Sleep disordered breathing (SDB) exists within varying patient populations and may occur secondary to a number of pathologies. The most common type of sleep disordered breathing is obstructive sleep apnea (OSA). OSA typically presents as a complete loss of airflow, measured by the absence of endtidal CO2, hypoxemia, and an arousal response, which occurs with an average of 20-30 times per night. Obstructive apnea is characterized by collapse of the upper airway to a point where airflow is obstructed, and exhalation is impaired. Central apnea is characterized by a lack of respiratory effort with normal airway patency. Central sleep apnea typically presents as an intermittent lack of respiratory effort, with exhalation occurring in the absence of inspiratory effort. Apnea is defined as a cessation of airflow for at least 10 seconds.

Positive pressure to the airways acts to splint open collapsed airways. Positive pressure levels are set on a set rate of 15 breaths per minute, to provide a therapeutic pressure level for each type of apnea. Continuous positive airway pressure (CPAP) is the standard therapy for OSA, delivering a fixed pressure across the respiratory cycle. It is important to note that CPAP devices are set to the minimum levels that keep the airway open. If programmed too low, apneas may recur.

INTRODUCTION:

Background: Recent developments in non-invasive positive pressure ventilation have led to the production of adaptive servo-ventilation devices that examine an individual's breathing characteristics and adjust the pressure to meet the patient's needs. The Respironics BiPAP® auto SV™ and ResMed VPAP™ Adapt SV are examples of these devices. The BiPAP® auto SV™ is designed to be the best choice for managing complicated sleep-disordered breathing patients. It combines a number of technologies to recognize and react to changing pressure needs.