

Infant Spine Scan

There are procedural differences and special precautions when scanning and analyzing patients under the age of three. Refer to the instructions in this section to ensure the exam is performed properly.

Preparing the Infant

You may swaddle the infant in a thin cotton blanket to minimize movement and to protect the infant. Diapers do not need to be removed. Metal objects, such as snaps, pins and identification tags in the lumbar spine region must be removed as they will adversely affect BMD measurements.

Important: At no time during the examination should the infant be left unattended on the scanner table. The infant should be monitored at all times to prevent the infant from rolling or falling off the table. To ensure the infant's safety, the operator may need assistance during this examination.

Creating/Retrieving a Patient Biography

If this is a new patient, create a new patient biography (refer to *Creating/Editing a Patient Record* on page 6-9 for detailed instructions). If this patient already has a biography, retrieve it now (refer to *Retrieving a Patient Record* on page 6-7).

Important: An accurate birth date must be entered because the analysis software uses the infant's age to determine the ROI width for the analysis.

Selecting the Scan Type and Mode

To choose the scan type and mode:

| | Step | Action |
|--|------|---|
| Important: Do not use the default (Express) scan mode because Infant Spine analysis will not process Express scans. | 1 | Select the AP Lumbar Spine scan type and uncheck the Use Default Scan Mode check box. |
| | | |



| Step | Action |
|------|---|
| 2 | In the Select AP Lumbar Spine Scan Mode window, select Fast Array. It should not be necessary to change the default scan length for Infant Spine Scans as 6" (150 mm) should be adequate for the entire L1-L4 vertebral segment in infants and toddlers up to age 3. |
| 3 | Stop here and position the patient and the C-arm. |

Positioning the Patient and the C-arm

A flat thin layer of cloth or plastic material that covers the entire scan field may be used to protect the table. Otherwise, the scan field should be free of extraneous objects.

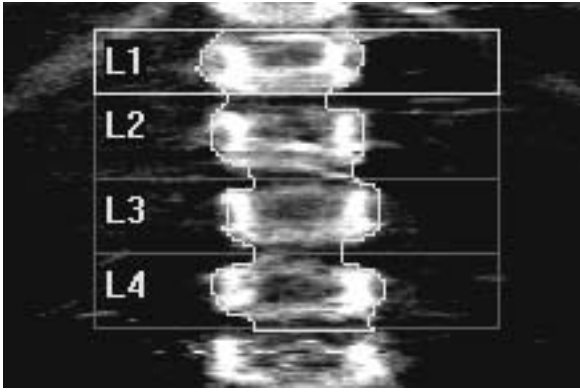
Positioning the patient for an Infant Spine scan is similar to positioning pediatric and adult subjects and involves aligning the infant's body with the center lines at the right (head) and left (foot) sides of the table pad. Refer to Chapter 7 for a detailed description of placing the patient on the table.

The infant's feet and head may be restrained during data acquisition to avoid movement artifacts. **Caution:** The operator should be careful not to place their hands or other body parts in the X-ray field of view.

Performing the Examination

To choose the scan type and mode:

| Step | Action |
|------|--|
| 1 | Once the patient and C-arm are positioned correctly, click Start Scan . |
| 2 | Inspect the image as it is being acquired and click Stop Scan when T12 is seen (see the example below). |

| Step | Action |
|------|--|
| 3 | <div data-bbox="732 264 1308 653">  </div> <p>An acceptable Infant Spine scan includes the following:</p> <ul style="list-style-type: none"> • The scan starts in the middle of L5 • The spine is centered in the middle of the scan window. • There are even amounts of soft tissue on each side of the spine. • The scan stops where ribs are attached to T12 (usually the middle of T12). |

Performing the Analysis

The Infant Spine analysis method will automatically be selected and employed for children under the age of 3. The ROI width will automatically be generated based on the age of the subject, and will increase linearly with age as the subject gets older. Do not adjust the ROI width. Instead, center the ROI on the infant spine image and adjust the upper and lower ROI lines so that they are centered in the L1-T12 and L4-L5 interspace, respectively.

Compare can be used on follow up scans but is not essential for maintaining accurate and reproducible Infant Spine results or for detecting change. This is true because infants grow rapidly and the same ROI size cannot be used on follow up scans. Therefore it is not essential to use the Compare feature. Instead, let the software determine the proper ROI width based on the infant's age and adjust the ROI length to include the L1-L4 vertebral segment.

APEX 3.1 supports a new AP Spine analysis method for subjects age zero to three years old. The analysis of subjects age 3 and under depends on the accurate scan date and date of birth. Thus, it

is important that the operator enter the correct date of birth and that the date of the computer be accurate. Additionally, it is important that scans for subjects less than four years old not have their scan date and date of birth de-identified for scan transfer, as this will change analysis results if the scan is reanalyzed.

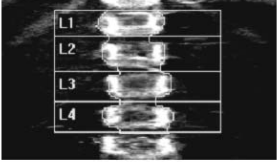
Infant Spine Report

Note: Infant Spine Reference data are not available at this time but are currently under development

The Infant Spine report is generated the same as for adult patients (see an example report below). Refer to *Generating and Printing Reports* on page 7-38 for more information.

| | | | |
|--|--|------------------|---------|
| Name: Infant Spine Example, 6 months o | | Sex: Female | Height: |
| Patient ID: | | Ethnicity: White | Weight: |
| DOB: 08 September 2007 | | | Age: 0 |

Referring Physician:



71 x 37

Scan Information:

Scan Date: 12 March 2008 ID: A0312080A

Scan Type: f Lumbar Spine

Analysis: 18 February 2010 10:34 Version 13.1

Infant Spine (auto low density)

Operator: GAU

Model: Discovery A (S/N 81400)

Comment:

DXA Results Summary:

| Region | Area (cm ²) | BMC (g) | BMD (g/cm ²) | T-score | Z-score |
|--------------|-------------------------|-------------|--------------------------|---------|---------|
| L1 | 3.36 | 1.07 | 0.320 | | |
| L2 | 4.05 | 1.14 | 0.281 | | |
| L3 | 3.67 | 1.13 | 0.307 | | |
| L4 | 4.07 | 1.25 | 0.308 | | |
| Total | 15.14 | 4.59 | 0.303 | | |

Total BMD CV 1.0%

No Reference Curve Available

Comment:

T-score vs. White Female; Z-score vs. White Female. Source: BMDCS/Hologic

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