



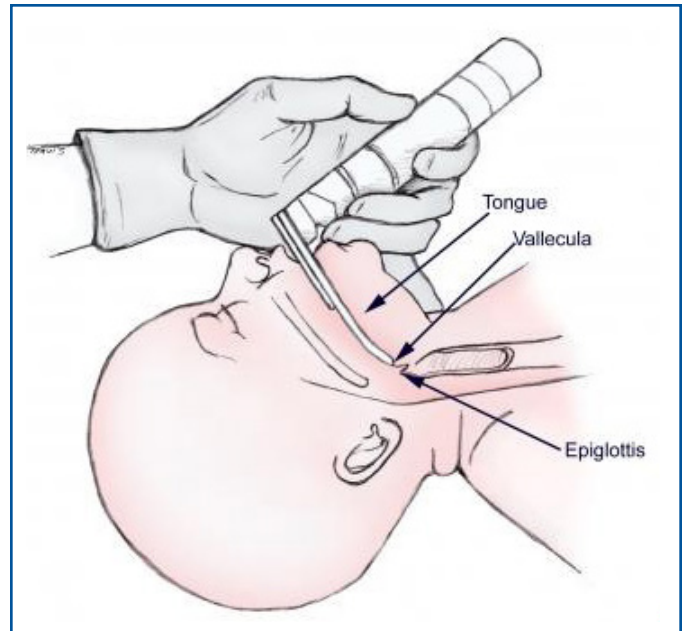
# Intubation

Intubation is the passage of a tube into the infant's trachea. It may be emergent or elective, based on the neonate's condition. Neonatal nurse practitioners (NNPs), neonatologists, and other skilled healthcare providers are trained in this procedure. Indications for intubation are airway protection, control of the airway, perinatal resuscitation, mechanical ventilation, medication administration into the lungs such as surfactant, respiratory distress, suctioning the trachea/lungs, general surgery, and providing aid in the event of an airway obstruction.

The procedure involves the infant positioned supine on a radiant warmer and on cardiorespiratory monitors. Medication is given for sedation and pain management prior to the procedure if it is a controlled, nonemergent situation. The person performing the procedure will wear gloves, suction the infant's mouth and throat, and insert a laryngoscope into the infant's mouth to lift the tongue and visualize the vocal cords. The endotracheal tube (ETT) will be passed through the vocal cords, into the trachea. The ETT will be connected to a ventilator or to bag-and-mask ventilation. After the ETT is inserted, confirmation of correct ETT placement is done by auscultation of breath sounds equally bilaterally, a disposable CO<sub>2</sub> sensor, and an X ray. The ETT is secured with tape or an ETT stabilization device.

Endotracheal tubes come in many different brands and sizes; a stylet may be used to aid in intubation. Intubation has potential complications of acute or chronic trauma. Acute trauma includes tracheal perforation, hemorrhage, laryngeal edema, and injury to vocal cords. Chronic trauma includes cricoid ulceration and fibrosis, stenosis of glottis, hoarseness, stridor, wheezing, and tracheomegaly.

Potential systemic side effects of intubation are infection, aspiration, increased intracranial pressure, hypoxemia, hypertension, apnea, bradycardia, and cardiac arrest. Potential prolonged intubation side effects are alveolar/



Baby with endotracheal tube. Image reproduced with permission from Medscape Drugs & Diseases (<https://emedicine.medscape.com/>), Intubation and Tracheal Suctioning for Meconium Aspiration, 2015, available at: <https://emedicine.medscape.com/article/1413467-overview>.

palatal grooving, dentition interference, and feeding/oral issues.

Duration of intubation is based on clinical condition of the infant and may last minutes for medication administration only (surfactant) or for hours to days for respiratory support. Extubation is removal of the ETT.

## Bibliography

- MacDonald, M. G., Ramasethu, J., & Rais-Bahrami, K. (2013). *Atlas of procedures in neonatology* (5th ed.). Philadelphia PA: Lippincott Williams & Wilkins.
- Rozwoj, M. W. (2008). Indications for endotracheal intubation. Retrieved from [www.ncbi.nlm.nih.gov/pubmed/19471055](http://www.ncbi.nlm.nih.gov/pubmed/19471055)
- Weiner, G. M. (2016). *Textbook of neonatal resuscitation* (7th ed.). Elk Grove Village, IL: American Academy of Pediatrics.



## Intubation: Information for Parents

Your baby was born with or has developed breathing problems. There are many different types of breathing problems, many related to a baby being born too early, that require intubation. Intubation is the passage of a flexible plastic tube into the baby's trachea (airway or windpipe). The trachea goes from the baby's mouth and nose to the lungs to help them breathe. The tube in the baby's windpipe is then connected to oxygen or a ventilator (a machine that breathes for your baby).

### Intubation = Tube In

Intubation may happen as an emergency, meaning your baby needs help breathing immediately, or it can be elective, meaning when the health team decides it is time to help your baby breathe better. Neonatal nurse practitioners (NNPs), neonatologists, and other skilled healthcare providers are trained to do this procedure. Intubation may be done to help the baby breathe, to give special medicine into the lungs such as surfactant, to suction the airways/lungs, for surgery, or to aid when there is an obstruction (airway blockage).

The procedure involves having your baby lying face up on a flat surface, usually a warming bed, and monitored at all times. Medication may be given to control any discomfort and help quiet your baby for the procedure. The person performing the procedure will wear gloves, suction your baby's mouth and throat, and look into your baby's mouth with a special flashlight called a laryngoscope. The plastic tube inserted into the trachea is called an endotracheal tube (ETT). The ETT will be put through your baby's vocal cords, into the opening of the trachea. The ETT will be connected to a ventilator (breathing machine) or to a bag-and-mask device to breathe for the baby. After the ETT is inserted, an X ray will be taken to make sure the tube is in the right place and working well. Tape around the baby's lips will hold the ETT in place.

The ETT may stay in for a few minutes—only long enough to give medicine—or for days depending on your baby and his or her needs. Occasionally, the ETT may come out by accidentally bumping it or moving your baby and must be

replaced. The ETT in babies is very small and only goes into the trachea a tiny bit so any movement can easily displace this fragile tube. For this reason, it is really important that you speak to the nurse before trying to move or pick up your baby.

Babies who are intubated cannot eat by bottle and must be fed by the IV or by a feeding tube. But, parents can assist the nurse or respiratory therapist when they are doing oral (mouth) care.

Once the decision is made to remove the ETT, it can be easily untaped and pulled out. Your baby may have a somewhat sore and swollen throat afterward and may sound hoarse when crying for a while after the tube is out. This usually gets better after a day or two.

