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American Association for Respiratory Care


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# AARC in the Fight Against Tobacco: Your Voice *Does* Matter

by Thomas J. Kallstrom, MBA, RRT, FAARC

On Aug. 8, 2016, the Food and Drug Administration (FDA) took a bold action aimed at reducing morbidity and mortality as it relates to tobacco products. Finally they have assumed authority on all tobacco products,[1] which include e-cigarettes, cigars, pipe tobacco, and hookah tobacco.

In addition, there are several provisions to restrict youth access to tobacco products. These include:

- A restriction of the sale to people under the age of 18 years (both in person and online)
- Requirement of age verification by photo ID
- Barring the selling of tobacco products in vending machines (unless in an adult-only facility)
- Not allowing the distribution of free samples

You may be asking what took the FDA so long? This move was one that was politically charged and met with opposition from the tobacco industry. The AARC took this matter very seriously. About a year ago, AARC President Frank Salvatore Jr., MBA, RRT, FAARC, sent a letter to President Obama as part of a coalition of like-minded partner organizations with a request that the FDA finalize its regulations, urging the president to ensure children are protected against the aggressive marketing campaigns launched by the manufacturers of these products.[2]

Thankfully, these advocacy groups in the Tobacco Partners Coalition partnered to make this happen. Headed by the American Cancer Society Cancer Action Network, the American Heart Association, the American Lung Association, and the Campaign for Tobacco Free Kids, the coalition has worked tirelessly to advocate for this change in the FDA's regulation of all tobacco products.

**about the author...**

Thomas J. Kallstrom, MBA, RRT, FAARC, is executive director of the AARC.

Sadly, there have been many tobacco products manufactured that are intended to be desirable to those under 18. For example, many of the tobacco products in question have flavors like cotton candy and gummy bear that appeal to kids, and recent statistics show a dramatic increase in calls to poison control centers resulting from children being exposed to liquid nicotine in e-cigarettes. Even more concerning is that more than 3 million middle and high school aged students in 2015 were users of e-cigarettes — an increase from 2.46 million in 2014 as noted by the FDA.[3]

A recent survey supported by the FDA and the Centers for Disease Control and Prevention shows that current e-cigarette use among high school students has skyrocketed from 1.5% in 2011 to 16% in 2015 (an over 900% increase). Hookah use has also risen significantly. Additionally 81% of current youth e-cigarette users cite the availability of appealing flavors as the primary reason for use.[3]

## Comments to the FDA

The AARC also took a strong position in its comments to the FDA on the importance of regulation on all tobacco products. In that communication President Salvatore stated, "In line with its mission as a patient advocate and in order to ensure patient safety, the American Association for Respiratory Care opposes the use of the electronic cigarette (e-cigarette)." Even though the concept of using the e-cigarette for smoking cessation is attractive, they have not been fully studied and the use among middle school children is increasing year after year. There is no evidence as to the amount of nicotine or other potentially harmful

chemicals being inhaled during use or if there are any benefits associated with using these products.

In the summer of 2015, making sure again that our voices were heard, the AARC worked with other partners in the Tobacco Partners Coalition and started a member letter-writing campaign asking the FDA to finalize its authority to regulate all tobacco products and our membership stepped up. Thankfully, our voices were heard.

## Comments to Walt Disney Company

More recently, we discovered another concerning development. The Walt Disney Company owns a major stake in VICE Media, which is working with Philip Morris International, maker of Marlboro cigarettes. Again, the AARC sent a letter to Disney in August 2016 telling them, "It is highly irresponsible for VICE to use its expertise in youth marketing to help one of the world's largest tobacco companies sell more of its deadly products. Disney should not be associated with companies that act in a socially irresponsible manner and contribute to the global tobacco epidemic, which kills six million people each year."[3]

As respiratory therapists, we have an obligation to make sure that we serve as an advocate for our patients. It is incumbent that the AARC serve as the driving force of our profession and patient education. Tobacco has been the scourge of our patients. We cannot stand idly by and let other influences negatively impact our patients' lives. If we, individually or as an association, do not step up to the plate to protect Americans from the dangers of tobacco use, who will? ■

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2. FDA Letter. Available at: http://www.aarc.org//app/uploads/2015/04/FDA_letter.pdf.
3. FDA Tobacco Products. Available at: http://www.fda.gov/TobaccoProducts/Labeling/ProductsIngredientsComponents/ucm456610.htm#references.

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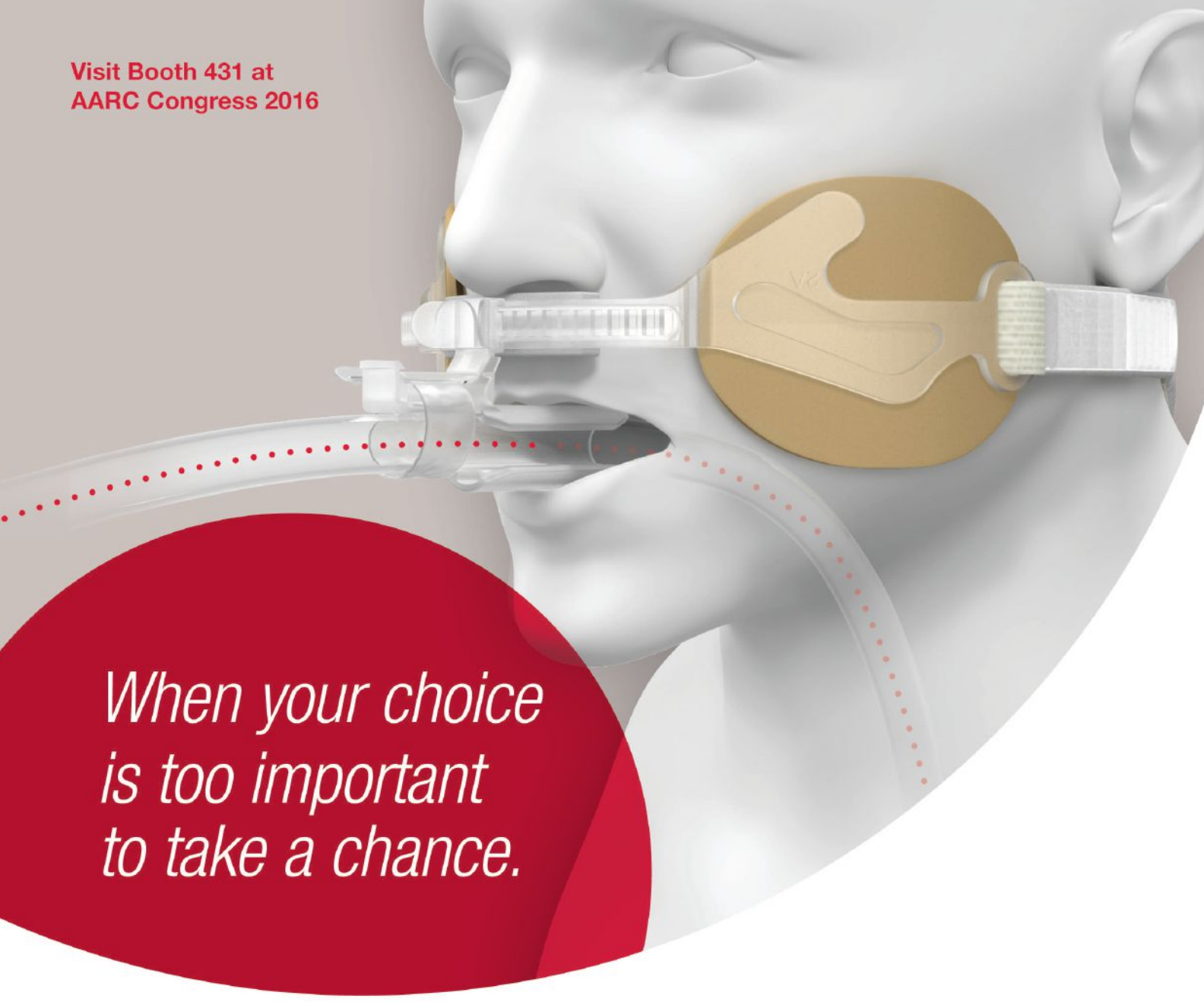

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# Life-Threatening Asthma in Pediatric Patients: Identifying and Minimizing the Risk

by Dave Burnett, PhD, RRT, AE-C; and Chad Condren, MBA, RRT

In the United States, asthma is the most common chronic lung disease, affecting 7 million or 10% of all children younger than 18 years of age.[1] Although 95% of children with asthma benefit from daily low-to-medium dose inhaled corticosteroid (ICS) therapy,[2] nearly half of these children reported experiencing at least one episode of poor asthma control.[1] Approximately 5% of children with asthma in the United States have been reported to experience severe (refractory) asthma requiring high doses of ICS and even systemic corticosteroids in order to receive symptom control.[3] This results in over 640,000 emergency department visits in the United States annually.[4] Although severe asthma may account for only 5% of the total childhood asthmatics, it represents 50% of the $10 billion annual medical expenditures for childhood asthma.[5] Of greater importance, an average of 174 deaths per year have been reported for children under the age of 18.[6]

## Life-threatening asthma

While life-threatening asthma may not have a clear definition, it is associated with hospitalization, ICU, or ED visits. The National Asthma and Education Prevention Program (NAEPP) describes life-threatening asthma as an exacerbation requiring intubation and/or ICU admission.[2] The most recent NAEPP Expert Panel Report 3 guidelines include a subset category of a life-threatening event when assessing the severity of an asthma exacerbation in the emergency care setting. Furthermore, a report from the Department of Health and Human Services indicates that children with severe asthma are at an increased risk for life-threatening events.[7] Due to the intertwined nature of life-threatening and severe asthma, it seems rational to explore a clear description of severe asthma.


about the authors...

Dave Burnett, PhD, RRT, AE-C, chairs the respiratory care education department and is principal investigator on two asthma projects at Kansas University Medical Center in Kansas City, KS.

Chad Condren, MBA, RRT, is a PhD student and serves as the director of clinical education at the center.


A definition for severe asthma was constructed from a joint European Respiratory Society and American Thoracic Society Task Force in 2013. This task force suggests severe asthma is defined as "asthma which requires treatment with high dose ICS plus a second controller (and/or systemic corticosteroids) to prevent it from becoming 'uncontrolled' or which remains 'uncontrolled' despite this therapy."[8] Providers should familiarize themselves with the clinical characteristics of severe asthma, as these features may present as risk factors for life-threatening asthma in children.

