# Neonatal respiratory distress and CPAP in babies ≥ 32 weeks gestation

## Respiratory distress Capability Signs • Tachypnoea > 60 breaths/minute · Increased respiratory effort o Audible expiratory grunt o Recession-sternal, intercostal, Commence subcostal Nο **CPAP** Nasal flaring indicated? Cyanosis/oxygen need Indications for CPAP Neonatal care · Signs of respiratory distress or Oxygen requirement ≥ 30% to maintain Yes SpO<sub>2</sub> within target o FiO<sub>2</sub> Assess & monitor Principles of care · Record hourly: clinical condition Oxygenation Maintain SpO<sub>2</sub> within target range o Term baby 92-98% o Preterm baby 90-95% Monitor and record • Monitor continuously SpO<sub>2</sub> (sensor on right hand), respiratory rate, heart rate · Observe for signs of increasing respiratory distress/work of breathing **Blood** gas pCO<sub>2</sub> may assist assessment (capillary) oedema • 10% glucose IV at 60 mL/kg/day Small gavage feeds if stable Signs of Yes Sepsis management target range deterioration/ • Full blood count and blood cultures **CPAP failure?** · Antibiotics as per local protocol or • Penicillin or • Ampicillin and gentamicin • Refer to QCG NeoMedQ Chest x-ray to identify: Respiratory disease No • Air leak (e.g. pneumothorax) Congenital diaphragmatic hernia · Chest masses Cardiomegaly Other anomalies Decreased o Respiratory rate Blood glucose level No Signs of Work of breathing • Refer to QCG Hypoglycaemia-newborn improvement? Supportive care Improved · Family centred approach o Blood gas · Observe baby unclothed in incubator o Chest x-ray • Thermoneutral environment o Baby comfort • Position prone/quarter prone Yes

- · 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
  - o Contact NeoRESQ or ANTS-NQ via RSQ phone 1300 799 127
- Intubation and mechanical ventilation

# Wean/cease

**CPAP** 

- Level 4 neonatal service or above
- Appropriate equipment and human resources available
- CPAP at 7-8 cm H<sub>2</sub>0; 6-8 L/minute
- O<sub>2</sub> to maintain SpO<sub>2</sub> within target
- OGT 6–8 FG on free drainage
- Monitor continuously:
  - o SpO<sub>2</sub> (sensor preferably right hand)
  - o Vital signs (heart rate, respiratory rate, temperature, blood pressure)
  - o Vital signs, SpO<sub>2</sub>, work of breathing (sternal and intercostal recession, grunting, nasal flaring, tachypnoea)
  - o CPAP- pressure, flow, FiO<sub>2</sub>
  - o Humidifier and circuit temperature
  - Water level in humidifier
- · Vigilant surveillance and record hourly o CPAP interface positioned correctly
  - o Septal columellar integrity
  - o Eyes are clearly visible
  - o Securing devices not causing indentation, pitting or periorbital

# Signs of deterioration/CPAP failure

- O<sub>2</sub> > 40% to maintain SpO<sub>2</sub> within
- 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  $PaCO_2 > 60 \text{ mmHg}$
- · Recurrent apnoea requiring stimulation
- · Increased work of breathing
- · Agitation that cannot be relieved-refer to QCG HIE guideline

# Signs of improvement

- o O<sub>2</sub> requirement

# Weaning

- Commence when:
  - o O<sub>2</sub> < 25% and SpO<sub>2</sub> within target
  - o Respiratory distress not present
  - ≤ 3 self-reverting apnoea, bradycardia, desaturation in previous 6 hours
- Wean
  - o O2 until 25% then
  - o Pressure incrementally—1 cm as tolerated until 5 cm H<sub>2</sub>O

# Cease if stable in

21% O<sub>2</sub> and CPAP 5 cm H<sub>2</sub>O

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, ≥: greater than or equal to, <: less than; ≤: less than or equal to

Queensland Clinical Guideline. Respiratory distress and CPAP. Flowchart: F21.3-1-V8-R25



