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Medical Policy Manual

Topic: Screening for Vertebral Fracture with Dual X-ray Absorptiometry (DXA)

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IMPORTANT REMINDER

Medical Policies are developed to provide guidance for members and providers regarding coverage in accordance with contract terms. Benefit determinations are based in all cases on the applicable contract language. To the extent there may be any conflict between the Medical Policy and contract language, the contract language takes precedence.

PLEASE NOTE: Contracts exclude from coverage, among other things, services or procedures that are considered investigational or cosmetic. Providers may bill members for services or procedures that are considered investigational or cosmetic. Providers are encouraged to inform members before rendering such services that the members are likely to be financially responsible for the cost of these services.

DESCRIPTION

Dual x-ray absorptiometry (DXA) makes it possible to screen for vertebral fractures while measuring bone mineral density (BMD). This imaging may also be referred to as bone densitometry, morphometric x-ray absorptiometry (MXA), Instant Vertebral Assessment (IVA) (Hologic), Radiographic Vertebral Assessment (RVA) (Hologic), or Dual Energy Vertebral Assessment (DVA™) previously known as Lateral Vertebral Assessment™ (LVA) (GE Lunar Medical Systems).

Vertebral fractures are highly prevalent in the elderly population, and epidemiologic studies have found that these fractures are associated with an increased risk of future spine or hip fractures, independent of bone mineral density. For example, several studies have reported that asymptomatic vertebral fractures may be present in up to 20% of postmenopausal women who have normal BMD measurements. Only 20%–30% of vertebral fractures are recognized clinically; the rest are discovered incidentally on lateral spine radiographs, considered the gold standard for diagnosing vertebral fracture. Lateral spine x-rays however, have not been recommended as a component of risk assessment for osteoporosis because of the cost, radiation exposure, and the fact that the x-ray would require a separate procedure in addition to the bone mineral density study. Thus, the population for which DXA is most relevant includes those patients who might benefit from treatment but would not be considered for treatment based on current BMD standards alone.

The semiquantitative system of Genant is commonly used for grading vertebral deformities. The location of the deformity within the vertebrae may also be noted. For example, if only the mid-height of the vertebrae is affected, the deformity is defined as an endplate or biconcave deformity; if both the anterior and mid-heights are deformed, it is a wedge deformity; and if the entire vertebrae is deformed, it is classed as a crush deformity.

Genant Semi-Quantitative Grading System for Vertebral Deformity	
Grade/Fracture	**Reduction in vertebral height**
Grade 0-0.5/no fracture	**< 20%**
Grade I/mild fracture	**20%–25%**
Grade II/moderate fracture	**25%-40%**
Grade III/severe fracture	**>40%**

Regulatory Status

Many DXA devices have received 510(k) marketing clearance from the U.S. Food and Drug Administration (FDA) such as Hologic's IVA and GE's DVA noted above. To perform vertebral fracture assessment on the DXA devices, additional software is needed and it must have 510(k) marketing clearance from the FDA as well.

MEDICAL POLICY CRITERIA

Note: This policy addresses only dual x-ray absorptiometry (DXA) for the routine screening of asymptomatic patients with or without osteoporosis for vertebral fractures. It does not address the diagnostic assessment of symptomatic patients, routine bone mineral density screening, or DXA to determine body composition.

Screening for vertebral fractures using dual x-ray absorptiometry (DXA) as a stand-alone procedure or in addition to standard bone mineral density studies is considered **investigational**.

SCIENTIFIC EVIDENCE

For symptomatic patients, vertebral fractures may be diagnosed with radiography, CT or MRI, depending on the clinical scenario, if necessary. As noted above, the population for which dual x-ray absorptiometry (DXA) screening for vertebral fractures is most relevant includes those patients who would not be considered for treatment based on current bone mineral density (BMD) measurements alone (i.e., patients without osteoporosis and without symptoms of vertebral fractures). Further, a benefit of treatment in reducing risk of future fractures also needs to be demonstrated in this patient population. In order to demonstrate that screening for vertebral fractures using DXA improves patient selection and health outcomes, patients screened for vertebral fractures using DXA as a stand-alone procedure or

using DXA in addition to standard bone mineral density studies need to be compared to patients screened with standard bone mineral density studies alone in randomized controlled trials.

