AmeriHealth Caritas Louisiana

National Imaging Associates, Inc.*	
Clinical guidelines **CT BONE DENSITY STUDY**	**Original Date: April 1999**
CPT Codes: 77078	**Last Revised Date: May 2020**
Guideline Number: NIA_CG_060-2	**Implementation Date: ~~January 2021~~ TBD**

GENERAL INFORMATION:

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. All prior relevant imaging results, and the reason that alternative imaging (gold standard, protocol, contrast, etc.) cannot be performed must be included in the documentation submitted.

INDICATIONS FOR CT BONE DENSITY STUDY:

For first time baseline study:
(ACR, 2016~~, 2017~~; Cosman, 2014; **Curry, 2018; ISCD, 2019; Jeremiah, 2015~~; ISCD, 2019~~5**)

P~~In p~~atient with suspected osteoporosis or osteopenia meeting any of the following criteria when DEXA scanning is not available or for patients ~~>50 years of age~~ with advanced degenerative changes of the spine **or who are severely obese (BMI >35 kg/m)** that may limit the efficacy of DEXA scans

- Asymptomatic women 65 years of age or older ~~and men 70 and older~~
- **For post-menopausal women age < 65 or during the menopause transition, and men ~~<~~< 70 having at least one of the following risk factors for low bone mass or fractures;**
  - **Low body weight (<127 lb. or 57.6 kg or BMI < 20kg per m-)**
  - **A history of fracture**
  - **High risk medications (e.g., Steroids or glucocoricosteroids, anti-convulsants, heparin, lithium, estrogen receptor modulators, calcitonin, or biphosphanates)**
  - **Conditions that cause or contribute to osteoporosis and fractures (e.g., malabsorption syndromes, inflammatory bowel disease and other gastrointestinal conditions, metabolic bone disease, hyperparathyroidism, hypogonadism, thyroid hormone therapy or hyperthyroidism, chemotherapy, long term heparin therapy, rheumatologic and autoimmune diseases, renal failure, hematologic disorders, multiple myeloma, chronic alcoholism, etc.).**

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- ~~Disease or condition associated with bone loss~~
  ~~Women aged 50-64 years old with a 9.3% or greater 10-year fracture risk based on the WHO (World Health Organization Fracture Risk Assessment (FRAX) tool (USPSTF, 2011)*.~~
  ~~Individuals with at least ONE of the following risk factors:~~
  ~~Currently on medications associated with development of osteoporosis (e.g., steroids or glucocorticosteroids, anticonvulsants, heparin, lithium, estrogen receptor modulators (SERMs), calcitonin, or bisphosphonates, etc.)~~
  ~~Post-menopausal women younger than 65 and a low body weight (BMI <21 kb/m$^{2)}$~~
  ~~Estrogen deficiency and low calcium intake or alcoholism.~~
  ~~In postmenopausal women and men age 50 and older who have had an adult age fracture or individuals of any age who develop 1 or more insufficiency fractures.~~
- ~~Evidence of osteoporosis or osteopenia from x-ray or ultrasound.~~

- **Men aged 70 or older**
- ~~**Individuals with fragility fractures seen on other imaging studies** ~~studies~~~~
- ~~Back pain associated with loss of vertebral body height per x-ray without significant traumatic event~~
- ~~Loss of body height (>4 cm (>1.5 inches)) (ACR, 2016~~7~~)~~.
- **Loss of body height (>4 cm (>1.5 inches)) (ACR, 2016)**
- ~~Multiple fractures including compression fractures of the spine.~~
- ~~Conditions that cause or contribute to osteoporosis and fractures (e.g. malabsorption syndromes, inflammatory bowel disease and other gastrointestinal conditions, metabolic bone disease, hyperparathyroidism, hypogonadism, thyroid hormone therapy or hyperthyroidism, chemotherapy, long-term heparin therapy, rheumatologic and autoimmune diseases, renal failure, hematologic disorders, **multiple myeloma, chronic alcoholism,**etc.).~~
- Amenorrhea for greater than 1 year before the age of 42
- **Eating disorders, including anorexia nervosa and bulimia**
- **Individuals who have had gastric bypass for obesity (accuracy of dexa may be affected by obesity)**

For follow-up of individuals with known osteoporosis or osteopenia:
~~(Cosman, 2014)~~~~(Shoback, 2020;~~**Eastell, 2019; Shoback, 2020)**