## Risk factors for life-threatening asthma

Recognizing modifiable risk factors for severe asthma may be considered a logical approach to minimize the risk for developing life-threatening asthma. Likewise, a recognition of non-modifiable risk factors may be considered beneficial to understand the possible association with life-threatening asthma. A recent review from the National Heart, Lung, and Blood Institute's Severe Asthma Research Program (SARP) identified both non-modifiable and modifiable risk factors for severe asthma in children including gender, race, comorbid conditions, and environmental factors. A previous study showed that severe asthma was more prevalent in boys than girls.[9] Also, comparison of sympathetic nervous activity between male and female asthma patients shows that males demonstrate dominant sympathetic function, suggesting an increased risk of life-threatening asthma for male patients.[10] In contrast, Stanford et al[11] reported that a predictor of uncontrolled asthma in 12 to 17 year olds included females. Adolescents with severe asthma were more likely to be African American or of mixed race.[9] The authors did mention, however,

that this could be a result of sampling bias as most SARP centers serve an inner city, urban population. Co-morbidities including obesity, GI reflux, sinopulmonary infections, and pneumonia were more prevalent in children with severe asthma.[12] Low household annual income was shown to be significantly associated with uncontrolled asthma in children as reported by a survey from the Centers for Disease Control and Prevention.[13]

Modifiable interventions include proper medication use, self-management, and elimination of known household triggers. Likewise, environmental exposure to tobacco smoke was associated with poorer asthma control and an increased risk of hospitalizations.[14,15] Lastly, children with uncontrolled persistent asthma who experienced an exacerbation recorded a significantly lower baseline FEV1/FVC than those who did not have an exacerbation.[16]

It should be noted that even though characteristics of severe asthma emerge, the SARP studies reported that childhood asthma is a heterogeneous and complicated disorder to manage. Work continues on more accurately identifying specific phenotypes (observable clinical characteristics) and even explaining endotypes (biological mechanisms) within a phenotype. While these advanced individualized treatments are still under investigation, RTs should consider proven modifiable strategies to help prevent uncontrolled (severe) asthma in order to minimize the risk of children experiencing a life-threatening event.

## Minimize risk for developing life-threatening asthma: The role of the RT

A key strategy for minimizing risk of life-threatening asthma may include a targeted intervention aimed at achieving asthma control. Appropriate provider treatment combined with patient self-management can help achieve well-controlled asthma in a majority of patients. RTs are trained with the necessary skills to treat (diagnose and monitor) as well as lead self-management interventions in order to decrease the chance of life-threatening asthma exacerbations.

Diagnosing asthma severity is a key component of overall asthma management and includes an accurate assessment of pulmonary function.[2] Furthermore, it's imperative that pulmonary function is accurately measured during the ongoing monitoring of children with

asthma in order to provide the proper treatment, especially because symptoms may not be consistent with severity of disease.[2]

The NAEPP guidelines recommend that adequate treatment and management of asthma should include self-management education with regular review by specialized health professionals as an effective approach to reducing asthma-related morbidity and quality of life.[2] To accomplish this goal, more RTs should seize the opportunity to pioneer innovative asthma self-management interventions. Opportunities for involvement include asthma self-management educational intervention delivered to children attending school[17] and a telephone coaching intervention to improve asthma self-management.[18] As evidenced-based interventions championed by RTs accumulate, we shall strengthen our position as health care providers for patients with asthma. ■



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# Arguing for a Cause

by Anthony L. DeWitt, JD, RRT, FAARC

Recently I was explaining to a therapist the approach she should take to change a policy she believed inappropriate. She suggested I write about that topic in these pages. She said, "Arguing comes easy for lawyers, not for therapists." She may be right, but it's only because no one has taught you how to argue persuasively.

People are often afraid to challenge authority, including the department manager, for fear that there will be reprisals. Most managers know that taking action against an employee for advocating on behalf of other employees is an unfair labor practice. But more importantly, the manager should not have the job of doing all the thinking for the department. He ought to be allowed to rely on bright capable therapists to help him out. **Expecting your boss to be 100% right 100% of the time is 100% wrong.**

Suppose your department is considering purchasing ventilators. The consensus among your colleagues that seems to be weighing heavily on the department director is for Brand A. You believe Brand B is better. You've tried to convince others but they're not listening. Brand A is "easier to use" and "doesn't require you to think as much." You believe thinking is a good thing. How do you go about convincing others?

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.

## IRAC

Law students are taught a formula for legal argument called IRAC. It stands for Issue, Rule, Analysis, Conclusion. If you read almost any legal argument, you'll find that some or all of this method is used. It is useful in the clinical context with some slight modifications.

## Issue

The issue in our hypothetical here is whether Brand A or Brand B is a better choice for ventilators. **To convince a manager, you must think like one.** Is there a cost difference? Is there a difference in supplies? Has either one developed a reputation for reliability or safety? Where might there be cost savings? Where might there by time savings? Will this choice affect length of stay? Will it affect readmissions? All of these are questions that must be answered, so before you begin putting together your argument for Brand B, you might want to research the issue thoroughly first. No lawyer wins a case in court until he has won it in the law library. The same principle applies in the clinical world.

## Gather the facts

The next thing, after gathering facts, is organizing them logically into the flow of an argument. For this I use PowerPoint[1] or Keynote to create slides. Even if you think you have a good organization, putting the facts and argument into a PowerPoint presentation forces you to do two things: 1) prioritize your message, and 2) reduce the rhetoric to the essential.

Slides also allow you to do something very helpful. In the "slide sorter" view you can rearrange your slides and see if the new organization helps or hurts your argument.

## Formulate a strategic guideline

Because we know the issue, we need now to formulate a rule that can be central to our argument. But instead of a rule, let's call it a strategic guideline. For this example we'll borrow from Michael Porter and Thomas Lee of the *Harvard Business Review*, and their article on

fixing health care.[2] Porter and Lee say their strategy is about "maximizing value for patients: that is, achieving the best outcomes at the lowest cost." In essence, they argue that their strategy is one of "a patient-centered system organized around what patients need." So our strategic guideline is "we need a ventilator system that will allow us to maximize value for patients and deliver what patients need." Synthesis of strategic ideas to small, easily grasped concepts is also central to persuasion.

## Analyze and persuade

In our analysis section, we use the facts we gathered to point out the ways that Brand B matches up better than Brand A with our strategic guidelines. Brand B has a higher initial cost, but lower supply costs. It is useful over a larger range of patients. It offers the ability to expand its modes and functions with add-on boards and software, while Brand A does not. Brand B is more compatible with the way our protocols should function and will reduce the length of stay. It has a better safety record, and lower rates of ventilator-acquired pneumonia. We have our evidence organized into exhibits, just like an attorney would. Organization and demonstration are key elements of persuasion.

Once we have our argument distilled to the best arguments, we add in a few counter-arguments. Brand A is less expensive initially, but the cost of even two readmissions would destroy the savings. Brand A has a module to interface to a certain brand of pulse oximeters, but is that something that improves care or simply provides a new set of alarm parameters to deal with? Brand A appears simpler to use, but don't we *want* therapists thinking hard about the choices they make? Lives are at stake!

We now have enough data to support our conclusion. What do we do next? We search for the best way to organize our facts and our research in a way that makes the most compelling argument for our position. This requires experimentation and a lot of trial and error, but it is where arguments are won or lost. A disorganized or illogical argument is rarely persuasive.

We write up a "white paper" reflecting our research. We footnote our sources scrupulously and we ask at least one of our peers to review and provide commentary. We incorporate their suggestions, and now we're ready to present this to the manager.

## Present

At this point, we go back to the PowerPoint and print off the slides to use as the outline for our argument. When we present this to the manager, we use our notes and give him a short five-minute summary of what the paper says. Then we leave him the paper.

Even if you do not sway your co-workers, and even if you do not sway your boss, the next time there is a critical decision to be made, you will likely be asked for your input because the boss knows you care enough to spend time getting to the right result.

Finally, manners matter. You should never mistake the volume of your voice for the persuasive ability of your argument. If you have to shout to make your point, you've lost. Never lose sight of the fact that no matter how passionately you may believe in something, other people are unlikely to be swayed by how loud you talk, but they will recognize a person who has the strength of character to listen closely. ■



### End Notes and References

1. A PowerPoint slide can be saved as a Word file and makes a great outline.
2. Porter M, Lee T. The strategy that will fix healthcare. Harvard Business Review. October 2013. Available at: https://hbr.org/2013/10/the-strategy-that-will-fix-health-care.

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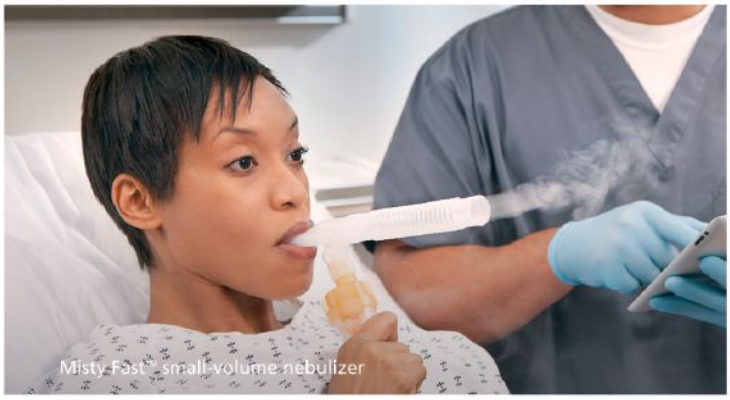

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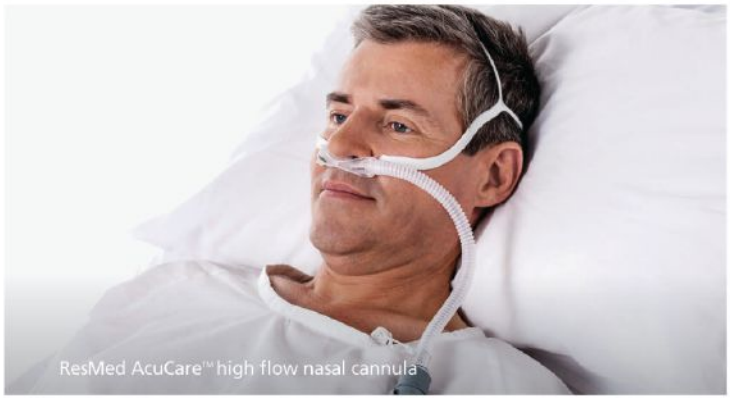

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Ventilation for Life

# High Weaning Rates for Long-Term Care Ventilator Patients Brings Respiratory Care Practitioners to the Forefront

by Douglas Kane, MD, RRT; and Zach Gantt, RRT

During the 1980s, long-term acute care hospitals (LTACHs) were created to facilitate hospital discharge of patients requiring mechanical ventilation, complex wound care, and intravenous medications not generally administered in the existing long-term care (LTC) setting. Ventilator units within skilled nursing facilities (SNF) soon began to flourish as well. Considerable overlap in services now exists. In addition to ventilation, hemodialysis and more complex wound care are examples of this overlap.

