Whole Body Dual X-Ray Absorptiometry (DXA)

Overview

This Coverage Policy addresses whole body dual x-ray absorptiometry (DXA) for body composition testing.

General Background

Body composition refers to the relative percentage of muscle, fat, bone, and other tissue of which the body is composed. If a person has too much fat — especially at the waist — this places a person at higher risk for such health problems as high blood pressure, high blood cholesterol and diabetes. That increases a person’s risk for heart disease and stroke. Skinfold thickness, waist circumference and body mass index (BMI) are currently used to assess body composition. More complex methods include bioelectrical impedance, dual-energy X-ray absorptiometry, body density, and total body water estimates.

Body composition measurement has been used as a tool in the research setting in studies evaluating normal human growth and development, as well as disease processes and treatments. However, current peer-reviewed, scientific literature does not define what specific role, if any, body composition measurement has in patient management, predicting health risk and whether it improves clinical outcomes.
Dual-energy x-ray absorptiometry (DXA) scanning was primarily developed for the diagnosis of osteoporosis and was initially applied to clinically important sites of the lumbar spine, femoral neck, and forearm. With whole body DXA scanning, a controlled x-ray beam scans the entire body for determination of bone mineral content, body fat and lean tissue mass. The comprehensive view of body composition provided by DXA provides relatively low dose of ionizing radiation, speed, and ease of application. Its proposed utility includes determining appropriate nutritional support during disease progression and monitoring response to therapeutic interventions. The limitations of DXA vary according to body shape and outcome. Bias varies with age and fatness and, in some cases, underlying disease state. There remains a lack of normal reference data.

**Literature Review**

There is insufficient evidence to support the use of whole body DXA for the purpose of determining body composition. The current published, peer-reviewed scientific literature does not establish the accuracy of whole body DXA when used to measure body composition and the impact this testing may have on meaningful clinical outcomes has not been demonstrated. Published evidence is primarily in the form of small, heterogeneous studies that focus on the level of agreement or correlation between various methods of body composition measurement. The studies demonstrate whole body DXA is used in a research setting, across a broad range of disease states and normal growth and development. Well-designed comparative studies evaluating the diagnostic accuracy and clinical utility of this testing are lacking (Ball, et al., 2004; Williams, et al., 2006; Uszko-Lencer, et al., 2006; Ritz, et al., 2007; Pineau, et al., 2007; Duren, et al., 2008; Weber, et al., 2012; Salamat, et al., 2014; Lowry, et al., 2015; Demmer, et al., 2016; Wingo, et al., 2018).

**Professional Societies/Organizations**

The Centers for Disease Control and Prevention (CDC) uses body mass index (BMI) in children growth charts. The National Institute of Health (NIH) use BMI values to define obesity. The U.S. Preventive Services Task Force (USPSTF) Recommendation Statements on Obesity in Children and Adolescents: Screening (2017) refers to BMI. The American Heart Association (not dated) discusses body composition testing, mentioning BMI and waist circumference.

The American College of Radiology Practice Parameter for the Performance of Dual-energy X-ray Absorptiometry (DXA) (2018) primarily speaks to measuring bone mineral density (BMD). The ACR does state that DXA may be used to measure whole-body composition, including nonbone lean mass (LM) and fat mass (FM). DXA-measured LM and FM may be helpful in assessing a number of conditions, including sarcopenia and cachexia.

The American Academy of Pediatrics Policy Statement ‘Active Healthy Living: Prevention of Childhood Obesity Through Increased Physical Activity’ (2006) states “direct measures of body composition, such as underwater weighing, MRI, CT, and dual-energy radiograph absorptiometry, provide an estimate of total body fat mass. These techniques, however, are used mainly in tertiary care centers for research purposes.”

The American Board of Internal Medicine’s (ABIM) Foundation Choosing Wisely® Initiative

No relevant information.

**Centers for Medicare & Medicaid Services (CMS)**

- National Coverage Determinations (NCDs): No applicable NCD found.
- Local Coverage Determinations (LCDs): No applicable LCD found.

**Use Outside of the US**

No relevant information.

**Coding/Billing Information**

**Note:**

1. This list of codes may not be all-inclusive.
2. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.
Considered Experimental/Investigational/Unproven when used to report whole body dual x-ray absorptiometry (DXA) for body composition testing:

<table>
<thead>
<tr>
<th>CPT® Codes</th>
<th>Description</th>
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<tbody>
<tr>
<td>76499</td>
<td>Unlisted diagnostic radiographic procedure</td>
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References