- **In women with low to moderate risk reassess fracture risk in 2-4 years**

- **In post menopausal women with a low bone mineral density at high risk for fractures on treatment, monitor the spine and hip every 1-3 years.**
- **For patients on biphosphanates, reassess fracture risk every 3-5 years.**
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- No ~~o previous bone mineral density study within the past 23 months.~~

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- ~~P~~previous bone density within past 23 months **AND** meets any one of the above risk factor criteria. (More frequent BMD testing may be warranted in certain clinical situations and should be determined on a case by case basis).
- ~~After initiation of medical therapy for osteoporosis**: 1 to 2 years after initiating therapy for osteoporosis and every two years subsequent to the initial study (More frequent BMD testing may be warranted in certain clinical situations and should be determined on a case by case basis) (Cosman, 2014).~~

BACKGROUND:
Bone mineral density (BMD) measurement identifies patients with low bone density and increased fracture risk. Methods for measuring BMD are non-invasive, painless, and available on an outpatient basis. Dual energy x-ray absorptiometry (DXA), previously referred to as DEXA, is the most commonly used method of evaluating BMD and is the only BMD technology for which World Health Organization (WHO) criteria for the diagnosis of osteoporosis can be used. Patients who have a BMD that is 2.5 standard deviations below that of a "young normal" adult (T-score at or below -2.5) are deemed to have osteoporosis. Quantitative computed tomography (QCT) has not been validated for WHO criteria but can identify patients with low BMD compared to the QCT reference database and it can be used to identify patients who are at risk of fracture.

OVERVIEW:
DXA – Dual energy x-ray absorptiometry (DXA) is most often used to measure bone mineral density due to its low radiation exposure, low precision error, and capacity to measure multiple skeletal sites (spine, hip, or total body).

Axial DXA – This provides the "gold standard". Axial DXA predicts fracture risk at the site being measured.

Peripheral DXA – This device measures BMD at peripheral sites, generally at the heel or wrist. It is relatively cheap and portable and is an option when there is limited access to axial DXA.

Quantitative computed tomography (QCT) measures volumetric integral, trabecular and cortical bone density at the spine and hip and can be used to determine bone strength. Radiation dose is increased when compared with DXA. Indications are the same for QCT as DXA; however, DXA is recommended as the first-line test in most cases (~~Cosman, 2014;~~ACR 2016; Cosman, 2014)

Fracture Risk Assessment* - The fracture risk assessment **(FRAX)** tool developed by the World Health Organization estimates the 10 year risk of having a fracture based on factors such as age, sex, body mass index (BMI), previous fractures, parental fracture history, glucocorticoid use, Rheumatoid arthritis, and conditions predisposing to secondary osteoporosis (insulin

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dependent diabetes, osteogenesis imperfecta in adults, untreated long-standing hyperthyroidism, hypogonadism or premature menopause (<45 years), chronic malnutrition, or malabsorption and chronic liver disease) and tobacco and alcohol use. Based on FRAX, a 65-year-old woman without any additional conditions increasing fracture risk has a 9.3% 10-year risk of developing a fracture. This value is therefore used as the risk level cut-off recommending screening in patients younger than 65. ~~The FRAX tool is available on line at .~~

Ethnicity and Screening - Due to the potential negative consequences of fractures and the lack of an optimal age at which to screen populations of different ethnicity the USPSTF now recommends screening of all women aged 65 and older regardless of race and ethnicity.

Follow up Imaging~~**~~ **-** Follow up imaging is performed on patients at risk of developing osteoporosis or to evaluate the outcome of osteoporosis treatment. Follow up imaging is generally performed at 1-2 years after initiation of therapy for osteoporosis and subsequently every 2 years unless clinical circumstances prompt earlier imaging. In patients at increased risk for developing osteoporosis, imaging may be performed more frequently, particularly with patients with certain medical conditions and taking medications predisposing to fracture. The later population includes those undergoing long term therapy with common medications such as heparin or glucocorticoids.

POLICY HISTORY:
Review Date: April 2019
Review Summary:

- Changed language by removing "screening" in the following:- "For first time baseline ~~screening~~ study" AND "For ~~screening~~ follow-up of individuals with known osteoporosis or osteopenia"
- Removed erroneous chart information that was not intended for inclusion in guideline
- Updated references

Review Date: May 2020
Review Summary:

- **Changed indications for asymptomatic women and men**
- **Added imaging for men age>70**
- **Updated timing for follow up studies**

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REFERENCES:

Affordable Care Act (ACA) Nondiscrimination in Health Programs and Activities; §92.206 Equal Program Access on the Basis of Sex; Final Rule, [Section 1557]. *Federal Register* (May 18, 2016). https://federalregister.gov/a/2016-11458.

