

This month's Editor's Choice describes a pragmatic trial comparing volume control continuous mandatory ventilation and adaptive pressure control continuous mandatory ventilation. The authors used a sequential cluster crossover design over a 9-week period in ventilated subjects in the medical ICUs. They evaluated how many subjects remained in the assigned mode and used mixed-methods analyses to identify clinician comfort with each mode. They found that unit-wide allocation was feasible and acceptable. MacIntyre provides an accompanying editorial noting that this study is a precursor to performing a larger clinical trial comparing the techniques. He suggests that in a future study, settings should be protocolized and patient-important outcomes studied.

Burns and colleagues performed a retrospective analysis of time to extubation in a cohort of subjects with COVID-19 associated ARDS and a group of subjects with ARDS prior to the pandemic. All subjects were managed with lung-protective ventilation and spontaneous breathing trials (SBTs). They found that duration of mechanical ventilation was twice as long in subjects with COVID-19 and ARDS. Improving compliance and oxygenation were associated with a greater likelihood of extubation. Dechert provides accompanying commentary noting a number of limitations related to sample size, single center design, and changing therapies from the beginning until the end of the pandemic. He suggests that the use of the metric "instantaneous probability of extubation" requires further study and is a unique aspect of this trial.

Miller and others performed a survey of respiratory therapist (RT) leaders to examine important aspects of leadership in respiratory care and perceptions of leadership by others. Important leadership skills included critical thinking and people skills. Interestingly, 77% of respondents believed AARC membership was a requirement of leadership. Respondents reported that leadership clearly impacts staff well-being. Volsko provides commentary on leadership in the profession. She suggests that leaders possess an observable set of skills and abilities that creates a culture where all grow and thrive. She also points out that poor leadership can be debilitating. Volsko argues for leadership training in RT programs and hospital orientation. The future of the profession requires strong, emotionally intelligent leaders.

Jones and others surveyed RT entry to practice programs at the associate (≤ 2 years) and baccalaureate level inquiring about curriculum and competency evaluation. Of 370 programs, 37% completed the survey. Information on patient education curriculum and competency evaluation was reported by 86% and 73%, respectively. Telehealth was rarely included or evaluated. Bachelor's programs were more likely to include a specific patient education course, evaluate oral communication competency with unpaid preceptors, and evaluate competence through formal programs. Two-year programs were more likely to include simulation experiences involving motivational interviewing. The authors conclude that there are differences in curriculum and competency evaluation at the different degree levels.

Piccuito and Ribeiro De Santis Santiago report on a survey of new graduate RTs on their perceptions of transition to practice. In a small group ($N = 28$), respondents were mostly satisfied but reported facing several barriers. Importantly, many identified insufficient orientation to gain confidence in critical procedures. During the pandemic, this also resulted in exposure to negative workplace behavior, feeling overwhelmed, and difficulty with interpersonal relationships. The authors suggest a nurse residency model may provide a framework for RT transition to practice.

Malin et al performed a quality improvement project aimed at reducing the number of routine daily screening radiographs in

mechanically ventilated pediatric ICU patients. A set of criteria were developed to identify patients likely to benefit from a daily chest radiograph. Following implementation, daily screening chest radiographs decreased from 79% to 31% of subjects, a \$60k cost savings. These criteria identified subjects most likely to benefit from a screening radiograph without increasing harm.

Villarreal and colleagues performed a prospective observational study of the physiologic response and tolerance to an SBT in tracheostomized children. In 48 subjects, 60% with chronic lung disease, a quarter failed the SBT within an hour. SBT failure was associated with higher breathing frequency, heart rate, and end-tidal CO_2 . They also reported that increased duration of mechanical ventilation prior to the first SBT was linked to failure.

Katayama and others performed a bench study to compare the bias and precision of continuous $P_{0.1}$ measurements by several ventilators. They compared continuous measurement to the standard occlusion method. They found ventilators capable of using the occlusion method equivalent to a reference technique. Those ventilators using continuous measurement tended to under- and overestimate reference values. $P_{0.1}$ is a key indicator of patient respiratory drive; accurate measurement is important and the authors suggest the standard occlusion method is best.

Gonzalez et al performed a bench study evaluating the impact of monitoring endotracheal tube (ETT) cuff pressure with different manometers. They studied cuff pressure measured through the inside of the ETT during connection and disconnection of the manometer. They found a significant pressure drop of 7 cm H_2O , primarily occurring during the initial manometer connection. The authors conclude that routine cuff pressure measurement might result in underinflation of the ETT cuff resulting in an increased risk of silent aspiration.

Yadav and coworkers evaluated changes in pulmonary function in subjects following allogeneic hematopoietic stem cell transplantation early after transplant. They evaluated pulmonary function including FEV₁, FVC, and D_{LCO} in 900 subjects pretransplant and at 100 days after transplant. Reductions in any of these three variables $> 20\%$ were associated with reduced survival but not an increase in the incidence of bronchiolitis obliterans.

Thille et al performed a prospective observational cohort study in subjects with hypoxemic respiratory failure receiving high-flow nasal cannula (HFNC) aimed at assessing sleep quality and risk of intubation. Sleep was assessed with complete polysomnography on the first ICU day. Total sleep time and durations of deep and REM sleep stages did not differ between subjects who required intubation and those who did not. REM sleep was absent in a number of subjects and was associated with an increased risk of intubation. Further research into this relationship and possible mechanisms is needed.

Tank and others contribute a short report on virtual pulmonary rehabilitation facilitated by a peer coach in homebound COPD subjects. Hickey and colleagues provide a narrative review detailing the approach to physiologically challenging endotracheal intubation. Baker provides a Year in Review on pediatric asthma, reviewing seminal papers on the topic published in 2022.

Li and colleagues contribute a paper based on her Kittredge Lecture at last year's AARC Congress. This paper reviews the use of prone positioning in patients on HFNC as well as those requiring mechanical ventilation. The use of awake prone positioning was spurred on by the COVID-19 pandemic and may lead to changes in the use of this technique in the future.

Chatburn and coworkers provide a special article on the assessment of lung recruitability using the recruitment to inflation ratio. The technique, calculation, and utility are discussed.