# PEEP indications and contraindications

## ARDS:
- There people have reduced aerated lung volume
- Yes, it helps to set a high PEEP to increase the aerated lung volume
- Yes, very high PEEP can cause VILI
- **No, nobody can agree on how high the PEEP should be**

The **ALVEOLI Trial**: by ARDS network, (2004) - randomized 549 patients to high PEEP vs low PEEP
- Same volumes and plateau pressures; **No survival benefit.**
- The investigators recommend you have a try of high PEEP ventilation, and if it improves the oxygenation of your ARDS patient, then you are a winner; and if it doesn’t work, don’t feel too bad, because there is no evidence it makes any difference in the long run anyway.

## ASTHMA:
- These people have an increased intrinsic PEEP and higher airway resistance. The main problem is high expiratory resistance, so it takes a while to empty the lungs.
- Less responsive to PEEP than COPD
- This is probably because there is too much intrinsic PEEP; plus mucus plugs might be blocking some of the airways, making them immune to the benefits of PEEP.
- The result is that PEEP might actually cause worsening hyperinflation and increased gas trapping.
- Some data suggests that low level PEEP is beneficial.

## COPD:
- These people have an increased intrinsic PEEP and higher airway resistance.
- PEEP reduces the workload of respiratory muscles by counteracting both intrinsic PEEP and airway resistance
- Also, it may actually splint the airways, resulting in improved emptying of the trapped gas.
- No trials to test whether PEEP in COPD is of any use whatsoever.

## PULMONARY OEDEMA:
- The main problem is a negative intrathoracic pressure generated due to decreased lung volume and decreased lung compliance
- PEEP works directly on this problem.
- Most people would agree that about 10cmH2O of PEEP is the standard of care for cardiogenic pulmonary oedema.

## Contraindications to PEEP
- **Tension Pneumothorax** - it will get worse
- **Hypovolemic shock** – cardiac output will decrease
- **Bronchopleural fistula** - it won't heal
- **High intracranial pressure** - it will get higher

---

*With “Basic Assessment and Support in Intensive Care” by Somersall et al as a foundation, I built using the humongous and canonical “Principles and Practice of Mechanical Ventilation” by Tobin et al – the 1442 page 2nd edition.*