Verification of Endotracheal Tube Placement

Revised and approved by the ACEP Board of Directors April 2009
Originally approved by the ACEP Board of Directors October 2001 replacing "Expired Carbon Dioxide Monitoring" approved by the ACEP Board of Directors in September 1994 and rescinded October 2001.

As an adjunct to this policy statement, ACEP's Clinical Policies Committee developed a Policy Resource Education Paper (PREP), Verification of Endotracheal Tube Placement.

The American College of Emergency Physicians endorses the following principles regarding the confirmation of endotracheal tube placement in the emergency department or in the out-of-hospital setting.

- Confirmation of proper endotracheal tube placement should be completed in all patients at the time of initial intubation. Physical examination methods, such as auscultation of chest and epigastrium, visualization of thoracic movement, and fogging in the tube, are not sufficiently reliable to confirm endotracheal tube placement. Similarly, pulse oximetry and chest radiography are not reliable as sole techniques to determine endotracheal tube location.

- During intubation, direct visualization of the endotracheal tube passing through the vocal cords into the trachea constitutes firm evidence of correct tube placement, but additional techniques should be used to confirm proper endotracheal tube position.

- End tidal carbon dioxide detection is the most accurate technology to evaluate endotracheal tube position in patients who have adequate tissue perfusion.

- Esophageal detector devices are not as reliable as end tidal carbon dioxide determinations for the verification of endotracheal tube placement in patients who have adequate tissue perfusion.

- For patients in cardiac arrest, and for those with markedly decreased perfusion, end tidal carbon dioxide determination may be less accurate. In these situations, if the end tidal carbon dioxide determination is inconclusive, other methods of confirmation should be performed.

- Properly placed endotracheal tubes may become displaced due to movement of patients and/or equipment. Continuous assessment of correct endotracheal tube placement with continuous end tidal carbon dioxide monitoring is ideal. Reconfirmation of endotracheal tube position should be undertaken immediately in all patients when their clinical status deteriorates, or at any time there is concern regarding proper location of the endotracheal tube.

- Ultrasound imaging and transthoracic impedance methods may prove to be helpful as adjuncts to detect and monitor the proper location of endotracheal tubes. However, the evidence is currently insufficient to endorse widespread implementation of these technologies for this purpose.