Bone Mineral Density and Vertebral Fracture Assessment

<table>
<thead>
<tr>
<th>Type: Medical Necessity and Investigational / Experimental</th>
<th>Policy Specific Section: Radiology (Diagnostic/Therapeutic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Policy Date: July 2, 2009</td>
<td>Effective Date: January 1, 2015</td>
</tr>
</tbody>
</table>

Definitions of Decision Determinations

**Medically Necessary:** A treatment, procedure or drug is medically necessary only when it has been established as safe and effective for the particular symptoms or diagnosis, is not investigational or experimental, is not being provided primarily for the convenience of the patient or the provider, and is provided at the most appropriate level to treat the condition.

**Investigational/Experimental:** A treatment, procedure or drug is investigational when it has not been recognized as safe and effective for use in treating the particular condition in accordance with generally accepted professional medical standards. This includes services where approval by the federal or state governmental is required prior to use, but has not yet been granted.

**Split Evaluation:** Blue Shield policy review can result in a Split Evaluation, where a treatment, procedure or drug will be considered to be investigational for certain indications or conditions, but will be deemed safe and effective for other indications or conditions, and therefore potentially medically necessary in those instances.

Description

The World Health Organization (2004) defines osteoporosis as bone mineral density (BMD) 2.5 standard deviations or more below the mean for young healthy women. Central dual energy X-ray absorptiometry (DEXA or DXA) of the hip or vertebral spine is the most widely accepted method for making this diagnosis. Postmenopausal bone loss in women and age-related bone loss in both men and women increases the risk of fracture and fracture-related morbidity and
mortality. According to the National Osteoporosis Foundation (2010), an estimated 10 million Americans have osteoporosis and an additional 33.6 million have low bone density (osteopenia) of the hip.

Vertebral fractures are prevalent in the elderly population and associated with an increased risk of future spine or hip fractures, independent of bone mineral density. Only 20% to 30% of vertebral fractures are recognized clinically; the remainder are morphometric, and are discovered incidentally on lateral spine radiographs. Lateral spine images may also be obtained with DEXA, and vertebral fracture assessment (VFA) is often performed along with BMD measurement.

Policy
Bone Mineral Density Measurement
Central
Initial measurement of central BMD by dual energy X-ray absorptiometry (DEXA) is considered medically necessary for the following indications:

- Screening for women age 65 and older
- Screening for men age 70 and older
- Screening of women under age 65 with one or more risk factors for osteoporosis-related fracture
- Screening of men aged 50 to 69 with one or more risk factors for osteoporosis-related fracture
- Assessment of individuals with a medical condition or prescribed medication associated with low bone mass or bone loss
- Assessment of individuals with vertebral abnormalities, as demonstrated by x-ray, indicative of osteoporosis, osteopenia, or vertebral fracture

Peripheral
Peripheral DEXA measurement of BMD is considered medically necessary for the following indications:

- Radial BMD by DEXA for the evaluation and monitoring of primary hyperparathyroidism (PHPT), in addition to central BMD measurement
- If the hip/spine or hip/hip cannot be achieved or the patient is over the table limit for weight

Peripheral measurement of BMD by ultrasound is considered not medically necessary.

Testing Interval
Repeat measurement of central BMD by DEXA is considered medically necessary in any of the following circumstances:
• Every two years for individuals who meet the above criteria and previously tested normal (T-score >/= -1.0)
• Every two years for individuals with osteopenia or osteoporosis (T-score < -1.0)
• As a single follow-up for individuals who have either of the following conditions:
  o Newly diagnosed with osteoporosis who have undergone at least one year of osteoporosis pharmacological treatment (e.g., determination of drug effectiveness)
  o Changed to a new osteoporosis pharmacologic agent due to prior ineffective therapy, and have had at least one year of treatment with the new pharmacologic agent (e.g., determination of effectiveness of the new drug)

Annual measurement of radial and central BMD by DEXA for medically managed individuals with PHPT is considered medically necessary.

Vertebral Fracture Assessment (VFA)
Screening for vertebral fracture by DEXA as an adjunct to BMD measurement is considered investigational.

