Clinical Policy Title: Bone mineral density measurement

Clinical Policy Number: 17.01.01

Effective Date: September 1, 2013
Initial Review Date: April 23, 2013
Most Recent Review Date: April 3, 2018
Next Review Date: April 2019

Related policies:
CP# 00.02.05  Agents for osteoporosis

ABOUT THIS POLICY: AmeriHealth Caritas has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas’ clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by AmeriHealth Caritas when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. AmeriHealth Caritas’ clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. AmeriHealth Caritas’ clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas will update its clinical policies as necessary. AmeriHealth Caritas’ clinical policies are not guarantees of payment.

Coverage policy

AmeriHealth Caritas considers the use of bone mineral density (BMD) measurement using dual-energy X-ray absorptiometry (DXA/DEXA) to be clinically proven and, therefore, medically necessary for members when at least one of the following clinical criteria and one of the following equipment criteria are met (Schweiger 2016, International Society for Clinical Densitometry [ISCD] 2013 and 2015, Blain 2014, U.S. Preventive Services Task Force [USPSTF] 2011, Qaseem 2008):

Adults (ISCD 2015)

- Women age 65 and older.
- For post-menopausal women younger than age 65 a bone density test is indicated if they have a risk factor for low bone mass such as;
  - Low body weight
  - Prior fracture
  - High risk medication use
Women during the menopausal transition with clinical risk factors for fracture, such as low body weight, prior fracture, or high-risk medication use.
• Men age 70 and older.
• For men < 70 years of age a bone density test is indicated if they have a risk factor for low bone mass such as:
  o Low body weight
  o Prior fracture
  o High risk medication use
  o Disease or condition associated with bone loss.
• Adults with a fragility fracture.
• Adults with a disease or condition associated with low bone mass or bone loss.
• Adults taking medications associated with low bone mass or bone loss.
• Anyone being considered for pharmacologic therapy.
• Anyone being treated, to monitor treatment effect.
• Anyone not receiving therapy in whom evidence of bone loss would lead to treatment.

Women discontinuing estrogen should be considered for bone density testing according to the indications listed above.

Children and adolescents (ISCD 2013)

• Children or adolescents with a finding of one or more vertebral compression fractures in the absence of local disease or high-energy trauma.
• Presence of both a clinically significant fracture history and BMD Z-score ≤ -2.0.
  o A clinically significant fracture history is one or more of the following:
    ▪ Two or more long bone fractures by age 10 years
    ▪ Three or more long bone fractures at any age up to age 19 years.
• The DXA measurement is part of a comprehensive skeletal health assessment
• The DXA is performed when the DXA results will influence patient treatment interventions to decrease their elevated risk of a clinically significant fracture.

Intervals between BMD testing should be determined according to each patient’s clinical status, typically after initiation or change of therapy. (ISCD 2015).

In certain circumstances AmeriHealth Caritas considers BMD testing to be clinically proven and therefore medically necessary, at a frequency more than once every 23 months, when at least 11 months have elapsed since the previous BMD measurement and testing is limited to the following:

• An individual currently receiving pharmaceutical management with a glucocorticoid (steroid) equivalent to an average of 5.0 mg of prednisone or greater per day for more than three
months.

- Confirming baseline BMDs to permit monitoring of members when the initial BMD was not done on the axial skeleton using a DXA/DEXA system. An individual being monitored to assess the response to, or efficacy of, a U.S. Food and Drug Administration (FDA)-approved osteoporosis drug therapy when performed with a DXA/DEXA system (axial skeleton) until, over time, a response to such therapy has been documented.

AND

- An AmeriHealth Caritas-approved and FDA-approved densitometer is used when the results of the BMD study will be used in treatment decisions.
- A peripheral BMD may be considered to be proven and medically necessary when an FDA-approved densitometer is used for either of the following:
  - An individual physically unable to undergo axial skeleton (hip/spine) measurements due to physical size and surpassing the table limits for the DXA/DEXA device.
  - Individuals diagnosed with hyperparathyroidism for whom a BMD of the forearm is crucial to diagnosis.

All other uses of BMD testing not described within the context of this policy are considered to be investigational and therefore not medically necessary, as their effectiveness is not supported by peer-reviewed professional literature.

Limitations:

AmeriHealth Caritas considers the following to be limitations to this policy:

- DXA/DEXA should not be performed if contractures prevent the safe and appropriate positioning of the individual, especially in pediatric cases (ISCD 2013).
- BMD measurement must include physician interpretation.
- BMD testing should be performed at DXA/DEXA facilities using accepted quality assurance measures.

