

Methacholine challenge testing is commonly performed where there is a suspicion of asthma. Khalid et al question whether the specific conductance criteria of the American Thoracic Society (ATS) for a positive methacholine challenge test are too generous. ATS guidelines suggest that a 45% drop in specific conductance, which roughly corresponds to a 20% drop in FEV₁, is consistent with a positive test. However, as the authors point out, there is a lack of evidence to support this cutoff. Indeed, the authors' data suggest that the ATS-suggested cutoff value of 45% may be generous, and they propose a decline of 56% from baseline as a more accurate measure of airway hyper-responsiveness. However, before considering a change in this practice, further studies of subjects with and without asthma should be done. As Mannino notes in an accompanying editorial, an alternative approach could include a decrease in either specific conductance or FEV₁ to be more sensitive, or a decrease in both measures to be more specific.

In patients with COPD, noninvasive ventilation (NIV) and helium-oxygen gas mixtures (heliox) diminish ventilatory workload and improve exercise tolerance. In their study, Allan et al evaluated whether NIV in combination with heliox may have additive effects on exercise tolerance in severe COPD. They found that this combination was both safe and well tolerated, but they were unable to demonstrate efficacy. This may have been the result of a small sample size, but we cannot know for certain until larger studies are conducted. It is also possible that this combination is of benefit for some patients, but not others. As Alkana states in his editorial, whether the use of NIV with heliox in pulmonary rehabilitation becomes widespread or is used to treat individual patients remains to be seen. Two potential concerns arise from this combination. First, although the cost of heliox is not prohibitive, it does add to the expense of pulmonary rehabilitation. In addition to the gas, equipment for heliox administration will need to be purchased. It will be necessary to assure that the equipment for combined heliox and NIV is compatible. Second, this potentially adds to the complexity of pulmonary rehabilitation. Although the skills required are not terribly formidable, therapists working in pulmonary rehabilitation will need to develop them for the safe use of heliox in combination with NIV.

Critically ill patients are commonly transported outside the intensive care unit for diagnostic studies using a portable ventilator. One of the worst disasters that can occur is to run out of oxygen. Blakeman et al evaluated the program to calculate oxygen cylinder duration on the LTV-1000 portable ventilator. They found that the actual cylinder duration averaged 12% longer than the cylinder duration estimated by the algorithm of the LTV-1000. In a companion editorial, Stevenson and Haas state that prudent clinicians should consider other things in addition to the number of cylinders required when preparing a patient for transport. First, patients should be evaluated on the transport ventilator prior to the actual transport. Second, the nature and duration of the transport should be considered for its potential effect on the patient's breathing pattern. Finally, potential delays should be anticipated and considered when establishing the number of oxygen cylinders that will be required.

Educators will be interested in the paper by Ari regarding the relationship between program resources and student retention in respiratory programs offering a baccalaureate degree. This paper is important because respiratory care education programs are being held accountable for student re-

ention, and increasing student retention is necessary because the profession suffers from a shortage of qualified therapists. Ari investigated the relationship between student retention rate and program resources and found that the personnel and financial resources available to students were the single best predictors of student retention. Respiratory care programs spending more money per student and utilizing more personnel in the program have higher student retention.

This month we publish papers from the 24th New Horizons Symposium, which were presented at the 2008 International Respiratory Care Congress in Anaheim, California. The topic of the New Horizons Symposium was Neonatal Respiratory Care. We are pleased with the leadership that Peter Betit and Steven Donn provided as co-chairs of the symposium.

Oxygen is an obligate therapy for the neonate with respiratory failure, but gone are the days of incubators for oxygen administration. As Walsh et al describe in their paper, oxygen administration in neonates has become complex. There are concerns of retinopathy of prematurity and chronic lung disease with oxygen therapy in neonates. Thus the benefits must be weighed against the risks. There still remain unanswered questions regarding the use of oxygen in the neonatal environment, which should provide research opportunities for the readers of RESPIRATORY CARE.

One of the major advances in respiratory care in the past 15 years has been the use of exogenous surfactant therapy for preterm infants with respiratory distress. Repletion with exogenous surfactant is a standard practice in this patient population. As discussed by Donn and Dalton, meconium aspiration syndrome and bronchopulmonary dysplasia might also be amenable to surfactant-replacement therapy.

Just as oxygen administration in neonates has become complex, so has continuous positive airway pressure (CPAP). The current state-of-the-art for CPAP is described by DiBlasi. CPAP is particularly attractive in the current era of lung protection. However, it is unclear whether CPAP reduces chronic lung disease and mortality when compared to modern ventilation techniques that use lung-protective approaches.

An area of controversy is the use of volume-controlled versus pressure-controlled ventilation in neonates. This is addressed by Donn and Boon. Early attempts at volume-controlled ventilation were mostly ineffective due to technological limitations, but microprocessor-based ventilators allow the clinician an option to choose either volume-control or pressure-control in neonatal patients.

As discussed by Betit and Craig, extracorporeal membrane oxygenation (ECMO) is an important treatment option for the neonate with severe respiratory failure. Survival rates and long-term neurodevelopmental outcomes in newborns supported with ECMO for hypoxemic respiratory failure remain favorable. The use of ECMO has decreased in the most recent decade, primarily because of the availability of alternative treatment options such as inhaled nitric oxide and improved ventilatory strategies.

The incidence of bronchopulmonary dysplasia (BPD) continues to grow as lower-birth-weight infants increasingly survive. As presented by Deakins, a number of strategies have been explored to prevent BPD. The prevention of BPD is targeted at minimizing effects of this pulmonary disease and preventing the long-term sequelae associated with its treatment.

In this month's case report, Vasu et al describe a 64-year-old patient with acute fibrinous and organizing pneumonia caused by decitabine. The teaching case is by Rajagopala et al and describes an unusual cause of nonresolving pneumonia.