Home oxygen (O_2) therapy for patients with COPD continues to be prescribed based on studies that are nearly 40 years old using established technology. The introduction of competitive bidding for home O_2 therapy is perhaps the most significant change in the supply chain in decades. AlMutairi et al explored patient perspectives of home O_2 therapy using qualitative analysis of an open-ended survey in over 300 subjects. They report significant concerns by subjects related to mobility, weight of devices, and ability of devices to meet their requirements. Respondents reported that mobility was discouraged by unsatisfactory physical and performance characteristics of cylinders and concentrators. Jacobs and Garvey provide a poignant editorial on the new competitive bidding process and how the system prioritizes providers, not patients. They bring to light the importance of health care providers focusing on patient needs and understanding the process from prescription to placement.

ARDS remains a complex syndrome with excess mortality in the ICU. Early implementation of lung protective ventilation and restriction of F_{IO_2} might modify the incidence and severity. Yadav and colleagues describe the use of biomarkers to predict ARDS following surgical intervention. These subjects represent a unique cohort where biomarkers and interventions can be studied. They report that dysregulation of coagulation, inflammation, and epithelial injury were early pathophysiologic features of postoperative ARDS. Santiago et al opine that these markers might be useful in predicting postoperative ARDS and modifying therapy to reduce injury. They also suggest that postoperative and post-traumatic ARDS may be different in pathophysiology to ARDS due to sepsis or medical diagnoses.

Bellani and coworkers describe the measurement of diaphragmatic electrical activity (EA_{di}) using surface electromyography. Monitoring a number of traditional variables in ventilated subjects on 3 levels of pressure support ventilation, they found that surface measures of EA_{di} provided reliable estimates of muscle pressure. This finding could allow the use of a surface signal to control the ventilator and avoid esophageal intubation. In an accompanying editorial , Kacmarek and others applaud this potential advancement but warn of complicating factors, including obesity, as hurdles to be overcome.

Bourassa et al evaluated the work of breathing in normal volunteers while breathing through a gas mask with a chemical, biological, radiological, and nuclear (CBRN) filter. They demonstrated significant increases in indices of respiratory effort by 30-60%, which were easily overcome by the healthy volunteers. Gas exchange was unchanged. The CBRN system is relied upon in a number of circumstances. The impact in subjects with lung disease should be evaluated.

Harb and colleagues evaluated salbutamol delivery with both a pressurized metered-dose inhaler (pMDI) and mesh nebulizer during noninvasive ventilation (NIV) in a group of COPD subjects. They compared the impact of a preliminary pMDI delivery followed by delivery via the mesh nebulizer using different spacers. Using urinary salbutamol concentrations and drug concentrations from filters placed at the mask, they report that there were no differences between the T-piece and spacer, but that a preliminary pMDI resulted in a marginal increase in drug bioavailability.

Saeed et al evaluated the impact of fill volume of a jet nebulizer and humidification on aerosol delivery using NIV in subjects with COPD. The jet nebulizer required greater fill volumes to achieve the same aerosol delivery as a mesh nebulizer. In this study humidification did not impact aerosol delivery with either nebulizer.

Breath sounds are a common assessment tool of the respiratory therapist. Jácome and coworkers evaluated breath sounds during natural and standardized breathing in a general population. They report that the breathing technique had an impact on both adventitious and normal lung sounds but that neither technique was superior at identifying lung disease.

Marrara et al evaluated the impact of NIV on exercise capacity in COPD subjects during a 6-week rehabilitation program. This randomized trial compared rehabilitation alone to rehabilitation with NIV. Both groups improved on 6-min walk distance and health-related quality of life indicators. The NIV group also had improvements in peak oxygen consumption and peak S_{pO_2}, suggesting the addition of NIV might reduce symptom burden.

Jiang et al evaluated airway remodeling in asthmatic subjects compared to normal controls using high-resolution computed tomography. They report that airway remodeling in asthma was more prominent in distal airways and in lower lobe bronchi. These findings have implications for asthma management.

Kanth and others evaluated nebulized mannitol in subjects with idiopathic pulmonary fibrosis. Mannitol is used with inhaled interferon, but can cause bronchospasm and cough. The authors utilized different formulations and different nebulizers to alter particle size and distribution. When a particle distribution of 1.2 μm was used, coughing was abated. This approach allows mannitol to be aerosolized with fewer complications.

The introduction of ventilator associated events (VAE) for tracking respiratory infections has led to some widespread misunderstandings. Chao and coworkers evaluated the use of fluid balance to identify pulmonary edema in subjects with VAE. They retrospectively reviewed records for data regarding ventilator-associated condition (VAC), infection-related ventilator-associated complication (IVAC), possible ventilator-associated pneumonia (VAP), and VAP. They report that fluid balance may be useful in identifying VAE related to pulmonary edema versus an IVAC.

Portable bedside ultrasonography has a wide variety of potential uses. Fuso et al provide a narrative review of ultrasonography of the mediastinum and the potential uses in clinical medicine. Sonpeayung and others provide a systematic review discussing body position and chest wall motion in normal adults. They suggest that changes in the body's position could have some effect on the movements of the rib cage and abdomen and the variations in lung volumes which need to be interpreted with caution.