Note: Blue Shield of California (BSC) will apply medical necessity criteria in considering all requests for bone mineral density (BMD) measurement. If there are two or more medically necessary services that may be provided for an illness, injury, or medical condition, BSC will provide benefits based on the most cost-effective service.

Policy Guideline

**Dual Energy X-ray Absorptiometry (DEXA) Results:**

- Normal = T-score >/= -1.0
- Osteopenia = T-score between -1.0 and -2.5
- Osteoporosis = T-score </= -2.5

**National Osteoporosis Foundation**

The 2010 Clinician's Guide to Prevention and Treatment of Osteoporosis published by the National Osteoporosis Foundation (NOF, 2010) has identified the following medical conditions and medications as risk factors for osteoporosis-related fracture:

**Genetic Factors**

- Cystic fibrosis
- Homocystinuria
- Osteogenesis imperfecta
- Ehlers-Danlos
- Hypophosphatasia
- Parental history of hip fracture
- Gaucher's disease
• Idiopathic hypercalciuria
• Porphyria
• Glycogen storage diseases
• Marfan syndrome
• Riley-Day syndrome
• Hemochromatosis
• Menkes steely hair syndrome

Hypogonadal States
• Androgen insensitivity
• Hyperprolactinemia
• Turner's & Klinefelter's syndromes
• Anorexia nervosa and bulimia
• Panhypopituitarism
• Athletic amenorrhea
• Premature ovarian failure

Endocrine Disorders
• Adrenal insufficiency
• Diabetes mellitus
• Thyrotoxicosis
• Cushing's syndrome
• Hyperparathyroidism

Gastrointestinal Disorders
• Celiac disease
• Inflammatory bowel disease
• Primary biliary cirrhosis
• Gastric bypass
• Malabsorption
• GI surgery
• Pancreatic disease

Hematologic Disorders
• Hemophilia
• Multiple myeloma
• Systemic mastocytosis
• Leukemia and lymphomas
• Sickle cell disease
• Thalassemia

Rheumatic and Autoimmune Diseases
• Ankylosing spondylitis
- Lupus
- Rheumatoid arthritis

**Miscellaneous Conditions and Diseases**

- Alcoholism
- Emphysema
- Muscular dystrophy
- Amyloidosis
- End-stage renal disease
- Parenteral nutrition
- Chronic metabolic acidosis
- Epilepsy
- Post-transplant bone disease
- Congestive heart failure
- Idiopathic scoliosis
- Prior fracture as an adult
- Depression
- Multiple sclerosis
- Sarcoidosis
- Low body weight

**Medications**

- Anticoagulants (heparin)
- Cancer chemotherapeutic drugs
- Gonadotropin releasing hormone agonists
- Anticonvulsants
- Cyclosporine A and tacrolimus
- Lithium
- Aromatase inhibitors
- Depo-medroxyprogesterone
- Barbiturates
- Glucocorticoids (5 mg/day of prednisone or equivalent for three months)

**The FRAX® Algorithm**

The FRAX® algorithm is a Fracture Risk Assessment Tool developed by the World Health Organization (WHO) to calculate 10-year probabilities of hip and major osteoporotic fractures and to provide guidance on initiation of pharmacologic treatment. The FRAX® algorithm considers femoral neck BMD and specific clinical risk factors and has been calibrated to United States (US) fracture and mortality rates for fracture prediction specific to the US population. The FRAX® algorithm has been validated for postmenopausal women and men age 50 and older, who have not been pharmacologically treated for osteoporosis. The following risk factors are included in the FRAX® calculation:
• Age
• Weight
• Height
• History of previous fracture
• Parental history of hip fracture
• Smoking status
• Glucocorticoid therapy
• Rheumatoid arthritis
• Secondary osteoporosis
• Alcohol consumption of three or more drinks per day
• Femoral neck BMD

Coding

The following CPT codes are specific to this procedure:

**Axial skeleton (including vertebral fracture assessment):**

- **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

**Vertebral fracture assessment (not including axial skeleton DXA):**

- **77086**: Vertebral fracture assessment via dual-energy x-ray absorptiometry (DXA)