Technology Assessments

The 2005 BlueCrosss BlueShield (BCBSA) Technology Evaluation Center (TEC) Assessment concluded that the available evidence was insufficient to assess what health outcomes would result from vertebral assessment using DXA compared to BMD screening alone.[1] As there was no direct evidence, the conclusions in the 2005 technology assessment were based on examination of indirect evidence:

1. What is the accuracy of vertebral assessment with DXA in identifying vertebral fractures?

   According to the proposed use of vertebral assessment, identifying vertebral fractures among those who otherwise might not be treated, such as those without osteoporosis, is an important benefit of the test. However, there is a lack of evidence that the test is very accurate in detecting fractures among those without osteoporosis.

   Some evidence exists regarding the diagnostic performance of vertebral assessment. In studies ranging in sample size from 66 to 161 patients, the sensitivity for detecting vertebral fractures ranged from 54% to 72% using the vertebrae as the unit of analysis and 77% to 95% using the patient as the unit of analysis. Specificities ranged from 94% to 99% using the vertebrae as the unit of analysis, and 88% to 94% using the patient as the unit of analysis. However, the patient populations in which these characteristics were assessed may not generalize to the population most relevant for detection of vertebral fractures. Two of the studies included only patients with known osteoporosis.[2-4] The one study showing the highest sensitivity may be biased by selective verification.[5] The one study which included a sample not known to be osteoporotic showed the lowest sensitivity for fracture at 54%.[6]

2. Does vertebral assessment with DXA identify patients who are appropriate candidates for treatment who would not otherwise be identified?

   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.[2,3] More recent publications of large trials of pharmacologic treatments for osteoporosis appear to show treatment benefits for subjects with osteopenia. Thus the threshold for treatment may currently be in flux, although it is recognized that knowledge of a prevalent vertebral fracture would likely alter that threshold for treatment, whatever it is. However, it is critical that the performance of vertebral assessment in relevant screening populations be more accurately evaluated before it can be used routinely for treatment decisions. Then it might be possible to project patient outcomes when treatment is based on results of these tests, taking into account possible negative consequences of inappropriate treatments as a result of either false-negative or false-positive findings.

In summary, the TEC Assessment concluded that the evidence supporting the argument for use of vertebral assessment was not strong enough to allow conclusions about its effect on health outcomes.

Diagnostic Accuracy

- The literature suggests that vertebral fracture assessment (VFA) DXA may not accurately diagnose vertebral fractures in the population of interest: In 2013, Domiciano et al reported on

429 adults at least 65 years-old who had VFA with densitometry and spine radiography on the same day.[7] On VFA, vertebral fractures were identified in 77 of 259 women (29.7%) and 48 of 170 men (28.2%). Comparable numbers on spine radiographs were 74 of 259 (28.6%) in women and 52 of 170 (30.6%) in men. The sensitivity of VFA was 72.9% and the specificity was 99.1% to identify vertebral fractures. The authors concluded in community-dwelling older adults, VFA and radiographs had comparable performances in identifying vertebral fractures, if mild deformities are excluded.

- In 2012, Diacinti and colleagues in Italy published 2 studies comparing the diagnostic accuracy of VFA to standard x-rays.[8,9] Rates of osteoporosis or reported diagnostic accuracy data in patients without osteoporosis were not reported. Both studies found that VFA had high diagnostic accuracy, using conventional radiography as the reference standard. In one study, conducted with 930 post-menopausal women, the overall sensitivity and specificity of VFA on a *per* patient level was 97.23% and 98.86%, respectively. In the second study, 350 patients were included; peri-and post-menopausal women, men referred for diagnosis of osteoporosis, and patients enrolled in a study of human immunodeficiency virus (HIV)-related osteoporosis. When analyzed on a *per* patient level, VFA was found to have 96.83% sensitivity and 98.66% specificity compared to conventional radiography. The high overall diagnostic accuracy of VFA in these studies suggests that it has high diagnostic accuracy for all bone mineral density (BMD) levels. However, results were not reported separately for non-osteoporotic individuals, so conclusions cannot be drawn about diagnostic accuracy of VFA in this population.

- The accuracy of VFA in the Diacinti studies was higher than its performance in earlier studies. In one study, VFA (GE Lunar densitometer) was compared with the gold standard (radiography) in 27 osteoporotic (T less than -2.5), 38 osteopenic, and 15 normal women.[10] Blinded analysis found correct identification for 17 of 18 radiographically evident grade 2 to 3 fractures (a false negative rate of 6%). However, the study did not describe whether the grade 2 and 3 fractures were found in women with osteoporosis, osteopenia, or normal BMD. Also, only 11 of 22 (50%) grade 1 fractures were identified. Thirty vertebrae were classified as fractured when no fractures were present (3.8% false positive), 29 of these were grade 1 fractures by VFA with normal radiography. In addition, VFA identified a total of 40 grade 1 fractures but only 11 (28%) were true positive results. Also problematic is that results were compared only in vertebrae evaluable by VFA; one patient could not be evaluated due to poor image quality and 66% of T4 -T6 vertebrae in other subjects could not be adequately visualized.

