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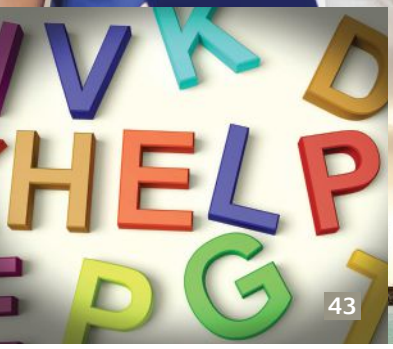

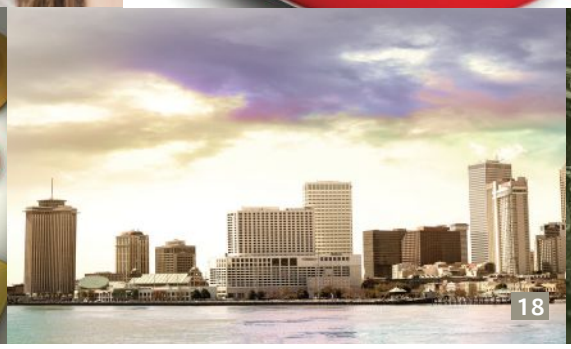

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Bookmark this page: http://www.aarc.org/member_services/mission/.

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Cognitive Dissonance

by Anthony L. DeWitt, JD, RRT, FAARC

Therapist: ***Mr. Adams, you need to quit smoking; you'll live longer and enjoy life more.***

Adams: ***My grandfather smoked two packs a day and lived to be 94. I don't buy that line of bunk about smokes being bad for you. (hack, wheeze, cough)***

We see it play out every day. The parent who won't vaccinate a child because she's "heard things," and doesn't let her kids play with kids that might make them sick. The guy who frequently has too much to drink but still drives home because "I'm a better driver drunk than sober, ha ha." As humans, we have an amazing ability to lie to ourselves. The psychological term is "cognitive dissonance." Properly defined, cognitive dissonance is the mental discomfort one feels when having inconsistent thoughts, beliefs, or attitudes, especially relating to behavioral decisions and attitude change.

A close cousin of cognitive dissonance is confirmation bias. This is the tendency to interpret new evidence as confirmation of one's existing beliefs or theories. For example, consider the comatose patient with no signs of brain activity; when the patient experiences a muscle spasm and a finger twitches at exactly the time a loved one is speaking to them, the loved one says, "See, he heard me!" This occurs most often when we want something to be true so much that we're willing to ignore evidence to maintain that hope. As therapists disciplined in the sciences, however, we must guard against these self-deceptions, particularly when caring for patients.

In a recent case, a hospital was sued because a patient suffered a respiratory arrest and attendant hypoxic brain injury. The patient had arrived at the emergency department with pain in his neck and arm. The hospital emergency physician ordered him admitted and prescribed both a CPAP machine as well as narcotics (Dilaudid) for his pain. The patient never received the CPAP machine, but he did receive the pain medication — and with it the to-be-expected reduction in his respiratory drive. He arrested and was resuscitated, but he suffered a severe hypoxic brain injury as a result.

The hospital claimed that the patient "refused" the CPAP machine and that it was common for patients to do so. (As a parenthetical note, this should never be "common" and is indicative of a failure to educate patients on risks versus benefits.) The patient's family disputed that he had refused the CPAP device and insisted he would have worn it. Documentation apparently did not establish either position.

Whether related to his refusal or the hospital's failure to follow the orders, the patient did not get the device, and the staff failed to closely monitor a narcotized patient's respirations during the night. Can you spot the issues of cognitive dissonance in this case?

Let's credit the hospital's defense and assume that the patient actually refused the CPAP device. The patient likely thought he could get by without a CPAP machine. He may have been prescribed one at home, and perhaps he only wore it episodically there. But for whatever reason, and assuming the truth of the hospital's testimony, his view was allegedly that he didn't need the device. He was getting narcotic pain medication, but he relied on his home experience. It would prove to be a terrible mistake.

Can you spot the care provider's cognitive dissonance in this scenario? He likely thought, "People turn these down all the time," and he neglected to document important information. At a minimum, notes in the medical record should have shown, "Patient refused CPAP. Explained purpose for CPAP and why it was necessary. Patient adamant that he doesn't want CPAP."

Cognitive dissonance is a powerful thing when coupled with confirmation bias. Surely the respiratory therapist on duty that night had seen dozens of patients deny their CPAP and go home in fine shape. Or, perhaps, the RT failed to see

about the author...

Anthony L. DeWitt, JD, RRT, FAARC, is an attorney and a partner in the firm Bartimus, Frickleton, and Robertson, PC, and resides in Opelika, AL. He has also published two books and numerous legal journal articles. This article is not a substitute for legal advice.

the order for a narcotic analgesic. The patient's assertion that he didn't need the device, coupled with the RT's own experience that people do just fine without it, led to a medical error. It was error because, as a respiratory therapist, the care provider had ample tools to ensure that the patient's respiratory condition was continuously monitored. Instead of instituting pulse oximetry monitoring, or ensuring that there was a respiratory rate monitor in place, the therapist took no action. Again, the likely culprit is cognitive dissonance. Other people make mistakes. Other people get sued for them. That is, until you are the "other people."

The end result was a lawsuit and a $1.9 million settlement. Documentation doesn't always save you in a lawsuit, particularly when it demonstrates that you failed to appreciate a risk or failed to take appropriate action. Consider the case that ended in a $3.2 million judgment in Georgia. There the patient suffered severe injuries in a collision and was placed on three narcotic medications post-operatively. Over the course of three post-operative days, she became more and more lethargic. One of the critical factors in deciding against the nurse and the hospital was the documentation and testimony of the respiratory therapist. The RT's notes indicated that the patient was very lethargic and had a difficult time waking up to take her treatment. His notes further indicated he had communicated this to the nursing staff. The nursing staff, however, failed to take action.

Less than two hours later, a family member found the patient in cardiac arrest. While the media placed the blame on nursing, the therapist here likely bore some of the responsibility as well. Recognizing the signs of hypercarbia in a patient on three narcotic medications, at the very least the RT should have obtained an order for blood gases (assuming he did not have authority to place the order directly), and he should have been monitoring her much more closely. But again, cognitive dissonance plays a big role in these situations. He likely appreciated the professionalism of the nurses and thought they would monitor the patient and call if needed. It is never an acceptable excuse, however, that someone else could have done more, when you have the tools and training to get involved early and stop a patient's downward spiral.

It is easy to get complacent. It's easy to trust other team members and caregivers to call you if you're needed. But every therapist should be on guard against complacency and cognitive dissonance because lives (and sometimes careers) hang in the balance. ■

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The Patient Perspective

by Debbie Bunch

Patients lie at the heart of everything respiratory therapists do, and while RTs — and the AARC — have done and continue to do a great job of advocating for patients in everything from clinical care to the halls of government, no one tells the patient story better than patients and families themselves.

AARC Times has made it a point to listen to patient voices over the past 40+ years in articles ranging from "Perseverance Pays for Permanent Tracheostomy" in our August 1984 issue, which was written by a man who ended up with a trach after suffering complications from a gunshot wound, to "Inside Look into the Life of a CFer" in our April 2013 issue, which was written by an RRT who has been living with the disease since early childhood.

The story that probably tugged on more heartstrings than any other, though, came in 1985, when the mother of then six-year-old Katie Beckett covered the trials and tribulations her family faced to ensure a future for their daughter outside of institutionalized care. The story was told in two articles, with the first one in our June issue and the second in July.

The long road home

In the June article, "Katie Beckett: The Little Girl Who Caught the Country's Eye," Katie's mother, Julie Beckett, told our readers how her daughter came to represent the future of home care for kids dependent on technology. Born prematurely on March 9, 1978, in Cedar Rapids, IA, and weighing only two pounds, three ounces, Katie spent her first couple of months in the NICU. But she made great progress, and by May 6 was ready to go home and begin her life as a normal kid. All was well for the next several months, until a bout with viral encephalitis in September put her back in the hospital. Katie aspirated on Sept. 2, and severe respiratory distress complicated the already difficult to treat illness — this is when life changed, not just for Katie, but for her whole family.

Katie ended up requiring a tracheostomy and spent the next three years in the hospital because insurance would not pay for her care at home. By that time, her parents' private policy had been maxed out, and Medicaid would not cover costs incurred outside the acute-care hospital.

Her parents went on the offensive, eventually finding a sympathetic ear in the form of their Congressman, Tom Tauke. After his attempts to get an Exception to Policy document approved by the Department of Health and Human Services failed, he escalated the fight to Vice President George H. W. Bush, who then sent it on to President Ronald Reagan for the ultimate decision. Thanks to President Reagan, who rebuffed the HHS denial, calling it the result of "hidebound regulations," Katie was finally able to come home.

Julie Becker credited all of Katie's caregivers — including respiratory therapists — with providing the family with the tools they needed to care for Katie's medical issues in the home setting, and she urged our readers to embrace the home care setting for more of their patients.

"As health care professionals, you carry the ongoing burden of continual support," she wrote. "You share in the family's successes as well as failures. You are part of the problem-solving team, one who must be aware of the emotional bonds that pull the family together in time of crisis. Your role is essential and paramount to all others, with the exception of the parental role. You are forging a new frontier in home care and will be in demand the more you define your role."

A happy day

So what was covered in the July article? Julie continued her story in "The Little Girl and the President" by relating the events that took place on the day in September of 1984 when she, her husband Mark, and little Katie got the chance to come face-to-face with the man who intervened in her case — President Ronald Reagan himself.

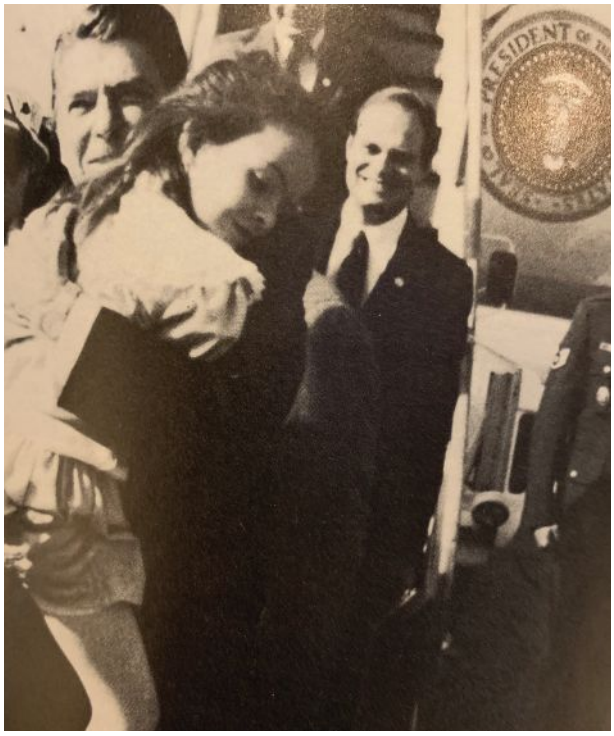
The family was invited to meet the President Reagan on the runway at the Cedar Rapids airport, where he was flying in on Air Force One for some other events taking place in the state. As they arrived on the scene, they were expecting to be just three people out of hundreds in the receiving line. Turns out they were three of only six — the other three being Republican dignitaries from Iowa.

When the doors of the plane opened and President Reagan stepped out into the bright sunlight of the day, Julie was ready to quickly sum up her heartfelt gratitude for what he had done for her child. The family ended up with much more than just that brief moment, however, as President Reagan turned his full attention right to them.

"He made pleasantries with the three important dignitaries and when he took my hand, I welcomed him and said my 'thank you' and presented Mary Katherine Beckett," she wrote in our story. "He reached down and she put her arms around his neck. He picked her up, holding her close, her head on his shoulder as if it always belonged there. A tear fell down his check . . . and as he put her down he said, 'This is the happiest thing I've done in my presidency.'"

The only ball that matters

It was a moment that brought tears to her parents' eyes as well, and no doubt to the eyes of many of our readers, too. Sharing this and other stories written from the patient's perspective has always been our way of ensuring we keep our eye on the only ball that really matters: the people who benefit from the care RTs deliver on the job every day. ■



President Reagan meeting Katie Beckett at the airport in Cedar Rapids.

Important Considerations When Choosing a Respiratory Care Program

by Thomas J. Kallstrom, MBA, RRT, FAARC

It is August, and this is the time of year when our high school graduates are preparing for the fall, perhaps moving out as they start the next phase of their academic career. As parents or even grandparents, we want to be sure that decisions they make at this stage are well planned. So let's see if we can help guide the prospective respiratory therapist to ask the right questions and make the best decision before entering our profession.

Interestingly, when my kids were making decisions on the direction that they wanted to take (possibly in the medical field), we found a general lack of recognition of respiratory therapy as a profession by high school guidance counselors. After one of my sons took an aptitude test and the results were revealed, he was given a long and wide-ranging list of possible professions in the medical field. Careers that were familiar to me and several that were not were presented to him. Disappointingly, respiratory therapy was not listed as a career option for him, and it is often omitted as a professional pathway for these tests. We have work to do on this, and the AARC is on it. An oversight as seemingly simple as this prevents us from getting the exposure we need if we want to continue to bring new talent into our profession.

If a student has an interest in respiratory therapy, there are several things that need to be considered. AARC has gone on record as saying that the profession has evolved to encourage the graduate of the future at a minimum to possess the RRT credential and a bachelor's degree in respiratory therapy or a Bachelor of Science when they enter the profession. Keeping that in mind we do not want to dissuade the student from obtaining an associates degree, but we strongly encourage students to pursue their bachelor's degree in health sciences or respiratory therapy upon graduation if they chose that route.

about the author...

Thomas J. Kallstrom, MBA, RRT, FAARC, is executive vice president of the ARCF and executive director of the AARC.

According to our most recent Human Resources Survey, the majority of practicing RTs in 2019 already have the RRT and bachelor's degree, but we have a great deal of work to do to bring these numbers higher.

Recommendations for the future respiratory therapist when looking for a school and program

Look into four-year respiratory therapy programs. If that is not a regional or economic option for you, look into programs that offer a pathway to obtaining the bachelor's degree upon graduation. The Commission on Accreditation for Respiratory Care (CoARC) has put together a useful resource that specifies where students can currently find these programs: https://www.coarc.com/Students/Find-an-Accredited-Program/Print-Accredited-Programs.aspx.