Internal Information

There is an MD Determination Form for this Medical Policy. It can be found on the following Web page:
http://myworkpath.com/healthcareservices/MedicalOperations/PSR_Determination_Pages.htm

<table>
<thead>
<tr>
<th>Documentation Required for Clinical Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>• History and physical including: Previous treatment and response, and clinical risk factors for osteoporosis-related fracture</td>
</tr>
<tr>
<td>• Additional reports including: Previous bone mineral density measurement, x-ray reports and laboratory reports</td>
</tr>
</tbody>
</table>

Post Service

• DEXA report for date of service billed
APPENDIX to Bone Mineral Density and Vertebral Fracture Assessment Policy

Prior Authorization Requirements

This service (or procedure) is considered medically necessary in certain instances and investigational in others (refer to policy for details).

For instances when the indication is medically necessary, clinical evidence is required to determine medical necessity.

For instances when the indication is investigational, you may submit additional information to the Prior Authorization Department.

Within five days before the actual date of service, the Provider MUST confirm with Blue Shield that the member's health plan coverage is still in effect. Blue Shield reserves the right to revoke an authorization prior to services being rendered based on cancellation of the member's eligibility. Final determination of benefits will be made after review of the claim for limitations or exclusions.

Questions regarding the applicability of this policy should also be directed to the Prior Authorization Department. Please call 1-800-541-6652 or visit the Provider Portal www.blueshieldca.com/provider.

Evidence Basis for the Policy

Rationale

Bone Mineral Density Measurement

Methods

The clinical utility of bone mineral densitometry (BMD) measurement in the identification of individuals with osteoporosis and osteopenia is well established. Bone mineral density is most often evaluated with dual x-ray absorptiometry (DEXA or DXA), but other technologies including quantitative computed tomography (QCT) and ultrasound densitometry are also utilized. Single and dual photon absorptiometry and radiographic absorptiometry are now rarely used and may be considered obsolete.

- Dual x-ray absorptiometry offers several advantages including its ease of use, low radiation exposure, and its ability to measure BMD at both the hip and spine; DEXA can
also be used to measure central and peripheral sites. Dual X-ray absorptiometry generates two X-ray beams of different energy levels to scan the region of interest and measure the difference in attenuation as the low- and high-energy beams pass through the bone and soft tissue. The low-energy beam is preferentially attenuated by bone, while the high-energy beam is attenuated by both bone and soft tissue. This differential attenuation between the two beams allows correction for the irregular masses of soft tissue that surround the spine and hip, and therefore the measurement of bone density at those sites.

- Quantitative computed tomography depends on the differential absorption of ionizing radiation by calcified tissue and is used for central measurements only. Compared to DEXA, QCT is less readily available and associated with relatively high radiation exposure and relatively high cost.

- Ultrasound densitometry is a technique for measuring BMD at peripheral sites, typically the heel, but also the tibia and phalanges. Compared to osteoporotic bone, normal bone demonstrates higher attenuation of the ultrasound wave, and is associated with a greater velocity of the wave passing through bone. Ultrasound densitometry has no radiation exposure, and machines may be purchased for use in an office setting. Peripheral measurement by ultrasound can identify patients with low bone mass, but does not predict response to pharmacologic therapy and is not a substitute for central DEXA measurements. Current diagnostic and treatment criteria for osteoporosis rely on DEXA measurements only, and criteria based on ultrasound densitometry or a combination of ultrasonography and DEXA have not been defined (United States Preventative Services Task Force (USPSTF), 2011). Therefore, central DEXA (hip/spine) is required for both the initial diagnosis and repeat BMD assessments.

Various devices have been cleared for marketing by the United States Food and Drug Administration (FDA) through the 510(k) process and are commercially available.