- Another study reported that VFA (Delphi W device) provided evaluable images for 81% of vertebrae from T4 through L4 and accurate diagnosis in 74% of patients (136 postmenopausal women), but misclassified 11.2% in comparison with x-ray.[11] A limitation of this study is that x-rays were not performed if the vertebrae were considered to be legible and normal on VFA. As shown in the study above, many grade 1 fractures may be missed with DEXA.

- Ferrar et al. evaluated the performance of vertebral assessment using a visual algorithm-based approach.[12] Subjects in the low-risk group were women age 55-79 years and were randomly selected from their general practitioners' offices. Most of them had normal BMD or were osteopenic. Subjects in the high-risk group were recruited after a low-trauma fracture to the hip, forearm, or humerus. Most of the high-risk patients had osteopenia or osteoporosis. In per-patient analysis and including all poor or unreadable images, the sensitivity of VFA was 60% in the low-risk group and 81% in the high-risk group; specificity was 97% in both groups. On a per-vertebrae analysis, 52 of 68 false-negative fractures in the low-risk and 60 of 98 false-negatives in the high-

risk group were reported as mild fractures. The location of false-negatives also differed by risk group. In the high-risk group, 46% (n=36) of false-negatives were at vertebrae T6-T9, and 25% (n=5) of all false-positives were at L1. In the low-risk group, 23% (n=10) of false-negatives were at vertebrae T4, and 48% (n=12) of the false-positives were at vertebrae T12-L1.

In summary, several studies have compared VFA to radiography. The sensitivity of VFA reported in these studies was variable. Some have reported relatively low sensitivities in the 50-60% range while other studies, including a 2012 study, have reported sensitivities of over 90%. The specificity in these studies has been higher, with some studies reporting specificities of >95%. However, at least one study reported a specificity of 62%. Moreover, studies tended not to present diagnostic accuracy rates separately for individuals without osteoporosis. Due to the variability in these results and the lack of stratified analyses, it is not possible to determine the sensitivity and specificity of VFA for vertebral fractures with certainty, either for patients as a whole or for the subset of patients without osteoporosis.

Evidence That Vertebral Assessment Identifies Candidates for Treatment Who Would Not Otherwise Be Identified

The 2013 National Osteoporosis Foundation[13] (NOF) guidelines, as described below in the Clinical Practice Guidelines section, recommend treating patients with osteoporosis, with osteopenia and other risk factors, and those with hip or vertebral fractures (clinical or asymptomatic).

Vertebral fracture assessment could identify additional candidates for treatment if individuals with vertebral fractures did not fall into one of the other categories eligible for treatment. No studies were identified that specifically dealt with the question of whether VFA would identify candidates for medication treatment who would not otherwise have been identified, but several studies addressed this issue to some extent. Representative studies are described below.

- In 2013, Mrgan et al in Denmark published a retrospective study evaluating VFA with BMD in 3275 patients presenting for osteoporosis screening or evaluation of antiosteoporotic medication; 85% were female.[14] Vertebral fractures were found on VFA in 260 patients (7.9%). Of these, 156 patients (4.8% of the total sample) had osteoporosis (i.e., BMD at least -2.5) and 104 (3.2% of the total sample) did not have osteoporosis according to BMD. The data suggest that up to 40% (104 of 250) of patients with vertebral fractures identified would be eligible for treatment according to NOF guidelines, and might not have been identified if DXA alone were used. The proportion is likely lower than 40% because some of the patients may have had osteopenia and other risk factors that would lead to their eligibility for treatment.

