This Month's Editor's Choice is a comparison of patient-ventilator synchrony between neurally-adjusted ventilatory assist and variable pressure support ventilation (PSV). Vargas and others studied 13 subjects with mild to moderate ARDS evaluating the coefficient for variability of tidal volume (V_T) and asynchronies. They found no differences in pressure time product or asynchrony index, but noted reduced variability of V_T with variable PSV. Mireles-Cabodevila and Gama de Abreu provide an accompanying editorial. They detail the complexities of comparing modes and the myriad of measurements that can be used to evaluate synchrony. They also lament the lack of standardization of nomenclature and argue for consensus on definitions and methods.

Lew and colleagues provide a retrospective review of data from 97 pediatric ICUs regarding the use of heliox during treatment of critical asthma. Of the over 40,000 subjects included in the study, 1,070 (2.5%) received heliox. Approximately one-third of these subjects required mechanical ventilation, and no differences in outcomes related to administration of heliox were identified. They concluded that use of heliox was uncommon and not associated with any improvement in outcomes. An important finding demonstrated that mortality was highest (>90%) in subjects intubated in pre-hospital care. Al-Subu and Rehder provide commentary. They point to the multiple confounding variables that impact important outcomes in critical asthma which limit the power of the study. They find the work to be an important stepping stone for defining the current adjunctive treatments for critical asthma in pediatrics which could guide the design of future trials.

Ando et al studied 16 subjects with amyotrophic lateral sclerosis (ALS), performing standard spirometry and ultrasound to measure thickness of the rectus abdominus muscle. They found a positive correlation between the percent change in rectus abdominus muscle thickness and vital capacity and FEV_1. They concluded that ultrasonography of the rectus abdominus might predict a reduction in vital capacity and guide therapy, including initiation of noninvasive ventilation (NIV).

Dusgun and others evaluated respiratory muscle endurance (RME) in subjects with obesity hypoventilation syndrome (OHS) using the incremental load test with and without NIV. They compared measures of respiratory muscle strength, 6-min walk distance, and quality of life measures. They found that OHS subjects had lower RME compared to controls, but subjects with OHS who used NIV had improved RME.

Yoo and colleagues evaluated YouTube videos on pulmonary rehabilitation for quality and reliability. Videos were scored using the mDISCERN score and Pulmonary Rehabilitation for COPD-Specific Score (PRSS). The authors reviewed 62 videos the majority of which were uploaded by healthcare professionals. A little more than half of videos were informational which scored higher in mDISCERN and PRSS. Videos were considered reliable but were often judged as biased and with low quality content. They suggest high quality informational videos should be developed to take advantage of the ubiquitous access to YouTube.

Dennis and coworkers measured perceptions of COPD subjects naïve to NIV during exercise. Participants completed a 5-point Likert scale before and after use of NIV during exercise. Subjects reported a positive effect of NIV on breathlessness and exercise performance. They concluded that NIV was associated with symptom relief, but that NIV might be too difficult to use outside of a healthcare environment.

Vlok et al proposed a modified version of the revised ALS Functional Rating Scale (ALSFRS-R) scale in subjects not currently using NIV. The modified ALSFRS-RM included additional questions to create a nocturnal hypoventilation item added to the score. The additional item corresponded to FVC% ≤ 65% and the score might predict respiratory decline in patients not currently using NIV.

Acar and Yamanoğlu evaluated the utility of the rapid shallow breathing index (RSBI) in prediction of intubation in the emergency department (ED). They found that the change in RSBI over 30 mins, older age, $S_{pO_2} < 92\%$ and heart rate > 100 beats/min were associated with intubation. They suggest that RSBI can be used in the ED to predict NIV failure in patients with acute respiratory failure.

Tan et al performed a bench study of the mask leak test of a noninvasive ventilator used with 8 masks not recommended by the manufacturer. They used 3 inspiratory pressure settings at a constant PEEP. There were no differences in synchrony variables however, accuracy of displayed V_T was impacted by some masks.

Barbosa and others provide a systematic review of the value of community-based rehabilitation programs in subjects with COPD. They evaluated 10 randomized controlled trials encompassing 9,350 participants. They concluded that community-based pulmonary rehabilitation programs tended to result in superior health-related quality of life and symptoms than control interventions, but the findings were inconsistent with very-low certainty of evidence.

Wheeler and colleagues provide a narrative review of the impact of patent ductus arteriosus (PDA) repair on short-term respiratory outcomes. They review the pathophysiologic manifestations, treatment options, and management of hemodynamically significant PDA in preterm infants. The review considers surgical procedures and alterations in pulmonary blood flow and gas exchanges as a result.

White-Dzuro et al engage in a pro/con discussion regarding the role of point of care ultrasound on esophageal intubations in pre-hospital care with McMullan et al. This includes original arguments and short rebuttals defending each position. White-Dzuro et al argue for the ability of ultrasound to avoid unintended esophageal intubation in pre-hospital care, while McMullan et al argue that the standard of care, exhaled carbon dioxide, is more readily available, easier to implement, and has less operator variability.