AmeriHealth Caritas considers the following BMD tests to be investigational and therefore not medically necessary, as the use of these tests is not supported by peer-reviewed professional literature:

- Single-photon absorptiometry (CT code 78350).
- Dual-photon absorptiometry (CPT 78351).

All other uses of BMD measurement are not medically necessary.

Alternative covered services:

- Routine patient evaluation and management by a network healthcare provider
**Background**

Bone strength is an important factor in an individual's overall mobility and resistance to fractures and is determined in part by bone density. Bone strength and density are determined by the mineral content of a specified area as applied to size and shape (mass) of a bone. Low-density bones are less healthy, more fragile, and prone to fractures. Osteoporosis is a disease marked by the progressive decrease in bone density, increased fragility, and a susceptibility to bone fractures. Osteoporosis-related changes occur when bone loss exceeds bone formation. Osteoporotic changes in the bones are commonly found in postmenopausal women; however, they are seen in both genders and all people of advancing age. Secondary osteoporosis may be caused by conditions that impair the intake and utilization of nutrients, such as anorexia nervosa, bariatric surgery, or prolonged steroid drug treatment.

BMD tests are noninvasive, used to identify individuals with osteoporosis, and may be used to monitor response to osteoporosis treatments. The goal of detecting a low BMD in an individual is to assist with the decision-making toward treatment to prevent a fragility (osteoporotic) fracture. The risk-predicting ability of BMD studies has been compared to the use of cholesterol testing to predict hypertension and heart disease. BMD studies are radiologic or radioisotopic and are performed with an FDA-approved bone densitometer (other than single-photon or dual-photon absorptiometry) or a bone sonometer system. The gold standard and most widely used method for BMD is DXA/DEXA.

DEXA requires a short scan time and is used to provide extremely precise and reproducible BMD measurement. The preferred DEXA measurement sites are located on the central skeleton; these are the total hip, femoral neck, total lumbar spine, or some combination of these sites. Central skeletal sites are preferred for baseline and serial BMD measurements and are also more likely than peripheral skeletal sites to show a response to treatment. Examples of peripheral skeletal sites are the wrist, finger, forearm, or heel. Peripheral testing only uses one site, and this may be problematic because of differences in bone density between different skeletal sites. Low bone densities in other skeletal areas may be overlooked. It is important to note that the diagnostic criteria established by the WHO and recommendations by the American Association of Clinical Endocrinologists (AACE) apply only to the peripheral radius site and central (total hip, femoral neck, lumbar spine) site DEXA measurements (AACE, 2010).

Other BMD techniques use both the central and skeletal sites. In addition to DEXA, the established methods for BMD testing are the following:

- Quantitative computed tomography (QCT).
- Radiographic absorptiometry (RA; photodensitometry).
- Single-energy X-ray absorptiometry (SEXA).
- Ultrasound BMD studies (i.e., bone sonometry).

Quantitative computed tomography is a three-dimensional BMD test that also uses both central and peripheral skeletal sites. The measurement is calculated using the differential absorption of ionizing
Radiographic absorptiometry uses plain radiographs of peripheral sites, most commonly from the hand or heel. Its use decreased as other precise nonradiographic techniques became available. Single-photon absorptiometry (SPA) uses a single-energy beam usually passed through the wrist to provide a quantitative measurement of bone mineral and trabecular bone. Dual-photon absorptiometry measures BMD by the absorption of a dichromatic beam by bone material, and has limited usefulness in monitoring BMD changes. In current practice, these methods are rarely used. In particular, dual-photon absorptiometry may be considered obsolete.

**Searches**

AmeriHealth Caritas searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on February 13, 2018. Search terms were “bone measurement,” “osteoporosis,” “menopause,” and “DEXA” (MeSH).

We included:

- Systematic reviews, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- Guidelines based on systematic reviews.
- Economic analyses, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

Various clinical and special interest organizations have published clinical guidelines for osteoporosis and BMD testing. However, at the writing of this policy, no single unifying consensus statement has been formulated. All professional societies acknowledge the aging of the U.S. population will likely lead to an increase in cases of osteoporosis. BMD testing could detect osteoporosis in a large portion of the population and may prevent many fractures and fracture-related illnesses in this population.

The studies and national guidelines below recommend screening for osteoporosis in women age 65 or older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white
woman with no additional risks. The examination may be performed using either single-photon or dual-
photon absorptiometry. A higher frequency of testing (i.e., more often than every 23 months) has not
been demonstrated to improve outcomes.

