**Algorithm of describing chest radiograph**

1. ***What is at the radiograph?***

Patients data (if present). Posterior-Anterior (PA) or lateral Chest X-ray.

1. ***Quality of the radiograph***

**Rotation** – Normal in case: Spinous processes at midpoint between medial ends of the clavicles. Can be rotated to the left/right.

**Inspiration** – Normal in case: 5 to 7 anterior ribs intersecting the diaphragm in the mid-clavicular line

**Inclusion** – Normal in case: upper side – 1st ribs, lower side – both costophrenic angles, lateral side – lateral edges of ribcage. If something is excluded, you must mention this.

**Penetration** – Normal in case: Spine visible behind the heart. Can be overpenetrated (too black) or underpenetrated (to white)

**Presence of artifacts (normally they are absent)**

1. ***Soft tissues and bones***

There is no visible pathology in soft tissues and bones.

Check for presence of gas, foreign bodies, abnormalities in tissue densities (destruction, calcification, etc.)

1. ***Shape, size and transparency of lungs and picture of lung vessels***

Shape (frustum or conoid), size and transparency of lungs is normal. Picture of lung vessels is not changed.

Picture of lung vessels is normally visible till the lateral 1/3 of lung zones. Vessels are rectilinear, branched at acute angles (if opposite – it is deformed).

1. ***Abnormalities***

**Tissue involved** - Lung, heart, aorta, bone etc.

**Size** - Large/Small/Varied

**Side** - Right/Left - Unilateral/Bilateral

**Number** - Single/Multiple

**Distribution** - Focal/Widespread

**Position** - Anterior/Posterior/Lung zone etc.

**Shape** - Round/Crescentic/etc.

**Edge** - Smooth/Irregular/Spiculated

**Pattern** - Nodular/Reticular(net-like)

**Density** - Air/Fat/Soft-tissue/Calcium/Metal

1. ***Hilar structures***

Hila are located normally, shape and size are not changed, contour is clear.

Chest X-ray assessment routinely involves checking the hilar structures for normal, size, density and position. Each hilum contains major bronchi and pulmonary vessels. There are also lymph nodes on each side (not visible unless abnormal). The left hilum is often higher than the right. If a hilum is out of position, ask yourself if has been pushed or pulled. Normal position – between anterior parts of 2nd and 5th ribs. Normal size: left – 1,5 cm, right – equal to the distance of its inner contour to the right heart contour.

1. ***Diaphragm and costophrenic angles***

Diaphragm is located normally, shape is not changed, contour is clear. Costophrenic angles are free.

Right hemidiaphragm is normally located on the level of anterior part of 6th rib, left hemidiaphragm – 1 rib lower (7th rib). If costophrenic angles are not fully visible note this in the description.

1. ***Mediastinum***

Mediastinum is located normally, shape and size are not changed, contour is clear.

Normal position of mediastinum: 1/3 is located on the right from the median line, 2/3 on the left of the median line. Distance from the right mediastinal contour to the right heart contour is about 1,5 cm, distance from the left mediastinal contour to the left mid-clavicular line is 1.5-2 cm

1. ***Diagnostic conclusion:***

Diagnostic conclusion should be detailed/comprehensive. It means that not only nosological unit must be mentioned, but the phase of the current disease as well.

**Anatomical structures to check**

1. Trachea and bronchi
2. Hilar structures
3. Lung zones
4. Pleura
5. Lung lobes and fissures
6. Costophrenic angles
7. Diaphragm
8. Heart
9. Mediastinum
10. Soft tissues
11. Bones

**Review areas**

1. **A**pices - Pneumothorax?
2. **B**ones/soft-tissues - Fractures/density?
3. **C**ardiac shadow- Consolidation/mass?
4. **D**iaphragm - Pneumoperitoneum?
5. **E**dge of the image - Unexpected findings?