Trends in care for patients receiving mechanical ventilation have steadily evolved since the development of the first ICUs in the 1940s.[1] Advancements in technology, evidence-based care, changes in reimbursement, and the development of long-term care ventilator units have contributed to our current management of this patient population. Overall, 30-day mortality has decreased from 31% to 28% between 1998 and 2010.[2] Since the 1980s, survival for patients with adult respiratory distress syndrome has improved from 20%-40% to 60%-70%. Improvements in ventilator management have played a significant role.[3] The single most obvious change has been the adoption of the lung protection strategy using tidal volumes as low as 5-7 ml/kg versus 10-15 ml/kg ideal body weight as recommended prior to 1998.[3] Lung protective ventilation for non-adult respiratory distress syndrome (ARDS) patients has also been shown to improve outcomes.[4] For all causes of respiratory failure leading to mechanical ventilation (MV), the current average length of stay for ICU patients is approximately 7-14 days.[5] The reduced length of stay over time for these patients reflects both improved care and the need for timely discharge, be it out of the ICU or to a long-term ventilator facility for those who are slow to wean from MV.


about the authors...

Douglas Kane MD, RRT, FCCP, is executive medical advisor for Encore Healthcare, a post-acute care company with disease management solutions. He worked as a respiratory therapist prior to and during medical school.

Zach Gantt, RRT, is the founder and CEO of Encore Healthcare in Livingston, TN.


## Changing attitude: Improved outcomes

Patients who require prolonged mechanical ventilation (PMV), defined as >21 days have a 42% to 83% likelihood of being liberated from mechanical ventilation.[6-8] A one-year study involving 23 LTACHs revealed that 53% were liberated from MV and 25% died.[8,9] White[9] reported liberation from PMV in 20 days or less for 50%, 75% by 71 days, and 25% remained on MV. It is apparent from multiple studies that up to 83% of patients with PMV who have been classified as weaning failures in the acute care setting in fact are weanable. This observation has led some to suggest that we should view all patients with PMV as weanable.[10]

## Transition from ICU to LTC

It is not accurate to compare weaning rates in critical care to that of LTACHs or SNF ventilator units. During the ICU stay, the priority is diagnosing and managing the acute process that led to respiratory failure. The most common hospital diagnoses leading to PMV are pneumonia/ARDS, congestive heart failure (CHF)/coronary artery disease (CAD),


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and COPD. In the critical care unit, weaning is attempted when the patient has stabilized and has shown evidence of improvement. During this time, the patient is often in the early phase of recovery and quite debilitated from the initiating event. Numerous evidence-based advances have resulted in more timely weaning, which include reducing sedation, RT-driven protocols, and using spontaneous breathing trials; abandoning the generally less effective and more time consuming gradual reduction in synchronous intermittent mandatory ventilation (SIMV) rate method and early mobility to few.[11-14] This approach holds true in the LTC setting as well. Approximately 70% of ventilated patients reweaned prior to discharge from critical care units.[12,14] When a patient has failed several days of weaning attempts, the physician generally begins to consider the timing and need for tracheostomy followed by discharge planning. Inadvertently, other non-emergent concerns, even weaning efforts, may slow during this time.

Once transferred to a LTACH or SNF, the primary focus typically shifts from the acute illness to planning for and performing efforts to wean the patient from PMV. Close attention is given to handling the transition to avoid medication and management error.[15] More attention is or should be given to mobility, engaging alert patients in the process, and sculpting the weaning efforts to best fit each patient's needs. The respiratory therapist plays an increasingly larger role during this phase. Cox et al[16] noted that there are 100,000 new PMV cases annually. There will be greater need for skilled respiratory therapists to assist in caring for patients with PMV as their numbers double between 2000 and 2030.[16] Keeping track of facility rates for weaning, decannulation, readmissions, and infections has helped respiratory therapists to focus on outcomes.

Liberating a patient from the ventilator is a rewarding event. The data suggests that ability and opportunity to assist in this process is rapidly growing. Readmission rates for patients with PMV in long-term care are significantly higher than other combined diagnoses. It is now even more evident that this requires collaboration between all facility caregivers. This means optimal communication, shared responsibilities, and trust. Education is a key element. Not only does the therapist need to be an astute clinician but an educator as well.

## Circumstantial opportunity

Physician presence is generally less in LTACHs and even less frequent in SNF ventilator units. This may change as the acuity of these patients increases. This fact allows for more autonomous functioning for respiratory therapists. Standing orders and protocols allow more active involvement for the respiratory therapist. This provides for timely management adjustments without having to wait until the next time the pulmonologist comes to the facility. Standing orders and protocols are well suited to the LTC environment in part because the rapidly changing acute phase has typically resolved. There is ample evidence to support incorporating these as part of the care plan.

## Advances in respiratory care

Technology has also played a role in the advancement of respiratory care in the LTC environment. The use of high-flow humidified nasal oxygen devices are finding a place in the care of non-ventilated tracheotomized patients. In addition, it is now accepted that these devices can be used as a more comfortable alternative to non-invasive ventilators for episodes of respiratory distress.[17] This provides the therapist with a tool to acutely provide improved care and patient safety biding time to allow evaluation and physician assessment — the end result hopefully being a reduction in readmissions. Tracheostomy care and quality of life are improved with the Passy-Muir speaking valve, appropriate tube changes, downsizing, and decannulation protocols. Another example of empowering the respiratory therapist to assist in improving the quality of care is allowing the therapist to initiate, on the basis of their own assessment, various device-assisted modalities, such as secretion removal devices. Non-invasive open ventilation, high flow nasal devices, and portable non-invasive and invasive ventilators allow the respiratory therapist to take part in increasing patient mobility and quality of life. Physical rehabilitation is now accepted as an important predictor of patient success. Early mobilization has been shown to reduce length of stay and increase ventilator-free days.[18,19]

Interdisciplinary rounds are a valuable time-honored tradition in the acute care setting and in our opinion should be adopted by all LTACHs and SNF ventilator units. Walking rounds are felt to be the most effective because it directs focus on each individual patient. This is becoming more common in LTC facilities. Formal rounds may not always be possible, and the pulmonologist may not be available on a daily basis. In this case, respiratory therapists can round together with nurses and other health care professionals. This requires the therapists to have a good grasp on their patient's status, have knowledge of comorbidities, and be able to develop and implement a daily care plan. This time is an opportunity

for teaching by the physician, respiratory therapy manager, and others. This process improves communication, morale, and the knowledge base.[20,21] Data suggests improved patient outcomes but large multicenter studies are needed for accurate validation.[22]

## Summary

There is a growing body of literature focused on the patient with PMV that is consistent with the observation that post-acute care management is becoming recognized as an extremely important component of the healthcare delivery system. This is reflected in the progressive efforts by respiratory therapists and other care providers in LTACH and SNF facilities. Weaning rates for PMV patients are topping 80% at some centers. That is commendable considering some of these patients were deemed not to be weanable within the shorter timeframe in the acute care hospital. Hopefully, as more study, technology, and effort goes into the care of this patient population, outcomes will continue to improve. It is not a stretch to envision the value of an advanced level of education and training for capable respiratory therapy leaders caring for patients with PMV in LTC, be it in the SNF ventilator unit or LTACHs.

Long-term care ventilator and other respiratory care units are excellent clinical settings for the dedicated and engaged respiratory therapist to use a broader skill set and become a more integral part of the patient care team. ■

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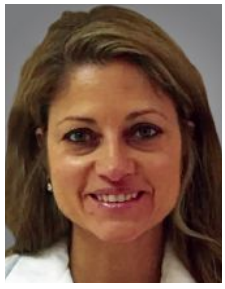
# Diaphragm Pacing System – An Underappreciated but Valuable Option

by Maria Madden BS, RRT-ACCS

Two muscles in the human body are designed to continuously contract: the heart and the diaphragm. The diaphragm is the primary muscle for respiration, which is innervated by the phrenic nerves that arise from the nerve roots at cervical levels 3 through 5 (C3-C5).[1] Patients with diaphragm dysfunction from injury, illness, or prolonged mechanical ventilation may become ventilator-dependent if diaphragm function is not restored. The concept of phrenic nerve stimulation was first described in the late 1700s and investigation into this is ongoing.[1] The first phrenic nerve stimulator was created by Dr. William Glenn in the 1970s.[1] Subsequently, Dr. Ray Onders and colleagues developed a phrenic nerve stimulator called the NeuRx Diaphragm Pacing System (DPS).[2] The DPS is implanted surgically with four intramuscular electrodes placed directly on the diaphragm to stimulate the phrenic nerve. The DPS sends an intermittent electrical pulse through the intramuscular electrodes on the diaphragm, stimulating a contraction, thereby mimicking a spontaneous breath. In 2000, Onders implanted the first DPS in a patient who had suffered a spinal cord injury (SCI). This patient's only source of ventilation was the DPS until his death in 2013. According to Jeff Thompson, RRT, the clinical service manager for Synapse BioMedical Inc., they have implanted 527 patients with SCIs and 987 patients with amyotrophic lateral sclerosis (ALS) with a DPS.[3]

Implantation of the DPS is a minimally invasive abdominal laparoscopic procedure that is typically completed in approximately two hours in the operating room. To assure the phrenic nerve is intact the diaphragm is first electrically stimulated in an attempt to generate a contraction. An intact phrenic nerve is required for implantation; therefore, without a successful contraction the case cannot proceed. Once a successful stimulation/contraction is established, the location of the phrenic nerve on the diaphragm must be established, which is called "mapping." This is necessary because the phrenic nerve dissects into each hemi-diaphragm and can't be seen in this approach of implantation.[4] Four electrodes are placed on each hemi-diaphragm, both anteriorly and posteriorly, for maximum contraction. The electrode wires are then tunneled to an exit site on the chest or abdomen[4] and a fifth wire is placed in the subcutaneous tissue as a ground wire.[2] The exposed wires are then connected to the battery-powered external pulse generator (pacing unit) that is programmed with settings of respiratory rate, inspiratory time, amplitude, pulse width, and pulse frequency. Respiratory rate settings range from 8 to 18 breaths per minute while inspiratory time ranges from 0.8 to 1.5 seconds. Amplitude is the strength of the pulse intensity, which is measured in milliampers with a range of 5mA to 25mA as an option.[3] Amplitude partners with pulse width to stimulate the area of the muscle fibers of the diaphragm. Pulse width is set from 20 to 200 milliseconds. Increasing both amplitude and pulse width will recruit distal nerve fibers to create the proper diaphragmatic contraction. The pulse frequency during the contraction is not recommended to be set greater than 20 Hz since it has been associated with nerve damage with direct phrenic nerve stimulator.[3]

about the author...



Maria Madden BS, RRT-ACCS, has been a respiratory therapist in staff, education, and management positions for over 25 years. She is currently the clinical coordinator of the trauma division of respiratory therapy at University of Maryland Medical Center/R Adams Cowley Shock Trauma.

