One of the topics of current clinical interest is the use of nasal high-flow oxygen therapy. The paper by Parke et al is thus timely. In a randomized controlled study, they find that nasal high-flow oxygen therapy may be more effective than standard high-flow face mask oxygen therapy in treating mild to moderate hypoxemic respiratory failure. As Wattier and Ward point out in their editorial, this study advances the evidence for clinical use of high-flow cannula from bench and case series.

Bonett et al developed a computerized advisory system that provides recommendations for setting PSV. They found that the recommendations of the system were essentially the same as the recommendations from experienced respiratory therapists. In his editorial, Lisco reminds us that computer-driven protocols for ventilator liberation have not yet been conclusively shown to reduce the duration of mechanical ventilation. This is in contrast to clinician-driven protocols, which have been shown to shorten the duration of mechanical ventilation. The role of computer-driven ventilator liberation protocols within the complexity of the critical care setting is yet to be determined.

A commercially available automated closed-loop computer-driven ventilator liberation system, SmartCare (Dräger, Lübeck, Germany), uses $P_{\text{ETCO}}$ to estimate alveolar ventilation during mechanical ventilation. Galia et al assessed whether the maximum $P_{\text{ETCO}}$ value, instead of the averaged $P_{\text{ETCO}}$ value, improves $P_{\text{ACO}}$ estimation. They report that use of maximum $P_{\text{ETCO}}$ reduces the difference between $P_{\text{ACO}}$ and $P_{\text{ETCO}}$, and improves the classification system used by the SmartCare system. As Imanaka points out in his editorial, however, it remains to be determined whether this results in patients being more rapidly liberated from the ventilator. These studies by Bonett and Galia, taken together, indicate the increased interest in closed-loop automated ventilator adjustment.

Critical thinking is an important characteristic to be developed in respiratory care students. As Rye states in her editorial, critical thinking is central to excellence in respiratory care education, practice, and research. Wettstein et al measured critical-thinking ability in senior respiratory care students in a baccalaureate program. They found a positive association between a strong science-course background and critical-thinking score, which might be used to guide candidate-selection for respiratory care programs.

Ziegler et al evaluated glucose intolerance in patients with cystic fibrosis. Glucose intolerance was associated with poor clinical score, lower at-rest $S_{\text{PO}}$, greater $S_{\text{PO}}$ difference before versus after 6-min walk test, poor lung function, and lower radiograph score. Multivariate analysis indicated poorer performance in the latter variables in female patients with glucose intolerance than in male patients with glucose intolerance.

Pneumothorax is a well known complication of pulmonary tuberculosis (TB), particularly in patients with advanced TB. In a retrospective study, Shamaei et al evaluated TB-associated secondary pneumothorax. The results of their analysis suggest that, in patients < 30 years old or with cavitory lesions, worsening of the patient’s respiratory condition should prompt consideration of pneumothorax.

Journal clubs are commonly employed by education and healthcare institutions to facilitate learning about study design, to teach critical reading of the literature, and to help trainees and clinicians keep abreast in their fields. Hinkson et al describe the impact of offering continuing respiratory care education credit hours on staff participation in a respiratory care journal club. They found that providing continuing respiratory care education credits for attendance was associated with increased participation in their departmental journal club.

Providing rehabilitation in critically ill patients is receiving increasing attention in the literature. Clini et al report the change in functional status after comprehensive rehabilitation on clinical outcomes in tracheotomized patients admitted to a regional weaning center for difficult weaning. They found that mortality rate and weaning success differed according to changes in basic activities of daily living score following active rehabilitation in this patient population. This is the first study to report that the degree of improvement is associated with patient-important outcomes such as survival and weaning success.

Coates et al conducted an in vitro study to determine the best nebulizer system for delivery of magnesium sulfate to pediatric patients with asthma. The Pari LC Star had an appropriate particle size distribution, but a very slow aerosol output rate. The Omron MicroAir had an even slower output rate and a larger particle size distribution. In vitro lung deposition with the Aeroneb Go with Idehaler was 16.0 ± 0.4 mg/min in older children and approximately a fifth of that in toddlers; it was chosen for the multicenter clinical study. In another in vitro aerosol study, Melani evaluated the effects on aerosol performance of mixing of either budesonide or beclomethasone with albuterol and ipratropium. It was found that both the SideStream and VentStream-Pro nebulizers have good aerosol performance in nebulizing budesonide or beclomethasone alone and when mixed with albuterol and ipratropium.

In addition to the original research published this month, we publish a review on the new ventilator mode, neurally adjusted ventilatory assist. We also publish case reports on the use of thrombolytic therapy in a patient with suspected pulmonary embolism despite a negative computed tomography pulmonary angiogram, pulmonary cryptococcus infection after mono-chemotherapy with gemcitabine, and tracheal glomus tumor. Finally, we publish teaching cases related to Boerhaave Syndrome, and the use of high-frequency oscillatory ventilation in an infant with necrotizing pneumonia and bronchopleural fistula.