Look for academic programs that align themselves with the mission and vision of the profession (AARC). If you are unsure of what that is, I encourage you to look at several articles that were published in 2015 in Respiratory Care Journal. Another useful resource from the AARC can be found at http://www.aarc.org/careers/respiratory_therapy_degree_advancement/.

Look at the respiratory therapy program's record. This program outcome data can be found at https://www.coarc.com/getattachment/Students/Programmatic-Outcome-Data/2017-RCS-Program-Outcomes.pdf.aspx?lang=en-US.

1. Questions that deserve further consideration:

a) How long has the respiratory therapy program been in place?

b) How has the program fared with accreditation visits over the past few years?

c) What are the standards of the program's accreditation agency?

d) Do the accreditation agency's standards align with the mission and vision of the AARC?
e) Is the respiratory therapy program on probationary status? If so, why?
f) What is the percentage of students who graduate vs. those who do not?
g) What is the rate of on-time graduation?
h) How many graduates found employment?
i) What is the level of satisfaction of former students in the program?
j) What is the employers' level of satisfaction?

2. Why is accreditation of respiratory therapy programs important?
a) Accreditation is a declaration that a respiratory care program meets quality standards approved by the AARC.
b) A positive accreditation allows students and their parents to choose quality respiratory care programs.
c) Accreditation enables employers to recruit graduates they know are well prepared to enter the profession.
d) Accreditation gives institutions of higher education a structured mechanism to assess, evaluate, and improve the quality of their programs.

The cost of education continues to grow, and whether the student takes out a loan or parents pay for their education, it is essential that they get the best value for their dollar — more importantly, they must get a solid academic start as they transform from student to graduate.

Our profession has indeed evolved and will continue to align itself with the needs of our patients. Most forward-moving initiatives from the AARC specify that the RRT with a four-year degree should be the minimum criteria. A recent example is our work in Washington, DC, in an effort to position the respiratory therapist as a telehealth provider. HR 2508, which names this as a minimum criteria, has been introduced in Congress. Other congressional bills that have been introduced with the urging of the AARC have also specified the RRT credential and a bachelor's degree. This is the direction of the profession, and we need to get our current work force to this level as we plan for a future where the value of the respiratory therapy graduate is no longer on the table for debate. ■

Nonpharmacological Management of Retained Secretions in the ICU Patient

by Kenneth Miller MSRT, MEd, RRT, RRT-ACCS, RRT-NPS, AE-C, FAARC

One of the most common disease manifestations in the ICU that requires clinical interventions by respiratory therapists is the management of retained secretions.[1] Secretion retention of airway mucus is one of the major problems that confront postoperative and critically ill patients, as well as the clinical teams that address it. Difficulty in clearing secretions can compromise lung function and gas exchange. In healthy lungs, mucociliary activity, deep breathing, and coughing are the primary mechanisms used to expel secretions. With disease, changes in volume and character of secretions, dyskinesia of cilia, and instability of the airway reduce the ability to clear secretions from the airway.[2] Retained secretions increase the work of breathing; promote hypoxemia, atelectasis, and pneumonia; and alter pulmonary mechanics. The airway of the intubated patient is at particular risk of retaining mucus because the presence of the artificial airway interrupts the normal flow of airway secretions toward the larynx by the mucociliary escalator and coughing effectiveness is degraded by a glottis that is stented open and cannot close effectively. Retained secretions can increase the chance of the implementation of mechanical ventilation and can increase patient morbidity or mortality. This can result in increased ICU and hospital duration, especially if pneumonia develops.[3,4]

The clinical assessment of retained secretions includes increased sputum production, often with escalated sputum viscosity, adventitious breath sounds, and atelectasis. When assessing a chest radiograph, retained secretions can present as localized or globalized consolidation, with or without atelectasis. Patients at risk for retained secretions include the elderly and those who have decreased mobility, pre-existing lung diseases, neuromuscular muscle weakness, obesity, thoracic-abdominal surgery, or prolonged mechanical ventilation.[5] Facilitation of secretion removal involves an arsenal of clinical interventions that are aimed at improving gas exchange, reducing ICU length of stay, resolving lung consolidation/atelectasis, and improving pulmonary mechanics.[6]

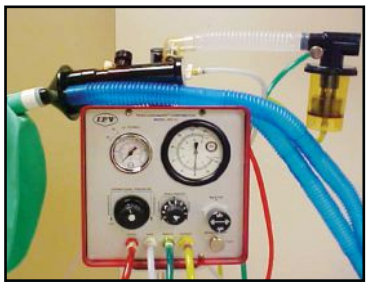
about the author...

Kenneth Miller, MSRT, MEd, RRT, RRT-ACCS, RRT-NPS, AE-C, FAARC, is clinical educator of respiratory care service at Lehigh Valley Health Network.

Treatment and interventions

Clinical interventions for retained secretions, including specific airway-clearance therapies, should be based on the patient's disease process, cognitive ability and preferences, the characteristics and limitations of the device or technique to be utilized, and cost. Breathing maneuvers, gravity-assisted drainage, manual techniques, and mechanical devices can enhance and facilitate removal of retained secretions. Clinicians implementing these interventions need to be aware of the benefits, limitations, and supporting clinical evidence of these therapies.[7]

Interventions directed at retained secretions include active cycle breathing, chest physiology, high-frequency chest wall compression, intrapulmonary percussive ventilation, cough assist, and oscillating positive expiratory pressure (Fig. 1). Some of these interventions can be applied in both spontaneously breathing patients and those who are on mechanical ventilation. Although evidence reviews exist, there are no robust, randomized, controlled studies that favor one technique over another because demonstrating the value of lung clearance interventions is difficult. Case studies, low-level evidence, and clinical experience often support the selection of one intervention over another.[8] It is critical that the clinician implementing any given



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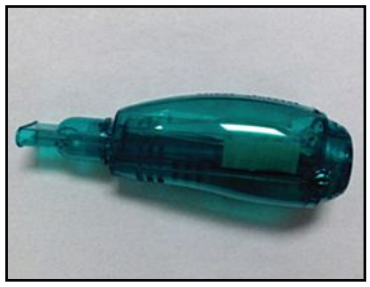


Oscillating Positive Expiratory Pressure

Figure 1 Examples of Different Airway Clearance Devices.

therapy tailors the selected therapy on the basis of the patient's ability, the limitations and side effects of the therapy, and disease etiology.

Active cycle breathing consists of three phases: breathing control, chest expansion, and huffing cough. This intervention has been utilized frequently with patients with cystic fibrosis, bronchiectasis, and COPD. Based on a Cochrane Review meta-analysis of 19 studies, Clini and Ambrosino found insufficient evidence to support or reject the use of the active cycle of breathing technique over any other airway-clearance therapy.[9] Five studies, with data from eight different comparators, found that the active cycle of breathing technique was comparable to other therapies in outcomes like participant preference, quality of life, exercise tolerance, lung function, sputum weight, oxygen saturation, and number of pulmonary exacerbations.[10]

Chest physiology therapy (CPT) has been utilized as an airway-clearance method for many years.[11] CPT has come to mean gravity-assisted bronchial drainage with chest percussion and vibrations, often involving body positioning and bronchial drainage. Optimal body positioning is critical in the management of retained secretions. Each segment of the lung should be positioned properly to ensure adequate vibration and secretion drainage. Although used routinely in the ICU patient environment, there is a dearth of evidence to support the notion that it is beneficial in secretion removal. In a meta-analysis of six clinical studies with pneumonia patients, the authors concluded that CPT should not be recommended as routine additional treatment for pneumonia in adults.[12] Another limitation of CPT is that it is often performed incorrectly in terms of proper positioning and adequate time for drainage; for example, two minutes of posterior clapping on each side is often viewed as CPT. Based on the best available evidence, the AARC Clinical Practice Guidelines do not recommend CPT for the routine treatment of uncomplicated pneumonia in hospitalized adult and pediatric patients without cystic fibrosis.[8]

High-frequency chest wall compression utilizes intrathoracic positive and negative pressures to create small-volume oscillations throughout the tracheal bronchial tree. This therapy can generate small tidal volumes that help mobilize secretions and thus facilitate their removal. Therapy treatment time commonly lasts around 20 minutes. Cough is encouraged between changing the frequency of vibrations and after treatment. Improved outcomes have been reported for vest therapy in niche patient populations who have retained secretions.[10] However, in clinical studies of patients with COPD and neuromuscular disorders, the sample sizes

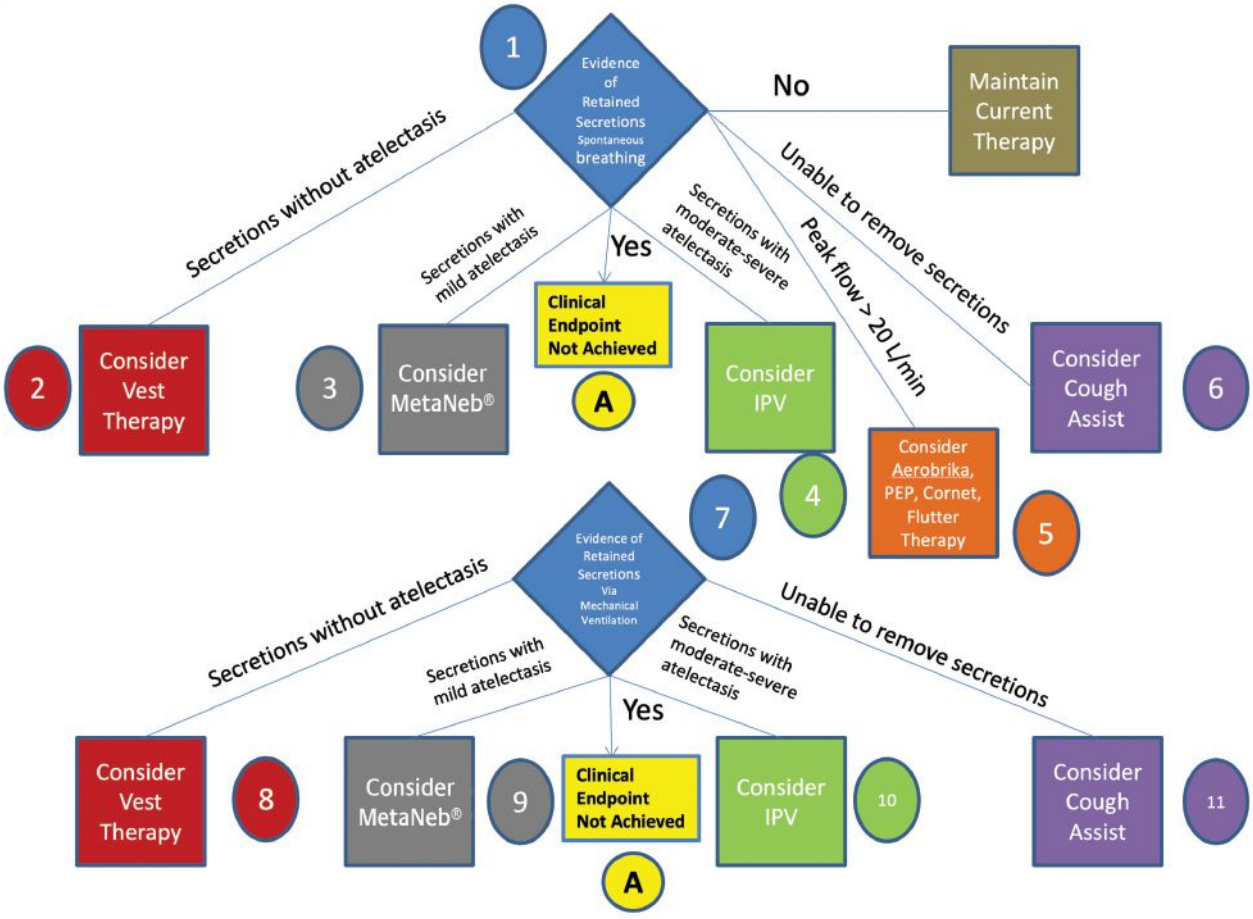
were small and the evidence to support or reject its utilization is insufficient.[13]

Intrapulmonary percussive ventilation devices deliver pneumatic positive pressure to move mucus. These devices send small, fast bursts of air to open the airways, and these bursts of air also loosen and free mucus from airway walls. Some devices that utilize intrapulmonary percussive ventilation can be used with spontaneously breathing patients, and others can be placed in tandem with a mechanical ventilator. Although some case studies have reported positive outcomes with these devices, there remains insufficient evidence to support their routine use for retained secretions.[14]

Cough assist aids in the removal of secretions by generating positive pressure in the bronchial tree followed by a quick transition to a negative pressure. This rapid change of pressure facilitates a spontaneous cough to expel secretions. Cough assist is extremely beneficial in patients with neuromuscular weakness and diaphragmatic dysfunction who lack sufficient muscle strength to generate an effective cough.[15] Low-level evidence indicates that cough assist can be effective for patients who have a peak flow cough < 270 L.min.[16]

Oscillating positive expiratory pressure therapy provides a combination of positive expiratory pressure with high-frequency oscillations. It involves breathing with a slightly active expiration against an expiratory resistance through a device. The addition of positive pressure during exhalation helps increase the expiratory capacity and reduces gas trapping. This positive pressure stabilizes the airway and holds it open, and it also increases intrathoracic pressure distal to secretions to facilitate their removal via expectoration. Sufficient inspiratory and expiratory flows must be generated for this therapy to be effective. Based on low-level evidence and clinician preference, these devices are often used routinely postoperatively and for patients with chronic respiratory etiologies.[17]

Figure 2 Bronchial Hygiene Protocol utilized at Lehigh Valley Health Network



Summary

Airway-clearance techniques are applied by clinicians to facilitate secretion removal, optimize respiratory function and status, and reduce hospital duration. Respiratory therapists and other clinicians must be aware that retained secretions are very common in the ICU clinical environment, and there is a plethora of secretion-removal devices and techniques to use with patients who have retained secretions. These airway-clearance interventions typically provided small benefits to pulmonary mechanics, gas exchange, and the need for or duration of ventilation. However, the between-group differences were generally small and not significant. The harms of airway-clearance techniques were not consistently reported, although airway-clearance techniques were generally considered safe in studies. Further research with clearly characterized populations and interventions is needed to understand the potential benefits and harms of these techniques. A systematic approach utilizing a clinical assessment may be beneficial in selecting the appropriate intervention. Fig. 2 is an example of an airway clearance protocol from Lehigh Valley Health Network.

