



NCCU CLINICAL GUIDELINES
SECTION: 2

RESPIRATORY PROBLEMS AND MANAGEMENT

Section 2: Respiratory problems and management
Extubation
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EXTUBATION

To remove the endotracheal tube and maintain the baby on successfully on non-invasive ventilation while minimising the degree of atelectasis and trauma. The decision to extubate should be made by a senior doctor especially in <28 week gestation baby.

KEY POINTS

- There is always a risk that the neonate may deteriorate once the endotracheal tube has been removed. It is important that resuscitation and reintubation equipment is available in the event that it may be needed and.
- Medical staff must be made aware of an extubation commencing, and be present in the nursery.
- If the neonate requires suction this should be performed prior to extubation. Endotracheal suction may cause atelectasis. Allow the neonate to recover post ETT suction – when the neonate has stabilised on pre-suction ventilator settings extubation should be performed.
- Most preterm neonates will be extubated to continuous positive airway pressure (CPAP) to prevent atelectasis.
- CPAP may be contraindicated in some neonates following abdominal surgery (if unsure discuss with surgeon).
- It is beneficial for the neonate to be nursed prone following extubation. The prone position improves oxygenation due to mechanical advantages on chest wall expansion. Positioning of the neonate is dependent upon their condition, surgical neonates may not be able to be positioned prone.
- Extubation can be performed in either an incubator or on a radiant warmer.

When to Extubate:

Evidence suggests that earlier extubation in very preterm neonates may reduce the risk of chronic lung disease. This benefit may be offset by the risk of increased instability on non-invasive support and potential trauma of repeated intubations. Readiness for extubation of extreme preterms should be determined by a Consultant with consideration of FiO_2 , age, ductus, caffeine prescription, pre-extubation gas and ability to spontaneously ventilate. A spontaneous breathing test may be useful in extreme preterms where by the neonate is placed on endotracheal CPAP for up to 3 minutes. If the baby breathes well and maintains HR and O₂ saturations during this time extubation is less likely to fail in the first 72 hours. This should not be done immediately prior to extubation due to the risk of atelectasis and should be suspended if there is significant desaturation or bradycardia.

In the surgical baby the level of analgesia and sedation will determine time of extubation and a spontaneous breathing test may also be useful.

Procedure:

Endotracheal extubation is a two-person procedure. One to be NNT or Dr.

- Apply transcutaneous monitoring (if appropriate) and allow to stabilise before extubation.
- Check if neonate has had or needs caffeine.
- Set up trolley for intubation.
- Have suction, neopuff or Laedal bag and mask available.
- Ensure CPAP or nasal cannula is set-up if required.
- Place infant in supine position. Head midline.
- Using adhesive remover, remove tape.
- Withdraw the endotracheal tube smoothly.
- If CPAP required, apply promptly and secure (can place on before ETT removal if oral ETT).
- Suction the oro-nasopharynx as needed.
- If oxygen required apply nasal cannula with low flow O2 and consider CPAP.
- Observe the infant for increased signs of respiratory distress.
- Measure and record a blood gas one hour post extubation or as ordered.

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