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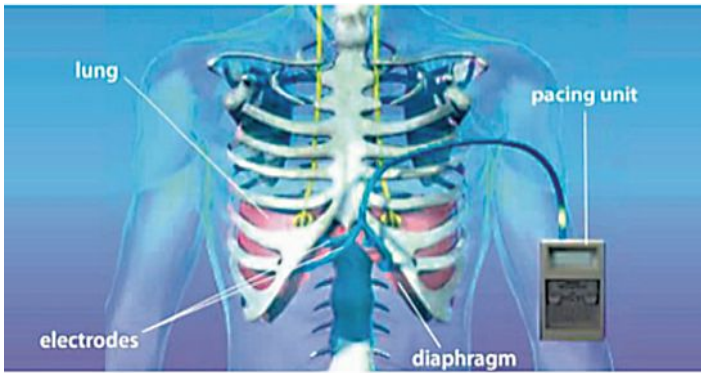


DPS: Two electrodes are implanted on each hemi-diaphragm anteriorly (see above) and posteriorly (not shown). The wires are tunneled to an exit site in the chest/abdomen and connected to pacing unit as shown.[3] Illustration courtesy of Synapse Biomedical.

## Patient population

The Food and Drug Administration (FDA) approved the use of the DPS as a humanitarian-use device for patients with SCIs in 2008. Patients suffering from a SCI with deficit at C2 and above are good candidates for the DPS because the diaphragm innervates at C3-C5 and contributes significantly to spontaneous breathing. A recent study reviewed the use of a DPS in 13 patients with a SCI between levels C3-C7 and showed 36% were weaned from mechanical ventilation and eventually from requiring the DPS. Studies have shown that ventilator dependency in patients with SCIs decreases quality of life and overall life expectancy by 6-15 years regardless of age.[5] Therefore, the DPS should be considered for those patients with SCIs who are difficult to wean from mechanical ventilation.

Currently, the FDA approval for DPS placement is in adult patients with SCI and in patients diagnosed with ALS. ALS is a fatal neurological disease that attacks the motor neurons located in the brain, brain stem, and spinal cord, which control voluntary muscles including the diaphragm.[1] With the progression of ALS, diaphragm dysfunction occurs and may cause respiratory insufficiency requiring mechanical ventilation. Many of these patients are placed on noninvasive ventilation and require respiratory monitoring and assistance 24 hours a day. There are also facilities with institutional review board approval for use in children with SCIs who have been unsuccessful in weaning from mechanical ventilation.[1]

Studies continue using the DPS with additional patient populations such as congenital central hypoventilation[6] and diaphragmatic dysfunction.[7]

## Ventilator weaning after DPS implantation

As with any other muscle, the longer a diaphragm is not used, the more atrophic it becomes and the longer it will take for reconditioning. Data demonstrate that diaphragm atrophy can occur as quickly as 18 hours on controlled positive pressure ventilation without spontaneous breathing.[8] Grusu et al demonstrated the thickness of the diaphragm decreases by 6% per day while on mechanical ventilation.[9] This may explain the Posluszny et al[2] study where patients who received DPS closer to the time of the diaphragm injury weaned from the ventilator more quickly due to less atrophy.

Patients with an acute SCI may proceed to a SCI rehabilitation facility after receiving their DPS to continue ventilator weaning. Patients receiving DPS years after their initial injury may continue their ventilator weaning process at home with their home care providers. An individually tailored training schedule is important to maximize the patient's strength of contraction created by DPS. Improvement in diaphragm function in patients with SCIs has been noted to plateau at 11 weeks. In a systematic review, 82% of the SCI patients with DPS were completely weaned from ventilator while others were only able to use the DPS part-time.[2] For patients with ALS, DPS is set at a low level for stimulation to maintain the condition of the diaphragm.[1] As their respiratory failure increases, DPS settings are increased to assist the diaphragm.

There are many DPS advantages for patients with diaphragm dysfunction. Initiating spontaneous breathing decreases time on the ventilator, ventilator infections, cost, and provides liberation from the ventilator for the patient's emotional well-being.[10,11] Other benefits to the patient include increased speech, mobility, and quality of life.[10,11] Some patients require a significant amount of time for diaphragm conditioning and coaching to wean to DPS without the use of a ventilator. Although this requires time and dedication, a patient with a C2 complete SCI may be able to wean completely off the ventilator, improving their quality of life and potentially increasing their years of survival. The most common complication due to the laparoscopic procedure is a capnothorax. During a laparoscopic procedure the $CO_2$ that is used for the procedure enters the pleural space due to a defect with the diaphragm or related to the implanting and manipulating of the DPS wires. The incidence has been noted with 21 of 50 patients with SCIs (42%) and 16 of 86 of patients with ALS (19%).[12]

## The RT's role in DPS

The diaphragm pacing system is another way respiratory therapists are expanding their scope of practice. Partnering with the physician, the RT can assist with the mapping of the diaphragm and the initial programming of the pulse generator in the operating room. The RT continues to manage the entire DPS process including the weaning process tailored to individual needs

and any necessary DPS changes. To continue ventilator weaning and the success of the DPS, it is important for the RT to extensively educate the patient and family member on the DPS. To increase the patient's success, follow-up consultation may be required to ensure proper function of the DPS.

It is a great accomplishment to wean any ventilator-dependent patient from mechanical ventilation. Patients suffering from SCI and ALS experience an improvement in quality of life when mechanical ventilation is not required. Despite an existence of over 40 years, the DPS remains underappreciated. It is, however, a valuable option in the treatment of this subset of patients. The elation of a patient's DPS implantation and first ventilator-free experience gives rise to an emotion that can't be put into words. ■

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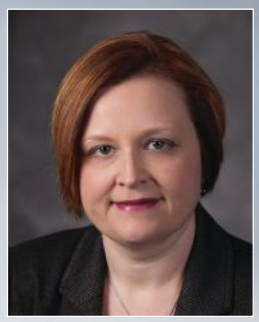
# Honoring RTs

The PHIL Award

Sharman Lamka of the FACES Foundation is recognizing respiratory therapists for the positive difference they make in the lives of respiratory patients and their families.

## The FACES Foundation believes respiratory therapists are the unsung heroes of health care



By Tabatha Dragonberry, MEd, RRT-NPS, AE-C, ACCS, CPFT, C-NPT

A couple of years ago at at the AARC Congress, I was walking the exhibit hall floor, looking at the latest and greatest in technology being offered in our profession. There were vendors everywhere, and respiratory therapists from all over the world were strolling around. I saw ventilators, educational items, and other devices being shared with end users like me in an exchange of information unlike that which you'll find at any other respiratory care event.

Out of the corner of my eye, I spotted the booth for The FACES Foundation and The PHIL Award. I asked myself, what is The PHIL Award? Is this an award for respiratory therapists that I am not aware of? How can this be? My curiosity got the best of me and I had to inquire.

## Just for RTs

I walked up to the booth and met Sharman Lamka, president and co-founder of The FACES Foundation, which stands for Family And Caregiver Education & Support. She began to tell me about her late husband Philip, who passed away from an interstitial lung disease in 2005 at age 58, and about their personal experiences with respiratory therapists. She described the profound impact our profession had on their family. The appreciation in her voice for those who cared for her husband was uplifting. She wanted to honor the people who influenced his care so greatly and realized there was not a system in place to do so.

This desire gave birth to The PHIL (Pulmonary Health & Illnesses of the Lungs) Award, which was established to recognize outstanding respiratory therapists who provide exemplary care and treatment for patients with respiratory illnesses. Similar to the Daisy Award in nursing, The PHIL Award can be implemented in any hospital around the country. According to Lamka, "Respiratory therapists are the unsung heroes in the medical profession. They are essential members of the health care team who made a great impact on my husband's care, yet they are under recognized for their important work and role they provide."

Nurses have the Daisy Award. Now The PHIL Award is bringing similar recognition to respiratory therapists.

## A growing program

To get The PHIL Award going in individual hospitals, Lamka first reached out to hospitals in her home state of Michigan in 2007, with great success. Since then, over 50 hospitals in 16 states have joined this hospital-based recognition program to honor respiratory therapists. Patients and their families nominate RTs for their efforts in providing exemplary care for those with pulmonary disease. Honorees receive the organization's appreciation sculpture, a signed framed certificate, and free registration to their AARC state society annual conference.

Those who receive The PHIL Award embody quality, compassion, patient engagement, and improvement in health care. The award also acknowledges the important role RTs play in increasing patient satisfaction and safety. In addition, it recognizes that respiratory therapists are on the front lines when it comes to reducing readmission rates, which ultimately results in better health outcomes.

The PHIL Award is the only national hospital-based award that recognizes respiratory therapists who are nominated mainly by patients, family members, and other caregivers for their efforts. For patients, every breath matters. The goal of The FACES Foundation is to grow The PHIL Award recognition program across the country while honoring the "best of the best" in the respiratory care profession.

Organizations that are using the program understand that employee recognition isn't just a nice thing to do for their staff but can be a driver to improve patient satisfaction goals as well. A valued staff results in a proactive workforce that goes the extra mile and provides outstanding care. As budgets are cut, an engaged staff is the hospital's best asset to improve patient outcomes. Reward and recognition programs allow hospitals to recognize and retain quality staff. These programs can also be used as recruitment tools.

## Winners are touched

David Getty, MBA, RRT, RCS, director of St. Joseph Mercy Health System Respiratory Therapy in Ann Arbor, MI, has nothing but positive comments about his hospital's experience with The PHIL Award. His organization was the first to honor a respiratory therapist through the program. According to Getty, "The PHIL Award is patient and family focused, recognizing respiratory therapists for the great patient care that they give from the mouths of those we serve."

Chris Riedy, RRT, who received the first PHIL Award, says, "Receiving this award was a great honor and I feel so lucky. I keep it on my fireplace mantel and when I look at it, it reminds me what I do really matters."

At St. Joseph Mercy Health System, the presentation of The PHIL Award is a big event. According to Christy Alexander, RRT, another PHIL Award recipient, "I did not know I was receiving the award until the day before. My boss and the ICU medical director were there with my colleagues. We all have bad days in our career and those bad days mean nothing when your patients honor you for the work you do. It made me feel so good. I knew in that moment that this is what I am supposed to be doing."

In speaking to Alexander, I could hear the passion she has for her profession in her voice. She continued to describe the kudos she received from those in her department, nursing staff, and physicians, and how special this made her feel. She also says the award brought her full circle. As a student she attended a Michigan Society for Respiratory Care conference where she heard Lamka speak. The talk moved her to tears and she thought how special it was that the best therapists would receive The PHIL Award — never guessing that one day she would be one of them.

### Families tell the story

The following are excerpts from letters written by family members of patients whose St. Joseph Mercy RTs were honored as PHIL award recipients. Together they exemplify how respiratory therapists can impact patient care on a professional and personal level.

*You talked and cried with my son as his dad was in critical condition, you touched his heart and mine. You talked to my son as a father would to his son. Thank you so much for being a wonderful respiratory therapist and being with us all night to help my son understand what was going on. Bless you. Don't ever stop caring. You are an angel God sent.*
(Award recipient, Mutahr Mutahr, RRT)

*The compassion that was shown was wonderful. I felt at ease with my grandson J.J. being in her care. It is really hard to put into words. I just felt like she cared for this baby like he was the only thing in the world that mattered.*
(Award recipient, Sharon Hixson, RRT)

FACES is a national 501(c)(3) nonprofit organization, based in Milford, MI, whose mission is to acknowledge and promote professional excellence in the education and care of patients with pulmonary illnesses. Established in 2006 in memory of Philip C. Lamka, who passed away as a result of complications from an interstitial lung disease, FACES believes that professional excellence leads to improved health care outcomes among patients living with pulmonary illnesses.