- A 2010 article by Jager at al. had the primary aim of evaluating the impact of VFA on the Canadian risk classification system.[15] The study reported on data collected on VFA with densitometry in the Netherlands, and the article was written by researchers from the Netherlands and Canada. The study included 958 individuals at least 18 years-old who had been referred for BMD measurements. Their mean age was 53 years; 609 (64%) were women, and 93 (10%) were already known to have a vertebral fracture. In 937 of the 958 patients (98%), VFA was considered technically adequate. Using VFA, a vertebral fracture was identified in 244 of 937 (26%) of those with an adequate scan. This included 18% of the 257 patients found on DEXA to have normal BMD, 23% in the 404 patients with osteopenia, and 29% of the 275 patients with osteoporosis. Using the Canadian risk classification tool categorizing fracture risk according to age, gender, and BMD T-score, the proportion of patients who would have been categorized as low, moderate, and high risk was 650 (68%), 184 (19%), and 124 (13%), respectively. After taking VFA into account,

133 patients with a low risk who were found to have 1 or more vertebral fractures would have been moved to the moderate-risk class. Moreover, 59 of the moderate-risk patients were found to have 1 or more vertebral fractures, which moved them to the high-risk category. In total, 192 patients (20% of the cohort) moved up 1 risk class. The study did not compare the VFA findings to a reference standard and did not evaluate the effect of treatment on preventing fracture in patients placed into risk categories that used data from VFA with densitometry.

- In another study, Jager and colleagues evaluated 2424 consecutive individuals (65% female) referred for BMD for a variety of reasons at a single center in the Netherlands.[16] Participants underwent VTA with BMD during the same session using a Hologic Discovery A densitometer. Vertebral fractures (reduction in height of at least 20%) were detected in a total of 541 (22%) of patients. The prevalence of vertebral fractures was 14% (97/678) in individual with normal BMD and 21% (229/1100) in patients with osteopenia. The vertebral fractures were previously unknown in 74% of patients with normal BMD and 71% of patients with osteopenia. Questionnaires were sent to 942 physicians, with a response rate of 50%. Of these 468 responses, 323 (69%) of physicians reported that VFA findings had no impact on patient management, 100 (21%) reported some impact, 29 (6%) reported a large impact and there were 16 (3%) unknown responses. A total of 58 responses indicated that VFA findings impacted medication decisions.

- A study by Van den Berg and colleagues included 566 women 50 years of age or older who had clinical risk factors for fracture but who were not being treated for osteoporosis and had not previously been diagnosed with a vertebral fracture.[17] Women underwent DXA and VTA screening with a Hologic W DXA system. A total of 174 (31%) had one or more moderate or severe vertebral fractures (height reduction of 25% or more). Mild vertebral fractures were not reported. Of the 174 women with vertebral fractures, 44 (25%) were found to have osteoporosis and therefore would have been eligible for treatment based on their BMD alone. However, the remaining 130 (75%) women with vertebral fractures had normal BMD (n=32) or osteopenia (n=43). It is not known how many of the women with osteopenia would have otherwise been considered potential candidates for treatment due to the combination of low bone mass and other risk factors. Among women with vertebral fractures, 17 (10%) used glucocorticoids, 91 (52%) had a previous fracture before age 50 and 39 (22%) had a first-degree relative with a hip fracture. The authors did not report women's overall risk of fracture using the FRAX model.

- A 2011 study by Sullivan and colleagues evaluated the prevalence of vertebral fracture in men at increased risk of bone loss who were undergoing DXA screening.[18] The study included 116 men with non-metastatic prostate cancer who had been taking androgen deprivation therapy for at least 6 months. A total of 37 (37%) men were found to have normal BMD on DXA; 9 (24%) of these had at least 1 vertebral fracture. In addition, 67 (59%) of men were found to have low BMD/osteopenia; 23 (34%) had at least 1 vertebral fracture. A total of 32 of the 104 (31%) men with normal or low BMD had a least one vertebral fracture. Patients also underwent radiographic confirmation of fractures. Compared to radiography, the sensitivity of VFA was 100% and the specificity was 95%. Thus, according to the NOF recommendations, 32 men (28% of the sample) with normal or low bone density would be recommended for osteoporosis treatment based on their radiologically identified vertebral fracture. Androgen deprivation therapy is not currently included in the WHO absolute fracture risk model so those men with osteopenia and ADT would not have been recommended to receive treatment.

In summary, routine use of VFA with DXA will identify substantial numbers of individuals with previously unrecognized vertebral fractures. Many of these vertebral fractures are found in individuals

without osteoporosis. Since screening for vertebral fractures is not currently part of the recommended workup for osteoporosis, it is not clear how to combine a positive result on VFA with other risk factors to make management decisions.

Evidence On Effectiveness of Pharmacologic Treatment In Patients With Low Bone Mass and Vertebral Fracture

Bisphosphonates (e.g., alendronate) decrease bone resorption and are the major class of drugs now used to treat osteoporosis.