**Primary Hyperparathyroidism**

Primary hyperparathyroidism (PHPT) is characterized by hypersecretion of parathyroid hormone (PTH) by one or more of the four parathyroid glands. A solitary benign neoplasm or adenoma is the most common cause; other known causes include parathyroid carcinoma and hereditary multiple endocrine neoplasia syndrome. The incidence of PHPT is highest after age 55 and occurs two to three times more frequently in women than in men (American Association of Clinical Endocrinologists (AACE)/American Association of Endocrine Surgeons (AAES), 2005). While some patients with PHPT present with severe symptoms, up to 50% are asymptomatic. Among the asymptomatic group, diagnosis is often based on an incidental laboratory finding of elevated PTH with relatively normal serum calcium levels (Potts, 2001). Renal and skeletal manifestations of PHPT are most common, including nephrolithiasis and osteoporosis (Potts, 2001). Bone loss from PHPT is more pronounced in the forearm (cortical bone) than in the spine (trabecular bone) or hip (mixed cortical and trabecular bone) (AACE/AAES, 2005). Surgery is the recommended treatment for symptomatic PHPT, but patients with asymptomatic PHPT may be managed medically, depending on age and severity of bone loss. Baseline BMD measurement at central and peripheral sites is recommended as part of the initial evaluation, regardless of treatment course (AACE/AAES, 2005; Silverman et al., 2009). For those asymptomatic patients who continue with medical management, regular
reassessment of BMD is important as changes in BMD may occur several years after diagnosis (Silverman et al., 2009).

**Testing Interval**

There are a number of published studies on the predictive value of BMD measurements for both men and women (Johnell et al., 2005; Feldstein et al., 2005). There is not, however, consensus regarding the appropriate interval for repeated central BMD measurement, regardless of past results.

A longitudinal study including over 6,000 men and women conducted by the Canadian Multicentre Osteoporosis Study Research Group reported on changes in BMD, as a function of age and antiresorptive agents (Berger et al., 2008). The subjects were 25 years of age or older and BMD measurements were repeated at three to five year intervals. Results showed annual rates of bone loss, measured at the hip or femoral neck, increased between 25 to 85 years of age in women who were not on antiresorptive therapy, with accelerated periods of bone loss around menopausal transition (40 to 54 years of age) and after 70 years of age. Antiresorptive therapy was associated with attenuated bone loss across all age ranges. In women 50 to 79 years of age, the average loss in BMD over a five-year period was 3.2% in non-users of antiresorptive therapy and 0.2% in women who used antiresorptive therapy. The pattern in men was generally similar to that of women with two exceptions, BMD loss began earlier in men, and the rate of change remained relatively constant between 40 and 70 years of age. The report concluded “although current guidelines recommend that measurements of bone density be repeated once every two to three years, our data suggest that, at this rate of testing, the average person would exhibit change well below the margin of error, especially since only 25% of women experienced a loss of bone density that exceeded 5% over five years.”

Frost and colleagues (2009) developed a prognostic model to determine the optimal screening interval for an individual without osteoporosis (defined as T-score more than -2.5). They used prospective population-based data collected from 1,768 women and men who were non-osteoporotic at baseline; participants received BMD screening every two years and received a median follow-up of just over seven years. For a typical screening candidate, a 65-year-old woman with a baseline T-score of -1.0, the estimated time to reach a 10% risk of fracture was 3.8 years and to reach a 20% risk of fracture was 6.5 years. The study suggested a three- to five-year time interval for repeat measurement of BMD in people who tested normal is reasonable, but that an individualized model could result in longer or shorter recommended re-testing intervals.

Bell and colleagues (2009) conducted a secondary analysis of data from the Fracture Intervention Trial (FIT), which randomized 6,459 postmenopausal women with low BMD to receive treatment with bisphosphonates or placebo; women underwent annual bone density scans. In their analysis, the investigators estimated between-person (treatment-related) variation and within-person (measurement-related) variation in hip and spine BMD over three years to assess the value of repeat BMD scans for monitoring response to treatment. While the study showed clinically significant increases in between-person variability, large within-person variability in BMD measurement were also noted. The average within-person variation in BMD measurement was 0.013 grams/centimeter$^2$ (g/cm$^2$), which was substantially higher than the average annual increase in BMD in the alendronate group, which was 0.085 g/cm$^2$. This finding suggested the
precision of BMD measurement is not reliable from year to year, and thus annual retesting was not useful. Additional studies were needed to determine the optimal time interval for rescreening after starting bisphosphonate treatment.

