

Positive End-Expiratory Pressure (PEEP)– 30.145

DEFINITION:

Positive end-expiratory pressure (PEEP) is a method of ventilation in which airway pressure is maintained above atmospheric pressure at the end of exhalation by means of a mechanical impedance (PEEP valve). PEEP has some similarity to CPAP although it is delivered through bag instead of a facemask. It can be delivered via bag-valve-mask or bagging into an endotracheal tube. At the end of exhalation PEEP prevents alveolar collapse (i.e. the alveoli stay open) and improves oxygen exchange across the alveolar membrane. Additionally, PEEP may recruit more alveoli that have collapsed, which may further improve oxygenation. **ADDING PEEP IS DONE TO IMPROVE OXYGENATION.** The disadvantage to PEEP is that it may increase intrathoracic pressure, which may reduce blood flow in cardiac arrest or a shock state.

INDICATIONS:

Hypoxia, either prior to or post intubation despite appropriate bag ventilation with 100% oxygen.

CONTRAINDICATIONS:

- A. Cardiac arrest (absolute).
- B. Hypotension or shock state (relative). May still choose to apply PEEP when preparing to RSI a hypoxic/hypotensive patient.

PROCEDURE:

- A. If not already applied, apply PEEP valve to bag device.
- B. Dial PEEP valve to 5cm H₂O and bag per usual.
- C. Increase PEEP by 5cm H₂O every 3-5 minutes until hypoxia resolves (oxygen saturation > 95%).
- D. Maximum PEEP is 15 cmH₂O.

NOTES AND PRECAUTIONS:

- A. Increasing bagging rate will not necessarily improve oxygenation but can cause hyperventilation, which can be detrimental to patients.
- B. PEEP valve may come out of the package set to five or zero. Be aware of valve settings.
- C. **Maximum PEEP in pediatrics is 5cm H₂O.**