Neonatal respiratory distress and CPAP in babies ≥ 32 weeks gestation

**Respiratory distress**
- **Signs**
  - Tachypnoea > 60 breaths/minute
  - Increased respiratory effort
    - Audible expiratory grunt
    - Recession–sternal, intercostal, subcostal
    - Nasal flaring
    - Cyanosis/oxygen need

**Indications for CPAP**
- Signs of respiratory distress or
- Oxygen requirement ≥ 30% to maintain SpO₂ within target

**Oxygenation**
- Maintain SpO₂ within target range
  - Term baby 92–98%
  - Preterm baby 90–95%

**Monitor and record**
- Monitor continuously SpO₂ (sensor on right hand), respiratory rate, heart rate
- Observe for signs of increasing respiratory distress/work of breathing

**Blood gas**
- pCO₂ may assist assessment (capillary)

**Fluids**
- 10% glucose IV at 60 mL/kg/day
- Small gavage feeds if stable

**Sepsis management**
- Full blood count and blood cultures
- Antibiotics as per local protocol or
- Penicillin or
- Ampicillin and gentamicin
- Refer to QCG NeoMedQ

**Chest x-ray to identify**
- Respiratory disease
- Air leak (e.g. pneumothorax)
- Congenital diaphragmatic hernia
- Chest masses
- Cardiomegaly
- Other anomalies

**Blood glucose level**
- Refer to QCG Hypoglycaemia-newborn

**Supportive care**
- Family centred approach
- Observe baby unclothed in incubator
- Thermoneutral environment
- Position prone/quarter prone
- Development care–minimal handling
- Skin-to-skin if stable

**Consult/Refer/Transfer**
- as indicated
- Ongoing care as indicated
  - Clinical assessment
  - Supportive care
  - Consult with higher level service for advice or to organise transfer/retrieval
  - Transfer/retrieval
    - Contact NeoRESQ or ANTS-NQ via
      - RSQ phone 1300 799 127
      - Intubation and mechanical ventilation

**CPAP indicated?**
- **Yes**

**Assess & monitor clinical condition**

**Signs of deterioration/CPAP failure?**
- **Yes**
- **No**

**Signs of improvement?**
- **Yes**
- **No**

**Wean/cease CPAP**

**Capability**
- Level 4 neonatal service or above
- Appropriate equipment and human resources available

**Commence**
- CPAP at 7–8 cm H₂O; 6–8 L/minute
- O₂ to maintain SpO₂ within target
- OGT 6–8 FG on free drainage

**Neonatal care**
- Monitor continuously:
  - SpO₂ (sensor preferably right hand)
  - Vital signs (heart rate, respiratory rate, temperature, blood pressure)
  - FiO₂
  - Record hourly:
    - Vital signs, SpO₂ work of breathing
    - SpO₂ (sensor on right hand), respiratory rate, heart rate
  - Observe for signs of increasing respiratory distress/work of breathing

**Respiratory distress and CPAP**
- O₂ > 40% to maintain SpO₂ within target range
- A rapid rise in O₂ requirement—10% over 2 hours (e.g. an increase from 30% to 40%)
- Respiratory acidosis (e.g. pH < 7.25 with normal base excess or PaCO₂ > 60 mmHg)
- Recurrent apnoea requiring stimulation
- Increased work of breathing
- Agitation that cannot be relieved—refer to QCG HIE guideline

**Signs of improvement**
- Decreased
  - Respiratory rate
  - Work of breathing
  - O₂ requirement
- Improved
  - O₂ delivery
    - Blood gas
    - Chest x-ray
    - Baby comfort

**Weaning**
- Commence when:
  - FiO₂ ≤ 21% and CPAP 5 cm H₂O
  - O₂ by mask ≤ 3 self-reverting apnoea, bradycardia, desaturation in previous 6 hours
- Wean
  - O₂ until 25% then
  - Pressure incrementally—1 cm as tolerated until 5 cm H₂O

**Cease if stable**
- 21% O₂ and CPAP 5 cm H₂O

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ANTS-NQ: Advanced Neonatal Transport Service-North Queensland, CPAP: continuous positive airway pressure, FG French gauge, FiO₂: fractional inspired oxygen, HIE: Hypoxic-ischaemic encephalopathy, IV: intravenous, NeoRESQ Neonatal Retrieval Emergency Service Southern Queensland, pCO₂: partial pressure of carbon dioxide, QCG: Queensland Clinical Guidelines, RSQ: Retrieval Services Queensland, SpO₂: peripheral capillary oxygen saturation, ≥: greater than or equal to, <: less than, ≤: less than or equal to