)
M84.48-M84.9	Pathological fracture, other site (code range)
M85.80-M85.9	Other specified disorders of bone density and structure (code range)
Q96-Q96.9	Turner's syndrome (code range)

Code	Description
R29.890	Loss of height
Z08	Encounter for follow-up examination after completed treatment for malignant neoplasm
Z09	Encounter for follow-up examination after completed treatment for conditions other than malignant neoplasm
Z13.820	Encounter for screening for osteoporosis
Z78.0	Asymptomatic menopausal state
Z79.51-Z79.52	Long term (current) use of steroids (code range)
Z87.310-Z87.312	Personal history of (healed) fractures (code range)
Z90.721-Z90.722	Acquired absence of ovaries (code range)
Z90.79	Acquired absence of other genital organ(s)

REFERENCES

Agency for Healthcare Research and Quality. Osteoporosis in postmenopausal women: diagnosis and monitoring. Evidence Report/Technology Assessment 2001 Apr 9;28.

Agency for Healthcare Research and Quality (AHRQ) [Internet]. Guide to Clinical Preventive Services. Recommendations of the U.S. Preventive Services Task Force. Osteoporosis to prevent fractures: screening. 2024 June. [accessed 2025 May 22]. Available from: https://www.uspreventiveservicestaskforce.org/uspstf/draft-update-summary/osteoporosis-screening-prevent-fractures

Algahtani A, et al. Participant perspectives on pulse-echo ultrasound technology versus dual energy x-ray absorptiometry (DXA): a comparative study. In Vivo. 2025 Mar-Apr;39(2):909-916.

Al Refaie A, et al. Radiofrequency echographic multi-spectrometry (R.E.M.S.): new frontiers for ultrasound use in the assessment of bone status - a current picture. Diagnostics (Basel). 2023 May 9;13(10):1666.

American College of Obstetricians and Gynecologists [Internet]. ACOG guidelines for the clinical management of osteoporosis. 2004 Mar 15 [accessed 2025 May 22]. Available from: http://www.aafp.org/afp/2004/0315/p1558.html

American College of Obstetricians and Gynecologists. Osteoporosis. ACOG Practice Bulletin No. 50,

Obstet Gynecol 2004 Jan;103(1):203-16.

Bone Health & Osteoporosis Foundation (BHOF)/ International Society for Clinical Densitometry (ISCD) FRAX Implementation Guide [Internet]. [accessed 2025 May 22]. Available from: https://iscd.org/learn/resources/fracture-risk-models/

Camacho PM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology clinical practice guidelines for the diagnosis and treatment of postmenopausal osteoporosis-2020 update. Endocr Pract. 2020 May;26(Suppl 1):1-46.

Crandall CJ, et al. Serial bone density measurement and incident fracture risk discrimination in postmenopausal women. JAMA Intern Med. 2020 Sep 1;180(9):1232-1240.

Giovanni A, et al. Bone health status evaluation in men by means of REMS technology. Aging Clin Exp Res. 2024 Mar 18;36(1):74.

Hans D, et al. Long-term effect of denosumab on bone microarchitecture as assessed by tissue thickness-adjusted trabecular bone score in postmenopausal women with osteoporosis: results from FREEDOM and its open-label extension. Osteoporos Int. 2023 Jun;34(6):1075-1084.

Jose A, et al. Trabecular bone score and bone mineral density in postmenopausal women with morbid obesity - a clinical paradox. Med Sci (Basel). 2021 Nov 9;9(4):69.

Keaveny TM, et al. Biomechanical computed tomography analysis (BCT) for clinical assessment of osteoporosis. Osteoporos Int. 2020 Jun;31(6):1025-1048.

Kim DK, et al. Effect of androgen-deprivation therapy on bone mineral density in patients with prostate cancer: a systematic review and meta-analysis. J Clin Med. 2019 Jan 18;8(1):E113.

LeBooff MS, et al. The clinicians guide to prevention and treatment of osteoporosis. Osteoporos Int 2022 Apr 28;33:2049-2102

Lin JK, et al. Validation of biomechanical computed tomography for fracture risk classification in metastatic hormone-sensitive prostate cancer. Eur Urol Oncol. 2024 Aug;7(4):794-803.

