Scope
This guideline is aimed at all health care professionals involved in the care of infants within the Neonatal Service.

Legal Liability (standard UHL statement)
Guidelines issued and approved by the Trust are considered to represent best practice. Staff may only exceptionally depart from any relevant Trust guidelines providing always that such a departure is confined to the specific needs of individual circumstances. In healthcare delivery such departure shall only be undertaken where, in the judgement of the responsible health professional, it is fully appropriate and justifiable – such decision to be fully recorded in the patient’s notes.

Key Points
1. NeoPuff is a flow driven neonatal resuscitator.
2. The pressure delivered can be adjusted and measured.
3. The pressure delivered is dependent on gas flow which must be set at exactly 8 litres per minute
4. The Maximum Pressure Relief should be checked by nursing staff each shift

Background
The NeoPuff infant resuscitator allows the user to set both Peak Inspiratory Pressure (PIP) and Positive End Expiratory Pressure (PEEP). Breaths are delivered to the infant by occluding an opening in the T-piece with a finger or thumb.

The pressures delivered can vary depending on the gas flow. It is therefore very important that the NeoPuff is set up and checked correctly at the start of each nursing shift so that it can be quickly used in an emergency

Aims
To provide a guide to setting up and checking of the NeoPuff resuscitator

Appendix 1: Diagram of Neopuff Control Panel
Appendix 2: Nitric Oxide – INOblender Connection to the Neopuff Resuscitator
Introducing the Neopuff equipment

**Components:**
- A blender connected to both air and oxygen gas supplies (A)
- A gas flow meter which needs to be set at 8 litres/minute (B)
- The neopuff resuscitator with gas inlet on the front, pressure dial and two pressure adjustment controls (C) and Appendix 1
- T-piece with adjustable white PEEP cap (D)
- Peak pressures are delivered by occluding the opening in the white PEEP cap
Introduction to the Quick Set up guide

In all cases
- The gas flow meter needs to be set to 8 litres/minute

Includes
- Neopuff ‘Safe Pressure’ Check (setting the maximum pressure relief)

and

- Three step approach to adjust the Neopuff for your patient
  - Step 1: Setting the PEEP pressure
  - Step 2: Setting the PIP pressure
  - Step 3: Setting the appropriate inspired oxygen

Then proceed to the ‘Safe Pressure’ check
(pressure units in this guide are in cmH₂O)
Neopuff Quick Set up guide: Page 1

Neopuff ‘Safe Pressure’ Check
(to be performed once per shift)

Setting the **MAXIMUM** pressure limiter

- The **MAXIMUM PRESSURE RELIEF** (*covered knob on left*) is for **SAFETY** and acts as a ‘blow off valve’ or ‘safety cutoff’

- This should be set at **30 cmH₂O**. To do this:
  - Ensure the gas flow meter is set to **8 litres/minute**
  - With the **INSPIRATORY PRESSURE CONTROL** (*on right*) turned completely clockwise,
  - Occlude both the mask *and* white cap then …..
  - … remove the cover and adjust the **MAXIMUM PRESSURE RELIEF (on left)** until set to 30.

After this adjustment has been made, replace the cover and readjust delivered pressures as indicated in Step One and Step Two (next page)
Adjusting the settings for your patients

**In all cases**
The gas flow meter needs to be set to **8 litres/minute**

**Step One**
To set **PEEP** (baseline pressure)
- While occluding the mask *only*, adjust the PEEP cap (white cap) to adjust the PEEP.
- This pressure is usually set to **5 cmH₂O**

**Step Two**
To set **PIP** (Peak inspiratory pressure)
- While occluding both the mask *and* white cap adjust the PIP by turning the **INSPIRATORY PRESSURE CONTROL (on right)** knob on the front of the neopuff.
  - In a term baby you can use a PIP of up to 30, but the PIP is more usually set between 20-25. Ventilator pressures can be used as a guide in those infants receiving respiratory support.

**Step Three**
- Adjust the required inspired oxygen using the blender.
Please note

- Under the vast majority of circumstances, there will be no need to uncover or adjust the MAXIMUM PRESSURE RELIEF control (covered on left) while the Neopuff is being used on a patient.

- The PIP can always be adjusted using the INSPIRATORY PRESSURE CONTROL (on right)

- Do remember to check the PEEP cap adjustment should there be a problem with delivering the appropriate pressures (in particular if the delivered pressure fails to drop after the PEEP cap is released).

- Do remember to review the oxygen concentration being delivered if the infant has low oxygen saturations that are not responding to Neopuff ventilation.

Auditables standards

1. The Neopuff has been checked daily (100% target).
2. The Neopuff is set to the appropriate pressures at ventilated bed spaces (100%)
3. The Neopuff maximum pressure relief is set correctly (100%).
Guideline development:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 2012</td>
<td>New guideline – Robin Miralles</td>
</tr>
<tr>
<td>August 2015</td>
<td>Neonatal Guidelines Meeting review (minor amendments only)</td>
</tr>
<tr>
<td>August 2015</td>
<td>Neonatal Governance Meeting approval</td>
</tr>
<tr>
<td>June 2018</td>
<td>Neonatal Guidelines and Governance Meeting</td>
</tr>
</tbody>
</table>
References

Manufacturer Guides - Neopuff Infant Resuscitator - Fischer & Paykel Healthcare

INOMax Delivery System Pocket Guide

Resuscitation at Birth - The NLS Provider Course Manual 4e, Resuscitation Council, UK, 2016


Appendix 1: Diagram of Neopuff Control Panel
INOblender Connection to the Fisher & Paykel Neopuff Resuscitator

1. Oxygen Source
2. Neopuff
3. T-Piece Circuit (with Duckbill Port)
4. Patient Connection
5. Temperature Probe
6. Humidified Resuscitation System Circuit
7. Humidifier
8. Oxygen Tubing
9. INOblender
10. INOMAX Inlet