Osteoporosis is diagnosed by using the globally accepted World Health Organization (WHO) definition of
BMD measurement and fracture risk assessment. The WHO definition of osteoporosis is based on a
bone mineral density 2.5 standard deviations (-2.5 T-score) below the mean found in young, healthy
adults. Bone mass measurements are performed to identify bone mass (mineral density), detect bone
loss, or determine bone quality. The WHO has developed the fracture risk assessment (FRAX®), a tool
used to combine the risks associated with a femoral neck BMD and other clinical risk factors for an
evaluation of an individual’s overall fracture risk. This computer-based tool, available on the WHO
website, also has several simplified paper versions. Access to the web-based tool enables calculations
for the major races found on each continent. FRAX® algorithms are used to assess an individual’s 10-
year fracture probability for both femoral and other major osteoporotic fractures (clinical spine,
forearm, hip, or shoulder fracture).

The United States Preventative Services Task Force (USPSTF) recommendations for BMD testing include
all racial and ethnic groups for women age 65 and older, as the consequences of failing to identify and
treat women with low BMD are significant. The same recommendations do not define an upper age limit
for screening women because of the increased risk for fractures with the advancement in age and the
fact that treatment harms remain small. These same guidelines recommend women under age 65 who
have a fracture risk greater than or equal to that of a 65-year-old white woman also be screened for
BMD (USPSTF 2011). The American College of Physicians states that high-quality evidence shows that
age, low body weight, physical inactivity, and weight loss are strong predictors of an increased risk for
osteoporosis in men (ACOP 2008).

The National Osteoporosis Foundation (NOF) 2013 recommendations include both men and women.
The NOF agrees with the USPSTF recommendation that women age 65 and older should be screened,
and adds recommendations that men age 70 and older be tested regardless of risk factors. The NOF
further provides indications for bone mineral testing for men between the ages of 50 and 69. The 2013
updated NOF Clinician’s Guide stresses the importance of screening vertebral imaging to diagnose
asymptomatic vertebral fractures; provide updated information on calcium, vitamin D and osteoporosis
medications; and address treatment durations.

Skeletal health in children between the ages of 5 and 19 is assessed by the use of fracture prediction and
definition of osteoporosis. Fracture prediction is the identification of significant fractures of the long
bones, vertebral compression fractures, or two or more long bone fractures of the upper body. A
diagnosis of osteoporosis in children is not made solely on the basis of densitometric criteria. The
diagnosis must take into account the clinically significant fracture history and BMD or low bone mineral
content (BMC). Low BMD or BMC is defined by the presence of a BMC or BMD Z-score less than or equal
to -2.0, adjusted for the child’s gender, age, and body size (ISCD 2015).
Policy updates:

A systematic review and meta-analysis (Schweiger, 2016) evaluated the evidence of low bone mineral density (BMD) in 1,842 depressed and 17,401 nondepressed individuals. Significant negative composite weighted mean effect sizes were identified for the lumbar spine (d = -0.15, 95%CL -0.22 to -0.08), femur (d = -0.34, 95%CL -0.64 to -0.05), and total hip (d = -0.14, 95%CL -0.23 to -0.05) indicating low BMD in depression. Examining men and women showed low bone density in the lumbar spine and femur in women and low bone density in the hip in men. The differences between men and women with mineral density deficit (MDD) and the comparison group tended to be higher when examined by expert interviewers. Low bone density was found in all age groups. The authors concluded that bone mineral density is reduced in patients with depressive disorders.

During the interval since our last update further information has come forward regarding testing for BMD.

A systematic review (Blain 2014) assessed whether a fall within the past year should trigger automatic BMD testing. The premise was based on estimations of osteoporosis and fall risk, studies that cite fracture risk is independent from fall risk, that osteoporosis drugs have been proven effective in preventing fracture in people with osteoporosis, and the prevalence of osteoporosis is high in patients who fall and increases in the presence of markers for frailty (e.g., recurrent falls, sarcopenia [low muscle mass and strength], limited mobility, and weight loss). The authors noted that life expectancy should be taken into account when assessing the appropriateness of BMD in fallers, as osteoporosis treatments require at least 12 months to decrease the fracture risk. Other factors that impact the management of fallers include the availability of testing sites, which may be limited due to geographic factors, patient dependency, or severe cognitive impairments.

