BRETHLESSNESS/RESPIRATORY DISTRESS/DYSPNEA

- **Respiratory difficulties may result from abnormalities within the respiratory system** or from the dysfunction of organ systems influencing the respiratory system. Within the respiratory system, problems can arise from upper airway obstruction, lower airway obstruction, changes in gas diffusion from the alveolus to the capillary, abnormal pulmonary blood flow, or alterations in nerves and muscles that control breathing.
- **Disease in other organ systems can compromise respiratory function** directly or may induce compensatory respiratory mechanisms

What are the causes of difficulty in breathing?(imnci)

A. Respiratory Causes

1. Pneumonia
2. Asthma
3. Bronchiolitis
4. Effusion and Empyema
5. Pneumothorax
6. Viral croup
7. Foreign body in the airways

B. Non-respiratory Causes

1. Congestive heart failure
2. Raised intra-cranial tension, e.g. Meningitis
3. Metabolic acidosis, e.g. Diabetic Ketoacidosis, Renal Failure

What are the signs of lower repiratory illness?

- Fast breathing
- Lower chest indrawing
- Grunt

- Subcostal, suprasternal,sternal retractions
- Head bobbing
- Flaring of ala nasi

What are the symptoms of cardiac disease (achd)causing breathlessness?

- Prolonged feeding time
- Suck cry suck cycle
- Recurrent respiratory infection
- Failure to thrive
- Forehead sweating

What are the signs of upper airway obstruction?

Signs of Upper Airway Obstruction
• Increased respiratory rate and effort (eg, retractions, nasal flaring) • Decreased air movement • Stridor (typically inspiratory) • Barking cough • Snoring or gurgling • Hoarseness

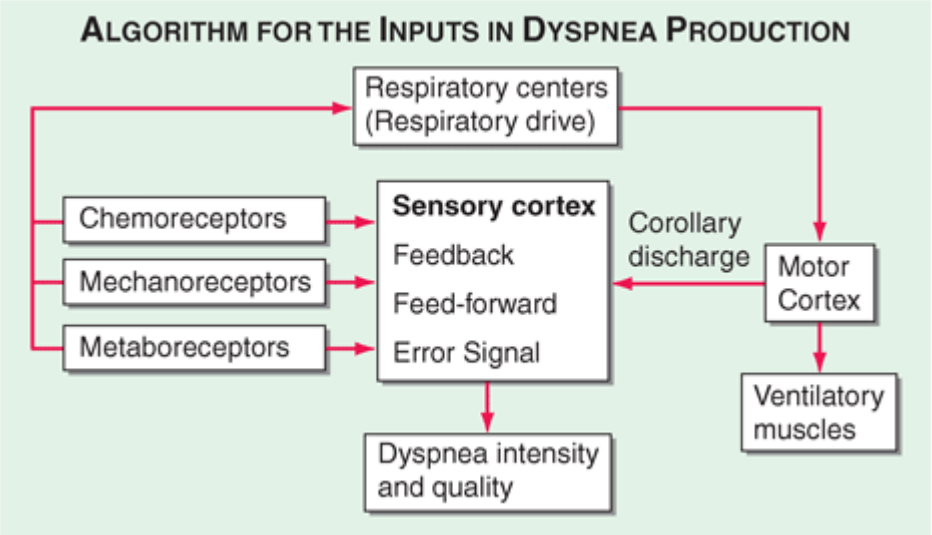
How to distinguish resp and non respiratory causes?

While children with **distress due to respiratory causes will have cough as an important symptom,** children in respiratory distress due to other causes usually do not have significant cough. Yet, one important clinical confounder to rule-out is a child with acyanotic congenital heart disease, who often presents with recurrent pneumonia. The respiratory distress in such a situation can also be due to congestive heart failure. In such children disress is the predominant symptom than coughA h/o prolonged feeding time,suck cty suck cycle, forehead sweating, lack of weight gain,recurrent respiratory infection are clues to achd.A very careful evaluation of cardiovascular system ,abnormal pulse, hyperactive precordium,displaced apex, palpable murmur (thrill) ,abnormal heart sounds, significant murmurs are clues to achd

why you get tachypnea in pneumonia?

Normally children maintain a minute volume ie: respiratory rate x tidal volume

When a child has pneumonia tidal volume decreases. As this situation sensitises your chemoreceptors, j receptors/mechanoreceptor /other receptors to stimulate resp centre to breathe faster. This is the only way to maintain the normal minute voulume



Why you get chest retractions?

Normally we have a negative pressure ventilation to assist respiration,intra pleural pressure made relatively negative so that air can flow from atmosphere to lung.In a child with pneumonia you have to exert more negative to expand the normal and diseasesd lung. In a child chest wall is more complaint so you get lower chest retactions.

What is orthopnea?(Harrison)

Orthopnea

Orthopnea, which is defined as dyspnea occurring in the recumbent position, is usually a later manifestation of HF than is exertional dyspnea. It results from redistribution of fluid from the splanchnic circulation and lower

extremities into the central circulation during recumbency, with a resultant increase in pulmonary capillary pressure. Nocturnal cough is a common manifestation of this process and a frequently overlooked symptom of HF. Orthopnea generally is relieved by sitting upright or sleeping with additional pillows. **Although orthopnea is a relatively specific symptom of HF, it may occur in patients with abdominal obesity or ascites and patients with pulmonary disease whose lung mechanics favor an upright posture.**

What is Paroxysmal Nocturnal Dyspnea (PND)?

This term refers to acute episodes of severe shortness of breath and coughing that generally occur at night and awaken the patient from sleep, usually 1–3 hours after the patient retires. **PND may be manifest by coughing or wheezing, possibly because of increased pressure in the bronchial arteries leading to airway compression, along with interstitial pulmonary edema that leads to increased airway resistance**. Whereas orthopnea may be relieved by sitting upright at the side of the bed with the legs in a dependent position, patients with PND often have persistent coughing and wheezing even after they have assumed the upright position. *Cardiac asthma* is closely related to PND, is characterized by wheezing secondary to bronchospasm, and must be differentiated from primary asthma and pulmonary causes of wheezing.