Issues surrounding this practice include the experience and knowledge of the clinician performing the intervention, patient selection and tolerance, and extent of clinical evidence supporting the intervention. Evidence to support these clinical interventions is often lacking, and it is paramount for a clinician to select the best intervention for the patient based on disease etiology, patient ability, cost, and greatest outcome benefit. ■

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Chronic Disease Manager

How the Legalization of Cannabis Will Affect the RT Profession

by Roy J. Palmer Jr., RRT

With the legalization of cannabis (ie, marijuana) for both recreational and medicinal use increasing, the respiratory therapy profession is once again facing uncharted territory. Cannabis is the most commonly inhaled drug after tobacco in the United States.[1] Although there is a marked increase in the use of cannabis over the last 10 years, the illicit nature of the substance has limited the ability to research its effects on the pulmonary system.[2,3] Presently there are 33 states that have legalized cannabis for medicinal use, and 11 states have legalized its recreational use. Cannabis is being seen by more and more people as a safe substance due to its legalization for medicinal use, however it is also possible for overuse due to the recreational status of the drug.

Cannabis is similar in many ways to tobacco in both the carcinogens and effects seen on the lungs.[2] However, there are some key differences that the respiratory therapist should be cognizant of. Cannabis does not contain nicotine; the chemical of note that is found in cannabis is delta-9 tetrahydrocannabinol (THC). THC is known for its psychoactive effects on the user, and it has also been shown to be the component of cannabis that provides bronchodilation effects.[2,4] One concern for the respiratory therapist is that genetically modified versions of cannabis that are grown today can have as much as four times the THC content as what was found in cannabis in 1980. This also means that the bronchodilation effects of the THC are 4 times greater.[7] When evaluating the patient who is a suspected cannabis user, it is often best to ask directly if they use cannabis.

about the author...

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Pulmonary function testing performed on cannabis users will commonly show a decrease in FEV_1/FVC. This decrease is not related to a decrease in FEV_1 as seen in obstructive lung disease, rather it is due to an increase in FVC.[2-4] There are theories that correlate the increase in FVC to the deep inhalation and breath hold used when smoking cannabis.[3] In the few studies in which plethysmography was performed, there has been an increase in airway resistance and a decrease in specific conductance.[5] These findings may be related to the inflammatory effects on the airways that are seen in individuals who smoke cannabis.[2,3]

Several studies have shown an increase in respiratory symptoms in cannabis smokers as compared to non-smokers. Observations from the NHANES III study revealed that the rate of respiratory symptoms for cannabis smokers was comparable to that for smokers who were 10 years older.[6] This increase in symptoms can lead to a greater incidence of asthma exacerbations, including emergency room visits. These patients often present with wheezing, shortness of breath, sputum production, or chest tightness.[2] These symptoms have been noted to resolve with the cessation of use.[4] In addition to asthma, one of the other respiratory complications seen with smoking cannabis is bullous lung disease, and some studies have reported pneumothoraces as a complication of bullous lung disease.[2] This is thought to occur due to the mechanism used to inhale the smoke.[3] Lung cancer is always a concern when people are being exposed to inhaled irritants, let alone ones with known carcinogens. The current evidence correlating lung

cancer and cannabis use is inconclusive, with studies to support both sides of the argument.[1]

Individuals who use cannabis often also use tobacco. This creates the possibility of compounded effects. One study reported that people who smoke both cannabis and tobacco are more likely to have chronic respiratory systems.[3] The method of measuring substance use has notable differences, which makes comparisons challenging. A joint-year is defined as the number of joints or bowls of cannabis smoked per day multiplied by the number of years of cannabis use. A pack-year is defined as the number of packs of cigarettes (ie, 20 cigarettes) smoked per day multiplied by the number of years spent smoking. One impact of this difference in measurement is that the exposure to carcinogens due to cigarettes is perceived as being far greater because the quantity of tobacco smoked is often far more than the quantity of cannabis smoked.

The first challenge that the RT profession will have to overcome is identifying these patients. For therapists who live in one of the many states that have legalized cannabis, this is not as significant a hurdle to overcome as someone who lives in a state that has not legalized this substance. This may be an obstacle as we document a patient's history because the patient may not be as willing to disclose this information for fear of repercussions. Another challenge that we will continue to face as a profession is the wealth of information available on the Internet and on social media, which can lead to patients self-diagnosing and not seeking medical care when needed because it can be difficult to discern what information is factual and what information is fiction.

As cannabis is legalized in more states, we will have more opportunities to conduct more directed clinical studies. To allow the respiratory therapist to address this growing patient population, we need to definitively identify the effects of cannabis on the pulmonary system. We should see more opportunities to research the bronchodilation properties of cannabis on the lung tissue, and there may be the potential to create a new type of bronchodilator. Inhalation of combustible cannabis is not the only way to use THC, so we will have the opportunity to research other methods to apply this substance. As cannabis use becomes more widespread, we will see patients in different age demographics, and this will provide the opportunity to educate our patients earlier and possibly prevent lasting effects of chronic use.

How does all of this affect the respiratory therapist? As of right now, there will not be much change in the RT's day to day activities. We will still continue to care for the patients in respiratory compromise in the most appropriate way. When caring for these patients, the need to identify the combustible cannabis user will become important when complications arise, such as pneumothorax, wheezing refractory to bronchodilators, etc. As we learn to treat cannabis-related respiratory illnesses, our educational tools will need to be modified. We are talking about a substance that is increasingly being seen as a safe substance, although we still know very little regarding its overall effects. With cannabis becoming a mainstream substance, and given the national attention it has garnered in the last several years, the effects of cannabis use deserve to be researched appropriately so that we know how to treat those who use it. ■

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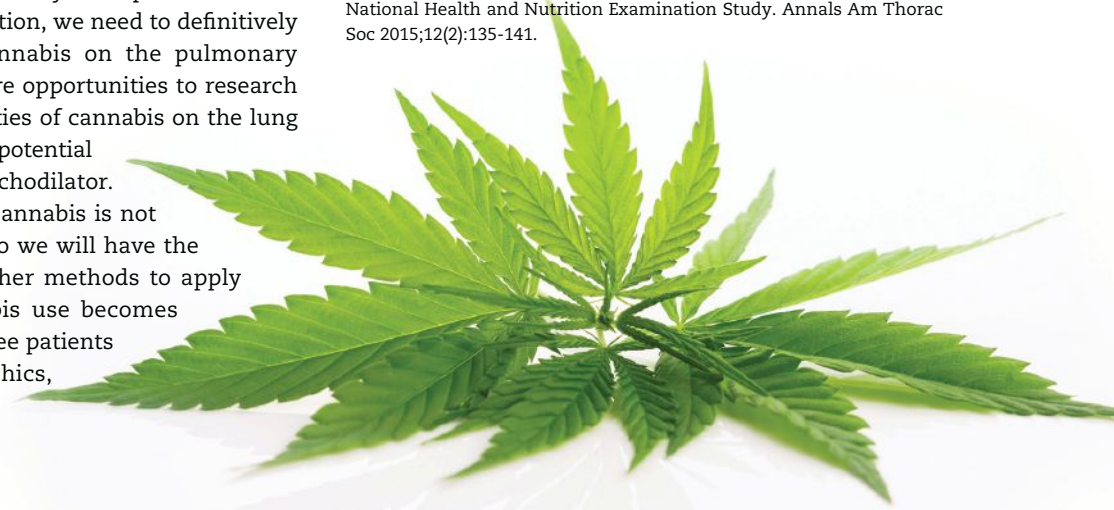

Here's a Little Taste of the Topics You'll Find at AARC Congress 2019

Three presenters preview the sessions they'll be giving in New Orleans

AARC Congress 2019 promises to deliver the must-haves RTs need to succeed on the job and provide high-quality care for their patients. We asked three of the presenters to give us a sneak peek at their sessions.


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1 Diversity & Inclusion: How to Do it Right

by Gabrielle N. Davis, MPH, RRT, RRT-ACCS, RRT-NPS, CTTS, CHES

Diversity and inclusion, used loosely within health care, academic institutions, and a multitude of other places, are two different ideologies that exist separately but are often erroneously combined into one notion. This topic is important to the respiratory therapist because failing to understand the importance of both can affect patient outcomes, retention of employees, and the educational experiences of students.

By being aware of how diversity is separate from inclusion and how inclusion is separate from diversity, we can arm each other, our patients, our classmates, and our coworkers with the knowledge to assist and affirm all people, regardless of perceived differences. Here are a few of the key points I'll be covering during this session —

- Diversity is different from inclusion.
- Diversity can exist without inclusion, although the impact will likely be negative.
- Inclusion can exist without diversity and will likely have a positive impact in areas where increased diversity has not been achieved.
- Understanding and acknowledging the lack of diversity and inclusion within any institution can have a positive ripple effect.
- It is imperative that we take part in and encourage both diversity and inclusion whenever and wherever possible.

I hope attendees will leave the presentation feeling empowered with tools and information that will allow them to provide a more diverse and inclusive environment at work and at school, and with patients whenever the opportunity presents itself. An understanding of the importance of diverse and inclusive environments is lacking, although many of us use the concept as a phrase, tagline, or hashtag when describing an academic or health care institution, including it in syllabi, mission statements, vision statements, and other places so as to be deemed "better." Hopefully, being diverse and inclusive will become more than a phrase, tagline, or hashtag — it will become a truth. ■

Gabrielle N. Davis, MPH, RRT, RRT-ACCS, RRT-NPS, CTTS, CHES is the COPD educator/inpatient nicotine cessation coordinator at St. Luke's Health System in Boise, ID

2 Airway Assessment: Predicting the Difficult Airway

by Carl Hinkson, MS, RRT, RRT-ACCS, RRT-NPS, FAARC

The practice of orally or nasally intubating patients has become routine; however, intubation carries with it the potential for life-threatening complications. Unanticipated problems can turn a seemingly routine procedure into an emergency that may have significant consequences. Clinicians who intubate, including respiratory therapists, should be able to perform a proper airway assessment prior to the procedure. This will allow the individual to anticipate potential problems and also give him or her options on how to handle difficult intubations. The respiratory therapist with excellent airway-assessment skills is an asset in any emergency room or critical care unit.

The first presentation in this symposium will focus on techniques used to evaluate the risk of difficult airway management. I will discuss commonly used scoring systems such as the Mallampati score, the Cormack-Lehane score, and thyromental distance. Attendees will learn how they can use these assessment techniques even when time is of the essence.

In the second presentation, Keith Lamb, BS, RRT, RRT-ACCS, FAARC, will focus on standard and advanced techniques used to manage the airway. He will also cover the use of adjunctive equipment, including videoscopic techniques. Challenging airway emergencies will be covered as well, and attendees will learn a methodology on how to approach them.

Whether you are a new clinician or a seasoned veteran, we hope these lectures will add to your understanding of the advanced management of the airway. Please join us for these informative presentations. ■

Carl Hinkson, MS, RRT, RRT-ACCS, RRT-NPS, FAARC is director of the pulmonary service line at Providence Regional Medical Center in Everett, WA.

3 Going Beyond Disease Management: Creating Population Health

by William F. Galvin, MSEd, RRT, CPFT, AE-C, FAARC

We all know that a healthy population makes good sense. We also know that disease management and all its principles are sound strategies, and that practicing healthy lifestyle behaviors is "good medicine." However, the health care system is now being presented with a new and broader view — the emergence of population health.

Population health is gaining popularity in direct response to the rise of chronic diseases, innovative clinical analytics technologies, and new financial incentives to invest in proactive, preventative health care. Also coming into play is the realization that health is determined not just by genetics, lifestyle, or the use, misuse, or disuse of the health care system; rather health is determined by social, economic, and cultural variables — the so-called "social determinants of health." Social determinants are best described as the conditions in which people are born, grow, work, live, and age, along with the wider set of forces and systems shaping the condition of daily life. Some would go so far as to say that our health is determined by our zip code.

The health care system has positioned itself for a shift to accountable care and value-based reimbursement. The health care system of the future will need to expand preventive services, take advantage of new data analytics, and take health care into the community. Health care organizations are being directed to meet the three dimensions of the Triple Aim —

1. Reducing the per capita cost of health care.
2. Improving the patient experience of care (including quality and satisfaction).
3. Improving the health of populations.

Number three tells us we must focus on the community and take a closer look at success stories — examples of communities or regions throughout the world where life expectancy is being optimized, where longevity is enhanced and people are living 5–10 years longer than their counterparts elsewhere.

During this session I'll address the concepts of costs and the significant role that chronic, debilitating disease places on the system. I'll cover the factors that determine one's health status and the fascinating theory of compression of morbidity, which ultimately shrinks the time that an individual experiences illness and disease. Finally, I will share stories and experiences of three or four regions throughout the world where people live to be 100 years of age or longer. What do these centenarians do to delay death and experience a long, productive, and meaningful life?

Attend this session to learn the current and future drivers shaping health care practice in the United States and discuss the key issues impacting the health of society, including:

- Costs
- Chronicity
- Determinants of health status, prevention, and wellness and their relation to population health
- The theory of compression of morbidity
- The factors influencing longevity.

Attendees will leave with a recipe of the key ingredients needed to optimize life expectancy and longevity as shared by the world's longest-living people. ■

William F. Galvin, MSEd, RRT, CPFT, AE-C, FAARC is director of the respiratory care program at Gwynedd Mercy University in Gwynedd Valley, PA.

When Life Hangs in the Balance, You Need RTs on the Team

AARC members share their experiences on interdisciplinary teams in the ICU

by Debbie Bunch

Enter an intensive care unit, and you enter a place where the stakes are high. Patients treated here are so sick or so injured that care takes on drastic proportions and outcomes are anything but certain. Clinicians who work here must come together as a cohesive unit to execute a carefully crafted set of treatments aimed at getting those patients past the danger point and on toward the finish line that is restored health. Such a cohesive unit is known as an interdisciplinary team, and with mechanical ventilation at the center of so many cases in the ICU, respiratory therapists play an integral role.

Of course, not all interdisciplinary teams are created equal. What sets a true team apart from a group of care providers who are a "team" in name only? According to the AARC members we interviewed for this article, it all begins with the definition..

