**Quality of chest x-rays [QSI Ref: XR-503]**

**Descriptor:**

Audit to assess the diagnostic quality of chest x-rays.

This audit could be the initial step of a quality improvement project in improving the diagnostic quality of chest x-rays.

**Background:**

Antero-posterior (AP) chest x-rays are suboptimal for diagnosis compared with a well inspired postero-anterior (PA) chest x-ray. It is preferable to perform a PA chest x-ray whenever possible. In the author's observation, experienced radiographers are often promoted to CT, Ultrasound and MRI removing radiographic skills from the chest x-ray rooms and newly qualified radiographers may be unaware that AP chest x-rays are suboptimal for diagnosis.

## The Cycle

**The standard:**

• Every effort should be made to perform a PA erect chest x-ray

• The Standard will vary between different patient referral groups - i.e. in-patient (IP), General Practice (GP), out-patient (OP) or Emergency department (ED) referral

• Suggested targets are indicated below but should be agreed locally

**Target:**

75% PA erect for IP and ED patients

95% PA erect for OP and GP patients

## Assess local practice

**Indicators:**

Record the number of chest x-rays performed AP and PA

Record each patient group separately

**Data items to be collected:**

• Suggest perform two 24 hour audits per month

• Include both chest x-rays performed during 'in-hours' and 'out-of-hours'

• Suggest a random assessment without looking at rotas so that there is no bias (as to the radiographers on duty) during the audit

For each CXR:

1. Each chest x-ray is checked whether it is an AP or PA using RIS and PACS

2. The time the chest x-ray was performed

3. Radiographer who has taken the chest x-ray - this may be kept confidential

4. Mode of transport of the patient, e.g. walking, chair or trolley

**Suggested number:**

Include all chest x-rays performed within the audit time period for each patient group (n ≥50)

Exclude portable and paediatric chest x-rays

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

• Project lead to present results at radiographer staff meeting, with department managers in attendance

• Announce regular 24-hour audits of AP vs PA ratio

• Reminders to staff as to the diagnostic importance of PA images

• Confidential discussion with individual radiographers if they are a consistent outlier

• Appoint a lead radiographer to regularly update staff, and help train newly qualified staff

• Display posters in staff areas emphasising the importance of PA vs AP, and the performance against the target

• Suggest purchase positioning aids if not available.  If available encourage its use

• The radiographers should be encouraged to record specific issues and suggestions

• The radiologist may give a talk to radiographers emphasising the diagnostic importance of good chest x-rays

• Re-audit in 6 months after all staff have been made aware of the results and the suggestions for improvement have been implemented

**Resources:**

Lead radiographer time (6-8 hours)

Radiologist time 2-4 hours

PACS and RIS to retrieve and review chest x-rays

**References:**

1. ACR Practice guideline for the Performance of Paediatric and Adult Chest Radiography. ACR 2014  <http://www.acr.org/~/media/B40302EE286D4120AAEDE44B409DD45E.pdf>
2. EUR 16260 - European Guidelines on Quality Criteria for Diagnostic Radiographic Images. European Commission (1996).

**Editor's comments:**

These standards were derived locally and are dependent on patient mix. In a department with a very high proportion of non-ambulant patients they may not be achievable and should be adjusted accordingly. For example, in the ED a PA chest x-ray in 100% of walking patients, 80% of chair patients and 10% of trolley patients may be more appropriate. Once an individual department's achievable standard is determined this can then be monitored to ensure the standard is maintained.

Agree with previous comments.  The results will heavily depend on the patient cohort sampled and should not be extrapolated across different departments.  The standards will have to be modified to account for this variation.

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**Published Date:**

Thursday 28 January 2016

**Last Reviewed:**

Saturday 23 July 2022