## Therapists Made a Difference

When Phil Lamka was diagnosed with interstitial lung disease, neither he nor his wife, Sharman, had ever heard of a "respiratory therapist" — and they certainly never imagined their family would one day offer an award for therapists who deliver exceptional care to their patients.

But Phil's experiences over his three years with the disease changed all that. "I didn't know what a respiratory therapist did until Phil and I started on our journey," says Sharman. Early on, RTs taught the former radio station manager and his wife how to manage the condition with home oxygen, enabling him to get out on the golf course and go out to lunch at his favorite places. "Phil wasn't a great golfer but he enjoyed golf," she says. "He would take his portable tank, take a whiff, get out of the cart and hit the ball, and get back in the cart and get back on his oxygen."

However, as the disease progressed and hospitalizations were required, they came to know RTs as the people who could

For more information on The FACES Foundation and The PHIL Award, please visit their website at www.thefacesfoundation.org. To learn more about how your organization can partner with FACES to honor and recognize outstanding respiratory therapists, contact Sharman Lamka directly at slamka@thefacesfoundation.org or (877) 505-2075 ext. 3. ■

*My husband needed aortic valve replacement surgery, which, with his lung condition, was highly risky. Eileen spent time helping both of us understand the complexities of high $CO_2$ levels and the use of oxygen for my husband. Her information and advice was the most complete for us in the five years he has needed oxygen. She is a GEM!*
(Award recipient, Eileen Stevens, RRT)

*Melinda was very efficient and helpful. When we had questions about the respiratory situation my grandmother was in, she explained what was going on without confusion. Although my grandmother died there, our total experience at St. Joseph's-Howell was one that we still talk highly about.*
(Award recipient, Melinda Allen-Gerweck, RRT)

## Moments that matter

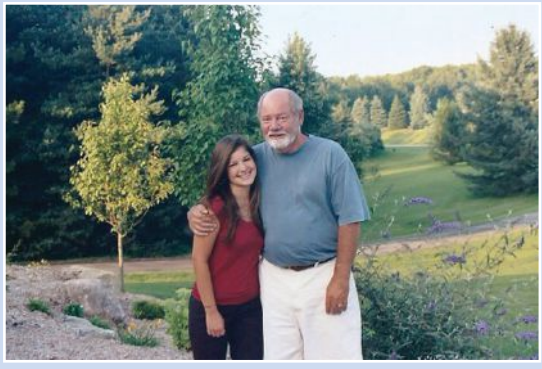
As respiratory therapists, we become a part of people's lives when they are vulnerable and afraid. Our job is to help heal and educate. It is easy to become task-oriented as we go about our daily work completing ventilator checks, doing assessments, and starting nebulizers. These comments from family members prove that respiratory therapists provide value through their compassion and the extra time they take to make patients and families feel better and truly understand what is happening. These moments are the ones patients and families remember. These moments are the ones that truly matter.

The PHIL Award was created because one patient, Philip Lamka, received exceptional care from his RTs. Think of the impact you can have on the patients you care for day to day. ■

*Tabatha Dragonberry is an assistant professor at Nova Southeastern University in Palm Beach Gardens, FL.*

help Phil breathe better when no one else could. Therapists taught Sharman breathing treatments she could use on Phil to help clear his lungs and they often went the extra mile to ensure he was as comfortable as possible. Seeing that Phil wasn't tolerating the breathing mask prescribed for him, one therapist, Linda Folk, even came back in after her shift had ended and scoured the hospital to find another mask that would work better. Folk was nominated by Sharman as the first PHIL Award recipient at The University of Michigan. As his condition worsened, therapists turned his bed upside down to help find a path for oxygen to travel through his increasingly compromised lungs.

Respiratory therapists were at Sharman's side at the end of Phil's life, too, keeping her informed on what was happening and comforting her as death neared. "They were there for me when he took his last breath."■



# Get Ready To Be Wowed!

by Debbie Bunch

J.R. Martinez

Richard "Pitch" Picciotto

## Keynote and Closing Ceremony speakers to relate acts of heroism at AARC Congress 2016

What do a *Dancing with the Stars* Mirror Ball trophy winner and Fire Department of New York (FDNY) chief have in common? They'll both be speaking at AARC Congress 2016 in just a couple of weeks, bringing their inspirational stories of courage in the face of seemingly insurmountable odds to attendees who are there to learn the latest in respiratory care.

### Adapt and overcome

As this year's Keynote Speaker, J.R. Martinez will astound his listeners with his remarkable recovery from injuries suffered when his Humvee hit a roadside bomb in Iraq back in April of 2003. Trapped inside the vehicle, Martinez suffered smoke inhalation and ended up with severe burns over 34% of his body. After being evacuated to a local medic station and then transported by a Critical Care Air Transport Team to Landstuhl, Germany, he found himself at Brooke Army Medical Center in San Antonio, where he would remain for the next 34 months.

His long recovery was made possible by the expert care he received not only on the ground and during his transport, but also by the dedicated professionals who were there for him throughout his treatment in both Germany and San Antonio. Respiratory therapists were definitely involved, and the care they provided helped ensure he would not only live but be able to recover his quality of life.

But it was his own determination to move past his physical problems that has made Martinez the man he is

today. Despite undergoing 34 surgeries during the nearly 13 years since his injury, he has remained positive and moved ahead with his life — and what an amazing life it has been. In addition to helping fellow soldiers recover from their own injuries, Martinez has appeared in the daytime soap opera *All My Children,* auditioning for the part at the behest of a friend who heard they were looking for a veteran to play the role of a character injured in Iraq. That role, which was scheduled to last for only a few months, went on for three years until the show's finale.

Many people know Martinez best, however, for his awesome appearance on *Dancing with the Stars,* where he and partner Karina Smirnoff took home the coveted Mirror Ball trophy for their stunning moves on the dance floor.

Today Martinez continues to inspire everyone he meets with his ability to Adapt & Overcome™ and he'll do the same in San Antonio on Oct. 15 when he takes the podium during the Opening Ceremonies at AARC Congress 2016 to share his story and the integral role respiratory therapists played in bringing him back from the brink.

Over the 3.5 days of the Congress, respiratory professionals from across the country and around the world will have the opportunity to learn more about the cutting-edge treatments, modalities, and health care reform initiatives set to impact their ability to care for people with respiratory conditions in 2017 and beyond. But the whole thing will begin and end with presentations sure to put everyone on the edge of their seats.

### 9/11 miracles

When the Twin Towers were hit on Sept. 11, 2001, the streets of New York City were filled with people running away from the terror attack. Richard Picciotto did the opposite. The FDNY battalion commander in Manhattan rushed toward the horrific scene along with fellow firefighters, ready to do whatever it took to rescue those still inside.

During this year's Closing Ceremony, Picciotto will share memories of that fateful day. The highest ranking FDNY firefighter to survive the attack, he was at Ground Zero within minutes of the strikes and headed straight into the North Tower — a place he knew well from being on the scene during the 1993 World Trade Center terror attack. He was inside a smoky stairwell when he felt the South Tower collapse and called for firefighters and rescue workers there with him to get out while they could.

But Picciotto stayed behind with a small team and continued to search for and rescue people trapped inside, including a group of disabled and infirm civilians. The North Tower collapsed as he did his best to help people in need, and for the next four hours, he was a victim as well as a rescuer, unable to get out of the rubble.

Picciotto will provide an insider's look at the devastation and he'll also talk about the respiratory therapists and other health professionals in the city who were standing by in their hospitals to care for the rush of victims that never came due to the lack of survivors. He'll specifically thank RTs for the work they've done since the terror attacks to help the hundreds if not thousands of first responders who have suffered breathing problems from their work at Ground Zero as well — Picciotto himself among them. He's lost about 40% of his lung function since the 9/11 attacks and is currently enrolled in a pulmonary function study that brings him in regular contact with RTs when he goes in for his pulmonary function tests.

Respiratory therapists are bound to be astonished by the courageous acts of this first responder who worked so diligently to free people from the wreckage and get as many as he could to safety. Thanks to his heroic efforts, dozens of people had the chance to call themselves 9/11 survivors.

### Not to be missed

If you're headed to San Antonio in a few weeks to attend AARC Congress 2016, you won't want to miss these amazing speakers. Their stories are guaranteed to add a special dimension to the meeting and leave everyone in the audience with some important lessons about persevering in the face of adversity. ■

# San Antonio INSIDER


The tiny town of Gruene offers big entertainment possibilities.

## Off the Beaten Path: Take Time To Explore the Surrounding San Antonio Area

**by Donna (De De) Gardner, MSHP, RRT, FAARC, FCCP**

For those who would like to get away from the busy pace of downtown San Antonio either before or after the AARC Congress 2016 on Oct. 15-18, there's a wonderful, quaint German town just 25 miles north called New Braunfels that has lots of things to see and do. Prince Carl of the Solms-Braunfels region of Germany founded New Braunfels in 1845. I learned about it while attending college in San Marcos, TX, and fell in love with the small-town feel and unique stores and restaurants. My family and I have lived in New Braunfels for more than 17 years now and it is "my number one favorite place." I would not live anywhere else.

## Welcome or "*willkommen*" to New Braunfels, TX

New Braunfels lies along the Interstate 35 corridor leading to Austin (40 miles to the north of San Antonio) and is seated in Comal and Guadalupe Counties. Far from just a sleepy little town, New Braunfels was ranked the second fastest growing city in the United States this year.

The beautiful Comal and Guadalupe Rivers run through the city and visitors and locals alike enjoy a variety of recreational activities. The biggest attraction in the summer is Schlitterbaun, the nationally known water park, but there is also plenty to do during the fall. While the city's large German festival, called Wurstfest, doesn't begin until the first week of November — a bit late for our AARC Congress dates in mid-October — German cuisine is always front and center in New Braunfels. Plus, if you love antiques, we have some of the best shopping you'll find anywhere year round.

**Gourmage** is a unique, one-of-kind wine and cheese store located at 270 West San Antonio Street.


Donna (De De) Gardner at the Gristmill River Restaurant in Gruene.


Many of the businesses in New Braunfels have been around since the 1800s.

At Gourmage you can taste cheeses before making your selection and pairing with wines. Owner Stephanie Richardson offers wine by the glass or bottles to go and wine tastings on Friday evenings. Chocolate is on the menu as well, and it's a great place to have brunch or lunch. Stephanie also offers a fun salt and sugar bar where you can choose some unique salts and sugars to use in your own cooking. The cheeses are from all over the world — the United Kingdom, Portugal, Spain, and Switzerland. They even offer mozzarella-making classes, which I have taken and now am addicted to the cheese.

