General Reference:
2023 ISCD Official Positions - Adult

Common Indications:
Measurement of bone density

Pre-scan Clinical History:
Determine history related to stated clinical history. Locate any pertinent imaging results which describe related findings.

Patient Preparation:
None

Relative Contraindications (if present, consult with nuclear medicine physician prior to scan):
1. Nuclear medicine studies within 24 hours of this exam
2. Barium contrast exam within 14 days of this exam
3. Pregnancy

Radiopharmaceutical and Route of Administration:
None

Procedure:

> There has been a growing tendency for bone density examinations to somewhat haphazardly include more and more measurement regions. This becomes a problem for interpretation, particularly in followup examinations, when the patient demonstrates heterogenous change from site to site, or the current examination is made over regions other than those included at a prior exam. Such an approach is also counter to the ALARA principle, as well.
>
> The International Society of Clinical Densitometry (ISCD) is the de facto society setting standards for clinical densitometry, In their 2019 guidelines, they state “Measure BMD [bone mineral density] at both the PA spine and hip in all patients. Forearm BMD should be measured in [some] circumstances”.

To perform a result that is standardized across all of our imaging sites, we ask that ***density be measured at TWO AND ONLY TWO sites*** (unless as otherwise specified below), selecting those two regions from the from the following list, TOP DOWN.

1. Lumbar Spine, L1 thru L4

If there is metallic density internal fixation or vertebroplasty change, or if there are obvious compression abnormalities which limit measurement of ANY TWO of vertebral segments among L1, L2, L3, and L4 (ie, L1 and L4, L2 and L4, L1 thru L3, etc), choose additional sites from below (for a total of two sites).

2. ***If this is a followup exam, choose the femur measured previously (if possible), otherwise choose the*** Left Femur

If there is a ***(new since previously, for prior exam)*** metallic implant, choose additional sites, in order, from below (for a total of two sites)

3. Right Femur

If there is a metallic implant, choose additional sites, in order, from below (for a total of two sites)

4. Non-dominant forearm

If there is a metallic implant, choose…

5. Dominant forearm

Exclusions/ modifications to the above protocol:

A. If a diagnosis of ***hyperPARAthyroidism*** is supplied, add the forearm (non-dominant is 1st choice) as a ***3rd region***
B. If the patient exceeds the weight limit for the DXA table, measure both forearms, if possible.

For each examination, a FRAX (fracture risk) score may required. The following flowchart will determine when to include a FRAX report:

1. Neither hip was measured - NO FRAX
2. Or patient is a premenopausal female - NO FRAX
3. Or patient is a male under the age of 50 - NO FRAX
4. Or patient has a history of hip or vertebral fracture - NO FRAX
5. Or patient has had prior medical therapy for osteoporosis - NO FRAX
6. Or patient has **one or more regions** (aggregate L-spine, femoral neck or total femur, radial 1/3) with density at or below -2.5 (ie, **osteoporosis**) - NO FRAX7. 8. Or patient has ALL regions (aggregate L-spine, femoral neck, total femur, and radial 1/3) with density at or above -1.0 (ie, **normal density**) - NO FRAX

Then by elimination, patient has one or more regions (aggregate L-spine, femoral neck, total femur, or radial 1/3) with density between -2.5 and -1.0 (ie, **low mass density, or osteopenia**) - **calculate and report FRAX**

Review:
Prepare images and documents for clinical review as per **Nuclear Imaging Acquisition and Presentation Guidelines**.

Dr. Barr | Date Implemented: 2005 | Date Revised: 1/2025 | Date Reviewed: 6/2025