Collaboration is key

"We define our interdisciplinary team as clinicians from multiple disciplines working together to improve patient outcomes," says JJ Valdez, BSRC, RRT, RRT-ACCS, cardiopulmonary and neurology department education coordinator at Midland Memorial Hospital in Midland, TX. "This team meets daily for Grand Rounds and includes the attending and resident physicians, the primary nurse, a cardiopulmonary staff member, a nutritionist, a pharmacist, and other health care team members such as physical therapy, speech therapy, or cardiac rehab as needed." Patients and families are encouraged to participate as well.

The collaborative rounds include a full discussion of the patient's plan of care and addresses any concerns or issues among the participants. Team members value the input from their fellow team members, and each team member contributes to the plan. By including patients and families in Grand Rounds, the team is able to ensure the patient and family understand what's going on with their daily care plan. RTs do their part by communicating in a way that allows the patient and family members to comprehend the goals of care as outlined by the plan. All of these efforts have combined to produce improved outcomes for the unit. "As a result, we have seen the

average ventilator days decrease, ICU length of stay decrease, and overall patient outcomes improve," says Valdez.

The teamwork continues well past rounds. Midland Memorial Health Critical Care Unit and Pediatric Care Unit Education Coordinator Aimee Marshall, BSN, RN, CVRN-BC, says cardiopulmonary staff members are in constant communication with bedside nurses. "For example, they notify nurses of patient status changes, update on respiratory therapeutics, inform of critical lab values, and are an invaluable part of the interdisciplinary team by utilizing their additional eyes and hands to aid in the overall assessment and care of the patient," says Marshall. RTs work closely with nurses on an Early Mobility Program aimed at determining a patient's readiness for ventilator weaning. In addition, a Fast Track CABG Weaning Protocol grew from the Early Mobility Program.

"Our newest staff-led venture is the Vascular Access Team (VAT)," says Valdez. "A group of cardiopulmonary staff members underwent specialized training to gain the skills required for safely and reliably obtaining central venous access. The VAT venture has shown to be the most impactful of all our initiatives."

Marshall says that this initiative and others have led nursing leadership to recognize the cardiopulmonary department as an integral part of the interdisciplinary team.

Open to ideas

"The true interdisciplinary team is a representation and participation of all members of the health care team within the ICU," says Corey Sillito, BS, RRT, manager of the respiratory care department at McKay Dee Hospital, an Intermountain Healthcare facility in Ogden, UT. "This team may include all or limited members due to the patient's needs." At his hospital, that means the RRT, RN, licensed independent practitioner, MD, pharmacy, care managers, occupational therapy, physical therapy, speech, and the patient's family.

Sillito says the process starts with a presentation by the physician on the patient's current condition. From there, team members are asked to report on how the patient is doing from their professional points of view. "This is where each team member gets to suggest and/or provide recommendations to the plan of care for the patient," he says. "The intensivists are very open to ideas, thoughts, and suggestions, which makes for a very comfortable environment." The family members who attend often provide valuable insights, too, and the team uses their presence as a teaching moment as well. "This time allows us, as RTs, to explain what we are doing and provide more insight on the ventilator and equipment we are utilizing at the time rather than having another discipline tell the family," Sillito explains. "We have found that this helps create trust and allows for a more personal connection."

RTs at McKay Dee Hospital walk away from each rounding session — they occur morning and night — feeling like a true member of the team whose opinion matters. "It is very organized and structured to provide a consistent flow, but it is also fluid to allow for variability in discussion in each patient's situation," continues Sillito. All team members are expected to be present — the only exceptions being an emergent situation in which a clinician must be involved, the transport of a patient, or a procedure that is in progress and cannot be delayed. Even if one of these situations arises, he says the RT on the case will generally leave a small structured rounding card outlining the RT's opinions for the team to refer to during rounding.

Respiratory therapists on the team perform all arterial line placements within the unit and assist the physicians with bronchoscopies and percutaneous trwacheostomy procedures. RTs work alongside nurses and personal care technicians, helping with ambulation and patient bed

care when needed, tracheostomy care and cleaning, and routine oral hygiene for intubated patients. Their presence is deemed so valuable that, in most cases, procedures and patient cares are adjusted to ensure that an RT can be available to assist. Says Sillito, "Patient care takes a lot of hands and skill sets . . . . Having RTs actively involved in these types of processes can only assist in helping decrease the patient's length of hospital stay."

Carrie Winberg, MSHA, BSRT, RRT, serves as community hospitals respiratory care director for Intermountain Healthcare, and she says Sillito's comments about the interdisciplinary team concept at McKay Dee Hospital ring true for other Intermountain Healthcare facilities as well. "I think that having RTs as full and equal members of the interdisciplinary team provides the best outcomes for our patients," she says. "When they use their voice and actively participate as part of the team, the patients typically have a better outcome."

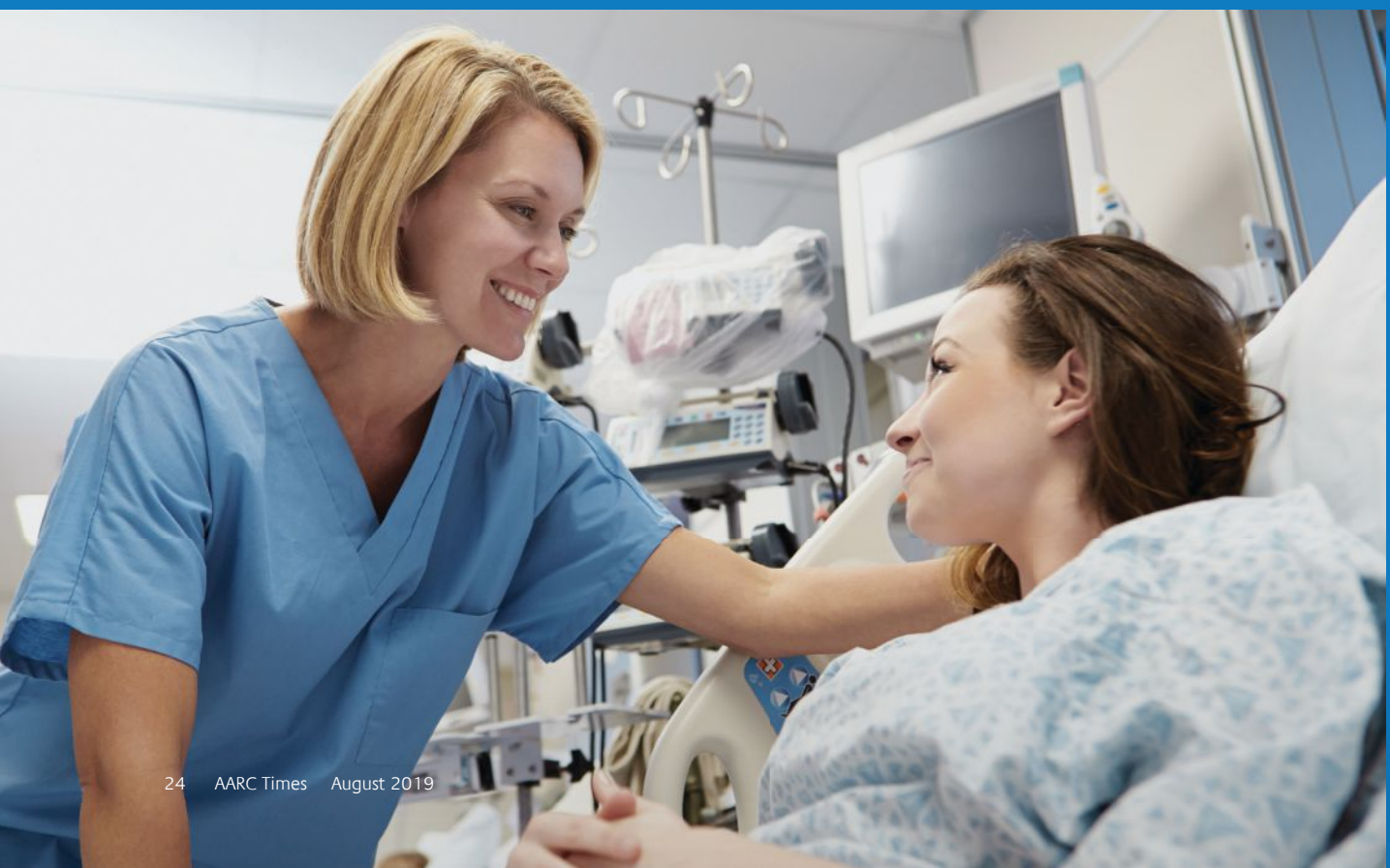
With RTs on board, patients are weaned faster, spontaneous awakening trials and spontaneous breathing trials (SAT/SBTs) are performed on a routine basis, and activity is provided, lessening the chance and/or severity of post-intensive care syndrome. "The RTs in our facilities actively engage with other members to assure that these processes are occurring," says Winberg. "They have this workflow engrained in the [ventilator] management and coordinate with nursing." Thanks to their role on the interdisciplinary team in the ICU, RTs also contribute to data collection, the creation of protocols and clinical practice guidelines, research, and the development of new processes that benefit patients.

"I believe that it is imperative that RTs use their voice to speak on behalf of the patient," says Winberg. "They spend a large amount of time with these patients. They can improve the plan of care, identify issues as related to discharging the patient, and can proactively seek solutions."

The more RTs excel on these teams, the louder the RT voice becomes system-wide as well. As a result of their roles on these teams, Winberg and Sillito have been asked to co-chair the RCS Adult Critical Care Team for the entire system of 23 hospitals at Intermountain Healthcare. The team is looking at protocols, best practice standardization, and unintended extubations and is working on barriers and implementation strategies to improve compliance with low tidal-volume ventilation. Their work will be reported to the Critical Care Operations Council, which includes all of the nursing and MD directors for the system.

Team must-haves

Therapists at the Hospital of the University of Pennsylvania (HUP) in Philadelphia join members of a variety of disciplines in daily discussions about patient care, says Margie Pierce, MS, RRT, CPFT, department director. "The key characteristics of our interdisciplinary teams include respect for each other's roles, valuing everyone's contribution to the care of the patient, and mutual trust." Clinical competence, confidence, and effective communication



skills are must-haves for anyone who wants to be an effective member of the team. Pierce noted that the RTs on board feel comfortable discussing the clinical assessment of their patients and making recommendations for the respiratory care plan.

The whole process begins in a conference room prior to the beginning of rounds themselves, where team members touch base on a variety of topics, including the ABCDEF bundle. "The respiratory therapist leads the discussion regarding patient progress with either spontaneous breathing trials or our more gradual 'challenge to wean' protocol, and makes recommendations for the day," says Pierce. The bedside rounds employ a standardized format, and discussion proceeds via a problem-based approach. RT input can cover anything from RT-driven protocols on ventilator management, to respiratory medications, to bronchopulmonary hygiene, to oxygen titration.

RTs work closely with other team members on a number of other fronts as well — with nurses when moving patients with ARDS into a prone position, with physical therapists when ambulating patients, with speech therapists for trach weaning and Passy Muir valve use, and with clinical nutritionists when using a metabolic cart to measure resting energy expenditure to ensure the patient is being fed appropriately.

According to Jessica Fuller, MSN, RN, CCRN, NE-BC, ICU nurse manager for the neurointensive care unit at HUP, nurses rely on RTs to help educate RNs who are new to practice, and all new RNs shadow an RT to learn about ventilators, RT protocols, and the principles of airway safety and management. Keeping ICU patients from coming back to the ICU is a key role for RTs on the team as well. "Given that respiratory failure is a frequent cause of bounce backs, the RTs have played an instrumental role in reducing ICU bounce backs and thus ICU length of stay," says Fuller.

Barry Fuchs, MD, is medical director of both the medical ICU and respiratory care at HUP, and he praises the RTs on the team, noting they have advanced knowledge and sophisticated clinical judgement. "I have no doubt that the great clinical outcomes we see at HUP would not be possible without the contributions and collaborations of our respiratory therapists in all our interdisciplinary teams," says Dr. Fuchs.

Progress hinges on the RT

Therapists on the ICU interdisciplinary team at Mercy Hospital in Coon Rapids, MN, provide status updates on the patient–ventilator interface and liberation readiness during sessions with the RN, charge RN, intensivist, pharmacist, dietician, occupational therapist, physical therapist, and other ad hoc team members. They also offer recommendations for other therapeutic modalities that could benefit the patient. "We utilize a Respiratory Care Assess and Treat Protocol," says Respiratory Services Manager Debra Skees, MBA, RRT, CPFT, "so often those interventions are already underway."

That level of input plays a critical role in patient care in the unit. "For many ICU patients, the patient's progress hinges on the RT's assessment and interventions, and they are able to call out any potential risks to be vigilant for in a patient discharging to the medical/surgical unit," emphasizes Skees. "The intensivists appreciate the RT's perspective on whether the non-ICU unit can handle the complexity of the patient to avoid a bounce back."

She believes RTs on the team need to have a "global" perspective of the patient — in other words, knowledge of the case beyond just that which pertains specifically to the respiratory component. Excellent assessment skills and the ability to be articulate and well versed on the scientific literature that supports the recommendations they make to the team are paramount as well.

Ensuring continuity of care

At the University of North Carolina Medical Center in Chapel Hill, the RT's role on the interdisciplinary ICU team spurred the development a new position for RTs a few years ago called the clinical specialist. Created by Kathy Short, RRT, RN, FAARC, when she served as department director (she left that position in 2017 to take on a new position at the hospital), the role was designed to ensure continuity of care for patients in the hospital's six adult ICUs, the PICU, the NICU, and the cystic fibrosis service.

"The clinical specialists work Monday through Friday, eight-hour shifts, attend rounds each day, provide ventilator management, make treatment suggestions, and basically oversee the care for the ICU patients on their service," explains Short. Because they are there five days a week as opposed to the typical RT's three, these clinicians can make sure nothing falls through the cracks. They check and make suggestions for mechanical ventilation parameters, and they review bronchoscopy results, chest x-rays, plans for weaning, treatment regimens, and other respiratory-related topics and report on them during the patient care rounds. They make sure the RT's voice is heard.

That's important to the care of the patient, says Short, because no one caregiver can know everything about the patient. "The respiratory therapist is the expert in ventilator management and therefore they must be heard and speak up about what is best for patients," she says. "Our patients deserve our expert opinions."

