



**NSW CHILDREN'S
HEALTHCARE NETWORK
NORTHERN**



Health
Hunter New England
Local Health District

Neopuff

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Benefits of Using the Neopuff

Use of the Neopuff offers several benefits to the infant and to the clinician.

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Benefits for Infants

Inflates an infant's lungs with controlled pressures including **PEEP** and **PIP**.

Free flow oxygen concentrations from 21% to 100% can be delivered.

Infant T-Piece Resuscitation with optimal humidity can prevent airway drying.

Consistent PEEP can improve lung compliance and establish Functional Residual Capacity (FRC).

Positive End Expiratory Pressure (PEEP) is the pressure in the lungs (alveolar pressure) above atmospheric pressure (the pressure outside of the body) that exists at the end of expiration. Extrinsic PEEP is a setting applied via a ventilator. A small amount of applied PEEP (5-8cm H₂O) is used in most mechanical ventilated patients to mitigate against end-expiratory alveolar collapse. A higher PEEP is used to improve hypoxemia.

Positive Inspiratory Pressure (PIP) is the highest level of pressure applied to the lungs during inspiration. PIP increases with any airway resistance.



Benefits for Clinicians

Unlike bag and mask devices which are very operator dependent, the Neopuff is able to deliver consistent pressures as long as the clinician ensures there is no air leak around the mask. The pressure however, needs to be altered to ensure what is delivered is sufficient to make the chest rise.

PEEP can be delivered to recruit alveoli and reduce the work of breathing in infants with respiratory pathology. Free flow oxygen can be delivered in an infant requiring oxygen, without pressure. PEEP can be used during surfactant delivery.

Can provide consistent PEEP during transport or ventilator circuit change.

Initial sustained inflations can be delivered to establish lung volume.

Can deliver ideal inspiratory versus expiratory ratio. Allows for better gas exchange.

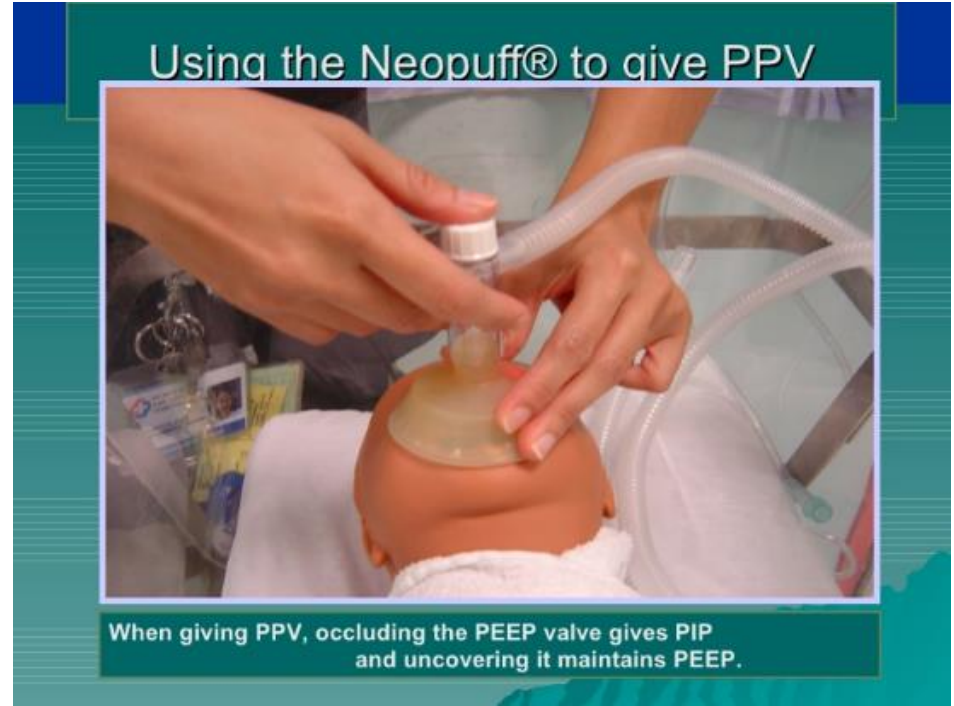
When to use?

