



STOP!

WHAT IS CPAP? (1)

CPAP stands for **C**ontinuous **P**ositive **A**irway **P**ressure. In ED we give CPAP via a tight-fitting mask.

CPAP is a way of delivering 'PEEP' (**P**ositive **E**nd-**E**xpiratory **P**ressure) throughout the breathing cycle.

WHO IS IT FOR? (indications)

Patients with Type-1 respiratory failure (hypoxaemia, without hypercapnia) with persistently low SPO2 despite supplemental O2.

WHO IS IT NOT FOR?

(primary contraindications)

- Need for intubation
- Untreated pneumothorax
- Facial trauma (incl. burns)
- Untreated vomiting or epistaxis
- Suspected base of skull fracture

LOOK

WHAT DOES CPAP DO? (2)

CPAP creates extra pressure at the end of the patient's exhalation phase, keeping bronchioles and alveoli open. This is a low amount of pressure (approximately 5-10 cmH2O) that **augments alveolar recruitment** and **reduces intrapulmonary shunting**.

In pulmonary oedema, this pressure forces excess fluid to leave the interstitial tissue around the alveoli, allowing better exchange of gases.

Patients on CPAP breathe at higher lung volumes, reduces airway resistance – hence, work of breathing.

Finally, the high oxygen flow rates required to achieve CPAP ensure that an even greater FiO2 (fraction of inspired oxygen) can be achieved than by using a non-rebreather (NRB) mask at 15L/min.

LEARN

As a temporising measure, you can give patients **maximum** supplemental oxygen of 15 L/min via NRB mask **PLUS** an additional 6 L/min via nasal cannula.

NB: CPAP is NOT actually a mode of ventilation (but it can help avoid invasive ventilation in some patients).

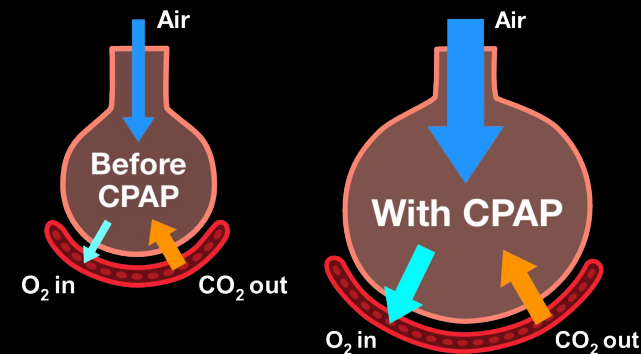
How to set up CPAP 🎬 (EM3 video)

<https://youtu.be/KF9u0qCr-RE>

1. Boussignac CPAP system (UHL) <http://bit.ly/33QXqIK>

2. Basics of CPAP (Bound Tree Uni) <http://bit.ly/2vorJUU>

CPAP mechanism on the alveolus



CPAP increases surface area for gas exchange with capillary