Located at 129 South Seguin Avenue, **Naegelin's Bakery** is the oldest continuously operating German bakery in Texas. Since 1868, this family-owned establishment has been baking fresh cookies, pastries,

Naegelin's Bakery offers kolaches and other German pastries.

pies, and cakes. Today, the Granzin family uses recipes developed by the Naegelin family in the 1800s. Unique German pastries like fruit kolaches and meat kolaches draw in the crowds, as does the *lebkuchen*, a thick rectangular brown cookie covered with pink frosting. The bakery is also well known for its *manske* (cinnamon rolls), gingerbread, happy face cookies, and strudel. Peach is our favorite. Naegelin's will ship anywhere in the country.

## Historic Gruene get-a-way

**Historic Gruene** (pronounced "green;" *gruene* is the German spelling of green) is just a three-minute drive north of New Braunfels. This little town is a Texas gem and offers shopping, dining, wine tasting, dancing, and lodging. Three wonderful wine-tasting rooms, the Winery on the Gruene, The Grapevine, and Vineyard at Gruene, are all in walking distance of each of other and offer somewhat different wines. The Winery and Grapevine are my favorites.

Wine, cheese, and more are available at Gourmage in New Braunfels.

At the **Winery on the Gruene**, located at 1308 Gruene Road, you can sit outside under an umbrella and enjoy the nearby Guadalupe River. Tastings take place 11 a.m.-6 p.m. most days. You can also make your own wine here.

**The Grapevine** is located at 1612 Hunter Road and opens daily at 10 a.m. Sit inside or go outside and relax in the outdoor garden and patio or on the front porch on the main street of Gruene to people watch. They offer great complimentary tastings daily and sell tasty

Gruene Hall is the oldest dance hall in the state.

The Brauntex theater in New Braunfels brings big-name entertainers to town.

bites. You can hear live music in the garden February through December.

Another of my favorite places is **Gruene Hall**. It's the most famous and oldest continuously operating dance hall in Texas. Gruene Hall has been featured in a number of movies, such as *Michael* with John Travolta. It sits in the center of town at the intersection of Hunter Road and Gruene Road. Willie Nelson, George Strait, and Two Tons of Steele have been frequent performers. You can see what's coming up at Gruene Hall during our Congress dates at http://gruenehall.com/calendar/.

Gruene Market Days take place the third weekend of every month between February and November. More than 100 gifted artisans and craftsman show off their sculptures, furniture, pottery, and more.

## For the speleologist, spelunker, or caver

If you like exploring caves and caverns, another hidden jewel in the area is the **Natural Bridge Caverns** (www.naturalbridgecaverns.com). The caverns were discovered in 1960 when four St. Mary's University, San Antonio, students gained permission from the Wuest family to explore the area. On their fourth excursion, they uncovered the two-mile cavern now known as the Natural Bridge Caverns, and made it their goal to preserve the cavern. Here you will walk through layers of limestone to see natural wonders.

From I-35 take exit 175 to Natural Bridge Caverns Road/F.M. 3009 to reach the caverns. Explore them on your own or take advantage of a number of interesting and educational tours, including the lantern tour, gem and fossil mining tour, adventure tour, hidden passages tour, canopy challenge, and the Bracken Bat Flight, which is one of the largest attractions at the caverns. This is a "living cave," as the formations are constantly being formed by water dissolving rock. The passages open up to some very exciting geological treasures and my family and I go back every couple of years to see the new formations.

The Natural Bridge Caverns are open daily (hours vary by date), and the temperature is about 70 degrees, with high humidity. Wear comfortable clothes and good shoes for walking.

These are just a few of the wonderful places to visit just 30 minutes north of San Antonio. *Besuchen sie uns* (come see us)! ■

**About the Author**
Donna (De De) Gardner is chair of the department of respiratory care at the University of Texas Health Science Center–San Antonio in San Antonio, TX.

# On the Road to Better Alarm Safety

## AARC provides input on ventilator alarms

By Shawna Strickland, PhD, RRT-NPS, RRT-ACCS, AE-C, FAARC

The beeping. The buzzing. The flashing lights. The National Coalition for Alarm Management Safety hopes to change alarm response for the better, and the AARC is a key partner in the effort.

Health care providers are faced with the daunting task of identifying and responding to various alerts on a regular basis. As the provider is bombarded with multiple visual and audible alarms, he/she can become desensitized and miss an important alert and subsequent patient intervention. That can lead to patient harm.

The ECRI Institute listed missed alarms as the number two health technology hazard for 2016.[1] In 2013, The Joint Commission announced that clinical alarm safety for hospitals and critical access hospitals would become a National Patient Safety Goal (NPSG). Phase II of NPSG.06.01.01 began in January of this year and includes establishing policies and procedures for managing device alarms that address clinically appropriate alarm signal settings, parameter changes, responses to alarms, and other vital alarm safety needs.[2]

In 2014, the Association for the Advancement of Medical Instrumentation (AAMI) Foundation formed the National Coalition for Alarm Management Safety. The coalition is composed of respiratory therapists, nurses, physicians, biomedical engineers, patient safety and quality officers, informatics professionals, and representatives from industry. Their goal: to collaborate on strategies to address alarm fatigue and improve alarm management.


## Vent alarms raise concern

The coalition held its Phase II meeting in July 2016 and the AARC was invited to participate. The purpose of the meeting was to develop a roadmap for the next two years. Until this point, the coalition was focused on physiologic alarms — heart rate, respiratory rate, oxygen saturation, etc. — but persistent concerns about ventilator alarm safety prompted the coalition to seek expert opinions on the inclusion of ventilator alarms in Phase II planning.

The AARC provided a panel of experts to discuss ventilator device alarms, potential solutions, measurable outcomes, and future research needs. Carl Hinkson, MS, RRT-ACCS, RRT-NPS, FAARC, assistant manager of respiratory care at Harborview Medical Center in Seattle, WA, provided an overview of mechanical ventilation and noted that a myriad of ventilator alarms are possible and vary with different manufacturers.

Russelle Cazares, MHA, RRT-NPS, manager of respiratory care services at Children's Hospital of Los Angeles in Los Angeles, CA, discussed the existing research into mechanical ventilator alarm management. She noted that mechanical ventilators could produce a high rate of non-actionable alarms. In fact, studies predict that about 80%-94% of all mechanical ventilator alarms are non-actionable, and that leads to a slower response time from health care providers.[3,4] In addition, about one third of all alarms activated in the ICU are due to mechanical ventilators.[5,6] Cazares' recommendations for future research include larger data pools and integrating research into the pediatric and neonatal population.

## Implementing an alarm integration system

Connie Dills, MBA, RRT, RPFT, respiratory practice manager for respiratory care services at the Hospital for Special Care in New Britain, CT, reported on her facility's experiences implementing an alarm integration system. The Hospital for Special Care is a 228-bed long-term acute care hospital that specializes in ventilator weaning. Approximately 100 patients requiring mechanical ventilation are cared for each day. Dills noted that, on average, each ventilator alarmed 48 times per day before the hospital implemented middleware. That means that the hospital staff averaged 4,800 ventilator device alarms per day.

According to Dills, prior to 2003 all ventilator device alarm monitoring was routed through the nurse call system. In 2003, the organization sought options for increasing patient safety by using an alarm management system. The middleware system allowed for filtering of ventilator alarms into two categories: immediately actionable and not immediately actionable. The immediately actionable

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— 2016 —

*Since 1947,* the AARC has been leading the effort to advance the science and practices of the respiratory care profession while promoting the highest quality of care for our patients. Collaborating with the respiratory communities at-large, we have successfully advocated at the federal, state and local level for patients, their families, the community, the profession and the respiratory therapist.

# The AARC'S CORPORATE PARTNERS

The collaborative efforts between the respiratory care profession and manufacturers in pursuing unique and innovative ways to improve both the quality and outcomes of our patients makes us natural partners in today's ever changing healthcare continuum.

As health care finances become more strained and patient care becomes increasingly more complex, the mutual challenges become greater for the profession and its industry partners. The inherent synergies of the corporate partner concept are to provide an effective and efficient way to address those needs utilizing our combined skills and resources.

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alarms are sent directly to the RT carrying the pager for that patient on that shift. Alarms identified as not immediately actionable are not sent unless the alert remains unresolved and escalates to an actionable alarm.

Since implementation of the middleware, the Hospital for Special Care has realized an 80% reduction in alarms requiring immediate action, a reduction in response time to actionable alarms to 34 seconds, and a significant reduction in ambient noise and resultant alarm fatigue. In fact, Dills reported that the organization has not experienced a serious ventilator safety event in 13 years.

## Proud partner

Ventilator alarm safety is a significant concern for the respiratory therapist. Developing strategies for managing alarms, avoiding alarm fatigue, and intervening on the patient's behalf when necessary is vital to providing safe patient care. The AARC is proud to partner with the AAMI Foundation's National Coalition for Alarm Management Safety as it adds mechanical ventilators to the scope of work. ■


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Shawna Strickland, PhD, RRT-NPS, RRT-ACCS, AE-C, FAARC, is associate executive director of education at the AARC.

# RC Currents

## New-Onset COPD Added to World Trade Center Health Program

The AARC has learned that first responders and others who developed new-onset COPD following their exposure to the 9/11 terror attacks will now be eligible for benefits through the World Trade Center (WTC) Health Program.

COPD was added after the WTC Health Program reviewed peer-reviewed epidemiologic studies regarding potential evidence of COPD among individuals who were responders to or survivors of the attacks on Sept. 11, 2001. Substantial evidence to support a causal association between the 9/11 exposures and COPD was found in the studies. This led the WTC Health Program administrator to publish the final rule in the *Federal Register* adding COPD to the list of conditions covered by the program.

Thanks to the rule, which went into effect on Aug. 4, current and future WTC Health Program members may be eligible for better access to care — including health monitoring, treatment, education, and outreach — and better treatment outcomes than they would have been eligible for had COPD not been added to the program.

The program also covers first responders and others involved in the 9/11 terror attacks at the Pentagon in Washington, DC, and in Shanksville, PA. ■


## Find New AARC Members Online

The AARC posts the names of new members each month at http://c.AARC.org/new_members. Current AARC members are encouraged to check this site on the first of each month to view the names of individuals who have been approved as "Active Members" of the Association. ■


## 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. ■

# BOLDLY VOLUNTEERING WHERE NO RT HAS VOLUNTEERED BEFORE

**By Karen Schell, DHSc, RRT-NPS, RRT-SDS, RPFT, RPSGT, AE-C, CTTS; and Cheryl Skinner, BA, RRT, CPFT**

The Kansas Respiratory Care Society (KRCS) voyaged to the final frontier last May. Its mission: to educate the public about chronic lung disease, advocate for patients with COPD, and promote the profession and practice of respiratory care at Planet Comicon in Kansas City.

It all started when the Leonard Nimoy "COPD: Live Long and Prosper" trailer debuted during the opening ceremonies at AARC Congress 2015. The film provided a vision for the KRCS to formulate an opportunity for the citizens of Kansas to learn more about the nation's third largest killer.