- To resuscitate newborns and infants up to 10 kgs
- As temporary ventilation/pressure support while awaiting CPAP or intubation
- Deliver surfactant while providing PEEP
- ARC recommended when providing respiratory support or ventilation to a neonate or infant



Requires

- Requires a flow of gas to deliver pressure
- Requires a good seal with airway support



Set up

- Check manometer reads zero with no gas flow
- Connect gas supply 10L/min
- Connect T-Piece circuit to the gas outlet. Leave blue cap in place or use test lung to test
- Adjust gas supply 10L/min for newborns, 15L/min for infants



Set up, maximum pressure

- While checking and adjusting pressure – occlude the PEEP cap with thumb or finger.
- Check maximum pressure – turn PIP control fully clockwise.



Set up

- Adjust maximum pressure – turn maximum pressure relief control knob clockwise or counter clockwise until desired pressure displayed.
- Limits the amount of PIP delivered
- Factory setting is 40cmH₂O.
- ARC recommend 50cmH₂O for newborns.



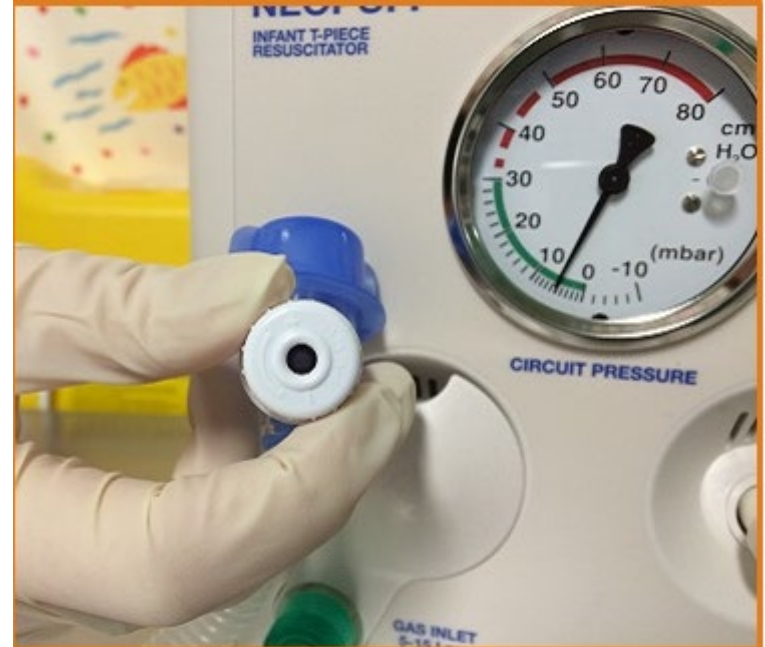
Set up PIP

- Set PIP
- Continue to occlude the PEEP cap
- Turn PIP control knob until desired PIP displayed
- 25-30cmH₂O



Set up PEEP

- Set PEEP
- Remove thumb from PEEP cap and turn cap until desired level displays on the manometer dial
- Usually 5cm H₂O



Neopuff masks

- Use correct size – cover nose and mouth
- Successful ventilation requires an air tight seal
- Roll mask onto face from the chin
- Airway maintained by gentle jaw thrust.
- Be mindful not to obstruct airway by pressing on neck



Neopuff Support



Remove the blue cap from the T-Piece.



Connect the T-Piece to the resuscitation mask.



Place the mask over the infant's mouth and nose. If an ideal seal is achieved the manometer will display the set PEEP.



Neopuff Support

- Ventilate by placing and removing your thumb over the PEEP cap to allow for inspiration and expiration.
- Hold until you see rise of the chest then release your thumb.
- Close observation of the infants chest rise and fall is required to ensure adequate expansion
- If CPR necessary – cardiac compressions must stop when giving breaths.
- If intubated attach T-Piece to ETT – no need to pause during compressions



More resources :

<https://www.youtube.com/watch?v=JNAnu-blhsY>

If further resources required contact

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