**Respiratory Distress Syndrome/ Hyaline Membrane Disease (RDS/ HMD)**

**Definition:** Respiratory distress persisting >4 hours of age, with typical CXR features

**Management**

- **CPAP vs Intubation & Ventilation**

CPAP has been successfully used as first-line treatment of HMD in infants with mild-moderate respiratory distress for many years. A period of observation on CPAP (15-20 minutes) is required to determine whether the baby improves, & whether CPAP is tolerated. Traditionally, CPAP has been commenced with a starting pressure of 5cm H$_2$O, but many transport services & NICU’s commence CPAP at 7 cm H$_2$O. Commencing CPAP at a higher level may reduce the need for subsequent intubation.

The following neonates may be suitable for CPAP. Note: this is a guide, and the on-call neonatologist should be consulted.

- Gestation > 32 weeks, & FiO$_2$ ≤0.4 after stabilisation
- Gestation < 32 weeks, & FiO$_2$ ≤0.3 after stabilisation

**Contraindications for CPAP (indications for intubation)**

- Incipient collapse
- Severe respiratory distress
- Rising PaCO$_2$ (>60mmHg) & pH <7.25 (arterial)
- Recurrent apnoea
- Neonates with air leak should be discussed with the consultant to determine their suitability for CPAP

If the neonate is suitable for CPAP, we recommend a starting pressure of 6-7cmH$_2$O. Note that the starting pressure will be at the discretion of the on-call consultant, and it is not mandatory to start at the higher pressure.
If the neonate requires ventilation, the following are suggested settings:

- **Guide to initial ventilator settings for HMD (Stephan transport ventilator.)**

<table>
<thead>
<tr>
<th></th>
<th>Term baby</th>
<th>Preterm baby</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>8 L/min</td>
<td>6-8 L/min</td>
</tr>
<tr>
<td>PIP</td>
<td>20-25 cm H₂O</td>
<td>18-20 cm H₂O</td>
</tr>
<tr>
<td>PEEP</td>
<td>6 cm H₂O</td>
<td>5 cm H₂O</td>
</tr>
<tr>
<td>Inspiratory time</td>
<td>0.4 secs</td>
<td>0.3-0.35 secs</td>
</tr>
<tr>
<td>Rate</td>
<td>30-40/ min</td>
<td>50-60/ min</td>
</tr>
</tbody>
</table>

- **Surfactant administration on transports**
  - Always discuss with the on-call neonatologist. *Usual practice is to administer on transport for ventilated babies with significant respiratory distress.*
  - When the return transport is expected to take <30 minutes, & FiO₂ is < 40%, surfactant administration can be deferred until arriving at PMH.

If a CXR can be readily obtained, it is preferable to do so before administering surfactant. If not, do not waste time calling in a radiographer; clinical examination may suffice to determine tube placement. Make sure that air entry is equal, i.e., avoid right mainstem bronchus intubation/unilateral surfactant administration.