Creation of this special role has boosted the stature of RTs among the other members of the interdisciplinary

team, continues Short. "They are the 'go to' people for physicians, nurses, care mangers, and consult services such as psychology, infectious disease, etc., in caring for the patient," she says. "The clinical specialists are well respected by the other interdisciplinary team members for their expertise and truly knowing their patients and what their patients need from RT services."

To serve in this role, an RT must hold the RRT credential and preferably a BS in RT as well, and they must have a good working relationship with other members of the team. Short sees the position as a possible stepping stone to an even greater role for RTs. "I personally hope that in the future the clinical specialist type role will morph into the advanced practice role for respiratory therapists," she says.

Also a teaching tool

As an associate professor in the department of cardiopulmonary science at the Louisiana State University Medical Center in New Orleans, Terry Forrette, MHS, RRT, FAARC, doesn't work for a hospital, but he has gained great insight into the interdisciplinary team concept in the ICU through his role as a member of the trauma-surgery team in the level-one trauma ICU at University Medical Center.

"Our team is comprised of staff trauma surgeons, two fellows, residents, medical students, a clinical pharmacologist, and myself," he explaines. "I get a new group of residents monthly, two new fellows each year, and the staff trauma surgeons rotate each week in the unit. Each of us contributes in the areas of our expertise and are involved in the decision-making process for patient care."

While he's there to teach the residents and medical students about mechanical ventilation principles, he also guides them in ordering ventilator settings, works with them on ordering advanced modes of ventilation, and advises them on assessing adverse conditions like dys-synchrony. "I also order adjunct airway-clearance therapies for outpatients and teach the other team members what is needed," says Forrette.

He believes his many years of experience as an RT offers his team a perspective into patient care that many of the members have yet to develop, including evaluating and monitoring cardiopulmonary status, interpreting indirect calorimetry studies, and providing guidance on changing modes and breath types or bronchial hygiene strategies. Forrette has seen the impact he's been able to make through the adoption of new ventilator modes in the unit.

"It was through my interest and research that we started to use proportional assist ventilation (PAV) as our primary continuous spontaneous ventilation mode in the trauma ICU," says Forrette. "Over the years, we have found that our patients respond best to PAV compared to pressure support ventilation, and it has provided research and publication opportunities for our fellows and staff surgeons."

Personal experiences

How does the RT's role on the interdisciplinary ICU team drill down to the individual patient? JJ Valdez has a great story to tell about one recent patient at Midland Memorial Hospital. The situation began when the primary nurse called the therapist to the bedside to assess a

mechanically ventilated patient. The RT noted hypotension, tachycardia, and an increased work of breathing, and a review of the chest x-ray obtained just minutes earlier identified a possible pneumothorax.

"While repositioning the patient to isolate the possible pneumothorax, the cardiopulmonary staff member proceeded to communicate the findings up the chain of command," says Valdez. The medical director was also notified to further advocate for the patient, and, shortly thereafter, the patient received a chest tube and other care necessary to resolve the acute event. "The medical director stated, had the cardiopulmonary staff member not intervened in the timely manner in which he did, the patient would have certainly decompensated further, resulting in cardiac arrest," says Valdez.

Debra Skees recounts an incident at Mercy that ended up changing the way patients were assessed for readiness to wean. "We noticed that often the practice was to let the patient 'rest' during the night and not advance weaning, so most liberations didn't take place until after 1 or 2 p.m.," she recalls. Other care was delayed as a result, and ICU discharges were often postponed as well. "After getting buy-in from the intensivists, we enacted an additional, limited interdisciplinary round in the evening called the N.A.P. rounds," she continues.

The intensivist, RT, RN, and pharmacist come together during the N.A.P. round to review and discuss sedation, spontaneous breathing trials, and nutrition, allowing sedation withdrawal to begin regardless of the time of day and the spontaneous breathing trial to be completed sooner. "We were able to demonstrate an increase in the percent of patients who were liberated from the vent before 10 a.m.," says Skees. That resulted in better patient care and improved ICU productivity and patient flow at the same time.

What benefits accrue to the career of a standout RT on the ICU interdisciplinary team? Carrie Winberg shares the experiences of one therapist at Intermountain Healthcare who took that role and made the most of it.

"Years ago, an RT was identified to assist with research in the ICU," she says. "She worked closely with the members of the health care team and actively participated with the creation and implementation of the ventilator protocols that are still in use today." That therapist went on to work with team members on various other projects and programs to improve care and outcomes, assisting with the creation of computerized ventilator protocols in both the legacy EMR and iCentra, the SAT/SBT protocol embedded in the EMR, activity pilots, and the training of all the residents on the use of the ventilator protocols. "Her expertise is continuously sought out with each new ICU project," says Winberg.

This expertise in the ICU eventually led to her membership on the first LifeFlight team to use RTs in the Intermountain Healthcare system, and she continues as a member of that team today, creating the protocols that transition to the system's computerized ventilator protocols and providing feedback on all transports.

Worth the effort

When RTs are embraced as full members of the interdisciplinary team in the ICU, the care process unfolds more smoothly and outcomes improve. As these therapists show, getting to that point requires good communication skills, expertise in the subject matter at hand, and an abiding sense of respect for their fellow team members. But the end result is worth the effort.

Kathy Short says she witnesses the benefits every day at UNC Medical Center. "There are many patients who are weaned off mechanical ventilation by RTs, whereas others had given up, patients who are sent home on BiPAP with tracheostomies that no one thought could go home, patients who did well being de-cannulated by RTs whereas medical staff thought it was impossible, lives saved by placing patients on alternative modes of ventilation whereas medical staff were not sure it would work . . . . There are so many that happen each and every day." ■

Bellatores Nostros A Morte Tradimus

RTs who serve on elite military team deliver their patients from death

by Staff Sgt. Joshua O'Sullivan, RRT

It's 3 a.m. and you walk into the trauma bay for what sounds like a rough case that can't get there fast enough. It may be a victim of a recent car wreck from the interstate, a downtown shooting, or a mugging from a back alley. It doesn't matter — no matter the cause, you stand ready to utilize the skills you have acquired as a respiratory therapist in a critical-care environment. This is the moment you have trained for, the moment that motivated you to put in the work and get to where you are today. You know that, in a few minutes, your assessment and treatment will determine the future of another human's life, someone you have likely never met or even thought about before this moment.

Now, turn out the lights

Welcome to the world of respiratory therapists working within the Air Force Special Operations Command (AFSOC). The challenges faced are more complicated, in-depth, new, and far different than you would ever think. It isn't only the medicine, but the environment in which it's practiced that works against each of the senses you typically use to identify a patient's signs and symptoms.

A big night

The sound of sirens, honking horns, and yelling in what I could only discern as gibberish was the jolt that woke me from my bed in the early, dark hours of a cold morning. "Bed" is a misnomer; in reality, it was a sleeping bag tucked under a marble staircase to avoid the cold draft that blew through the unlit, uninsulated, doorless, windowless, concrete building.

When you're in this kind of situation, a simple, but vital, routine takes place in seconds: headlamp on, then socks, combat pants, and boots. The final addition as you run out the door is a "battle belt," dressed with equipment such as extra tourniquets, a side arm, and trauma shearers on a retention strap. It's a system that you quickly learn to perform in seconds and half-asleep.

What you face as you step through the unlit doorway is always different, but that night it was big. Pickup trucks, ambulances, and bongos (open-bed equipment transport vehicles) were pulling in, and every single one was overflowing with patients. The mechanisms of injuries ranged from gunshot wounds to burns to blast injuries. In scenarios like this one, the RT is suddenly an independent provider for his team, triaging a mass-casualty situation in which patients outnumber medical personnel. This triage takes place under only the light coming from the headlamp, and the medical supply room is your belt and a backpack.

Communication with your team is high; quickly, you explain the patients you have in front of you and what you need from your teammates to care for them. The situation, especially the bleeding, is brought under

control as patients are prioritized, treated, and evacuated in ambulances to the next level of care. On this night, some of our patients departed with tourniquets, chest tubes, and IVs for antibiotics and narcotic administration, while others required damage-control surgeries, including laparotomies and thoracotomies.

Six-person teams

This is the reality RTs face on an elite team within the AFSOC known as a Special Operations Surgical Team (SOST). These small, six-person teams consist of a general surgeon, an emergency physician, an anesthesia provider, a nurse, a surgical technician, and a respiratory therapist. These units are extremely mobile, highly trained, and integrated into the widest variety of battlefield situations faced by today's military force. Our mission is to bring a surgical asset forward to ensure injured combatants can receive damage-control surgery within an hour of injury, increasing their chance of survival.

Our workspaces aren't brightly lit emergency centers and operating theaters; as in the event described above, they are austere, remote, improvised structures with limited supplies. And even when the event is extensive, as that one was, as soon as it comes to a close, the preparation and reset for the next wave of casualties happens immediately. The team could be minutes away from a repeat scenario, or days could pass before we see another patient. Regardless, we stand ready to help whomever and however many we are faced with next.

So why respiratory therapists? Out of six positions on an extremely light team, what does a modern respiratory therapist add to the capability? This is a common question continually assessed as these elite small teams are evaluated.

The answer: Air Force respiratory therapists go through intense training to prepare them as independent and critically thinking providers. In addition to attending the Air Force's school for respiratory therapy, these RTs go to multiple other schools to increase their knowledge base and critical-thinking process. After all this is complete and they have gained operational experience in multiple facets of critical care, they apply to attend a selection process

Staff Sgt. Joshua O'Sullivan, RRT is a member of a Special Operations Surgical Team within the Air Force Special Operations Command.

with AFSOC. Here it is determined whether they will be a good team member and are properly qualified to join a SOST.

More training ahead

If accepted, another training pipeline begins to prepare them for the missions they will face in the future, because RTs who end up in this role have to be able to adapt quickly to anything that comes their way. As you think through the problem set, the care is complicated not solely due to a patient's disease process or wound pattern, but by the environment. The patient may be "turbo sick," making things even more difficult, but even simple patient presentations can become major issues.

Respiratory therapists are conditioned through this extra, extensive training to troubleshoot everything from ventilator malfunctions to breathing circuit integrity, regardless of environmental conditions. Conditions such as noise from the roar of an aircraft engine, or darkness, where light could compromise the safety of your entire team, are common.

The SOST ventilator is different, too, being extremely durable and battery-powered, with color-coded alarm systems for situations when the environment is too loud to hear typical alarms. For circuits, RTs are ingrained with the exact layout of the compact system so they can use their tactile sense to feel for anything out of place.

In one simulation with near-blackout conditions and deafening noise, I was faced with a low-pressure alarm, identified by the color-coded light system noted above. As I worked through the problem, it became evident that it was not patient-related, but with extremely limited visibility, it wasn't as simple as just looking or listening to see if everything was connected correctly. After removing my fire-retardant working gloves, I blindly traced the circuit from the ventilator to the patient and suddenly found air rushing over my hand. The circuit had split open along a seam. This had not been purposely planned for in the simulation, but the issue that unfolded proved that the way we train allowed me to quickly and systematically identify the issue, resulting in the best possible care for our patients despite external environmental factors.

Outside-the-box skills

When situations progress outside of a "typical" scenario, the brainstorming, creativity, and ingenuity of the team begins. How do you warm patients in a building with no power? How do you warm blood products? When you only have one litter, where do you treat the next three patients you need to work on?

These are all challenges that SOST teams face in austere environments. A specific example for an RT could be something such as identifying a plateau pressure while trending a patient's status. Quite easy when there's a button to push on the ventilator, but what about when there isn't a button and you have an open-ended exhalation circuit? Understanding the science behind the medicine and having the ability to critically think through issues is what sets the RT career field apart in situations like this. On the ventilator used by our teams, by watching the timing of the breaths and capping the exhalation port, we can watch the pressure monitors settle on what is now the plateau pressure.

Further skills not typically considered to be in the RT's wheelhouse are necessary to help your team be more efficient and effective. A prowess in triage, IV access, hemorrhage control, intubations, and chest tubes, along with more in-depth drug and antibiotic familiarization, can be argued as a necessity in scenarios in which only five other medical personnel are working through the problem set. The ability to analyze patients, set up for procedures, and then clearly convey what you are doing to one of the team's physicians is critical in the management of a mass-casualty event or in the simultaneous treatment of multiple critical patients.

Standing ready

No matter the time of day or the environmental conditions, SOST teams stand ready to make a difference when they are called upon. As you read this article, respiratory therapists are embedded with these teams and providing a critical capability. The endeavor to become better providers, with wider capabilities and ready to build creative solutions to difficult problems, is part of the intrigue of this particular career path. These efforts culminate in our overarching mission: to overcome the odds in bringing advanced surgical and critical care to our soldiers and those of our allies and partner nations. One of our team's mottos sums it up pretty well: *Bellatores Nostros A Morte Tradimus* — "We Deliver Our Soldiers from Death." ■

Military Disclaimer: The views expressed in this article are those of the author and do not reflect the official policy or position of the Department of the Air Force, Department of Defense, or the U.S. government.

Meet the Candidates

Election 2020

Members of the American Association for Respiratory Care will soon vote for the candidates running for 2020 officer and director positions in the AARC leadership on an online secure website. As an AARC member, you have the important responsibility of choosing individuals to lead the profession and our professional association. All of the candidates are introduced briefly here in AARC Times. A biographical sketch about each candidate and their answers to questions posed by the AARC Elections Committee became available for your review online beginning July 18.

The actual voting website will not be activated until September 2 and voting will continue through October 3.

Be on the lookout for an AARC email containing the unique link to your ballot and the instructions to vote. You can vote only upon receipt of the email, and you will vote using the unique link the AARC has generated to take you directly to your ballot.

AARC active members of record as of August 31 of this year will be eligible to vote. Only Active and Life members of each specialty section may vote for the chair of their respective sections.

The secure election website includes your ballot for you to cast your vote for each candidate. Please be sure to read through all the biographical information and questions the candidates have answered online before proceeding to the ballot web page for casing your votes.

Your thoughtful consideration of this information before voting will help ensure the most qualified people will lead your professional association.

AARC election candidate information is available on www.aarc.org.

If you cannot access the information online, contact the AARC to request a paper ballot: AARC Elections Committee, 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706, (972) 243-2272.