The stars aligned in Kansas City in January, when dates were announced for the annual Planet Comicon Convention to be held during the month of May. In true Mr. Spock fashion, Vulcan mind-melding (defined by Trekkers as a telepathic union between two beings) occurred between board members, who saw that our community service project could be accomplished if we moved at warp speed to reserve and design a booth with the "COPD: Live Long and Prosper" (COPDLLAP) theme.

Otherworldly visitors learned about COPD at the booth.

Planet Comicon draws more than 70,000 fans for the three-day annual event. It was a perfect opportunity to reach a new nontraditional crowd with our message about COPD and early screening. The KRCS contacted AARC Executive Director Thomas Kallstrom, MBA, RRT, FAARC, for assistance in contacting representatives from COPDLLAP in hopes of using the opportunity to help fulfill Leona rd Nimoy's last wishes — to educate the public about COPD.

The KRCS reserved a booth in a central, high-traffic area to transport its message to the colorfully costumed Comicon fans. Volunteer recruitment was key to success. Personal interaction with well-educated RTs was needed to engage the crowd. Volunteers were recruited at the

KRCS volunteers provided lots of great information during this three-day event.

KRCS annual education meeting in April for the 30 hours of set up, screening, and education we would offer. Seasoned therapists and students alike enlisted their time and talents in the mission.

The three-day voyage was completed with a total of more than 1,000 visits to the booth, where characters from every "planet" and genre were educated about lung health, respiratory therapy, and COPD. There were lots of positive comments about the booth, the cause, and information provided by the lung experts. The interactive booth enticed the crowd to stop and visit. The KRCS volunteers were easily identified by their color-coordinated COPD screening t-shirts, both at the booth and among the crowd as they visited other booths.

The fun-filled event fostered many new connections with the public. The KRCS deemed the mission a success: we did indeed educate the public about chronic lung disease, advocate for COPD patients, and promote the profession and practice of respiratory care.

We at the KRCS think Leonard Nimoy would be proud to see that his "COPD: Live Long and Prosper" wishes are being heard and voiced throughout Kansas. ■

*Karen Schell and Cheryl Skinner are representatives of the Kansas Respiratory Care Society.*

Planet Comicon proved to be a great place to bring a new generation up to speed on COPD.

# ▶ STUDENT CORNER

## Attitudes and Behavior During Clinical Training

**Brian Cayko, MBA, RRT**

Clinical training for a respiratory therapy student can be intimidating, overwhelming, and downright fearful. It can also be encouraging, rewarding, and fulfilling. Every year I tell my students that clinical is what you make it. So make it great!

Here are just a few suggestions for you as you embark on this journey:

1. **Do unto others as you would like them to do unto you.** I know this seems generic and you've heard it before, but it cannot be stressed enough. Treat everyone with the same dignity you would like to be treated with. Remember that you are a guest in their facility; it's a privilege to be there, not a right just because you paid your tuition.
2. **Be respectfully assertive.** Clinical is a self-driven experience. We can tell you to walk up to the plate but you are the one who decides to swing or not. Your director of clinical education has spent countless hours working on your schedule and daily assignments, Now it's your turn to "get in the game." You should always be outwardly seeking experiences, regardless of whether they are on your work list for the day or not. Instructors and staff are not there to hold your hand. While they will definitely go the extra mile for you if you demonstrate your passion and willingness, they will have a hard time staying motivated to help you if you seem uninterested or respond to opportunities by saying, "Oh, I'm already signed off on that."
3. **Ask questions, listen to reports, always arrive 15 minutes early, never leave 15 minutes early, and treat your patients like they are family.** Always be honest, and remember that charts are your best friends — read them! ■

*Brian Cayko is director of clinical education for the respiratory care program at Montana State University's Great Falls College in Great Falls, MT.*

## AARC Activates Disaster Fund for Flood Victims

AARC members affected by the devastating floods that have hit parts of Louisiana and Mississippi over the past few days may now be eligible for assistance via the AARC's Disaster Relief Fund.

Members living in federally-declared disaster areas in these states may apply for a grant of up to $500, either online at https://secure.aarc.org/disaster_fund/application.html or by mail using our downloadable application form at http://c.aarc.org/headlines/11/04/application.pdf. Applications will be reviewed at the AARC Executive Office and will then be sent on to the president of the state society for verification and a recommendation of action.

Since 1992, the AARC Disaster Relief Fund has been used to assist members following hurricanes in Florida and Hawaii, earthquakes and fires in California, flooding in the Midwestern states, tornadoes in numerous areas of the country, and in the aftermath of Hurricane Katrina. The Disaster Fund is open for six months from the date of the disaster.

The fund is all about AARC members helping members.

If you would like to contribute to the AARC's Disaster Relief Fund, you can donate by sending a check made payable to the AARC at 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063. Put "Disaster Fund" in the memo section of the check. You can also donate online at https://secure.aarc.org/disaster_fund/application.html or call the AARC's Customer Service Department at (972) 243-2272 and tell them you want to make a donation with a credit card. ■

# Even Steven

U.S. researchers who compared inpatient costs, lengths of stay, and ICU admissions for children with acute exacerbations of asthma who were and were not on Medicaid have found these children receive equal care.

The team studied more than 17,000 pairs of pediatric asthma inpatients matched for age, sex, and asthma severity who were admitted for acute asthma at 40 major U.S. children's hospitals during 2011 to 2014. The median patient cost was $4,263 for Medicaid patients versus $4,160 for non-Medicaid patients. The median length of stay was one day for both groups. ICU use was 7.1% for Medicaid patients versus 6.7% for non-Medicaid patients. Only two of the 40 hospitals stood out for especially large differences between the two groups of patients. One hospital had higher costs for Medicaid patients, while the other showed higher costs for non-Medicaid patients.

The study appeared in a recent edition of *Pediatrics*. ■

# Burnout in the ICU

A recent survey conducted among critical care physicians and nurses may have implications for RTs working in the ICU as well. Researchers from the Critical Care Societies Collaborative found critical care professionals have a higher rate of burnout than many other professionals involved in stressful careers, including firefighters, police officers, and teachers. Overall, nearly half of workers were affected.

Co-author Dr. Marc Moss, from the University of Colorado School of Medicine and president-elect of the American Thoracic Society, believes the findings suggest a need for health care organizations to work together to come up with solutions to the problem. "We can't take care of patients if we don't take care of each other," he was quoted as saying. "An increased commitment to research on burnout syndrome is a necessary first step." The study was co-published by the *American Journal of Critical Care*, *CHEST*, the American Thoracic Society, and the Society of Critical Care Medicine. ■


# RT Student Members: Send Us Your Stories

*AARC Times* is always looking for good stories from AARC student members that relate special experiences and give the RT student perspective on the respiratory care profession they have chosen as a career.

If you have a story to tell, please contact *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org and include in the subject line, "Student Member Story." Be sure to give us your full name, AARC member number, a brief description of the story subject, and why you would like to have it published. Then attach a Word document of the story. We hope to hear from you soon! ■

# Asthma Boot Camp

Teaching kids how to handle their asthma is a summertime rite of passage for many RTs, and students from the RT program at the University of Texas Health Science Center in San Antonio are no exception. Last summer they held three "boot camps" for kids in their community to educate them about the disease and help them develop strategies to keep it under control.

"It's a free one-day camp for kids 7 to 12 with asthma," says AARC member Mary Hart, MS, RRT, AE-C, FAARC, a professor in the program and coordinator of the boot camp. "It gives students an opportunity to practice asthma management, makes a difference in a child's life, and gives back to the community."

The 2016 camps took place at the DoSeum, an interactive museum in San Antonio where kids age 2 to 10 can explore everything from the Big Outdoors to an Innovation Station. When it came time to focus on asthma, the kids learned about symptoms and medications, and the RT students also taught them how to use a peak flow meter to gauge their asthma control. To show them how it works over time, they measured the kids' peak flow before and after they toured the museum to help them see how the measurements can change and what might have caused the differences. The children received individualized information on their specific triggers as well.

The San Antonio asthma education program is supported by grants from the Environmental Protective Agency and the CHEST Foundation McCaffree Community Service Fund. ■


PHOTO 1: Learning about asthma triggers is an important part of the camp experience.
PHOTO 2: Campers and counselors gather for a group shot in their cool "Asthma Boot Camp" t-shirts.
PHOTO 3: RT students show the kids how to use a peak flow meter and an asthma action plan to monitor their asthma.
PHOTO 4: Campers learn what asthma is and how it can be controlled.
PHOTO 5: RT students conduct a session on medications and delivery devices.
PHOTO 6: An RT student gives a camper a high five after he answers a question correctly during the Asthma Challenge Game.

## Depressed Patients Ditch Meds

COPD patients with newly diagnosed depression are less likely to adhere to their COPD maintenance medications, report researchers from the University of Maryland who looked at Medicare administrative claims data on beneficiaries with two years of continuous Medicare Parts A, B, and D coverage, and at least two prescription fills for inhaled corticosteroids, long-acting ß-agonists, and long-acting anticholinergics. Of the 31,033 beneficiaries meeting the inclusion criteria, 20% were diagnosed with depression following COPD diagnosis. Average monthly adherence to COPD maintenance medications was low in this group, peaking at 57% in the month following first fill, and decreasing to 25% within six months.

"We were able to identify depression as a risk factor for not using COPD medications, finding that older adults with respiratory disease have a tendency to not fully utilize the medications prescribed for their disease," according to study author Linda Simoni-Wastila, BSPharm, MSPH, PhD. She and her colleagues urge clinicians who treat COPD patients to be aware of the effect of depression, particularly during the first six months of care.

The study was published in a recent edition of the *Annals of the American Thoracic Society*. ■

## Inhalable Ibuprofen for Cystic Fibrosis Patients?

Previous research has shown that high doses of ibuprofen can help slow the decline of lung function in people with cystic fibrosis. Unfortunately, those high doses also result in gastrointestinal bleeding and, when combined with the antibiotics often taken by CF patients to manage recurring lung infections, acute kidney injury as well.

Investigators from the Texas A&M Health Science Center believe an inhalable form of ibuprofen might provide the benefits without the risks. They have already developed several nanoparticle formulations and are testing them in animal models to measure the drug concentrations in the lungs and serum at different time points. "This type of experiment addresses the pharmacokinetics of the drug and aims to investigate our hypothesis that we can achieve high local concentrations in the lung while maintaining low systemic concentrations," researcher Carolyn Cannon, MD, PhD, was quoted as saying. ■

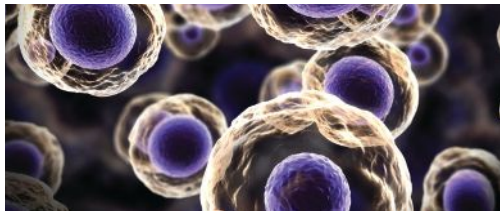
## Moving on Up

**De De Gardner, Dr(c)PH, RRT, FAARC, FCCP**, has received a Presidential Award from the University of Texas Health Science Center at San Antonio. The chair of the department of respiratory care, chair ad interim of the department of clinical laboratory sciences, and Stephen Lloyd Barshop Endowed Professor in Respiratory Care was honored for her commitment to her students and the work she has done in her community to provide care for ALS patients and promote better asthma control. ■

## COPD — at the Cellular Level

A recent study out of Case Western Reserve University sheds new light on the smoke-induced collapse of protein homeostasis and its contribution to the age-dependent onset of COPD. Publishing in the *Journal of Biological Chemistry*, researchers demonstrated that free radicals can reach the endoplasmic reticulum, a cellular organelle that is critical in manufacturing and transporting fats, steroids, hormones, and various proteins. These free radicals then alter the function of the endoplasmic reticulum by oxidizing and damaging protein disulfide isomerase (PDI), which plays a role in protein folding.