The National Osteoporosis Foundation (NOF, 2010) stated serial monitoring of BMD is appropriate for monitoring bone loss in patients on pharmacotherapy. They generally recommended testing every two years in this group, but recognized more frequent testing may be warranted in certain clinical situations.

The large number of technology assessments, guidelines and position statements demonstrated that while it is generally agreed that BMD measurement is an integral part of osteoporosis screening and fracture prevention, there is considerable variability in recognized risk factors and BMD testing intervals. Positions from several national organizations, including the American College of Rheumatology (2001), the American Association of Clinical Endocrinologists (2003), the American College of Obstetricians and Gynecologists (2004 & 2008), the United States Surgeon General (2004), the Institute for Clinical Systems Improvement (2006), the International Society for Clinical Densitometry (ISCD, 2007), the American College of Radiology (2006 & 2007), the American College of Physicians (2008), the NOF (2010), and the United States Preventative Services Task Force (2011) were considered along with current research in developing the policy position for BMD measurement.

**Vertebral Fracture Assessment**

Vertebral fractures are highly prevalent in the elderly population. Epidemiologic studies have found these fractures are associated with an increased risk of future spine or hip fractures independent of BMD (North American Menopause Society (NAMS), 2007; NOF, 2010). The NOF, in addition to their recommendations for postmenopausal women with osteoporosis and osteopenia, recommended treatment of postmenopausal women presenting with fragility fractures of the spine or hip.

Lateral spine x-ray is the current gold standard for diagnosing vertebral fractures. Lateral spine imaging with DEXA, known as vertebral fracture assessment (VFA), differs from radiological detection of fractures, as VFA uses a lower radiation exposure and can detect only fractures, while traditional x-ray images can detect other bone and soft tissue abnormalities in addition to spinal fractures. Manufacturers have also referred to this procedure as instant vertebral assessment (IVA), or radiographic vertebral assessment (RVA) (Hologic, Bedford, MA), or dual energy vertebral assessment (DVA™), previously known as lateral vertebral assessment (LVA™) (General Electric (GE) Lunar Medical Systems, Madison, WI). Vertebral fracture assessment has been proposed as an alternative to conventional radiography. According to the ICSD, the methodology utilized for VFA should include visual evaluation and assessment of grade/severity, in addition to morphometry. The ICSD identified the Genant visual semi-quantitative method as the technique of choice for VFA. The Genant method grades vertebral deformities from grade I, a 20% to 24% reduction in vertebral height, up to grade III, a 40% reduction in vertebral height. A vertebral deformity of at least 20% loss in height is typically considered a fracture. Accurate interpretation of both lateral spine x-rays and VFA imaging requires specific radiological training.
Many densitometers have received 510(k) marketing clearance from the FDA. To perform VFA with a densitometer, additional software is needed and it must have 510(k) marketing clearance from the FDA as well.

It has been proposed that VFA by DEXA can be performed at the time of routine bone density testing in men and postmenopausal women with osteopenia to screen for vertebral fractures which would not otherwise be detected and would influence clinical management. Conclusions about the utility of the test, given its diagnostic characteristics, must then be placed in context of the clinical use of the test in making treatment decisions.

Screening for vertebral fracture with DEXA was the topic of the October 2006 Blue Cross Blue Shield Technology Evaluation Center (TEC) Assessment. The Assessment evaluated the accuracy of VFA in identifying vertebral fractures and its ability to identify candidates for osteoporosis treatment who would not otherwise be identified. The Assessment concluded the available evidence did not demonstrate screening for vertebral fracture improved health outcomes compared to BMD measurement.

A review by Duboeuf and colleagues (2006), noted potential advantages of VFA including avoidance of radiographs, lower radiation exposure and cost, and efficiency when paired with BMD measurement. However, the review also indicated technological improvements are necessary to improve image quality, and the poor image quality of densitometry at the thoracic level is a major limitation in clinical practice. The ISCD (2006) also indicated, “due to its lower resolution, VFA does not provide the image quality of conventional radiography.” Fuerst and others (2009) reached a similar conclusion in a recent multicenter comparative trial of VFA and conventional radiography. The study found VFA “underperformed” due to image quality and reduced sensitivity for mild fractures, but was able to identify most moderate and severe vertebral fractures accurately.

