**Chest Radiographs: Skin Entrance Surface Dose and Film Radiographic Quality**

**Descriptor:**

Skin dose and film quality of chest radiographs.

**Background:**

Chest radiography is one of the most frequently performed and repeated radiographic examinations [1,2,3]. Reduction of patient radiation exposure is desirable and exposure factors should be set as low as reasonably achievable to minimise entrance surface doses (air kerma) to below 0.15mGy whilst maintaining diagnostic radiographic quality.

## The Cycle

**The standard:**

• A locally agreed standard based on the National Diagnostic Reference Level (NDRL) for chest radiographs

• PA CXR exposures should aim to give a dose area product (DAP) dose of less than 0.1 mGy/cm2 or Entrance Skin Dose (ESD) of 0.15 mGy/cm2 [4]

**Target:**

≥75% PA CXR DAP <0.1 mGy/cm2 or ESD of <0.15 mGy/cm2 (in line with the NDRL at the 3rd quartile)

## Assess local practice

**Indicators:**

Percentage of PA chest radiographs which meet the criteria set out in the standard.

**Data items to be collected:**

For each radiograph record:

• A patient identifier

• An indication of the size of the patient (large, medium or small)

• The Dose Area Product (or Entrance Skin Dose)

• Whether an automatic exposure system was used

• The room in which the exposure was made

• Anonymised code for the radiographer

• Film quality, assessed according to CEC Quality Criteria [3]

**Suggested number:**

100 consecutive chest radiographs.

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

- Present the results at a departmental audit meeting

- Discuss improvements to technique/equipment

**Resources:**

• Automated or manual dose recording

• RIS-PACS review

• Radiographer/Radiologist (3 hours to assess images and dose data)

**References:**

1. Royal College of Radiologists. RCR iRefer Making the Best Use of Clinical Radiology, 8th edition. London: RCR, 2017.  <https://www.irefer.org.uk/>
2. Doses to Patients from Radiographic and Fluoroscopic X-ray Imaging Procedures in the UK - 2010 Review (Radiation Protection Division; Health Protection Agency). <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/342780/HPA-CRCE-034_Doses_to_patients_from_radiographic_and_fluoroscopic_x_ray_imaging_procedures_2010.pdf>
3. European Guidelines on Quality Criteria for Diagnostic images 1996 ftp://ftp.cordis.lu/pub/fp5-euratom/docs/eur16260.pdf
4. Public Health England. National Diagnostic Reference Levels (NDRLs) from 19 August 2019  <https://www.gov.uk/government/publications/diagnostic-radiology-national-diagnostic-reference-levels-ndrls/ndrl>

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