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Rochester Regional Health

Director-At-Large

Michael Madison, MBA, RRT
Product Manager – Respiratory
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Kerry McNiven, MS, RRT
Professor, Director of Clinical Education
Manchester Community College

Curt Merriman, BA, RRT, CPFT
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rtNOW Telehealth & CORE Staffing, (d/b/a's) Vital Nurse Staffing, LLC

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Director, Cardiopulmonary Care, Neuro-diagnostics & Sleep Disorder Center
Teche Regional Medical Center

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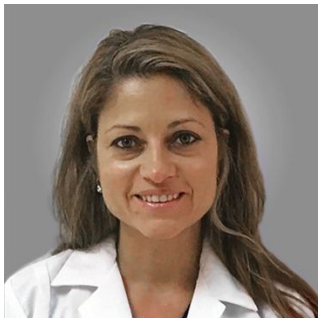
Madison Fratzke, BSRT, RRT, RRT-ACCS
Registered Respiratory Therapist
Franciscan Health



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Kim Bennion, MHS, RRT
Administrative Director of Respiratory Care
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Julie Jackson, BS, RRT, RRT-ACCS
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How To Deal with Your Patient Saying: *"I'm Not a Kid Anymore"*

by Jeremy Parks, RRT

We've all heard the saying, "I'm not a kid anymore." At some point in a child's life, they'll want to not be treated "like a kid." Children living with a chronic disease or illness will feel this way at some point, too, but they must also address their disease or illness. As they learn more about their disease and have questions, they'll want to be more involved in their treatment. As someone with cystic fibrosis (CF), I can attest to the difficulty of this transition while living with a chronic disease. As respiratory therapists, we have the power to help our patients through this transition.

Medical advances have changed the prognosis of numerous diseases that once were considered fatal for a child, and many patients with such diseases can now live well into adulthood. My own life with CF is a prime example of this. Depending on how you define "chronic illness," the number of children who live with one may vary. One study estimates that 15–18% of children in the United States live with a chronic illness.[1] Another study suggests that as many as one in four children (age 17 and under) — or 15–18 million children — have been diagnosed with a chronic illness.[2] Some common examples are asthma (most common), diabetes, cerebral palsy, sickle cell anemia, CF, and cancer. Regardless of the chronic condition, it can be difficult to ensure you are meeting all of your patient's needs, both physical and emotional.

It is important to first acknowledge the connection between physical health and mental health and the impact they have on each other. I can tell when a hospital admission for myself may be just around the corner when I find myself struggling with irritability, being overly tired (beyond the "I have three young children" tired), and finding less joy in things I normally love. As my lung health slowly worsens with the onset of a CF exacerbation, I feel worse overall, which negatively affects my mood and behavior, and managing my chronic illness becomes harder than usual. As an adult, I can identify those feelings, understand why I'm feeling them, and recognize that I need to put extra effort into managing my disease. Children have yet to master this kind of understanding of their emotions and knowledge of their bodies.

Some chronic illnesses cause children to have a negative view of themselves because they are made fun of for the way they look. I was often mocked because of the severe clubbing of my fingers, which made me very self-conscious. These encounters cause low self-esteem, which further complicates life with a chronic illness.[3] Along the same lines, remember to keep conversations age-appropriate. As a young child, I was often present when physicians discussed life expectancy with my mother. Hearing repeatedly at a young age that I would not live long had a huge impact on me. I struggled with pushing myself to dream big because I thought, "What's the point? I won't live long enough." Be mindful of little ears that are nearby when having difficult conversations.

> As respiratory therapists, we have the power to help our patients through this transition.

While children are very resilient when it comes to their health, they are also resilient emotionally. Trust is very important for children in early development stages, and many studies have shown trust to be key to their resilience.[1,4] As RTs, we have many strategies to choose from to develop the trust that is needed to meet the emotional and physical needs of our pediatric patients. When caring for pediatric patients, we can't use the same complicated rationales to explain medications or procedures as we do with adults.[5] I remember when my twins were around eight months old, upset and crying about something I made them stop doing. In exhausted frustration, I asked them, "Can't you boys just think logically for a second?" My wife burst into laughter from the other room, recognizing the ridiculousness of that request. While children don't follow adult logic, they do have the ability to comprehend in their own way. We need to speak in a language they can understand, which sometimes feels like learning another language entirely. Flexing your metaphorical muscles of authority to tell a child to take their treatment "because they have to" is very ineffective and is a quick way to cause conflict.[6] To put them more at ease, we can use tactics such as playing

music, using distractions, or offering treats or rewards for cooperation.[7] When children are at ease, you are more likely to earn their trust.[8] Rather than asking a child if they want their treatment or therapy (because they will almost certainly answer with a resounding "NO!"), we may instead ask in what order they want to receive their treatments/therapies or where they want to sit while they take them.[1] This approach avoids presenting the choice of "if" they take their treatment, but "how." Offering them choices like this can build trust and partnership.

As children get older, letting them help with the management of their chronic disease may help meet their emotional need to feel in control of their environment, and it can also help them develop a sense of responsibility for managing their disease.[1] When I was about 13, I was always annoyed that the care team addressed their questions to my mother, rather than to me. When conversations about compliance came up, again they talked to my mother, sometimes scolding her if I wasn't adhering to my care plan. That made me angry, both because I was being treated like I wasn't there, and because I was the one who wasn't adhering to the plan, not my mother. I wanted them to talk to *ME* about my disease. It can be especially difficult to work with teenagers because they are beginning to develop a general sense of independence, which carries over into the management of their disease. They may also go through a period of denial of their illness, which was a very difficult struggle that I experienced, and being treated differently because of their disease is hard for teenagers, just as it is for younger patients. Guiding them to make educated decisions and exercise some control over their treatment may help meet their emotional needs.[1] It is important to remember, however, that they are still teenagers! They don't know as much as they think they do, and they are experiencing a lot of emotional and physical changes.

The patient-centered approach to health care, sometimes called person-centered care, helps tremendously with meeting the emotional and physical needs of adults. A fundamental aspect of person-centered care puts people, and often their families, at the center of the decision-making process. In pediatrics, this approach is geared more toward the family than the child. One of the best ways to achieve this is through the shared decision-making model.[9] This model recognizes that everyone involved in the decision is equally important and brings different forms of expertise to the process. Patients have concerns, expectations, and preferences unique to them, as do their family members. If we incorporate those into the decision-making process, using a shared decision-making model, we can largely meet the emotional as well as physical needs of our patients.[8] My CF care team utilizes this approach and, speaking personally from a patient perspective, it is extremely rewarding! This approach creates an environment of respect and trust as well as a feeling that the care team genuinely cares.

Keeping an eye on some key areas is helpful. Look for some of the following warning signs that the child's emotional needs are not being met:[3,4]

- Not cooperating with medical care: If this is their "baseline" behavior, you have work to do to identify and meet their emotional needs.
- Starting to withdraw from family/friends: You may not notice this, but their family might share this; if you have developed a rapport with the patient and they begin withdrawing from you when they normally are engaging, it can be a warning sign.
- Showing less interest in things they usually enjoy.
- Looking unhappy, sad, or angry.
- Exhibiting rebellious behavior.

While adult patients may do these things as well, younger patients often need more guidance to acknowledge and address these behaviors. If you notice these behaviors, it is probably time to involve the primary team and seek the help of a social worker.

In conclusion, anyone dealing with a chronic illness — whether they are a child, an adult, or a family member of a patient — has many sources of stress in their lives. Our patients and their families also have lives "outside of their illness." Think of all the things that stress you on a daily basis, and try

About the Author…

Jeremy Parks, RRT, is a 35-year-old with cystic fibrosis. He is an RRT and educator for the RT department at Barnes-Jewish Hospital in St. Louis, MO.

to imagine also dealing with the stress of managing a chronic disease, such as CF. I can tell you, it's difficult. It takes the support of many people around you, including your care team, to manage it well. As an RT, you are a part of that care team and have a huge impact on the emotional health of your patients. Don't underestimate that impact, and use it to support your patients and help them succeed! ■

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Industry Watch

UIC to lead COPD study

The University of Illinois at Chicago (UIC) will lead a $14.6 million, multi-center research project to determine which of two drugs — azithromycin, an antibiotic, or roflumilast, an anti-inflammatory medication — is the most effective at treating COPD. Known as the RELIANCE study, the trial is being designed by researchers with the help of patients, caregivers, professional societies, and the COPD Foundation. It will follow more than 3,000 patients with COPD for up to three years. The researchers will track participants' health by telephone and by monitoring their electronic health records and medical and pharmacy claims information. They will also track side effects and indicators of physical and mental health.

Novartis presents Phase 2 data at ATS meeting

The Sosei Group Corporation notes that its partner Novartis presented key Phase 2 data for QVM149, a potential inhaled combination therapy for asthma, at the recent American Thoracic Society meeting. In two clinical studies, QVM149 was reported to be superior to salmeterol/fluticasone propionate and placebo by demonstrating improvement in lung function in patients with asthma. In one study, QVM149 also demonstrated improvements compared to placebo irrespective of administration time of morning or evening. The safety data from both studies also suggest that QVM149 has a favorable safety and tolerability profile. QVM149 is an investigational, once-daily, fixed-dose combination asthma treatment containing indacaterol acetate, glycopyrronium bromide, and mometasone furoate (IND/GLY/MF), delivered with the dose-confirming Breezhaler® inhalation device.

Iowa researcher to study nasal high-flow therapy

Spyridon Fortis, MD, of the University of Iowa, has been awarded the ATS Foundation/Fisher & Paykel Healthcare Research Award in Respiratory Support with Nasal High Flow (NHF) in Patients with COPD. The $100,000 award will help fund Dr. Fortis' study, "The Effect of Heated, Humidified High-Flow Air in COPD Patients with Chronic Bronchitis." Lewis Gradon, managing director and CEO of Fisher & Paykel Healthcare, said, "Our hospital nasal high-flow therapy is used to treat millions of respiratory patients each year. Now, in partnership with the ATS Foundation, we are excited to be supporting clinical research into the use of nasal high flow in COPD patients in the home targeted to improve quality of life, reduce hospitalizations, and at the same time reduce costs."

Researchers receive NIH ARDS grant

A Tulane University biomedical engineering professor will share a $2.6 million grant from the National Institutes of Health with investigators from the University of Vermont and the State University of New York to investigate fundamental physical, chemical, and physiological processes that may translate to more effective treatment of acute respiratory distress syndrome (ARDS). Donald Gaver and his team will test a hypothesis that the development of ventilation-induced lung injury occurs from repetitive closing and reopening of lung units, which can damage the tissue. Their approach involves multi-scale models that are matched to experimental studies at the micro, organ, and system levels.

Masimo continues ASA support

According to the American Society of Anesthesiologists (ASA), Masimo has again signed on as an ASA Industry Supporter to partner with the ASA to raise and maintain the standards of the medical practice of anesthesiology and to improve patient care. ASA President Linda J. Mason, MD, FASA, said, "Masimo's ongoing collaboration through the Industry Supporter Program allows the society to provide quality education and resources to improve patient safety and quality of care though the ASA Perioperative Brain Health Initiative, opioid crisis initiatives, and other priorities." Masimo is a Platinum Corporate Partner of the AARC.

Open-source consortium formed

An international group of leading experts and advocates in the fight against idiopathic pulmonary fibrosis (IPF), fibrosing interstitial lung diseases (ILDs), and other respiratory diseases, including emphysematous conditions, have come together to form the Open-Source Imaging Consortium (OSIC). The global, not-for-profit organization is a cooperative and open-source effort between academia, industry, and philanthropy to enable rapid advances in the detection and diagnosis of these conditions through

digital imaging and machine learning. "OSIC was created on behalf of the countless patients around the world living with idiopathic pulmonary fibrosis and other largely ignored lung diseases," said OSIC Executive Director Elizabeth Estes. "By bringing together the world's 'best in class' in an open-source, collaborative effort, we can collectively speed diagnosis, aid prognosis, and ultimately allow doctors to treat patients more efficiently and effectively."

Universal flu vaccine research set

Cincinnati Children's Hospital Medical Center will use a $30 million federal grant to accelerate research into a universal influenza vaccine. The trial will look at how the immune systems of infants and growing children are affected by their first exposures to flu viruses. More than 2,000 sets of mothers and infants from the Cincinnati area and from Mexico City are expected to participate in at least three years of weekly medical testing. "Most other vaccines have effectiveness rates above 90%. We need a flu vaccine that reaches those levels," said Mary Allen Staat, MD, MPH, the principal investigator for the new grant. "To achieve that goal, we need much more data from real people. That's what our study will seek to generate. Then, the vaccine makers will have the information they need to make a better, longer-lasting vaccine."

APEX COPD registry first of its kind

Boehringer Ingelheim and Optimum Patient Care have launched a new patient registry called APEX COPD (Advancing the Patient Experience in COPD) to better understand COPD and how it can be treated in primary care offices. The first-of-its-kind registry is specifically designed to improve the management of patients with COPD in the primary care setting. The registry will report findings and insights that will be shared in academic journals and at medical congresses. In addition, it will provide real-time, patient-reported information, along with relevant information from the electronic medical record in a structured format, to physicians at the point of care. This information will aid physicians in making a clinical judgment.

Research to explore the HIV, TB link in kids

To explore exactly how HIV puts children at greater risk of contracting and dying from tuberculosis, an international team of scientists, led by researchers at the University of Pittsburgh, University of Wisconsin-Madison, and University of Hawai'i at Mānoa, have secured a five-year, $6.2 million grant from the National Institute of Allergy and Infectious Diseases to fund nonhuman primate experiments to understand disease mechanisms and explore a potential therapeutic approach. Then, extending from the laboratory to the field, the researchers will investigate whether the same findings are true for children living in Myanmar, where rates of HIV and TB are both high.

Merck announces positive study results

According to Merck, its pivotal Phase 3 clinical study, called ASPECT-NP, evaluating ZERBAXA® (ceftolozane and tazobactam) at an investigational dose for adult patients with either ventilated hospital-acquired bacterial pneumonia (HABP) or ventilated-associated bacterial pneumonia (VABP) met the pre-specified endpoints: ZERBAXA showed non-inferiority to comparator meropenem in day-28 all-cause mortality and in clinical cure rate at the test-of-cure visit.

