

aspiration

- Anticipated need for mechanical ventilation related to chest trauma, shock, increased intracranial pressure
- Hypoxemia despite supplemental oxygen
- Inadequate ventilation

In preparation for intubation, the child should be preoxygenated with 100% oxygen using an appropriately sized bag and mask. Historically, uncuffed ET tubes were used in children younger than 8 years old, but there is evidence that the use of these tubes in small children does not produce a higher incidence of complications; newer cuff designs are reported to decrease complications, such as stridor and tracheal mucosal injury ([Kuch, 2013](#); [Taylor, Subaiya, and Corsino, 2011](#)). Air or gas delivered directly to the trachea must be humidified. During intubation, the cardiac rhythm, heart rate, and oxygen saturation should be monitored continuously with audible tones. ET tube placement should be verified by at least one clinical sign and at least one confirmatory technology:

- Visualization of bilateral chest expansion
- Auscultation over the epigastrium (breath sounds should not be heard) and the lung fields bilaterally in the axillary region (breath sounds should be equal and adequate)
- Color change on ETCO₂ detector during exhalation after at least 3 to 6 breaths or waveform/value verification with continuous capnography
- Chest radiography

Apply a protective skin barrier and secure the ET tube with tape or a securement device. An NG tube is typically inserted after intubation.

Mechanical Ventilation

ET intubation can be accomplished by the nasal (nasotracheal), oral (orotracheal), or direct tracheal (tracheostomy) routes. Although it is more difficult to place, nasotracheal intubation is preferred to orotracheal intubation because it facilitates oral hygiene and provides more stable fixation, which reduces the complication of tracheal erosion and the danger of accidental extubation.