Löffler MT, et al. Automatic opportunistic osteoporosis screening in routine CT: improved prediction of patients with prevalent vertebral fractures compared to DXA. European Radiology. 2021;31:6069–6077.

Merlijn T, et al. The effect of a screening and treatment program for the prevention of fractures in older women: a randomized pragmatic trial. Journal of Bone and Mineral Research. 2019 Nov;34(11):1993–2000.

Moonkum N, et al. Osteopenia and osteoporosis screening detection: calcaneal quantitative ultrasound with and without calibration factor comparison to gold standard dual x-ray absorptiometry. J Clin Densitom. 2024 Apr-Jun;27(2):101470.

National Institutes of Health Osteoporosis and Related Bone Diseases National Resource Center [Internet]. Osteoporosis overview. 2019 Oct. [reviewed 2022 Dec; accessed 2025 May 22]. Available from: http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/overview.asp

National Institute of Health Osteoporosis and Related Bone Diseases National Resource Center. Osteoporosis in men [Internet]. 2018 Oct. last reviewed 2023 May. [accessed 2025 May 22]. Available from: http://www.niams.nih.gov/health-topics/osteoporosis-men

Pan Y, et al. Automatic opportunistic osteoporosis screening using low-dose chest computed tomography scans obtained for lung cancer screening. European Radiology 2020;30:4107–4116.

Pouilles J-M, et al. TBS in early postmenopausal women with severe vertebral osteoporosis. Bone. 2021;142:115698.

Qaseem A, et al. Treatment of low bone density or osteoporosis to prevent fracture in men and women: a clinical practice guideline update from the American College of Physicians. Ann Intern Med. 2017 Jun 6;166(11):818-839.

Salari N, et al. Global prevalence of osteoporosis among the world older adults: a comprehensive systematic review and meta-analysis. Journal of Orthopaedic Surgery and Research. 2021;16:669.

Shevroja E, et al. Update on the clinical use of trabecular bone score (TBS) in the management of osteoporosis: results of an expert group meeting organized by the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO), and the International Osteoporosis Foundation (IOF) under the auspices of WHO Collaborating Center for Epidemiology of Musculoskeletal Health and Aging. Osteoporos Int. 2023 Sep;34(9):1501-1529.

Shuhart C, et al. Executive Summary of the 2023 Adult Position Development Conference of the International Society for Clinical Densitometry: DXA Reporting, Follow-up BMD Testing and Trabecular Bone Score Application and Reporting. J Clin Densitom. 2024 Jan-Mar;27(1):101435.

State of New York Insurance Law §7657. Amendment 11723, effective 2003 Jan 1.

World Health Organization Fracture Risk Assessment Tool [Internet]. [accessed 2025 May 22] Available from: https://www.sheffield.ac.uk/FRAX/

Yang J. et al. Identification of prevalent vertebral fractures using Vertebral Fracture Assessment (VFA) in asymptomatic postmenopausal women: A systematic review and meta-analysis. Bone. 2020;136:doi115358.

Yu JS, et al. ACR Appropriateness Criteria® Osteoporosis and Bone Mineral Density: 2022 Update. J Am Coll Radiol. 2022 Nov;19(11S):S417-S432.

Zweig A, et al. Skip that repeat DXA scan in these postmenopausal women. J Fam Pract. 2021 Dec;70(10):510-512.

SEARCH TERMS

Not Applicable

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Bone (Mineral) Density Studies (NCD 150.3) [accessed 2025 May 22]

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

10/18/01, 06/20/02, 10/16/02, 10/15/03, 11/18/04, 09/15/05, 02/06/06, 07/20/06, 05/17/07, 06/19/08, 09/17/09, 09/16/10, 09/15/11, 09/20/12, 09/19/13, 09/18/14, 09/17/15, 09/15/16, 09/21/17, 09/20/18, 09/19/19, 09/17/20, 09/16/21, 08/18/22, 08/17/23, 08/22/24, 08/21/25

Date	Summary of Changes
08/21/25	• Annual review, policy intent unchanged.
01/01/25	• Summary of changes tracking implemented.
10/18/01	• Original effective date