

CPAP

LIMITATIONS FOR PRACTICE:

Registered Nurse who has been instructed, following MO's orders.

AIM:

To set up the circuit and apply CPAP to patient efficiently and safely.

EXPLANATION:

CPAP (Continuous Positive Airway Pressure) maintains positive airway pressure (ie above atmospheric pressure) throughout the entire respiratory cycle.

CPAP is different to PEEP. PEEP maintains positive airway pressure at the end of expiration only. In order to maintain a positive airway pressure at the beginning of inspiration a good CPAP circuit needs a peakflow circulating past the patient's mouth in order to meet the patient's peakflow.

CPAP is used to;

- improve oxygenation through the use of PEEP to increase functional residual capacity
- reduce the work of breathing for spontaneously breathing patients by maintaining a peakflow to meet the patients peakflow and using PEEP to improve lung compliance.
- mechanically reduce afterload and preload of the failing heart through increases in interthoracic pressures
- splint the chest wall of patients with flail segments due to positive pleural pressures during inspiration

CPAP can be applied via an endotracheal/tracheostomy tube or a face mask.

POTENTIAL COMPLICATIONS:

- Pulmonary barotrauma
- Hypotension
- Oliguria
- Raised intracranial pressure
- Aerophagia and gastric distension *
- Vomiting and aspiration *
- Mask intolerance *
- Facial pressure areas *
- Increased work of breathing if gas flows are excessive or inadequate for patient needs
- Circuit disconnection:

* Facial CPAP only

- Remember there are no alarms in this circuit.
- Ensure continuous pulse oximetry with alarms turned ON.

INDICATIONS:

Conditions associated with:

- Alveolar collapse, eg:
 - atelectasis
 - ARDS
- Fluid filled alveoli, eg:
 - pulmonary oedema
 - pulmonary contusion
 - pneumonia
 - ARDS
- Airway closure, eg:
 - hypoventilation post operatively
- Left ventricular failure
- Flail chest wall Segments

CONTRA-INDICATIONS:

- Hypotension
 - pneumothorax
 - Head injury
 - Head and neck surgery
 - Mask intolerance
 - Risk of vomiting or aspiration
 - Facial fractures/lacerations
 - Recent tracheal/oesophageal anastomosis
- } CPAP via mask