American College of Radiology (ACR). ACR Appropriateness Criteria®. https://acsearch.acr.org/docs/69358/Narrative/. Published 2016. ~~Retrieved December 28, 2017.~~

Cosman F, De Beur SJ, LeBoff MS, et al. Clinician's guide to prevention and treatment of osteoporosis. *Osteoporos Int*. 2014; 25(10):2359-2381. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4176573/. https://my.nof.org/file/bonesource/Clinicians-Guide.pdf. Retrieved December 28, 2017.

Curry SJ, Krist AH. Screening for Osteoporosis to Prevent Fractures: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2018 Jun 26;319(24):2521-2531. ~~Ebeling PR. Clinical practice. Osteoporosis in men. *New Engl J Med*. April 3, 2008; 358(14): 1474-1482. doi: 10.1056/NEJMcp0707217.~~

Eastell~~,~~ R~~.~~, Clifford~~,~~ CJ~~.~~, Black DM, et~~.~~ al. Pharmacological Management of Osteoporosis in Postmenopausal Women: An Endocrine Society Clinical Practice Guideline ~~Pharmacologic Management of Osteoporosis in Postmenopausal Women Guideline Resources.~~ ***J Clin Endocrinol Metab. 2019 May;* 104(5):1595–1622**. ~~JCEM. May 2019.~~

~~Fracture Risk Assessment Tool (FRAX).~~ **Centre for Metabolic Bone Diseases (CMBD), University of Sheffield, UK.** Fracture Risk Assessment Tool (FRAX). **https://www.sheffield.ac.uk/FRAX/tool.jsp**.

International Society for Clinical Densitometry (ISCD). *Official Positions: 2019~~5~~ Adult~~ and Pediatric.~~* https://**www.ISCD.com.**~~iscd.app.box.com/v/OP-ISCD-2015-Adult. Retrieved December 28, 2017.~~

Jeremiah~~,~~ MP~~.~~, Unwin~~,~~ BK~~.~~, et~~.~~ al. Diagnosis and Management of Osteoporosis. American Family Physician. 2015;92(4):261-268.

Panday K, Gona A, Humphrey MB. Medication-induced osteoporosis: screening and treatment strategies. *Ther Adv Musculoskelet Dis*. October 2014; 6(5):185-202. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4206646/. Retrieved January 10, 2018.

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Shoback, D., Rosen, CJ., et. al. Pharmacologic Management of Osteoporosis in Postmenopausal Women: An Endocrine Society Guideline Update. *The J of Clin Endocrinology and Metab*olism.. 2020; 105(3):-587-594.

T Yin M, RoyChoudhury A, Nishiyama K, et al. Bone density and microarchitecture in hepatitis C and HIV-cointected postmenopausal minority women. Osteoporos Int. 2018 Apr; 29(4):871-79. Epub 2018 Feb 1.

Unnanuntana A, Gladnick BP, Donnelly E, et al. The assessment of fracture risk. *J Bone Joint Surg Am*. March 2010; 92(3):743-753. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2827823/. Retrieved January 14, 2018.

US Preventive Services Task Force (USPSTF). Screening for osteoporosis: US Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2011; 54(5):356-364. http://annals.org/aim/fullarticle/746858/screening-osteoporosis-u-s-preventive-services-task-force-recommendation-statement. Retrieved February 18, 2017.

US PreventitivePreventive Services Task Force (USPTF). Recommendation Statement. *JAMA*. 2018;319(24):2521-2531.

Ward RJ, Robert CC, Bencardino JT, et al. ACR Appropriateness Criteria®. Osteoporosis and bone mineral density. *J Am Coll Radiol*. May 2017; 14 Suppl 5: S189-202. http://www.jacr.org/article/S1546-1440(17)30198-9/fulltext#sec1.3.3. Retrieved 1/18/18.

Yin MT, RoyChoudhury A, Nishiyama K, et al. Bone density and microarchitecture in hepatitis C and HIV-cointected postmenopausal minority women. Osteoporos Int. 2018 Apr; 29(4):871-79. Epub 2018 Feb 1.

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