



**VETERINARY VOICE:
Tips of the Trade**

Emergency/Critical Care: Mechanical Ventilation

<p>Why is Mechanical Ventilation Used in the Emergency/Critical Care Patient?</p>	<p>When patients develop respiratory failure, mechanical ventilation can be a life-saving intervention. Mechanical ventilation is used for patients who suffer from severe lung disease or who cannot ventilate themselves adequately due to illness or injury.</p>
<p>What does Mechanical Ventilation Specifically Provide to the Emergency/Critical Care Patient?</p>	<p>There are three basic reasons that anesthetizing, intubating and mechanically ventilating patients can be life-saving:</p> <ol style="list-style-type: none"> 1. Increasing Fraction of Inspired Oxygen (FiO₂): The ventilator is able to deliver an increased FiO₂ — as high as 100% more than can be achieved using other techniques. In addition, the exact FiO₂ can be determined and manipulated. 2. Positive End Expiratory Pressure (PEEP): Disease in one area of the lung can lead to collapse of not only that area, but also neighboring and otherwise normal regions of the lung. Preventing the intrapulmonary pressures from reaching zero by providing PEEP keeps regional atelectasis from occurring and enables gas exchange in these lung regions. This is arguably the most important function of mechanical ventilation in certain cases. 3. Facilitate breathing: Mechanical ventilation, in some cases, is the only way to prevent respiratory muscle fatigue and arrest. Anesthetizing and ventilating these patients are very effective ways to relieve their suffering and can prevent a patient’s struggle to breathe during a respiratory crisis.
<p>When a Patient is on Mechanical Ventilation – What Does this Require?</p>	<p>Mechanical ventilation requires a team of highly trained doctors and technicians. Advanced cardiopulmonary monitoring is required 24 hours a day to optimize patient care. Routine monitoring of a ventilated patient includes capnometry, pulse oximetry, continuous ECG, arterial and central venous blood pressure monitoring, urine output monitoring and intermittent blood gas analyses. At VSCT, at least one doctor and one technician from the Emergency/Critical Care service remains at the bedside of the ventilated patient at all times. This doctor constantly adjusts the ventilator settings and sedation protocol to tailor the therapy specifically for each patient’s condition.</p>
<p>What are Some Examples of Diseases or Injuries that Might Result in the Need for Mechanical Ventilation?</p>	<p>Recently, an elderly dog that developed aspiration pneumonia secondary to laryngeal paralysis was mechanically ventilated at VSCT. Previous cases have involved Near Drowning accidents (a common scenario for puppies and adult dogs, especially during the summer months here in Tucson), and a case of severe pulmonary contusions post-vehicular trauma.</p>
<p>When Should I Consider Referring a Patient for Mechanical Ventilation?</p>	<p>Early identification of patients who may benefit from mechanical ventilation increases the chances of success. If you believe you have a patient who may benefit from ventilation at the Veterinary Specialty Center of Tucson, please call 520-795-9955.</p>
<p>Questions? Critical Care Experts: Stacy Armstrong, DVM, DACVECCS Heather Connally, MS, DVM, DACVECCS</p>	<p>The Veterinary Specialty Center of Tucson has board-certified critical care specialists available for questions and consultations on emergency conditions 7 days a week. A member of the Critical Care team is on-call 24/7 to provide consultations to VSCT emergency doctors and assist with patients seen by the VSCT emergency service. Board-certified critical care specialists have four additional years of training are certified by the American College of Veterinary Emergency and Critical Care to assure competency in advanced veterinary care.</p>