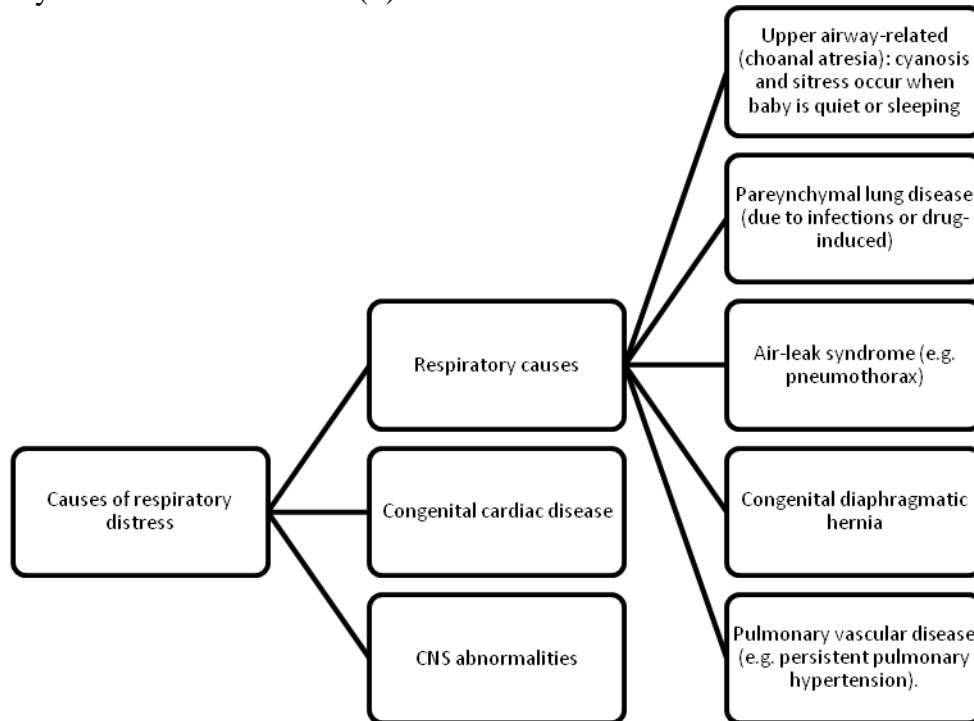




- **Incidence of respiratory distress = 4-6%. Many cases are preventable especially when there is early recognition and intervention.**
- **Signs and symptoms of respiratory distress:**
 - Tachypnea (normal neonatal respiratory rate = 40-60).
 - Nasal flaring.
 - Chest retraction (which can be suprasternal, infrasternal, intercostal or subcostal).
 - Grunting.
 - Reduced air entry which is detected by auscultation.
 - Cyanosis and desaturation (\pm).



- **History (usually taken from the mother or the nurse):**
 - Onset (was it immediately after birth? or within hours? or within days?).
 - Gestational age is an important factor to ask about (because respiratory distress is increased in pre-terms).
 - Antenatal steroids (did the mother receive any steroids which can enhance the lung maturity in the baby before being delivered?).
 - PROM and fever (mother had chorioaminitis?).
 - Meconium-stained amniotic fluid (indicating the risk of meconium aspiration).
 - Asphyxia.
- **Physical examination:**
 - Check for use of accessory muscles in the neck.
 - Check neurologic status.
 - Blood pressure and capillary refill time.
 - Hepatomegaly.
 - Cyanosis (associated with cyanotic heart disease).
 - Sepsis.
 - Look for any malformations



- **Chest examination:**

- Check air entry via auscultation (is it normal or reduced? if reduced, is it unilateral or bilateral?).
- Mediastinal shift (which is more obvious when there is tension pneumothorax).
- Adventitious sounds (any added sounds?).
- Hyperinflation.
- Heart sounds (S1, S2 and presence of murmurs).

- **Investigations done for respiratory distress:**

- WBC count and differential (to rule-out infections → sepsis and pneumonia).
- Sepsis screen.
- Chest X-ray.
- Blood gas analysis.

- **Management of respiratory distress:**

- **Supportive:**
 - ✓ IV fluid.
 - ✓ Maintaining vital signs.
 - ✓ Oxygen to maintain saturation.
 - ✓ Respiratory support (is there a need to use ventilators?).
- **Specific treatment:** treating the underlying cause.

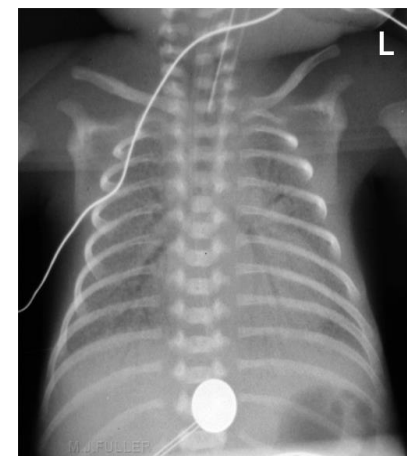
- **Choanal atresia:**

- **Diagnosed by** inability to pass a suction catheter through the nares (this can be unilateral or bilateral).
- **Management:**
 - ✓ Insert an oral airway.
 - ✓ Provide oxygen.
 - ✓ Intubation (±).
- **Upper airway symptoms can be caused by choanal atresia (as mentioned above) or Pierre-Robin syndrome that is characterized by:**
 - ✓ Micrognathia.
 - ✓ Cleft palate.
 - ✓ Glossoptosis (backward displacement of the tongue producing pbstruction of the airway).



