**Adapted Anatomical Image Criteria for PA Chest Radiography**

**Descriptor:**

Assessment of the diagnostic quality of PA erect chest radiographs based on anatomical image criteria.

**Background:**

The chest radiograph (CXR) is a common investigation widely requested by both hospital physicians and general practitioners. The anatomical coverage of this test can inform not only of intra-pulmonary pathology, but can also reveal abnormality of the bones, heart and mediastinum. Thus it is important to specify the anatomical structures that should be visible on a CXR in order to aid accurate diagnosis.

The American College of Radiology (ACR) [1] and European Commission (EC) [2] have published separate guidelines on this topic. We describe a specific set of anatomical image criteria on chest radiography adapted from both ACR and EC guidelines which we have adopted for audit of our own practice.

## The Cycle

**The standard:**

PA erect chest radiographs should meet the following criteria:

1. Performed at full inspiration

2. Symmetrical reproduction of the thorax

3. Medial borders of scapulae to be outside the lung fields

4. Appropriate exposure

5. Visualisation of:

    (a) both apices

    (b) whole rib cage above the diaphragm

    (c) lateral costophrenic angles

5. Image annotations should not obscure lung fields

6. Appropriate collimation - this may need to be checked at time of acquisition pre-processing

**Target:**

These should be determined at a departmental level. We recommend that targets for Criteria 2 and 3 (symmetrical reproduction of the thorax and scapula positioning) should be based on the local proportion of patients who have positioning difficulties. Departments should aspire for 100% compliance in the remaining criteria.

## Assess local practice

**Indicators:**

The proportion of radiographs that meet each criteria.

**Data items to be collected:**

1. List of patients who had PA erect chest radiographs

2. Patient age and gender

3. Source of patients: eg A&E, wards, outpatient

4. Assessment of adequacy of radiographs according to the stipulated anatomical image criteria

5. State whether any artefact was present and the type of artefact

**Suggested number:**

100 consecutive PA erect chest radiographs.

**Suggestions for change if target not met:**

1. In patients who are likely to encounter difficulties with positioning, compliance rates may be improved by rehearsing positioning manoeuvres with the patient prior to taking the CXR

2. Where there is doubt, a lower threshold may be adopted for checking the adequacy of the CXR with a senior colleague. This would allow one to decide whether an adequate assessment may be made based on the original image or to repeat the study

3. Present audit findings at a departmental level with constructive multidisciplinary discussion of other means to improve compliance.

**Resources:**

Estimated time for radiograph analysis and data collection: 5 hours.

**References:**

1. American College of Radiology. ACR–SPR–STR PRACTICE PARAMETER FOR THE PERFORMANCE OF CHEST RADIOGRAPHY 2017. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/ChestRad.pdf>
2. European Commission. EUR 16260 – European Guidelines on Quality Criteria for Diagnostic Radiographic Images. 1996.

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