

UCSF ILD Program Protocol for High-Resolution CT Scanning of the Chest

Axial Scans in both prone and supine positions

SUPINE IMAGING:

- 1–1.5 mm collimation at 2 cm intervals in full inspiration.
- Measure field of view
- High spatial frequency reconstruction algorithm (can use bone algorithm on GE machine)
- Full inspiration
- Window:
 - Mediastinum 440 width, level 40
 - Lung 1000 width, level –700
- Photo lung 6 on 1
- > 1 second gantry rotation (depends on MAS selected)

PRONE IMAGING:

Performed with 1–1.5 mm collimation at 2 cm intervals in full inspiration as noted above.

EXPIRATORY VIEWS:

- 3 postexpiratory views are routinely performed at the level of the:
 - aortic arch,
 - at the tracheal carina, and
 - above the diaphragm.
- These images are performed with 1–1.5 mm collimation at end expiration following a forced vital capacity maneuver.

DETECTION OF SUBTLE AIR TRAPPING:

If possible, **dynamic expiratory imaging** is performed. Dynamic expiratory imaging employs 1 mm collimation while scanning in cine mode (no table increment), **during** a forced vital capacity maneuver, in the supine position. Three dynamic sets are performed: at the aortic arch, at the tracheal carina, and above the diaphragm. These images are performed as a 6 image set using the fastest possible tube rotation time, while the patient forcefully exhales after a deep inspiration. The patient usually requires some coaching prior to the actual scan. The patient should be instructed to take a deep breath in; after the breath is taken, the scan is initiated and the patient is immediately instructed to forcefully exhale as much as possible. All six images from each dynamic set should be photographed. Of course motion degradation is present, but usually several images are interpretable. This technique is more sensitive for the detection subtle air trapping than routine postexpiratory imaging.

Images should be photographed using a window level of –700 HU, and a width of 1000–1500 HU.