

Guidelines for doing Adult CXR's

(Excerpts made by Dr Jim teWaterNaude from the American College of Radiology's Practice Guideline for the Performance of Pediatric and Adult Chest Radiography)

→ The goal of the chest radiographic examination is to help establish the presence or absence and nature of disease involving the thorax or to follow its course.

SPECIFICATIONS OF THE EXAMINATION

A. A standard chest examination should include an erect PA projection made during full inspiration (total lung capacity). A left lateral projection is not required for pneumoconiosis purposes, but would be valuable if a localised opacity is seen on the PA.

B. The chest radiograph should include both lung apices and both costophrenic angles. There should be appropriate definition of the vertebral bodies, and the left retrocardiac vascular pattern should be visible. The scapulae should be positioned outside the lung fields on the PA view and the arms elevated for the lateral view. The vertebral column should be centered between the clavicles. The radiographic beam should be appropriately collimated to include the structures listed while limiting exposure of the remainder of the patient and should not exceed the geometry of the image receptor.

C. Technical Factors

Adults: For a PA chest radiograph, the mean dose at skin entrance should not exceed 0.3 mGy per exposure, and the exposure time should not exceed 40 milliseconds. A high-kilovoltage technique (120-150) should be employed. An anti-scatter technique (e.g., grid or air gap) should be used that reduces scatter at least as much as a 10:1 grid. Technique charts should be posted for use by technologists in the examination room. An optimally exposed radiograph presents the lung at a mid-grey level.

D. The following quality control procedures should be applied to all chest radiography:

1. When the examination is completed, the images should be checked either by a qualified physician or a qualified technologist.
2. Films not of diagnostic quality should be repeated as necessary.
3. Each film or image should be permanently marked with the patient's name, identification number, right or left side, patient position, and the date and time of the examination. *This should be readable on the front side of the film. It would be appreciated if exposure factors were added (i.e. kV and mAs).*

EQUIPMENT SPECIFICATIONS

The equipment required includes a diagnostic machine having a rotating anode tube with a tube filtration sufficient to achieve a half-value layer (HVL) greater than 3 mm of aluminium at 100 kVp.

A **grid** should be used for adult radiography. At least a 10:1 grid with a minimum of 41 lines per cm (stationary) or 32 lines per cm (reciprocity) is recommended.

Radiographs shall be exposed only with equipment having a beam-limiting device that provides rectangular **collimation**.

There should be at least a 180cm **source-image distance** (SID) to minimize magnification for routine upright imaging.

The nominal source (**focal spot**) shall not exceed 2.0 mm; 0.6-1.2 mm is the recommended range.

Any screen-film combination may be used that has a **speed** of at least 200.

Automatic **processing** is preferable with carefully controlled temperature and maintenance. A constant time and temperature shall be employed for manual processing.