In several large, multicenter trials in osteoporotic women, treatment with alendronate has been shown to increase bone density by 5–10% over a 3-year period. These trials were not designed a priori to assess efficacy according to BMD categories or according to baseline vertebral fracture status. However, several subgroup analyses have been published examining the effectiveness of treatment in patients with low bone mass and/or vertebral fractures.

The original report from one of the Fracture Intervention Trial (FIT) study groups was the first large multicenter study comparing the effects of treatment between osteoporotic and women with low bone mass without existing vertebral fractures using the revised National Health and Nutrition Examination Survey (NHANES) cutoffs.[19] This trial randomly assigned 4,432 women to alendronate or placebo and analyzed the treatment group in 3 BMD categories (less than -2.5 standard deviation (SD); -2.0 to -2.5 SD; and -1.6 to -2.0 SD below the mean). Women with a BMD less than -2.5 SD had a statistically significant reduction in clinical and vertebral fractures over 4 years. The relative risk (RR) for all clinical fractures among patients with a BMD less than -2.5 SD was 0.6 (95% confidence interval [CI]: 0.5–0.8). There was no significant reduction in all clinical fractures for women with higher BMD values (RR 1.1, 95% CI: 0.9–1.4), suggesting no benefit among patients with low bone mass or normal BMD.

Quandt and colleagues reanalyzed the FIT study analyzing data for the outcome of both clinical vertebral fractures (symptomatic and diagnosed by physician) and radiographically detected (assessed at surveillance intervals) vertebral fractures.[20] A total of 3,737 women at least 2 years' post-menopausal with low bone mass (T-score between -1.6 and -2.5) were included in the analysis. Among the women with low bone mass and existing radiographically detected vertebral fractures (n=940), the rate of subsequent clinical vertebral fractures were 6 (a rate of 43 per 10,000 person-years of risk) in the alendronate group and 16 (124 per 10,000 person-years of risk) in the placebo group. Alendronate treatment compared to placebo was accompanied by a RR of 0.3 (95% CI: 0.1–0.8) for clinical vertebral fractures and a RR of 0.5 (95% CI: 0.3–0.8) for radiographically detected fractures. Similar RR estimates were found for women having low bone mass without vertebral fractures, but absolute risks were lower (12 versus 81 fractures/10,000 person-years for those without and with baseline fractures, respectively).

Kanis and colleagues reanalyzed data on 1,802 women at least 5 years' postmenopausal from the Vertebral Efficacy with Risedronate Therapy (VERT) trials who were identified on the basis of a prior radiographically detected vertebral fracture regardless of BMD and had radiographs available at baseline and 3 years.[21] Overall, there was a significantly lower rate of a new vertebral fracture in women with prior vertebral fracture randomly assigned to treatment with risedronate compared to placebo (14.5% vs. 22.3%, respectively; $p<0.001$). In the group with a T-score greater than -2.5, the rate of new femoral neck fractures was 50 of 519 (11%) in the risedronate group and 71 of 537 (15.5%) in the placebo group ($p=0.049$). In the osteoporotic group, those with a T-score -2.5 or lower, the rate of new femoral neck fracture was 53 of 355 (18.7%) in the risedronate group and 92 of 318 (33.4%) in the placebo group

($p<0.001$). Findings were similar when the T-score at the most severe skeletal site (femoral neck or lumbar spine) was used for stratification.

A limitation of the studies described above is that they are post-hoc subgroup analyses, which are generally considered to be exploratory. In addition, vertebral fracture screening was done using radiography rather than VFA software. Advantages of the studies are that the 2 subanalyses had large sample sizes and used data from well-conducted randomized trials. The analyses included the population of interest (those with low bone density and a baseline vertebral fracture), although only in postmenopausal women; men and pre- and perimenopausal women were not included.

No randomized controlled trials were identified that evaluated the efficacy of bisphosphonate treatment in men with vertebral fractures and low bone density. Several trials have evaluated whether bisphosphonate treatment increases BMD in men at risk for bone loss e.g., on androgen deprivation therapy.[22,23] However, vertebral fractures were not assessed and therefore conclusions cannot be drawn about the potential added benefit of VFA in addition to densitometry in at-risk men.

