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The laryngeal mask airway – a consideration for the Neonatal Resuscitation Programme guidelines?

To the Editor:

We read with interest Dr. Elliott's excellent introduction to the Neonatal Resuscitation Programme (NRP) guidelines.¹ The design of sensible, practical algorithms and their widespread dissemination is an important step in improving neonatal outcome. Airway management options included in the guidelines, however, are confined to the facemask (FM) or tracheal tube (TT). Yet bag-and-mask ventilation may be wholly ineffective² and tracheal intubation may be impossible. Neonatal airway management may be difficult, even for those with advanced airway control skills. Furthermore 80% of neonates weighing <1.5 kg require resuscitation³ and airway management may be technically more difficult. Advances in neonatal airway management are rare and interest is beginning to focus on the use of the laryngeal mask airway (LMA).⁴

The LMA offers several advantages over the FM during neonatal resuscitation. It avoids the necessity to form a seal on a slippery surface and manipulation of the head, neck and jaw is not required. It avoids pressure to the eyes and it may free the operator to perform other tasks such as CPR or administer drugs. The advantages over the TT include avoidance of laryngoscopy and its associated adverse effects, less invasion of the respiratory tract and avoidance of the risks of endobronchial or oesophageal intubation.

An attenuated haemodynamic stress response to LMA insertion is likely (although unproven in neonates) and this may be important in preventing intraventricular haemorrhage. Furthermore, placement is probably independent of factors governing facial and upper airway anatomy making the LMA particularly useful in the "cannot intubate, cannot ventilate" situation in neonates. Tra-

cheal intubation may also cause laryngeal oedema and in the newborn 1 mm of oedema reduces the cross-sectional area of the larynx by 65%.⁵ Potential limitations of the LMA are that it may not be suitable for removal of meconium aspirate and may be inadequate for neonates who require high airway pressures – in these situations it is not a substitute for a TT.

A large proportion of neonatal resuscitation is performed by non-medical personnel⁶ who are infrequently exposed to advanced resuscitation techniques and may have difficulty in maintaining proficiency.⁷ Tests on neonatal intubation training models have shown that midwives and junior doctors can obtain a clear airway more rapidly with the LMA than the TT and with fewer failures,⁸ a similar finding to adults.⁹ In a prospective pilot study of neonates born with apnoea or heart rate <110 min⁻¹, experienced LMA users were able to resuscitate 20/20 neonates with the LMA at the first attempt.¹⁰ Our experience at Cairns Base Hospital is similar and extends to 39/40 successful resuscitations (unpublished data). Three of these neonates weighed 1–1.5 kg.¹¹ Denny *et al.* used an LMA to successfully resuscitate a 2.75 kg neonate with Pierre-Robin syndrome in whom intubation and facemask ventilation had failed.¹² Whilst large-scale studies are required to evaluate the precise role of the LMA in neonatal resuscitation and to decide what level of initial and continued training is needed, these initial results and reports are encouraging.

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