**Chest X-Ray Guide:**

Mnemonic: *PIPER N ABCDE*

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| **P**atient Information | 1) Name and Demographics  2) Clinical History  3) Previous Imaging |
| **I**nspiration | Count the anterior ribs  - Normally 6 anterior ribs above diaphragm, with 7th rib penetrating though diaphragm  - >= 7 ribs above indicates hyperinflation |
| **P**enetration | Should just be able to outline thoracic vertebrae through cardiac shadow in a sufficiently penetrated X-Ray |
| **E**xposed Area | All 6 lung zones visible:  1) Upper: apices to 2nd costal cartilage  2) Middle: between 2nd and 4th costal cartilage  3) Lower: between 4th and 6th costal cartilage |
| **R**otation | Medial ends of clavicles should be equidistant from midline spinous processes. |
| **N**G Tube Location | Tip should be visible in gas bubble of stomach if well-placed  \* Also comment on presence of ETT |
| **A**irway | 1) Tracheal Deviation  a) **Deviated Toward** (Collapse, fibrosis, tumors)  b) **Deviated Away** (Effusion, pneumothorax, tumors)  2) Tracheal Narrowing- uncommon; indicates malignancy |
| **B**reathing | 1) 6 Lung Zones (Normal, white, dark, too many lines)  a) **White:**  - Collapse (uniform opacity)  - Effusion (uniform opacity)  - Consolidation (localized patchy opacities w air bronchogram)  - Pneumonectomy  b) **Dark:**  - COPD (hyperinflation, flat diaphragm, stretched heart)  - Pneumothorax (radiolucent shrunken lung margins)  c) **Too many lines**  - Fibrotic lung (reticular nodular shadowing)  \* Causes- idiopathic, allergic extrinsic alveolitis, drugs (methotrexate), connective tissue dx  - Pulmonary edema (bilat. symmetrical opacity, cardiomegaly, pleural effusion)  2) Hilar- Pulmonary vessels and lymph nodes (L higher than R)  \* Bilateral hilar lymphadenopathy ddx: Sarcoidosis, Tuberculosis, Lymphoma |
| **C**irculation | 1) Note heart silhouette (aortic knuckle and L/R heart borders)  - Swelling at borders indicate aortic/ventricular aneurysm  - Loss of borders indicate adjacent lung lobe pathology  2) Heart size- Heart/Thorax sixe > 0.5 indicates cardiomegaly (PA X-Ray optimal) |
| **D**iaphragm | 1) R higher than L  2) Look for tenting (phrenic nerve palsy, fibrosis)  3) White plaques (asbestosis)  4) Costophrenic angle blunting (small pleural effusions)  5) Gas bubbles/ free air beneath diaphragm |
| **E**verything Else | 1) Soft tissues (swelling, surgical emphysema, breast shadows)  2) Bones (#/ dislocation- clavicles, scapula, humerus, ribs)  3) Medical implants (pacemakers, central lines) |