In our Editor's Choice paper, Jurecki and colleagues evaluated the difference between heights charted in the electronic medical record and predicted height from ulnar length. They found that, for the population studied, mean height from values charted in the electronic medical record was similar to that estimated from ulnar length. However, for individuals, differences in height between the 2 sources can be large, leading to large differences in predicted body weight and the resultant V_T in mL/kg. Ghamloush points out that the authors did not obtain the accepted standard heel-to-crown measurements as were obtained in the ARDS Network study. Ghamloush also questions the wisdom of a one-size-fits-all approach to selection of tidal volume.

Jiang et al developed an animal model to evaluate the relationship between airway humidification and mechanical ventilation-induced lung inflammatory responses. Rabbits were randomly assigned to 6 groups: control animals sacrificed immediately after anesthesia, animals breathing dry gas for 8 h, and animals breathing humidified gas for 8 h (30, 35, 40, and 45 °C). Pathology and inflammation observed in animals treated at 40°C was similar to that in the control animals, suggesting that appropriate humidification reduced inflammatory responses elicited as a consequence of mechanical ventilation. The implication of these results to humans is not straightforward, as pointed out by Tucci and Costa. Core temperature of rabbits is 1 to 2 °C higher than humans, and thus the studied temperature settings cannot be translated directly to humans. Also, lung inflammation was mild. Thus, it remains to be determined whether the approach to humidification improves ICU outcomes.

Ambade and colleagues aimed to explore the utility of biomarkers for diagnosis of COPD. They found that several biomarkers hold promise to either rule in or rule out COPD. The utility of biomarkers versus spirometry and other measures requires further study

Stephen et al compared the improvement in peak expiratory flow with single maximal inhalation and breath holding versus 5 tidal breaths during inhalation of albuterol. The study population was children with asthma aged 5-15 years using a metered dose inhaler with valved holding chamber. A single maximal inhalation with a breath hold was not superior to tidal breathing. These results suggest that either method may be used in children between 5 and 15 years of age.

Copper and Berlinski hypothesized that the change from face mask to tracheostomy will result in a decrease in lung dose for inhaled aerosol. A breathing simulator connected to a filter and an anatomically correct head model of a child was used. The effect of changing from face mask to tracheostomy was variable and depended on the delivery device and breathing pattern. There is no advantage of using an assisted technique to enhance aerosol delivery.

Miller et al hypothesized that an evidence-based asthma protocol would improve time to treatment and adherence to National Institute of Health (NIH) guidelines for patients presenting to the emergency department with status asthmaticus. Implementation of the asthma protocol resulted in improved adherence to NIH guidelines in children with status asthmaticus and improved efficiency in the administration of rescue bronchodilator and systemic corticosteroid therapy. A similar protocol might be considered in other hospitals.

The aim of this study by Martinez and colleagues was to determine the tolerance of subjects with amyotrophic lateral sclerosis (ALS) to noninvasive ventilation (NIV) with volume-controlled (VC) ventilation. They found that VC NIV resulted in high rates of tolerance in subjects with ALS. Mechanically assisted peak cough flow and S_{pO_2} at night were factors associated with tolerance of VC NIV in subjects with ALS.

The objective of the study by Silveira et al was to evaluate failure of CPAP versus NIV in preterm neonates. They found that failure of support was significantly more frequent when nasal CPAP was used.

In a bench study, Brusasco and colleagues compared the performance of 3 oronasal masks and 2 helmets used to apply CPAP in the pre-hospital setting. They found that airflow output, pressure applied, F_{IO_2}, oxygen consumption and ability to maintain 60 L/min flow differed between the devices.

Chu and colleagues investigated the risk and related factors of readmission to the ICU within 7 days in mechanically ventilated subjects. The risk for ICU readmission included subject characteristics, health status, and the length of ICU stay.

The study by Durmus and colleagues aimed to determine the smoking relapse rate and factors related to relapse in subjects who participated in a smoking cessation program. The one-year relapse rate was 51%. Similar to previous studies, alcohol intake was a relapse risk. In subjects receiving drug treatment, planning support meetings more frequently and addressing side effects may increase the success of smoking cessation.

The aim of the simulation study by Yamamoto et al was to investigate the difference in F_{IO_2}delivered via pharyngeal cannula versus nasal cannula during high or low tidal volume ventilation, and open mouth or closed mouth ventilation. Pharyngeal cannula provided higher F_{IO_2}than nasal cannula at the same oxygen flow. Open mouth breathing resulted in a higher F_{IO_2} than closed mouth breathing when 5 L/min of oxygen was delivered via pharyngeal cannula. Breathing pattern did not affect F_{IO_2}.

Yang et al investigated the long term beneficial effects of CPAP on sleep quality and blood pressure in subjects with moderate to severe OSA according to high or low CPAP compliance. They found that CPAP treatment has beneficial effects both on sleep quality and blood pressure only in subjects with OSA who have high CPAP compliance and who used CPAP $\geq$ 4 h per night for $\geq$ 70% of the nights monitored. Subjects with low CPAP compliance had beneficial effects on the apnea-hypopnea index, but not with blood pressure.

The objective of the study by Sokol and colleagues was to explore the short-term effect of using resistive breathing via hand held incentive spirometer (RBIS) on lung function in subjects with cystic fibrosis compared to the autogenic drainage technique. They found that these techniques might assist in the prevention of central airway collapsibility. They conclude that RBIS may aid airway clearance and that it has the potential to improve lung function in patients with cystic fibrosis.

Grigoriadis et al conducted a study comparing nasotracheal suction with a curved tip catheter versus a conventional suction catheter. The study enrolled 20 critically ill subjects. It was more likely to achieve tracheal access using the curved tip catheter. Less time and fewer attempts were required for successful nasotracheal suction using the curved tip catheter. These data support the use of the curved tip catheter for nasotracheal suctioning.