



Nasotracheal Intubation

APPROVED:  
EMS Medical Director EMS Administrator

Airway and ventilation are paramount in the management of the critically ill patient. The following procedure is to be followed for patients with impending respiratory failure who meet the appropriate clinical indications. This procedure is not to be used precipitously or as a substitute for sound medical management of the patient's condition. It is not acceptable to rush to nasotracheal intubation of a CHF patient unless the patient fails to respond to proven conventional therapies such as adequate ventilation, oxygen, nitroglycerin, CPAP, etc.

1. Indications
 - 1.1 Impending respiratory failure refractory to conventional therapy including high-flow oxygen, nitroglycerin, CPAP, inhaled bronchodilators, etc.
 - 1.2 Unacceptably long transport time to receiving hospital given the patient's deteriorating respiratory status
 - 1.3 Evidence of hypoxemia characterized by agitation, altered mental status, pallor, cyanosis, diaphoresis, etc.
 - 1.4 Traumatic airway compromise with suspected C-spine injury
2. Contraindications
 - 2.1 Adequate response to conventional therapy during preparation for nasotracheal intubation. It's appropriate to abort the procedure if the patient is getting better.
 - 2.2 Age less than 12 years
 - 2.3 Major facial trauma to maxilla or nose
 - 2.4 Apnea
 - 2.5 Relative contraindications
 - 2.5.1 Patient taking Coumadin or other anticoagulants
 - 2.5.2 Known blood clotting disorder
3. Procedure

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- 3.1 Clearly explain to the patient why the procedure is needed, and how it is accomplished. Explain that they will not be able to talk afterwards and the tube may need to stay in for several days or longer. Tell the patient that their complete cooperation is needed to do the procedure. Gently restrain the patient's hands during the procedure.
- 3.2 Examine both nostrils to determine which is larger. (HINT: Use pen light or occlude one side then the other to check airflow.)
- 3.3 Spray the nasal passages and back of the throat with an appropriate topical anesthetic (ie. xylocaine jelly) and vasoconstrictor (ie. neosynephrine) in order to numb the mucosa and reduce bleeding. Dilate the selected nostril with a #32 nasal airway. If significant resistance is felt, try the other side. Remove the airway prior to intubation.
- 3.4 Pre-oxygenate the patient at 100% and keep the patient on oxygen by a cannula in the mouth during the entire procedure.
- 3.5 Check the balloon on an appropriately sized nasotracheal tube (typically a 6.0 tube). Firmly seat the 15 mm adapter in the proximal end of the tube and lubricate the distal 4 cm with xylocaine jelly.
- 3.6 Position the patients head in midline neutral position if possible. (Note: The tube may pass without the head in midline.) Patient may be sitting or supine. Prepare and position tube restraining device.
- 3.7 Tell the patient that they may feel like gagging or coughing when the tube is inserted. Urge the patient to resist gagging or coughing. Reassure and calm the patient.
- 3.8 With gentle, steady pressure, insert the tube directed towards the occipital protuberance on the back of the skull with the bevel turned towards the nasal septum. Do not aim the tube up towards the vertex of the skull. If the tube will not pass on one side, try the other. Some resistance may be encountered when the tube reaches the posterior nasopharynx. At this point some gentle manipulation may ease passage past the resistance. Turn the tube 1/4 turn after reaching the nasopharynx. Do not force it.
- 3.9 When the tube has reached the oropharynx at the back of the mouth, listen at the end of the tube for air moving in and out with each respiration. Time the rate and as inhalation begins, gently but decisively push the tube further into the nostril and listen for its entry into the trachea. Do not force the tube down as structures in the larynx may be torn. If properly positioned, the tube will easily slip into the trachea. Keep your other hand on the cricoid cartilage to palpate and assist tube passage.
- 3.10 Confirm tube position in the same manner as for an endotracheal procedure including ET CO₂. Control bleeding by gently pinching the nostrils around the tube. Secure tube with tape or appropriate tube restraining device. (NOTE: If tube position is suspect or patient status subsequently deteriorates, reassess tube placement and intervene appropriately.

- 3.11 Use ET CO₂ monitoring device in-line between tube and bag. Observe and document presence or absence of waveform and value on the device. A sustained value (after 6-10 breaths) of 1 or 0 in a patient with pulses indicates incorrect tube placement. Remove tube, support airway/ventilation, and attempt re-intubation if possible
 - 3.12 Consider removing the tube if placement is in doubt. Should pulses return, the ET CO₂ monitor will again serve as an indicator of tube placement.
 - 3.13 If the device becomes contaminated with fluids or emesis, it is unusable and must be discarded.
 - 3.14 If the tube does not go in easily on the first try, pull it back into the oropharynx and attempt reinsertion during inhalation. Do not remove it completely unless the procedure is being abandoned. Prolonged attempts to intubate may worsen hypoxia. Limit each attempt to no more than 30 seconds.
 - 3.15 If the procedure is unsuccessful, abandon it. Assist ventilation or put the patient on high-flow oxygen by mask or CPAP and proceed with rapid transport and appropriate medical management.
4. Complications
 - 4.1 Nasal bleeding: Usually easily controlled by gentle pinching of nostrils.
 - 4.2 Esophageal intubation: Tube position must be confirmed in the same manner as for an endotracheal procedure and by use of an end-tidal CO₂ detector.
 - 4.3 Trauma to nasopharynx and oropharynx: Some bleeding may occur in these areas. Suction as needed.
 - 4.4 Self-extubation: Patients who are not properly restrained may attempt to pull tube out. If the balloon is still inflated this may result in damage to the larynx and nostril.
5. Additional Information
 - 5.1 Report to your supervisor that you have performed a nasotracheal intubation. These will be referred to the EMS Medical Director for review.