Summary of clinical evidence:

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schweiger (2016)</td>
<td>Key points:</td>
</tr>
</tbody>
</table>
| Bone density and depressive disorder: a meta-analysis | - Systematic review and meta-analysis of 1,842 depressed and 17,401 nondepressed individuals. 
- Significant negative composite weighted mean effect sizes were identified for the lumbar spine (d = -0.15, 95%CL -0.22 to -0.08), femur (d = -0.34, 95%CL -0.64 to -0.05), and total hip (d = -0.14, 95%CL -0.23 to -0.05) indicating low BMD in depression. 
- Examining men and women showed low bone density in the lumbar spine and femur in women and low bone density in the hip in men. 
- Differences between men and women with MDD and the comparison group tended to be higher when examined by expert interviewers. 
- Low bone density was found in all age groups. 
- The authors concluded that bone mineral density is reduced in patients with depressive disorders. |
<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
</table>
| ISCD (2015) Official Positions 2015: adults | **Key points:**  
  - Adult Official Positions of the ISCD as updated in 2015 define the indications for BMD testing:  
    - Women aged 65 and older  
    - For post-menopausal women younger than age 65 a bone density test is indicated if they have a risk factor for low bone mass such as:  
      - Low body weight  
      - Prior fracture  
      - High risk medication use  
      - Disease or condition associated with bone loss.  
    - Women during the menopausal transition with clinical risk factors for fracture, such as low body weight, prior fracture, or high-risk medication use.  
    - Men aged 70 and older.  
    - For men < 70 years of age a bone density test is indicated if they have a risk factor for low bone mass such as:  
      - Low body weight  
      - Prior fracture  
      - High risk medication use  
      - Disease or condition associated with bone loss.  
    - Adults with a fragility fracture.  
    - Adults with a disease or condition associated with low bone mass or bone loss.  
    - Adults taking medications associated with low bone mass or bone loss.  
    - Anyone being considered for pharmacologic therapy.  
    - Anyone being treated, to monitor treatment effect.  
    - Anyone not receiving therapy in whom evidence of bone loss would lead to treatment.  
    - Women discontinuing estrogen should be considered for bone density testing according to the indications listed above.  
    - Intervals between BMD testing should be determined according to each patient’s clinical status, typically after initiation or change of therapy.  
| Blain (2014) Usefulness of bone density measurement in fallers. | **Key points:**  
  - Systematic review assessed whether a fall within the past year should trigger automatic BMD testing.  
  - The premise was based on estimations of osteoporosis and fall risk, studies that cite fracture risk is independent from fall risk, that osteoporosis drugs have been proven effective in preventing fracture in people with osteoporosis, and the prevalence of osteoporosis is high in patients who fall and increases in the presence of markers for frailty (e.g., recurrent falls, sarcopenia [low muscle mass and strength], limited mobility, and weight loss).  
  - The authors noted that life expectancy should be taken into account when assessing the appropriateness of BMD in fallers, as osteoporosis treatments require at least 12 months to decrease the fracture risk.  
  - Other factors that impact the management of fallers include the availability of testing sites, which may be limited due to geographic factors, patient dependency, or severe cognitive impairments.  
| ISCD (2013) | **Key points:**  

Skeletal health in children between the ages of 5 and 19 is assessed by the use of fracture prediction and definition of osteoporosis.

Fracture prediction is the identification of significant fractures of the long bones, vertebral compression fractures, or two or more long bone fractures of the upper body.

A diagnosis of osteoporosis in children is not made solely on the basis of densitometric criteria.

The diagnosis must take into account the clinically significant fracture history and BMD or low bone mineral content (BMC).

Low BMD or BMC is defined by the presence of a BMC or BMD Z-score less than or equal to -2.0, adjusted for the child’s gender, age, and body size.

The U.S. Preventive Services Task Force updated its 2002 recommendation on screening for osteoporosis.

Key points:

- The USPSTF evaluated evidence on the diagnostic accuracy of risk assessment instruments for osteoporosis and fractures, the performance of DEXA and peripheral bone measurement tests in predicting fractures, the harms of screening for osteoporosis, and the benefits and harms of drug therapy for osteoporosis in women and men.

- The USPSTF recommends screening for osteoporosis in women age 65 older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors (Grade B recommendation).

- The USPSTF concluded the current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis in men.

Recommended physicians periodically assess elderly men for risk factors for osteoporosis. Although osteoporosis is often viewed as a disease of women, studies show osteoporotic fractures in men are associated with significant morbidity and mortality, resulting in substantial disease burden, death, and health care costs.

