

Noninvasive ventilatory support in the ED

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Emergency physicians (EPs) are well trained to manage a patient's airway in many clinical scenarios. Unfortunately, what most EPs fail to consider is the potential downside of intubation and mechanical ventilation including ventilator-acquired pneumonia and ventilator-induced lung injury that can lead to the adult respiratory distress syndrome. Furthermore, in patients with severe chronic obstructive pulmonary disease (COPD) intubation may be a one-way event secondary to an inability to wean. For these reasons, it is always best to forestall or avoid intubation whenever possible. One tool available to the EP that has proven very useful in this regard is non-invasive mask ventilation (NIMV) in the form of either continuous or bi-level positive airway pressure (CPAP, BiPAP). For specific groups of patients, specifically those with COPD and acute congestive heart failure (CHF), CPAP or BiPAP can make all the difference in avoiding intubation altogether and consequently decreasing morbidity and mortality.

In this lecture I will address how NIMV works at a physiologic level in COPD and CHF. I will also discuss the mechanisms by which these patients fail as well as the means to restore their systems to baseline and get them off the NIMV quickly and successfully.

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