- **Respiratory Distress syndrome (RDS):**

- Deficiency of surfactant that is most commonly seen with pre-terms.
- **Risk factors:** CS, ↓gestational age, being a male and second born twin.
- **Surfactant deficiency can also be secondary to:**
 - ✓ Maternal diabetes.
 - ✓ Asphyxia.
 - ✓ Pneumonia.
 - ✓ Pulmonary hemorrhage.
 - ✓ Meconium aspiration.
- **Chest X-ray is characterized by:** reticular granular appearance (ground glass appearance), air bronchogram and no translucency.





- **Treatment:**
 - ✓ Maintain Functional Residual Capacity (Continuous Positive Airway Pressure vs intubation).
 - ✓ Surfactant replacement:
 - ❖ This decreases mortality.
 - ❖ There is increased benefit of surfactant replacement when used with steroids.
 - ❖ Reducing the incidence of air-leaks.

- **Pneumonia:**

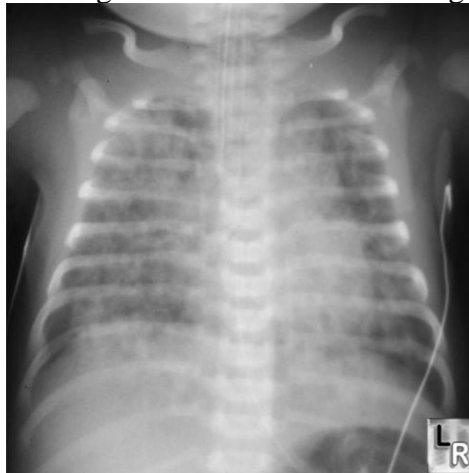
- GBS (+) mothers must receive antibiotics at least 4 hours before delivery (to ensure that enough amount of antibiotics reach to the baby).
- **X-ray** of pneumonia is non-specific. It can be fairly normal or resembling that of RDS.
- **Common organisms causing pneumonia:**
 - ✓ GBS.
 - ✓ E. coli
 - ✓ Klebsiella.
 - ✓ Chlamydia.
 - ✓ Listeria.
 - ✓ TORCH.
- **Risk factors for pneumonia include:**
 - ✓ Chorioaminitis.
 - ✓ Prolonged PROM.
 - ✓ Prematurity.
- **Pathophysiology: pneumonia causes:**
 - ✓ Inflammation and edema.
 - ✓ Bronchial plugging.
 - ✓ Surfactant inactivation.
- **Treatment:** broad-spectrum antibiotics (ampicillin and gentamicin).

- **Transient tachypnea of newborn:**

- Delayed clearance of fluids.
- **Thus chest X-ray shows:** normal lungs with fluid accumulation in lung fissures.
- It is self-limited and benign but frequent monitoring is required to avoid hypoxia.
- Increased in males and CS.

- **Meconium aspiration:**

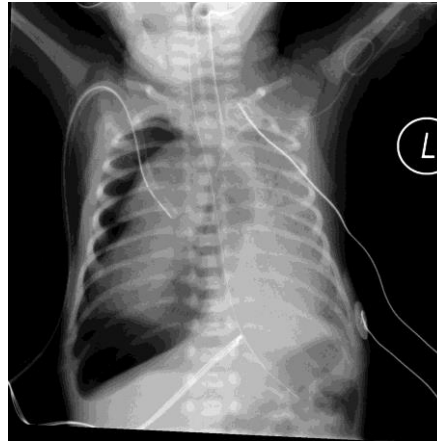
- Meconium contains epithelial cells, bile salts and is released with increased intrauterine stress or asphyxia.
- Meconium plugs the airway (partial or complete) and causes surfactant inactivation.
- **Chest X-ray:** patchy non-homogenous infiltrates of the lungs.





- **Tension pneumothorax:**

- **Most commonly occurring when receiving positive air pressure which should not exceed:**
 - ✓ 30 mmHg in terms.
 - ✓ 20 mmHg in pre-terms.
- **Chest X-ray:**



- **Treatment:**
 - ✓ If there is no tension pneumothorax → oxygen as needed.
 - ✓ Tension pneumothorax is an emergency → maintain airway and drain it.

- **Pulmonary hypoplasia:**

- **Risk factors:**
 - ✓ Rupture of membranes with oligohydramnios or anhydramnios.
 - ✓ Renal anomalies (such as bilateral renal agenesis which eventually results in oligohydramnios).
 - ✓ Antenatal restriction of the chest wall.
 - ✓ Congenital diaphragmatic hernia which results in altered bilateral development of the lungs and presents with:
 - ❖ Scaphoid abdomen.
 - ❖ Bowel sounds in the chest.
 - ❖ ↓ breath sounds.
 - ❖ Severe hypoxemia.

- **Persistent pulmonary hypertension:**

- Usually secondary to hypoxia that occurs with meconium aspiration or asphyxia. When hypoxia occurs, blood will be shifted toward vital organs (heart, brain and kidneys) while vasoconstriction will occur in non-vital organs such as pulmonary vascular bed.
- With pulmonary hypertension, there is a difference in oxygen saturation between the right hand and lower extremities.
- **Treatment:**
 - ✓ Avoid hypoxia and acidosis.
 - ✓ Oxygen support.
 - ✓ Inhaled NO (which lowers pulmonary pressure).