

Our Editor's Choice paper is an analysis of radial artery catheter placement by respiratory therapists (RTs) using ultrasound guidance. Miller and colleagues examined 122 radial artery catheter insertion attempts made between December 2008 and October 2011. The overall success rate was 86.1% while the first-attempt success rate was 63.1%. They concluded that RTs effectively utilize ultrasound technology to place radial artery catheters. In her editorial, Benedik suggests that ultrasound-guided arterial catheterization improves first-attempt success and should be used routinely in adults; that it is time to abandon the cowboy's experiential approach to arterial vascular access.

Becker and Nguyen performed a secondary analysis of data collected from the 2009 AARC Respiratory Therapist Human Resource Survey to explore relationships between the choice of entry-level associate or baccalaureate education and variables of gender, race, salary, career advancement, and job satisfaction. They found that current entry-level associate and baccalaureate degree graduates have similar gender and Caucasian race proportions. In his editorial, Joyner recommends that finding strategies to reduce racial and ethnic disparities should also be added to the list of goals for the future of respiratory care education and workforce development.

Nicolini et al studied open-mouthpiece ventilation versus nasal mask ventilation in subjects with COPD exacerbation. The two groups had similar trends in arterial blood gases and breathing frequency, and there was no difference in duration of NIV or hospital stay. There was better acceptance of mouthpiece ventilation. Carlucci and Gregoretti point out that mouthpiece ventilation might be considered a tool in our armamentarium of interfaces when NIV is used.

Giner et al prospectively evaluated 257 consecutive spirometry tests supervised by the same technician, who gave priority to achieving a minimum of three correct maneuvers within a maximum of eight attempts. Nearly 15% of patients failed to fulfill all the American Thoracic Society/European Respiratory Society (ATS/ERS) 2005 criteria for spirometry, even though coached by a qualified technician. The fact that all patients cannot meet the ATS/ERS 2005 criteria should be further explored.

Christofoletti and colleagues evaluated respiratory muscle strength in older adults with Parkinson's disease and Alzheimer's disease. They found that the aging process affects respiratory muscle strength, and its decline increases in neurodegenerative conditions.

In 2010, guidelines were implemented by the New York State Education Department to provide the opportunity for RTs to receive continuing education units when participating as clinical preceptors. The study by Smith et al determined the extent to which RTs in New York were aware of the new licensing guidelines and amendments. Their findings indicate that more education is needed to improve awareness of the 2010 guidelines.

The aim of the cross-sectional study by Braido et al was to assess the prevalence of obstructive sleep apnea syndrome (OSAS) risk in subjects with asthma and to explore the association between comorbid rhinitis and OSAS risk. Rhinitis was associated with 1.44 times higher odds for having OSAS risk. In a multivariate logistic regression model, corrected for factors typically worsening OSAS, subjects with allergic rhinitis had an odds ratio (OR) of 1.99 for OSAS.

Hartzell and colleagues examined tracheostomy wound healing using maltodextrin and silver alginate compounds in pediatric subjects. They found that postoperative tracheostomy wounds are common, and that the use of maltodextrin

and silver alginate provides an effective and safe treatment for tracheostomy-related ulcers.

Vitacca et al analyzed the effects of a multidisciplinary program on disability, autonomy, and nursing needs of subjects after prolonged ICU stay. Mechanical ventilation use and tracheostomy increased the odds of being discharged to a nursing home (OR 1.84 and OR 2.47, respectively). Mortality was higher in subjects who were ventilated (OR 8.44), male (OR 2.64), elderly, malnourished, and with low autonomy, more nursing needs, and more severe disability. They concluded that a specialized tailored multidisciplinary program for patients after ICU stay contributes to recovery from disability, autonomy and nursing needs irrespective of diagnosis.

The benefit of pulmonary rehabilitation is not clearly established in idiopathic pulmonary fibrosis (IPF). Jackson et al found that a 3-month rehabilitation program significantly improved symptoms and physical activity levels in this patient population.

Hong and colleagues conducted a meta-analysis to evaluate thrombolysis versus anticoagulation for the initial treatment of moderate pulmonary embolism. Compared with heparin, both mortality and pulmonary embolism recurrence are decreased by thrombolysis in patients with moderate pulmonary embolism, and the risk of non-major bleeding increased, but the risk of major bleeding did not increase.

Medeiros et al evaluated the effect of different pressure support levels on breath-to-breath variability in acutely ill mechanically ventilated subjects. They found that, despite a significant increase in spontaneous activity with the reduction of pressure support, breath-to-breath variability was not influenced by the level of pressure support and was as low as 30% in all settings.

The performance of spirometers is often measured only in ideal conditions with a mechanical simulator reproducing the expiratory standard American Thoracic Society curves generated by a computer. The aim of the study by Liistro and colleagues was to evaluate the accuracy and the precision of 5 office spirometers with a flow-volume simulator, using the ATS curves and using flow-volume curves obtained from real patients. They found accuracy issues not shown by the standard testing procedure, and propose to improve the testing of the spirometers by implementing more realistic flow-volume curves.

A laboratory study was conducted by Andreu et al to determine whether the magnitude of differences in leak volume during cuff deflation and extubation, using various combinations of positive pressure with or without endotracheal suctioning. Various procedures were compared, based on the delivery of different positive pressure levels with or without endotracheal suctioning during extubation. Endotracheal suctioning during cuff deflation and extubation produced greater leakage. Application of CPAP15, PSV15/10, and PSV20/5 resulted in the lowest leak values, with the best results being obtained with the use of PSV15/10 and PSV20/5.

Vilozni and colleagues evaluated cough characteristics and forced vital capacity maneuver in cystic fibrosis. Cough was considered efficient if it contained 6 or more secondary spikes having flow above 2.67 L/s. They found that, in this patient population, the cough flow/volume maneuver reveals abnormalities in cough velocities and volume. A low 2nd-spike correlates with FEV₁ severity.

The study by Llor et al evaluates the effect of access to point-of-care tests (POCTs) on lowering the prescription of antibiotics in respiratory tract infections in patients who explicitly requested an antibiotic prescription. They found that access to POCTs reduces antibiotic use in patients who explicitly request an antibiotic prescription.