# Pre-Operative Chest Radiographs (CXR) for Elective Surgery

**Descriptor:**

Pre-operative chest radiographs prior to elective surgery.

**Background:**

Screening preoperative CXR is indicated in patients undergoing cardiothoracic surgery. For elective non-cardiothoracic surgery, routine preoperative CXR is not indicated but may be appropriate in patients with significant cardiorespiratory disease [1].

Other indications to consider – these will depend on local guidelines:

• Those with acute respiratory symptoms

• Those with possible metastases

• Those with suspected or established cardio-respiratory disease, who have not had a chest radiograph during the past 12 months

• Recent immigrants from countries where tuberculosis is still endemic and who have not had a chest radiograph during the past 12 months

• Those with a recent history of chest trauma

• Those whose operation may involve a thoracotomy

• Those undergoing a major abdominal operation, who run a high risk of respiratory complications

• Heavy smokers who have not had a chest radiograph during the past 12 months

• Patients not included in the above categories, if the request is made by the appropriate anaesthetist

Many pre-operative chest radiographs contribute little to patient management in elective surgery. The Royal College of Radiologists’ guidelines are often not followed. This audit can help to reduce unnecessary radiography by encouraging stricter application of these guidelines [4].

## The Cycle

**The standard:**

A locally agreed standard based on local guidelines with two elements such as:

1. Pre-operative CXR only for patients undergoing cardiothoracic surgery or for patients with significant cardiorespiratory disease or other valid indication

2. All requested CXR images should be viewed and findings documented pre-operatively by the surgical or anaesthetic team

**Target:**

90% of elective surgery pre-operative CXRs should be in patients with a valid indication (see local guidelines)

100% should have a pre-operative CXR interpretation recorded in notes

## Assess local practice

**Indicators:**

• Percentage of patients undergoing elective surgery pre-operative CXR with a valid indication

• Percentage of images viewed pre-operatively by the surgical or anaesthetic team

**Data items to be collected:**

During the review period, record for each specialty:

• The number of elective surgery patients for whom a pre-operative chest radiograph is requested

• Indication for CXR as documented on request form/patient notes

• The number of radiographs with no findings recorded in case notes pre-operatively

**Suggested number:**

Fifty consecutive preoperative CXR in each speciality.

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

• Meetings with surgical teams and staff involved in preoperative assessment clinics

• Guidelines should be circulated and reiterated in reports (most easily as a macro), for example those from the Royal College of Radiologists [1]

• Local variations may be incorporated [3]

• Following this, those requests which do not adhere to the locally agreed guidelines should be returned, with an explanation and radiography not carried out

**Resources:**

- RIS-PACS

- Case note review for patients in whom pre-operative CXR was requested

**References:**

1. RCR iRefer: Making the best use of clinical radiology. Eighth edition 2017, RCR. <http://guidelines.irefer.org.uk/adult/#Tpc90>
2. Royal College of Radiologists. Pre-operative Chest Radiography: a National Study by the RoyalCollege of Radiologists. Lancet 1979;ii:83–6.
3. Guidelines on Hospital Practice: a Multicentre Study. BMJ 1992;304:740–43.
4. Walker D et al. Audit of Requests for Pre-Operative Chest Radiography. BMJ 1994;309:772–3.
5. NICE Preoperative tests. <http://www.nice.org.uk/guidance/cg3/evidence/cg3-preoperative-tests-full-guideline3> Routine preoperative tests for elective surgery NICE Guidelines (NG45), published April 2016
6. Joo HS, Wong J, Naik VN, Savoldelli GL. The value of screening preoperative chest x-rays: a systematic review. Can.J Anaesth. 2005; 52: 568-574. <http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=retrieve&db=pubmed&dopt=citation&list_uids=15983140>
7. Silvestri L, Gullo A. Pre-operative chest radiograph. The challenge continues. Minerva Anestesiol. 2004; 70: 437-442. <http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=retrieve&db=pubmed&dopt=citation&list_uids=15235551>

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