The ISCD updated their position statement in 2007 recommending VFA for postmenopausal women with low bone mass (osteopenia) by BMD criteria PLUS one of the following criteria:

- Age greater than or equal to 70 years
- Historical height loss greater than 4 centimeters (cm) (1.6 inches (in))
- Prospective height loss greater than 2 cm (0.8 in)
- Self-reported prior vertebral fracture (not previously documented)
- Two or more of the following:
  - Age 60 to 69 years
  - Self-reported prior non-vertebral fracture
  - Historical height loss of 2 to 4 cm
  - Chronic systemic diseases associated with increased risk of vertebral fractures (for example, moderate to severe chronic obstructive pulmonary disease (COPD), seropositive rheumatoid arthritis, Crohn's disease)

Men with low bone mass (osteopenia) by BMD criteria, PLUS one of the following:

- Age 80 years or older
- Historical height loss greater than 6 cm (2.4 in)
- Prospective height loss greater than 3 cm (1.2 in)
• Self-reported vertebral fracture (not previously documented)
• Two or more of the following:
  • Age 70 to 79 years
  • Self-reported prior non-vertebral fracture
  • Historical height loss of 3 to 6 cm
  • On pharmacologic androgen deprivation therapy or following orchiectomy
  • Chronic systemic diseases associated with increased risk of vertebral fractures (for example, moderate to severe chronic obstructive pulmonary disease (COPD), seropositive rheumatoid arthritis, Crohn's disease)

The NAMS (2010) position statement on management of osteoporosis did not include a recommendation for or against VFA as part of the screening process. Their position stated vertebral fracture must be confirmed by lateral spine radiographs or VFA visualization of fracture at the time of BMD testing.

The 2010 NOF Clinician's Guide to Prevention and Treatment of Osteoporosis includes the following statement on VFA:

Independent of BMD, age and other clinical risk factors, radiographically confirmed vertebral fractures are a strong predictor of new vertebral fractures, and they also predict other fractures. VFA imaging of the thoracic and lumbar spine using central DXA scanners should be considered at the time of BMD assessment when the presence of a vertebral fracture not previously identified may influence clinical management of the patient.

A review of the literature through December 2010 indicated that although VFA may provide a rapid and convenient assessment, the images obtained are not of sufficient quality to reliably establish the presence or absence of vertebral fractures. There is a lack of direct evidence from screening trials comparing densitometry with and without VFA that VFA improved health outcomes (TEC, 2006; Damiano et al., 2006; Duboeuf et al., 2006; ISCD, 2006; Ferrar et al., 2007; Fuerst et al., 2009).

Since direct evidence was not available, a causal chain of indirect evidence was examined. Some evidence existed regarding the diagnostic performance of vertebral assessment. Using the vertebra as the unit of analysis, sensitivity ranged from 54% to 72% and specificities ranged from 94% to 99%. Regarding clinical utility, studies have found VFA can identify individuals with low bone density who may be appropriate candidates for treatment (Greenspan et al., 2001; Schousboe et al., 2002; Jager et al., 2010). However, there is limited evidence on the effectiveness of treatment in this population. No trials have been published that were designed to evaluate whether treating patients with low bone density and vertebral fracture reduces risk of future fracture. The available data are two post hoc subanalyses (generally considered to be exploratory) from larger treatment trials including patients with low bone density and baseline vertebral fractures with medication versus placebo; both found a benefit of treatment (Quandt et al., 2005; Kanis et al., 2005). Baseline vertebral fracture was defined differently in the two analyses; clinical or radiographically detected vertebral fracture in one study and radiographically detected vertebral fracture-only in the other. No treatment data have been published in patients whose vertebral fracture had been identified using VFA software with
densitometry. Moreover, data are only available on postmenopausal women. Thus, screening for vertebral fractures using DEXA is considered investigational.

**Benefit Application**

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Some state or federal mandates (e.g., Federal Employee Program (FEP)) prohibit Plans from denying Food and Drug Administration (FDA) - approved technologies as investigational. In these instances, plans may have to consider the coverage eligibility of FDA-approved technologies on the basis of medical necessity alone.

