

Low-Dose Computed Tomography (LDCT) Guideline

Protocol: This protocol is based on the NCCN screening guidelines and ongoing and recent clinical trials.

Patient positioned: Supine, with the arms above the head on a pillow or in restraints.

Contrast: No oral or IV contrast should be given

Scout: Obtain an initial scout topogram from the mid-neck through the mid-liver.

Breath hold: Studies should be performed on maximum inspiration, during a single breath hold. Scan from top of lungs through the bottom of lungs using the below parameters. Instruct the patient to hold their breath at maximum inspiration for the entire scan.

Acquisition Parameters are based on the patient's BMI:

Parameter	BMI less than or equal to 30	BMI greater than 30
kVp	100	120
mAs	40	60
Gantry rotation speed	16 slice MDCT: 0.5 seconds 64 slice MDCT: 0.33 seconds	16 slice MDCT: 0.5 seconds 64 slice MDCT: 0.33 seconds
Detector collimation	less than 1.5 mm 0.6 or 1 mm preferred, depending on scanner	less than 1.5 mm 0.6 or 1 mm preferred, depending on scanner
Slice width	less than 1.5 mm 1 mm preferred	less than 1.5 mm 1 mm preferred
Slice interval	50% overlap	50% overlap
Acquisition time	less than 10 seconds	less than 10 seconds
Reconstructed series	Routine axial at 3mm High Resolution at 1.5 mm MIP Chest at 20mm thickness with a 10 mm overlap	Routine axial at 3mm High Resolution at 1.5 mm MIP Chest at 20mm thickness with a 10 mm overlap

Nodule size is affected by slice thickness, reconstruction algorithms, and post processing filters. Therefore, it is essential that the same technical parameters are used for each subsequent LDCT.