On the basis of these results, the company plans to submit supplemental new drug applications seeking regulatory approval of ZERBAXA for this new indication in the United States and the European Union. The ASPECT-NP trial randomized 726 adults diagnosed with either HABP or VABP requiring intravenous antibiotic therapy to receive ZERBAXA at a dose of 3 g compared with a 1-g dose of meropenem to treat Pseudomonas aeruginosa.

Studying the neuroscience of sleep

The National Science Foundation (NSF) has awarded Matthew D. Nelson, PhD, assistant professor of biology at Saint Joseph's University, a $750,000 grant to continue his research into the neuroscience of sleep. Dr. Nelson's research focuses on the sleep–wake cycle in nematodes, a "model organism" that is widely studied because of its simple biological makeup. Transgenic strains created in his lab have allowed the researchers to identify neurons that have been activated by neuropeptides involved in sleep. "Now we just need to connect the dots between specific neuropeptides and cells," Dr. Nelson said.

Insmed presents Phase 3 data

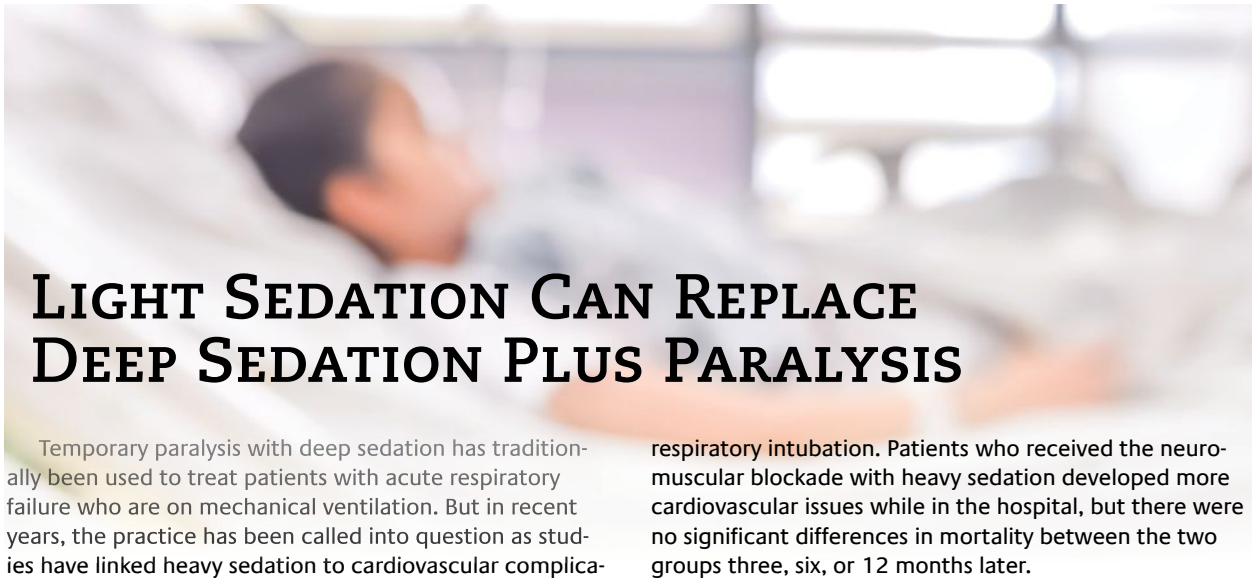
Insmed, Inc., presented new data at the recent American Thoracic Society (ATS) meeting from the ongoing Phase 3 CONVERT study of ARIKAYCE® (amikacin liposome inhalation suspension) in patients with refractory *Mycobacterium avium* complex (MAC) lung disease. The data demonstrated that the addition of ARIKAYCE to guideline-based therapy was associated with sustained culture conversion through the end of treatment, as well as durable culture conversion three months post-treatment, compared to guideline-based therapy alone.

ARIKAYCE received accelerated approval from the FDA in September 2018 as only therapy approved for the treatment of patients with refractory MAC lung disease as part of a combination antibacterial drug regimen for adult patients who have limited or no alternative treatment options. ■

Brief submissions and photos for this column may be sent to *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org.

RC Currents

IN THE NEWS



Light Sedation Can Replace Deep Sedation Plus Paralysis

Temporary paralysis with deep sedation has traditionally been used to treat patients with acute respiratory failure who are on mechanical ventilation. But in recent years, the practice has been called into question as studies have linked heavy sedation to cardiovascular complications, delirium, and increased difficulty weaning patients from mechanical ventilation. U.S. researchers who conducted a large clinical trial in multiple ICUs believe this practice should come to an end. They reported that light sedation with intermittent, short-term paralysis when necessary is a better option.

The study involved 1,006 patients at 48 U.S. and Canadian hospitals who were enrolled within hours after onset of moderate-to-severe acute respiratory distress syndrome (ARDS). Half were given a 48-hour continuous neuromuscular blockade along with heavy sedation. The other half were given light sedation, and the clinician had the option of giving a small dose of neuromuscular blockade, which would wear off in under an hour, to ease respiratory intubation. Patients who received the neuromuscular blockade with heavy sedation developed more cardiovascular issues while in the hospital, but there were no significant differences in mortality between the two groups three, six, or 12 months later.

Study author Derek Angus, MD, MPH, from the University of Pittsburgh, believes these findings indicate that paralysis and deep sedation should be avoided for most patients hospitalized with breathing problems. However, future trials will be needed to determine whether there is a subpopulation of patients with ARDS who would still benefit from neuromuscular blockade.

The study is the first to come out of the National Institutes of Health's Prevention & Early Treatment of Acute Lung Injury (PETAL) Network. PETAL develops and conducts randomized controlled clinical trials to prevent or treat patients who have, or who are at risk for, acute lung injury or ARDS. The research was published in a recent edition of *The New England Journal of Medicine.* ■

Influenza's Achilles Heel?

U.S. researchers conducting a study supported by the National Institute of Allergy and Infectious Diseases believe they have found an "Achilles heel" on the ever-changing head of an influenza virus protein. Specifically, they discovered that an antibody known as FluA-20 binds tightly to an area on the globular head of the hemagglutinin (HA) protein that the virus uses to enter and infect cells — a surprise to the investigators because the site was not expected to be vulnerable to such a strike.

In mouse studies, FluA-20 prevented infection or illness when the animals were exposed to four different influenza A viral subtypes that cause disease in humans: the Group 1 influenza subtypes H1N1 and H5N1, and the Group 2 subtypes H3N2 and H7N9. A single vaccine able to generate potent antibodies against members of both groups could provide broad, multi-year protection against influenza. The study appeared in a recent edition of *Cell*. ■

E-cigarettes haven't been around all that long, but people who use them are already seeking ways to quit, report Rutgers University researchers publishing in a recent edition of *Nicotine & Tobacco Research*. Their study surveyed a representative sample of U.S. e-cigarette users about current and past attempts to kick the habit, finding that more than 60% expressed a desire to quit. Sixteen percent said they were planning to give up e-cigs within the next month, and 25% said they had tried to quit within the past year.

What are those people using in their quit attempts? According to the study, they are using many of the same tools employed by those who smoke traditional cigarettes, from nicotine-replacement products to medications to counseling and social support. "Most of the discussion about e-cigarettes has focused on the relative harm as compared to traditional cigarettes, the efficacy of e-cigarettes as a cessation device, and the alarming increase of their use in children," said co-author Marc Steinberg, PhD. "In addition to those issues, our data suggest that e-cigarette users do not want to use these devices forever. Eventually, they want to stop using e-cigarettes the same way a traditional smoker wants to quit smoking cigarettes." ■

CONTRIBUTE TO OUR "TRANSITIONS" COLUMN

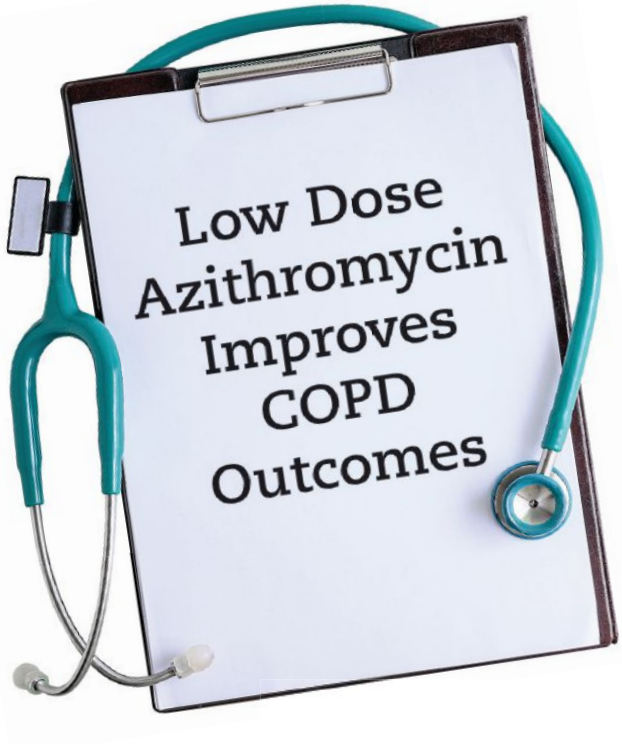
The AARC "Transitions" column is devoted to sharing news about the passing of AARC members. You can submit news about your colleagues' recent passing by going to http:c.AARC.org/transitions. Please provide any information about the member's recent obituary so that we can share it with the membership and pay tribute. ■

Tell Your STORY

Every therapist has a story to tell about a favorite or most memorable patient that would interest others in the profession. Maybe it was an "aha moment" when you knew you had made the right professional decision for that patient. Maybe it was when you first realized how much difference you were making in the lives of that patient and his family. Or maybe it was just something the patient said or did that made you laugh or cry or just be inspired to be a better RT. Our "Storytellers" column is the place to share them. Send your story to *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org. ■

Shhhhh...

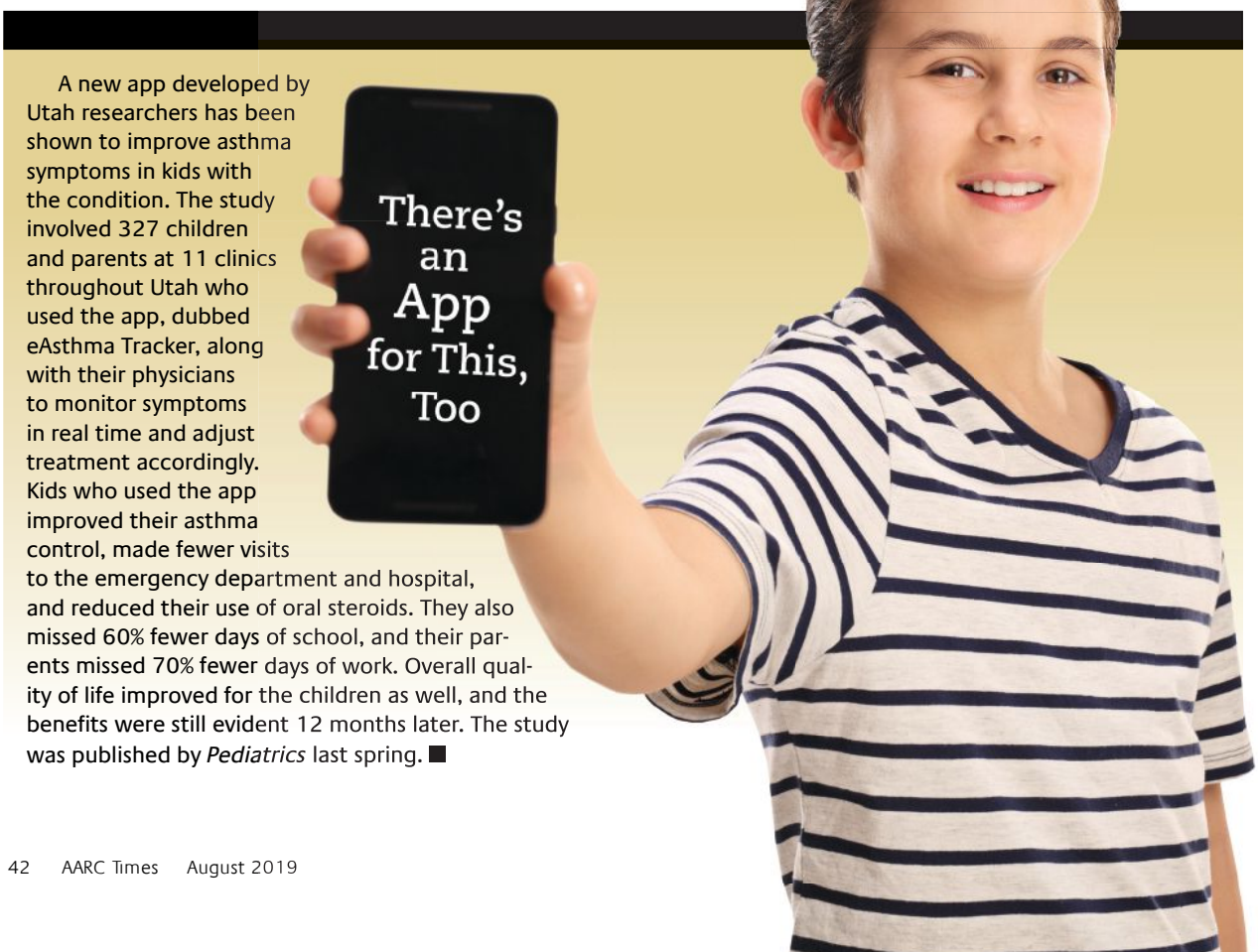
NICUs are busy places with lots of noise. According to U.S. researchers, that can and should change. They developed quiet time guidelines that included limiting conversations, dimming lights, and coordinating scheduled cleaning services at set hours every afternoon and night, then implemented them in multiple NICUs around the country. After implementation, acoustic measurements revealed that certain stressful pitches were quieter, very loud sounds occurred more infrequently, and total amount of quiet time throughout the day was longer. Most importantly, infants had healthier heart rates during quiet time hours. The study was presented at the recent meeting of the Acoustical Society of America. ■



According to Belgian investigators, adding a low dose of azithromycin to medications prescribed to patients hospitalized with an acute exacerbation of COPD and then continuing a low dose of the antibiotic for three months after hospitalization reduced treatment failure when compared to standard care. Treatment failure was defined as the need to intensify treatment with systemic corticosteroids and/or antibiotics, transfer the patient to the ICU, readmit the patient to the hospital after discharge, and death from any cause.

