

Many persons performing spirometry in primary care have little training in this procedure. Thus, the validity of the test results is questionable. Borg et al evaluated whether a 14-hour spirometry training course could provide sufficient skill to produce valid results. Interestingly, they found that such a training course alone does not provide sufficient skill to perform spirometry. However, this improved with follow-up training. As Enright states in his editorial, sometimes the situation is no better when spirometry is performed than when it is not, because the results are inaccurate or interpreted incorrectly. Enright also points out that there is an opportunity for respiratory therapists to offer spirometry expertise to local primary care providers.

Patients with cystic fibrosis (CF) commonly use a high-frequency chest-wall compression (HFCWC) device for airway clearance. In the paper by Kempainen et al, they found that a single-session higher-pressure/variable-frequency HFCWC resulted in greater sputum expectoration by wet weight, but no other differences, compared to the commonly used lower-pressure/mid-frequency settings. As they correctly state, longer-term comparisons are needed to determine whether sustained use of the higher-pressure/variable-frequency settings results in clinically important differences in outcomes. As appropriately suggested by Schechter, the next step would be a larger multicenter long-term trial whose primary endpoints are patient-centered outcomes such as lung function, frequency of pulmonary exacerbations, quality of life, and adherence.

Mediastinal and hilar lymph node evaluation with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is being performed with increasing frequency. Original reports described performance of this procedure under general anesthesia. Steinfurt and Irving evaluated patient satisfaction during EBUS-TBNA performed under conscious sedation. They found that EBUS-TBNA may safely be performed under conscious intravenous sedation and is associated with very high patient satisfaction.

Apiou-Sbirlea et al performed a computational study of particle deposition patterns to evaluate the effects of simulated airway diseases on aerosol deposition. Using their model, they found that respiratory diseases may influence the deposition of inhaled drugs in a systematic and predictable manner. This mathematical modeling technique may have clinical relevance to provide a sound scientific basis relating airway diseases and aerosolized drug delivery.

The use of breathing exercises with positive-pressure devices during hospitalization aims to prevent the development of pulmonary complications or to facilitate recovery from pulmonary conditions. Fiore et al surveyed the utilization of positive-pressure devices for breathing exercises in São Paulo, Brazil. Perhaps not surprising, despite a lack of evidence of benefit from breathing exercises with positive-pressure in the hospital setting, this type of intervention is extensively used in clinical practice for a wide variety of patients and conditions. Although these data originate from Brazil, it is likely that similar results would result if such a survey would be conducted in North America.

Sun et al evaluated the effect of educational and psychological counseling on the quality of life of patients with asthma. They found that this intervention improved the quality of life and alleviated psychological distress in patients with asthma. Because this study was conducted in the People's Republic of China, it is important for additional studies to be performed to determine whether similar results would occur in other places around the world.

Hommerding et al evaluated the accuracy of the modified Borg scale to estimate lung impairment measured via FEV₁. They found that the modified Borg scale is accurate to assess the subjective perception of dyspnea of children older than 9 years and adolescents with CF. The authors suggest that the modified Borg scale be used regularly in the assessment of these individuals, both for a follow-up and for treatment as to the intensity of the training proposed.

High-frequency percussive ventilation (HFPV) is a mode of mechanical ventilation for which there is no proven real-time means of measuring delivered tidal volume (V_T). Allan conducted a study to validate a pneumotachograph for HFPV and then use flow-sensor data to describe the behavior of both low-frequency and high-frequency breaths. He found that readily available pneumotachography provided accurate measurements of low-frequency and high-frequency V_T during HFPV. But perhaps more important was the finding that, in the setting of acute lung injury, typical HFPV settings may deliver injurious V_T.

Stoller et al described an intervention that fostered teamwork among 4 separate respiratory therapy (RT) departments within a single hospital. By developing a scorecard by which RT outcomes could be followed and improved, teamwork among 4 separate RT departments improved and enhanced outcomes were achieved. The authors suggest that this team-building activity might be effective in other similar institutions.

Though people are generally averse to change, change and innovation are critically important in respiratory care to maintain scientific and clinical progress. In the review by Stoller, it is suggested that understanding and embracing change is important. To anchor change in the respiratory care profession, greater attention should be given to developing respiratory therapists who, by virtue of their advanced training, have the skills to innovate in various ways.

Two clinical practice guidelines (CPGs) are published this month. The first is, "Endotracheal suctioning of mechanically ventilated patients with artificial airways," and the second is, "Providing patient and caregiver training." Accompanying these CPGs is an editorial by Restrepo, which discusses the evolution of the guidelines of the American Association for Respiratory Care from reference-based to evidence-based.

The case report by Laray et al describes a case of pneumomediastinum in a patient with acute respiratory distress syndrome on pressure support ventilation. As discussed in the editorial by Schmidt and Hess, this case draws attention to the potential for lung injury when high V_T is delivered, regardless of the ventilator mode. In a second case report, Lowery describes a safety device to prevent low-pressure alarm malfunction during ventilator disconnection. The Teaching Case of the Month, by Chen et al, describes the role of point-of-care arterial blood gas analysis in the early diagnosis of pseudo-hypoxemia in myeloproliferative disorders.