The prevalence of osteoporosis is estimated to be 7% in white men, 5% in black men, and 3% in Hispanic men. Data on prevalence of osteoporosis in Asian-American men and other ethnic groups is lacking.

The guideline recommended that clinicians assess risk factors for osteoporosis in older men and obtain a DXA scan for men at increased risk for osteoporosis who are candidates for drug therapy.

Risk factors for osteoporosis in men include age greater than 70; low body weight (BMI less than 20 to 25 kg/m²); weight loss (greater than 10%); lack of regular physical activity such as walking, climbing stairs, carrying weights, housework, or gardening; use of oral corticosteroids; previous osteoporotic fracture; and androgen deprivation therapy.

ACP also recommended further research to evaluate osteoporosis screening tests in men and that, presently, non-DXA tests are either "too insensitive or have insufficient data to reach conclusions."

**References**

**Professional society guidelines/other:**

American Association of Clinical Endocrinologists (AACE) Osteoporosis Task Force. AACE Medical Guidelines for Clinical Practice for the diagnosis and treatment of postmenopausal osteoporosis. *Endocr*


Peer-reviewed references:


National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Osteoporosis in men. [NIAMS website.] Reviewed January 2012. Available at


**CMS National Coverage Determinations (NCDs):**

150.3 Bone mineral density testing. CMS website https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=256&ncdver=2&CovSelection=Both&ArticleType=All&PolicyType=Final&s=All&KeyWord=bone+mineral+density&KeyWordLookUp=Title&KeyWordSearchType=And&bc=gAAAAACAAAAAA& Accessed February 13, 2018