This Policy relates only to the services or supplies described herein. Benefits may vary according to benefit design; therefore, contract language should be reviewed before applying the terms of the Policy. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT</td>
<td>76977</td>
<td>Ultrasound bone density measurement and interpretation, peripheral site(s), any method</td>
</tr>
<tr>
<td></td>
<td>77078</td>
<td>Computed tomography, bone mineral density study, 1 or more sites; axial skeleton (e.g., hips, pelvis, spine)</td>
</tr>
<tr>
<td></td>
<td>77080</td>
<td>Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; axial skeleton (e.g., hips, pelvis, spine)</td>
</tr>
<tr>
<td></td>
<td>77081</td>
<td>Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; appendicular skeleton (peripheral) (e.g., radius, wrist, heel)</td>
</tr>
<tr>
<td></td>
<td>77085</td>
<td>Dual-energy x-ray absorptiometry (DXA), bone density study, 1 or more sites; axial skeleton (e.g., hips, pelvis, spine), including vertebral fracture assessment</td>
</tr>
<tr>
<td></td>
<td>77086</td>
<td>Vertebral fracture assessment via dual-energy x-ray absorptiometry (DXA)</td>
</tr>
<tr>
<td></td>
<td>78350</td>
<td>Bone density (bone mineral content) study, 1 or more sites; single photon absorptiometry</td>
</tr>
</tbody>
</table>
Medical Policy: Bone Mineral Density and Vertebral Fracture Assessment
Original Policy Date: 7/2/2009
Effective Date: 1/1/2015

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>78351</td>
<td>Bone density (bone mineral content) study, 1 or more sites; dual photon absorptiometry, 1 or more sites</td>
</tr>
<tr>
<td>HCPC</td>
<td>G0130</td>
<td>Single energy x-ray absorptiometry (SEXA) bone density study, one or more sites; appendicular skeleton (peripheral) (e.g., radius, wrist, heel)</td>
</tr>
<tr>
<td>ICD9 Procedure</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>ICD9 Diagnosis</td>
<td>All Diagnoses</td>
<td></td>
</tr>
<tr>
<td>Place of Service</td>
<td>All Places of Service</td>
<td></td>
</tr>
</tbody>
</table>

### Tables

N/A

### Definitions

**Osteopenia** - Low bone mass occurring when normal rate of bone lysis exceeds the rate of osteoid tissue synthesis. A condition of diminished amount of bone tissue, without respect to cause. The designation for bone density between 1.0 and 2.5 standard deviations below the mean for young normal adults (T-score between -1.0 and -2.5).

**Osteoporosis** - A chronic, progressive disease characterized by low bone mass, microarchitectural deterioration of bone tissue and decreased bone strength, bone fragility and a consequent increase in fracture risk; bone density 2.5 or more standard deviations below the young normal mean (T-score at or below -2.5).

### Index / Cross Reference of Related BSC Medical Policies

The following Medical Policies share diagnoses and/or are equivalent BSC Medical Policies:

- Bone Turnover Markers for Osteoporosis
Key / Related Searchable Words

N/A

References


**Policy History**

This section provides a chronological history of the activities, updates and changes that have occurred with this Medical Policy.
<table>
<thead>
<tr>
<th>Effective Date</th>
<th>Action</th>
<th>Reason</th>
</tr>
</thead>
</table>
| 7/2/2009      | New Policy. Policies combined:  
- Bone Mineral Density  
- Screening for Vertebral Fracture with Dual X-ray Absorptiometry (DEXA) | Medical Policy Committee |
| 7/8/2010      | Policy Revision Testing interval revised | Medical Policy Committee |
| 1/12/2011     | Policy Revision - Testing interval revised | Medical Policy Committee |
| 4/1/2011      | Policy revision with position change | Medical Policy Committee |
| 3/13/2012     | Coding Update | Administrative Review |
| 1/1/2015      | Coding update | Administrative Review |

The materials provided to you are guidelines used by this plan to authorize, modify, or deny care for persons with similar illness or conditions. Specific care and treatment may vary depending on individual need and the benefits covered under your contract. These Policies are subject to change as new information becomes available.