In summary, evidence from the FIT and VERT studies suggests that treatment of patients with low bone mass (but not osteoporosis) reduces further fractures. However, a limitation of the FIT and VERT studies is that they are post-hoc subgroup analyses, which are generally considered to be exploratory. In addition, vertebral fracture screening was done using radiography rather than VFA software. Advantages of the studies are that the 2 sub-analyses had large sample sizes and used data from well-conducted randomized trials. This evidence is insufficient to determine whether treatment of patients with low bone density and vertebral fractures improves outcomes.

Clinical Practice Guidelines and Position Statements

National Osteoporosis Foundation (NOF)

In the 2013 NOF Clinician's Guide to Prevention and Treatment of Osteoporosis stated: “A vertebral fracture is consistent with a diagnosis of osteoporosis, even in the absence of a bone density diagnosis, and is an indication for pharmacologic treatment with osteoporosis medication to reduce fracture risk. Most vertebral fractures are asymptomatic when they first occur and often are undiagnosed for many years. Proactive vertebral imaging is the only way to diagnose these fractures. The finding of a previously unrecognized vertebral fracture may change the diagnostic classification, alters future fracture risk and subsequent treatment decisions.”[13]

The guide recommends that vertebral imaging tests be considered in the following individuals

- All women age 70 and older and all men age 80 and older.
- Women age 65 to 69 and men age 75 to 79 when BMD T-score is -1.5 or below.
- Postmenopausal women age 50 to 64 and men age 50 to 69 with specific risk factors These include:
  - Low trauma fracture
  - Historical height loss of 1.5 inches or more (4 cm)
  - Prospective height loss of 0.8 inches or more (2 cm)
  - Recent or ongoing long-term glucocorticoid treatment

International Society for Clinical Densitometry (ISCD)

In 2013, the ISCD issued updated recommendations for selecting patients for vertebral fracture assessment.[24] The new recommendations were simpler compared to the 2007 recommendations and were intended to be easier to use in clinical practice. Lateral spine imaging with either standard radiography or densitometric VFA is indicated for individuals with a T-score of less than -1.0 when at least one of the following factors are present:

- At least 70 years old for women and at least 80 years old for men
- Historical height loss of at least 4 cm (at least 1.5 inches)
- Self-reported but undocumented prior vertebral fracture
- Glucocorticoid therapy equivalent to at least 5mg of prednisone per day for at least 3 months.

In a second 2013 ISCD guideline, "Indications of DXA in women younger than 65 yr and men younger than 70 yr: the 2013 Official Positions," DXA was recommended in those postmenopausal women younger than 65 yr and men 50-69 yr only in the presence of clinical risk factors for low bone mass, such as low body weight, prior fracture, high-risk medication use, or a disease or condition associated with bone loss.[25]

North American Menopause Society[26]

The 2010 position statement on management of osteoporosis does not include a recommendation for or against vertebral fracture assessment as part of the screening process. The statement states that vertebral fracture must be confirmed by lateral spine radiographs or VFA visualization of fracture at the time of BMD testing.

U.S. Preventive Services Task Force (USPSTF)[27]

The 2011 USPSTF recommendation on screening for osteoporosis states that "current diagnostic and treatment criteria rely on dual-energy x-ray absorptiometry of the hip and lumbar spine." Vertebral fracture assessment is not specifically mentioned.[28]

American College of Radiology[29]

The American College of Radiology (ACR) recommend VFA DXA in lieu of spine x-ray for suspected fracture of a vertebral body based on clinical history, height loss or treatment with steroids. The ACR guidelines note that, "Identification of incident or prevalent vertebral fracture indicates increased risk for additional vertebral or other fragility fractures in the following year and should influence therapy".

Summary

There is a lack of direct evidence comparing screening for vertebral fractures using dual x-ray absorptiometry (DXA) with standard bone mineral density (BMD) measurements. Diagnostic accuracy studies had variable findings and diagnostic accuracy data in individuals without osteoporosis was not reported separately. Studies have found that vertebral fracture assessment can identify individuals without osteoporosis who may be appropriate candidates for treatment according to recommendations from the National Osteoporosis Foundation (NOF). 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 vertebral fracture and without osteoporosis reduces risk of future fracture. Because the impact of screening for vertebral fractures using DXA as a stand-alone procedure

or in addition to standard BMD studies on health outcomes is not known, this procedure is considered investigational.

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CROSS REFERENCES

Whole Body Dual X-Ray Absorptiometry (DXA) to Determine Body Composition, Radiology, No. 41

CODES	NUMBER	DESCRIPTION
CPT	77082	Dual-energy X-ray absorptiometry (DXA), bone density study, 1 or more sites; vertebral fracture assessment
HCPCS	None	