**Local Coverage Determinations (LCDs):**

**Commonly submitted codes**

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<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>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td>77086</td>
<td>Vertebral fracture assessment via dual-energy X-ray absorptiometry (DXA)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>C90.00-C90.02</td>
<td>Multiple myeloma</td>
<td></td>
</tr>
<tr>
<td>D56.0</td>
<td>Alpha thalassemia</td>
<td></td>
</tr>
<tr>
<td>D56.1</td>
<td>Beta thalassemia</td>
<td></td>
</tr>
<tr>
<td>D56.8</td>
<td>Other thalassemias</td>
<td></td>
</tr>
<tr>
<td>E01.1</td>
<td>Iodine-deficiency related multinodular (endemic) goiter</td>
<td></td>
</tr>
<tr>
<td>E04.1</td>
<td>Nontoxic single thyroid nodule</td>
<td></td>
</tr>
<tr>
<td>E04.2</td>
<td>Nontoxic multinodular goiter</td>
<td></td>
</tr>
<tr>
<td>E04.8</td>
<td>Other specified nontoxic goiter</td>
<td></td>
</tr>
<tr>
<td>E04.9</td>
<td>Nontoxic goiter, unspecified</td>
<td></td>
</tr>
<tr>
<td>E05.90</td>
<td>Thyrotoxicosis</td>
<td></td>
</tr>
<tr>
<td>E07.9</td>
<td>Disorder of thyroid, unspecified</td>
<td></td>
</tr>
<tr>
<td>E21.0</td>
<td>Primary hyperparathyroidism</td>
<td></td>
</tr>
<tr>
<td>E28.310</td>
<td>Symptomatic premature menopause</td>
<td></td>
</tr>
<tr>
<td>E28.319</td>
<td>Asymptomatic premature menopause</td>
<td></td>
</tr>
<tr>
<td>E28.39</td>
<td>Other primary ovarian failure</td>
<td></td>
</tr>
<tr>
<td>E29.1</td>
<td>Hypogonadism, male</td>
<td></td>
</tr>
<tr>
<td>E34.2</td>
<td>Ectopic hormone secretion, not elsewhere classified</td>
<td></td>
</tr>
<tr>
<td>E55.9</td>
<td>Vitamin D deficiency, unspecified</td>
<td></td>
</tr>
<tr>
<td>E58</td>
<td>Dietary calcium deficiency</td>
<td></td>
</tr>
<tr>
<td>ICD-10 Code</td>
<td>Description</td>
<td>Comments</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>E72.0</td>
<td>Disorder of urea cycle metabolism</td>
<td></td>
</tr>
<tr>
<td>E10.1-E10.9</td>
<td>Diabetes Type I</td>
<td></td>
</tr>
<tr>
<td>E46</td>
<td>Malnutrition</td>
<td></td>
</tr>
<tr>
<td>E83.118</td>
<td>Other hemochromatosis</td>
<td></td>
</tr>
<tr>
<td>E83.119</td>
<td>Hemochromatosis, unspecified</td>
<td></td>
</tr>
<tr>
<td>E83.39</td>
<td>Hypophosphatasia</td>
<td></td>
</tr>
<tr>
<td>E84.0-E84.9</td>
<td>Cystic fibrosis</td>
<td></td>
</tr>
<tr>
<td>F10.10</td>
<td>Alcohol abuse</td>
<td></td>
</tr>
<tr>
<td>K76.9</td>
<td>Chronic liver disease</td>
<td></td>
</tr>
<tr>
<td>K90.9</td>
<td>Malabsorption</td>
<td></td>
</tr>
<tr>
<td>M06.0-M06.9</td>
<td>Rheumatoid arthritis</td>
<td></td>
</tr>
<tr>
<td>M80.08XA</td>
<td>Age-related osteoporosis with current pathological fracture, vertebra(e), initial encounter for fracture</td>
<td></td>
</tr>
<tr>
<td>M80.88XA</td>
<td>Other osteoporosis with current pathological fracture, vertebra(e), initial encounter for fracture</td>
<td></td>
</tr>
<tr>
<td>M83.0</td>
<td>Puerperal osteomalacia</td>
<td></td>
</tr>
<tr>
<td>M83.1</td>
<td>Senile osteomalacia</td>
<td></td>
</tr>
<tr>
<td>M83.2</td>
<td>Adult osteomalacia due to malabsorption</td>
<td></td>
</tr>
<tr>
<td>M83.3</td>
<td>Adult osteomalacia due to malnutrition</td>
<td></td>
</tr>
<tr>
<td>M83.4</td>
<td>Aluminum bone disease</td>
<td></td>
</tr>
<tr>
<td>M83.5</td>
<td>Other drug-induced osteomalacia in adults</td>
<td></td>
</tr>
<tr>
<td>M83.8</td>
<td>Other adult osteomalacia</td>
<td></td>
</tr>
<tr>
<td>M83.9</td>
<td>Adult osteomalacia, unspecified</td>
<td></td>
</tr>
<tr>
<td>M85.80-M85.9</td>
<td>Osteopenia</td>
<td></td>
</tr>
<tr>
<td>N91.0</td>
<td>Exercise induced amenorrhea</td>
<td></td>
</tr>
<tr>
<td>N91.5</td>
<td>Oligomenorrhea</td>
<td></td>
</tr>
<tr>
<td>Q78.0</td>
<td>Osteogenesis imperfecta</td>
<td></td>
</tr>
<tr>
<td>Z13.820</td>
<td>Encounter for screening for osteoporosis</td>
<td></td>
</tr>
<tr>
<td>Z68.20</td>
<td>Body mass index (BMI) 19 or less, adult</td>
<td></td>
</tr>
<tr>
<td>Z68.21</td>
<td>Body mass index (BMI) 20-20.9, adult</td>
<td></td>
</tr>
<tr>
<td>Z72.0</td>
<td>Tobacco use</td>
<td></td>
</tr>
<tr>
<td>Z78.0</td>
<td>Asymptomatic menopausal state</td>
<td></td>
</tr>
<tr>
<td>Z79.3</td>
<td>Long term (current) use of hormonal contraceptives</td>
<td></td>
</tr>
<tr>
<td>Z79.51</td>
<td>Long term (current) use of inhaled steroids</td>
<td></td>
</tr>
<tr>
<td>Z79.52</td>
<td>Long term (current) use of systemic steroids</td>
<td></td>
</tr>
<tr>
<td>Z79.891</td>
<td>Long term (current) use of opiate analgesic</td>
<td></td>
</tr>
<tr>
<td>Z79.899</td>
<td>Other long term (current) drug therapy</td>
<td></td>
</tr>
<tr>
<td>Z82.62</td>
<td>Family history of osteoporosis</td>
<td></td>
</tr>
<tr>
<td>Z87.310</td>
<td>Personal history of (healed) osteoporosis fracture</td>
<td></td>
</tr>
<tr>
<td>Z87.311</td>
<td>Personal history of (healed) other pathological fracture</td>
<td></td>
</tr>
<tr>
<td>Z87.81</td>
<td>Personal history of vertebral fracture, healed</td>
<td></td>
</tr>
<tr>
<td>Z90.722</td>
<td>Acquired absence of ovaries, bilateral</td>
<td></td>
</tr>
<tr>
<td>HCPCS Level II Code</td>
<td>Description</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>