Tulaimat and Mokhlesi surveyed intensivists’ reasoning to extubate. The survey included 32 clinical vignettes of real patients who were extubated after they tolerated a spontaneous breathing trial. The accuracy of the physicians’ extubation decisions was low. Physicians relied on variables of limited value in predicting extubation outcome. As suggested by Siner and Siegel, it would be of value to investigate factors that led to decisions to extubate despite data predicting failure. The use of pressure support and CPAP during the spontaneous breathing trial might also have led to optimistic estimates of the patients’ ability to extubate.

Using a lung model, Marchese et al evaluated 6 ICU ventilators in pressure support, pressure-control continuous mandatory ventilation, and volume-control continuous mandatory ventilation, along with conditions of different lung mechanics and respiratory effort. Most of the tested ventilators performed at an acceptable level during the majority of evaluations, but some ventilators performed inadequately during specific settings. As Nishimura points out in his editorial, ventilator evaluations using a lung model are not foolproof. The relevance of the results to clinical practice must be carefully considered.

Turner et al report their experience with ECMO for severe refractory respiratory failure secondary to H1N1 influenza A. Five of the 7 patients survived to hospital discharge. The mean duration of ECMO was 430 hours. As Bett points out in his editorial, ECMO continues to be a vital life-saving option for critically ill refractory respiratory failure. Because we do not have clear-cut criteria for the initiation of ECMO, its use is likely to remain controversial.

Heliox and forward-leaning posture are adjuncts in the administration of nebulized bronchodilator to patients with acute asthma. Brandão et al report that the heliox with forward-leaning-posture group had significantly greater peak expiratory flow improvement with inhaled bronchodilator than groups that received neither heliox nor forward-leaning-posture. As Fink points out, the mechanism explaining this response is unclear. The effect of posture with or without heliox during bronchodilator treatment in patients with acute asthma merits consideration.

Flandreau et al report 87 patients (from 4,813 total admissions to a 15 bed ICU) with hereditary and acquired neuromuscular diseases who had their first ICU admission. In the hereditary-diseases group and the acquired-diseases group, respectively, the rates of NIV use during the ICU stay were 82% and 63%; the intubation rates were 30% and 56%, and the tracheotomy rates were 9% and 12%. At a median of 3 years, the mortality rate was 58%. At final assessment, 46% were on NIV and 29% had tracheotomy.

The prevalence of osteoporosis in 95 patients with COPD was determined by Silva et al; 42% were osteoporotic, 42% were osteopenic, and 16% had normal bone mass. Patients with osteoporosis had more severe COPD than patients with normal bone mass.

In 5 healthy subjects, Coursery et al compared the stop-flow and esophageal-balloon methods to obtain an isovolume pressure-flow curves. They found that the stop-flow method showed potential to noninvasively obtain isovolume pressure-flow curves.

In a medical ICU, Chen et al determined whether adaptive support ventilation (ASV) facilitates ventilator liberation. In the ASV group, 20% of the patients achieved extubation readiness within 1 day, compared to 4% in the non-ASV group. Notable in this study was the respiratory therapist staffing. In the ICU where this study was conducted, there is one respiratory therapist who manages ventilators twice during the day shift, and there is no on-site respiratory therapist at night. Whether similar results would be found in an ICU with greater respiratory therapy staffing is unknown.

Paneroni et al conducted a randomized crossover study of 22 patients with bronchiectasis to assess the safety and efficacy of intrapulmonary percussion ventilation (IPV) compared to standard chest physical therapy. Both treatments resulted in important phlegm production, but there were no differences in sputum volume, wet weight, or dry weight. Patients found IPV more comfortable than traditional standard chest physical therapy.

In a randomized study of 20 infants, Postiaux et al evaluated a new airway clearance method to treat respiratory syncytial virus bronchiolitis. This method consists of 15 prolonged slow expirations followed by 5 provoked cough maneuvers. Although the new method showed short-term benefits related to some symptoms of airway obstruction and there were no adverse events, average hospital stay was not significantly different between the groups.

The reliability of the Chester step test in patients with COPD, and the correlation with pulmonary function test and exercise test results, was evaluated by de Camargo et al. Despite being highly reproducible, the Chester step test had a very short duration in patients with COPD. The number of steps incremented in each stage may be too large for these patients.

Ozsu et al conducted a retrospective review of 158 patients who presented to the emergency department for respiratory causes, and in whom C-reactive protein (CRP) and cardiac troponin T levels were measured. On multivariable regression analysis, 

$$\text{CRP} \geq 10 \text{mg/dL}$$

was associated with 6.6-fold higher ICU mortality. There was no advantage for models that combined CRP and cardiac troponin T. The authors conclude that elevated CRP is an early prognostic marker of mortality risk in ICU patients.

In the study by Zhang et al, neonatal mice were exposed to either room air or 60% oxygen, beginning at birth, and lung samples were subjected to microRNA microarray and real-time polymerase chain reaction. In the lungs with bronchopulmonary dysplasia (BPD), 14 microRNAs were up-regulated and 7 microRNAs were down-regulated, which suggests that these microRNAs might play a role in the development of BPD. The study is the first to identify microRNAs associated with development of BPD.

This month we publish a review of pulmonary alveolar proteinosis. We publish case reports on multinodular goiter as the initial presentation of systemic sarcoidosis, endobronchial metastasis of a primary transitional-cell and signet-ring cell carcinoma of the urinary bladder, lung hernia associated with hemithorax following cardiopulmonary resuscitation, and the Velcro mustache as a potential barrier to effective bag-and-mask ventilation in neonates on nasal CPAP. Our teaching cases this month are of a 60-year old man presenting with yellow nail syndrome and primary pulmonary mucosa-associated lymphoid tissue lymphoma in a patient with acquired immune deficiency syndrome.