The authors noted that azithromycin has been shown to prevent acute COPD exacerbations, but this is the first study to suggest it can improve outcomes in people already hospitalized for an exacerbation. "We wanted to establish a new treatment option for acute exacerbations with hospitalization as current treatments are clearly insufficient," said study author Wim Jannssens, MD, PhD. "Equally important, we wanted to see whether continuing azithromycin for a relatively short time after leaving the hospital could interrupt the vicious cycle of relapse, even after treatment withdrawal."

The study was conducted among 301 patients at 20 Belgian hospitals who were randomized to azithromycin or placebo. The findings were published a recent edition of the *American Journal of Respiratory and Critical Care Medicine*. ■



A new app developed by Utah researchers has been shown to improve asthma symptoms in kids with the condition. The study involved 327 children and parents at 11 clinics throughout Utah who used the app, dubbed eAsthma Tracker, along with their physicians to monitor symptoms in real time and adjust treatment accordingly. Kids who used the app improved their asthma control, made fewer visits to the emergency department and hospital, and reduced their use of oral steroids. They also missed 60% fewer days of school, and their parents missed 70% fewer days of work. Overall quality of life improved for the children as well, and the benefits were still evident 12 months later. The study was published by *Pediatrics* last spring. ■

KIDS NEED HELP *with Inhalers*

Children often have an overblown sense of their ability to use their asthma inhalers correctly, and so do their parents, find researchers publishing in the *Annals of Allergy, Asthma and Immunology*. They surveyed 65 parent and child pairs at four Chicago public charter schools to see whether their confidence in their inhaler technique matched reality. The kids ranged in age from eight to 14 years, and 90% were African American. Most of the kids were male, and most of the parents were female.

Results indicated that 97% of the kids misused their inhaler, with only one child demonstrating mastery. Only a small proportion of children and parents accurately matched their confidence to their child's technique. For example, 5% of children who were confident in their inhaler technique used their inhaler without misuse. Four percent of children whose parents were confident in their child's abilities properly used their inhaler. None of the parents underestimated their children's skiwlls.

"It's not enough for an allergist or other health care provider to ask a child or their parents if the child knows how to use an inhaler," said ACAAI President Todd Mahr, MD. He suggests parents be instructed to bring the inhaler to each appointment and ask their doctor or one of the staff members in the office to watch the child use it. ■

Telehealth PR Reduces Readmissions

Can COPD patients really receive pulmonary rehabilitation via telehealth? According to researchers from the University of Alabama at Birmingham, the answer is yes. They enrolled patients who were hospitalized with an acute exacerbation of COPD into their program in 2015. The real-time videoconferencing program consisted of 36 exercise sessions over 12 weeks. The readmission rate for patients taking part in the program was 6.2% vs. 18.1% for similar patients who did not take part in it. The service is now offered to stable outpatients with COPD who do not live close enough to a pulmonary rehabilitation program to make attendance feasible. The study appeared in a recent edition of the *American Journal of Respiratory and Critical Care Medicine*. ■

New Treatment for Ischemia-Reperfusion Injury

Ischemia-reperfusion injury is a major source of morbidity and mortality in lung-transplant patients. A new study supported by the National Institutes of Health may be changing this for the better. Researchers from the University of Virginia have for the first time confirmed that a potential treatment for the condition that has long been tested in animal models is safe to use in human lung-transplant recipients.

What's more, the treatment appears to be effective whether the drug is given to the donor lung or the recipient, which means that future trials will likely use *ex-vivo* lung profusion to administer the drug only to the donor lung, eliminating any risk to the patient.

"This treatment has the potential to be the next big thing in the world of lung transplants," said study author Joshua A. Boys, MD. "With further study, this can quickly move from a quality-of-life improvement therapy to one that greatly improves survival for the long term." Dr. Boys presented the study at the recent meeting of the American Association for Thoracic Surgery. ■

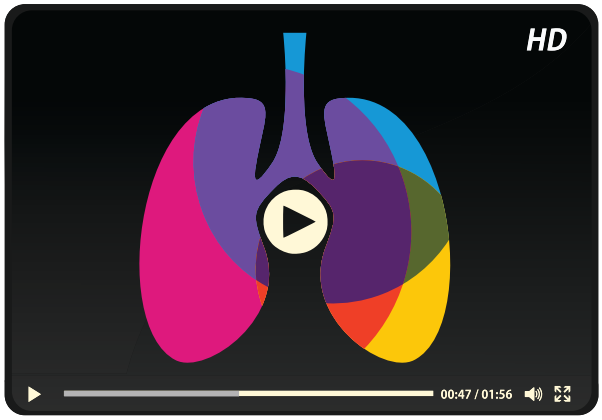
Video Enhances Lung Cancer Screening Decision

Despite the fact that early screening for lung cancer can improve survival in people diagnosed with the disease, many smokers and former smokers are wary of undergoing the testing. A new study from British investigators shows an informational video coupled with a standard brochure outlining the risks and benefits can help.

The researchers enrolled 229 people from a London hospital who met one or more of three criteria for screening, including the U.S. Preventative Services Task Force recommendation of a 30 or more pack-year smoking history in patients who quit less than 15 years ago. A questionnaire was used to measure participants' knowledge before and after reading the 10-page brochure or reading the brochure and watching the five-and-a-half minute video. The researchers also measured the level of conflict the participants experienced in deciding whether to be screened. Members of both groups were just as likely to undergo the scan, with more than three in four choosing to be screened. However, those who watched the video as well as read the booklet were more certain of their decision to either have the scan done or not. On a scale of 0–9, their level of certainty was 8.5, compared to 8.2 among those who only read the book.

"There is an urgent unmet need to provide information to individuals considering lung cancer screening, but for this to be done in a non-intimidating, friendly, and simple way," said Mamta Ruparel, MBBS, PhD, lead study author and a researcher at the Lungs for Living Research Centre at University College London. "This study demonstrates that an information film can enhance shared decision-making while reducing the conflicted feelings patients may have about undergoing the procedure, without reducing low-dose CT screening participation."

The study was published in the *Annals of the American Thoracic Society* earlier this year. ■



Cesarean Birth May Up the Risk for Allergies, Asthma

A new study out of the University of Albany links cesarean birth with a higher risk of allergies and asthma in offspring. The problem appears to lie in the fact that cesarean births take place in a completely sterile environment, whereas vaginal births do not. Specifically, when a baby is born vaginally, clusters of bacteria pass from the mother to the child, resulting in a process call "microbiome seeding" that may provide some protection against allergies and asthma.

The investigators reached these conclusions after analyzing 6,157 infants born to 5,034 mothers in New York. Respiratory conditions and allergy data were collected on the babies at 4, 8, 12, 24, 30, and 36 months postpartum. Compared to those who were delivered vaginally, infants delivered via cesarean section were at a more than two-fold higher risk of both food allergy and asthma from birth through 36 months of age.

Emergency cesarean deliveries were significantly associated with wheeze and doctor-diagnosed food allergy as well — a finding that somewhat surprised the researchers because unplanned or emergency cesarean deliveries may have some exposure to the bacteria in the birth canal. Still, the investigators believe these findings show a risk from cesarean births. "Evidence from this and other studies suggests that the bacteria a mother passes to her baby during vaginal delivery may serve to protect the child from developing asthma and food allergies," said study author Erin Bell.

The study was published in the *American Journal of Epidemiology.* ■

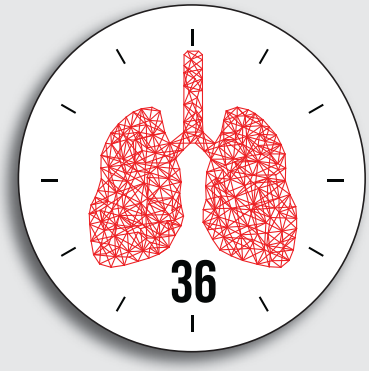
Correcting Defective Genes in Children with Lung Disorders

In a proof-of-concept study, researchers from the Children's Hospital of Philadelphia report that it is possible to use CRISPER gene editing to correct pulmonary surfactant genetic disorders in the lungs of mice prior to birth. "The developing fetus has many innate properties that make it an attractive recipient for therapeutic gene editing," said study co-leader William H. Peranteau, MD. "Furthermore, the ability to cure or mitigate a disease via gene editing in mid- to late gestation before birth and the onset of irreversible pathology is very exciting. This is particularly true for diseases that affect the lungs, whose function becomes dramatically more important at the time of birth." The investigators hope the technique may one day be used to correct the genetic defects that lead to conditions like cystic fibrosis and alpha-1 antitrypsin deficiency as well. They published the current study in *Science Translational Medicine* last spring. ■

Patients Need to Wash Hands, Too

Clinicians aren't the only ones in hospitals who need to do a better job of hand-washing. A new study reports that patients should be involved as well. Fourteen percent of 399 hospital patients tested in the University of Michigan trial had antibiotic-resistant bacteria on their hands or nostrils very early in their hospital stay — and when objects in their rooms that they commonly touched, such as the nurse call button, were tested, nearly a third came back positive. Six percent of patients who didn't have multi-drug-resistant organisms on their hands at the start of their hospitalization tested positive for them later in their stay, and one fifth of the objects tested in their rooms had similar superbugs on them, too. The study was published in a recent edition of *Clinical Infectious Diseases*. ■

Extending the Clock on Donor Lungs



A new study out of Columbia University suggests that lungs deemed too damaged for transplantation may be preserved after all. The investigators focused specifically on lungs injured by gastric aspiration because many lungs rejected for transplant have gastric aspiration or a similar type of caustic injury.

Using a cross-circulation technique, they were able to maintain the lungs for 36 hours, giving doctors time to rehabilitate the lungs and test new interventions. Current methods only provide doctors about six hours to assess the lungs and insufficient time to rehabilitate them. In this animal model, the rehabilitated lungs met the criteria for transplantation. Currently, about 80% of donor lungs are ultimately deemed too damaged for transplant. The study appeared in *Nature Communications* earlier this year. ■

New Score for COPD

Scores used to gauge the health of people with COPD are generally simple and can be calculated in a clinician's head. Researchers from Intermountain Healthcare have developed an electronically calculated system they believe will be much more useful.

The Summit Score uses patients' electronic medical records to take a range of risk factors into account, including age, body mass index, smoking history, prior COPD hospitalization, history of heart attack, history of heart failure, and diagnosis of diabetes. Use of antithrombotic medications such as clopidogrel, prasugrel, or ticagrelor, and antiarrhythmic medications such as flecanide, sotalol, or procainamide, is included as well. The score predicts patients' risk for everything from a sudden exacerbation of COPD symptoms, to repeat hospital visits, to mortality, on a scale of 0–30. On the scale, 0–13 is low risk, 14–19 is moderate risk, and 20–30 is high risk. The score was validated twice: first from a set of over 16,000 patients enrolled in the SUMMIT trial, and second on three different groups of patients totaling almost 44,000 people at Intermountain Healthcare.

The investigators outlined the score during a presentation at the recent American Thoracic Society meeting. ■

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The AARC's RC Week webpage includes a free RC Week Planning Guide and social media kit that will help you spread the word about respiratory health. It's easy to participate! Help the AARC raise awareness of lung health and recognize the respiratory therapist for the life-saving roles you play every day. ■

RESPIRATORY CARE
OUR TEAM CARES

Smoking Linked to Mental Health Issues

In a study conducted among 5,000 participants of the COPDGene trial, researchers from the University of Alabama at Birmingham have found that smokers with and without COPD have significant unmet mental health needs. Among the one in four who were affected, about two thirds were not receiving any treatment for their mental health disorders, which most commonly included anxiety and depression.

"While depressive symptoms were most frequent in those with the most severe cases of COPD, anxiety symptoms were similar in frequency between smokers with and without COPD, so the problem seems to start a lot earlier in the disease," said study author Anand S. Iyer, MD. "We also identified several characteristics that were associated with having unmedicated symptoms — namely African-American race, male gender, and lack of health insurance." The investigators believe their findings may point to a unique COPD-psychiatric phenotype. The study appeared in a recent edition of the *Journal of Psychosomatic Research*. ■

STRANGE but True . . .

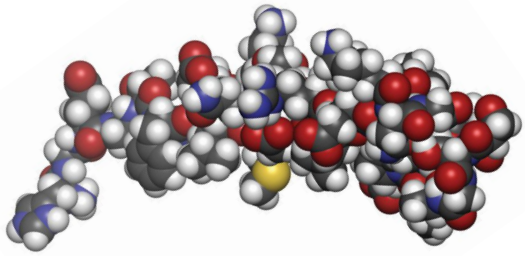
Bad lighting: Inflammation has been implicated in many conditions, including those involving the respiratory system. Texas State University researchers believe artificial light may be contributing to the problem. They found genes activated by the wavelengths emitted by fluorescent light led to an increase in inflammation in tissue and organs in two experimental fish models. ■

Whoa: Purdue University investigators who tested race horses for asthma found that 80% of them suffered from the condition. The worse the asthma, the worse the performance for the animals. The researchers believe exposure to excessive amounts of dust is the problem and are working on ways to minimize dust exposure for these thoroughbreds. ■

Berries beat flu: New research out of Australia suggests elderberries can fight influenza. The study showed that compounds from fruit can directly inhibit the virus's entry and replication in human cells, and they can help strengthen a person's immune response to the virus. ■

Pick your poison: How do sea creatures stay alive in the low-oxygen parts of the marine environment? They breathe arsenic instead, report investigators from the University of Washington. While scientists have long known that low levels of arsenic exist in the oceans, they were surprised to find microorganisms breathing it in a wide area of the Pacific Ocean. ■

Dual use: A diabetes drug shown to decrease consumption of food and other addictive substances such as alcohol and nicotine is being tested as a possible smoking cessation aid by researchers from the University of Texas Health Science Center at Houston. Early results suggest exenatide may work to reduce cravings common among those attempting to kick the habit. ■



Industry Update

Featuring information on products and equipment from manufacturers

Calendar of Events

AARC & State Society Programs

September 3 – 6, 2019
Myrtle Beach, SC
2019 SCSRC 48th Annual Conference
Contact: program@scsrc.org or www. scsrc.org

September 26 – 27, 2019
Bowling Green, KY
2019 Making the Connection
Contact: ksrcweb@gmail.com
or http://www.kentuckysocietyforrespiratorycare.org/2019conference.html

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