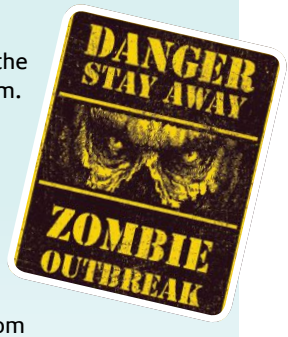
"Understanding the mechanisms of the collapse of protein homeostasis in COPD allows us to focus on maintaining functional levels of PDI," study author Anna Blumental-Perry, PhD, was quoted as saying. "This could improve outcomes for the many patients with COPD as well as potentially giving us clues to improve health with aging." ■



# Strange But True...

**The Up Side:** Eosinophils are known for causing problems for people with asthma and allergies, but they may have a good side, too. University of Virginia researchers have found the protein IL-25 protects people from developing *Clostridium difficile* infection by manufacturing eosinophils to guard the integrity of the gut lining. The finding could be a game changer for patients at risk for *C. diff* due to antibiotic treatment.

**Off putting:** British researchers have identified what they believe to be the world's most hideous color in an effort to help people kick their smoking habit. The color will now be used on all cigarette packages manufactured for sale in the United Kingdom in the hopes that it will dissuade people from purchasing them. The tactic was first tried in Australia.




**Walking dead:** Zombies are all the rage on the small screen. Now they're being used to teach public health to students at the Uniformed Services University of the Health Sciences. In addition to other creative scenarios, students are presented with a zombie pandemic to practice their new skills.

**Good bad habits:** Few parents would encourage thumb sucking or nail biting in their children, but new research suggests these habits do have some benefits for kids at risk for allergies and asthma. Investigators from New Zealand and Canada found children who suck their thumbs and bite their nails are significantly less likely to develop allergies to things like house dust mites, grass, cats, dogs, horses, and airborne fungi. Investigators believe it's the hygiene theory at work.

**Better use for tobacco:** South African Airways became the first commercial carrier in the world to fuel a passenger jet with biofuels from nicotine-free, energy-rich tobacco plants last summer. Developers believe the biofuel could help airlines reduce their carbon footprint. ■

## Students and Seniors Get Price Breaks on Dues

AARC members who are just starting out in their careers and those who are getting ready to retire can both benefit from exclusive membership offers developed just for them.

The transitional student membership is available to student members who are preparing to graduate. Those who renew their membership at least 91 days prior to graduation will save the most on dues, but savings are available up to 150 days past graduation. AARC student members nearing graduation should look for an email with specific instructions on how to claim this special membership price break or call AARC Customer Service at (972) 243-2272 to participate.

Members age 65 and older who have been AARC members for at least 20 years are eligible to maintain their membership in the Association *or* become members for life for a nominal fee. This digital membership gives these loyal members the chance to stay in touch with everything going on in the respiratory care industry while they're planning for or entering retirement. Members eligible for this senior status can call AARC Customer Service at (972) 243-2272 to learn more about signing up. ■

## Quick Test for Detection of Lung Pathogens

Faster lab tests to identify pathogens in the lung could speed treatment, but current tests can take several weeks to complete. A research group from the Institute of Medical Microbiology at the University of Zurich and the National Centre for Mycobacteria examined molecular-based methods for the detection of mycobacterial pathogens using more than 6,800 patient samples. Specifically, they developed a diagnostic algorithm to detect mycobacteria directly from the patient sample using genetic analysis and compared this method of detection to bacteria cultures from more than 3,000 patients over a three-year period. The new molecular-based methods, which made it possible to detect the nontuberculous mycobacteria directly from the patient sample within just a few hours, were found to be just as accurate as the lengthy culture-based techniques. The study was published in a recent issue of *EB Medicine*. ■

# Industry Watch

## Arch Biopartners forms advisory board for antibactericidal drug

Arch Biopartners, Inc., has formed a clinical and medical advisory board for AB569, the company's bactericidal drug for treating antibiotic-resistant infections in the lungs and urinary tract. Included on the board are leading physicians working in the areas of cystic fibrosis and COPD. The advisory board will provide guidance and expertise on obtaining regulatory approvals, human trial design, and patient enrollment to enable first-in-human trials for AB569 in patients with chronic lung infections.

## Moffitt Cancer Center receives grant to study e-cigs

The National Institutes of Health has awarded Florida-based Moffitt Cancer Center a research grant to study changes in traditional cigarette and e-cigarette use over time among individuals who are currently using both products. Project EASE (E-cigarette And Smoking Evaluation) will follow 2,500 participants for two years to measure their behaviors and attitudes regarding cigarettes and e-cigarettes. "Electronic cigarettes have already changed the world of nicotine and tobacco use, and the research is still catching up," Thomas H. Brandon, PhD, director of the Tobacco Research and Intervention Program at Moffitt, was quoted as saying. "This study is designed to provide the public health and medical communities with the data they need in order to give the best advice to smokers and vapers."

## Immunovaccine Inc. reports good results for RSV vaccine

A team of investigators at Immunovaccine, Inc., has completed an interim analysis of the safety and immunogenicity of its DepoVax™ prophylactic respiratory syncytial virus (RSV) vaccine candidate (DPX-RSV) in a Phase I clinical trial in healthy older adult volunteers. The safety analysis indicated that DPX-RSV was well tolerated among all study participants, with no serious adverse events recorded. Immunogenicity data supported DPX-RSV's ability to generate a relevant immune response as well, with antigen-specific antibody responses obtained in 75% of subjects vaccinated with the lower dose used in the trial and 100% of those vaccinated with the higher dose.

## DebMed® system lowers MRSA rate

A first-of-its-kind study in the *American Journal of Infection Control* shows a direct correlation between using data from the DebMed® Electronic Hand Hygiene Compliance System and significantly reduced hospital onset methicillin-resistant *Staphylococcus aureus* (MRSA) infections. The study was conducted at Greenville Health System in Greenville, SC, where researchers utilized hand hygiene compliance data from the DebMed System to measure the impact of hand hygiene compliance rates on the incidence of health care-associated infections such as MRSA. Hand hygiene compliance rates increased by 25.5%, hospital onset MRSA rates decreased by 42%, and total costs of care avoided were approximately $434,000.

## More positive results for VIBATIV®

According to Theravance Biopharma, Inc., new positive data from several studies of VIBATIV® (telavancin) show potent in vitro activity against isolates from a range of difficult-to-treat infections, including MRSA. The findings further supplement the extensive and well-documented evidence demonstrating that VIBATIV® possesses greater in vitro potency against MRSA and other difficult-to-treat clinical pathogens as compared to widely prescribed antibiotics such as vancomycin, daptomycin, and linezolid. Results from these studies were presented at the American Society of Microbiology Microbe 2016 Conference held in Boston, MA, earlier this year.

## CDC partners with businesses

The Centers for Disease Control and Prevention is partnering with businesses, health insurance plans, and doctors to help improve health and control health care costs for costly, common conditions including tobacco use, high blood pressure, diabetes, asthma, and

health care-associated infections. "Business Pulse: Lowering Healthcare Costs, Improving Productivity" explores how the CDC can help businesses with interventions proven to address health conditions while improving workers' health and boosting business productivity. "Businesses can improve employee health and reduce health care costs by addressing conditions that affect their employees, such as high blood pressure and smoking," CDC Director Tom Frieden, MD, MPH, was quoted as saying. "CDC is helping businesses by sharing research on proven interventions for some of the most common and costly health issues."

## Allergy Therapeutics plans further dose-range-finding trial

Allergy Therapeutics has reported disappointing results from its exploratory Phase II dose-ranging study for the US GrassMATAMPL clinical development program. A recommended dose for the Phase III trial could not be determined and now a further dose range-finding study will be implemented prior to proceeding into the planned pivotal Phase III study. GrassMATAMPL is an ultra-short course subcutaneous allergen specific immunotherapy administered prior to the grass pollen season.

## Breathtec BioMedical moves forward with clinical trial program

Breathtec BioMedical, Inc., has announced plans for a clinical trial program at Innovation Boulevard located in Surrey, British Columbia. According to the company, the announcement marks the beginning of an intensive research review into NA-NOSE, an advanced stage, nanotechnology-based breath analysis device from the Technion-Israel Institute of Technology that has been in-licensed by Breathtec. The system was developed to detect the volatile biomarkers of diseases from exhaled breath. Breathtec has chosen the Province of British Columbia and the City of Surrey to hold its clinical trials for selected respiratory infections.

## Chiesi Farmaceutici SpA reports good results for COPD drug

Chiesi Farmaceutici SpA has completed two multicenter clinical studies with its fixed ICS/LABA/LAMA triple combination investigational product, CHF 5993, a treatment for COPD. Chiesi's fixed triple combination contains three active ingredients, the anti-inflammatory inhaled corticosteroid beclomethasone and two bronchodilators — the long-acting beta2 agonist formoterol and the long-acting muscarinic antagonist glycopyrronium — in a single inhaler. The studies involved more than 4,000 patients and showed a consistent effect of the fixed triple therapy combination on a range of outcomes, including exacerbations, lung function, and quality of life.

## BioAegis Therapeutics teams up with Harvard to study pneumonia

BioAegis Therapeutics, Inc., is partnering with the Harvard School of Public Health to study pGSN replacement as a therapy for antibiotic-resistant pneumonia. The partnership received a three-year $2.8 million grant from the National Institute of Allergy and Infectious Diseases to further the study. "The potential to directly augment the immune response to varied pathogens in the face of suboptimal or ineffective antibiotics is a new and exciting approach and is consistent with plasma gelsolin's role in innate immunity," BioAegis CEO Susan Levinson, PhD, was quoted as saying.

## Intensivist usage falls short, says The Leapfrog Group

A new report released by The Leapfrog Group and analyzed by Castlight Health indicates that only 47% of hospitals reporting in the 2015 Leapfrog Hospital Survey had the recommended intensivist coverage in place. Leapfrog's standard calls for hospitals to have one or more board-certified intensivists on staff who exclusively provide care in the ICU and are available for eight hours per day, seven days a week. These intensivists should be able to return calls within five minutes 95% of the time. Hospitals can partially meet the standard by having intensivists available through telemedicine. "Having an intensivist present in the ICU saves lives, period," Leapfrog President and CEO Leah Binder was quoted as saying. "Patients and families should be on high alert if their hospital lacks this essential coverage."

## Food allergy network expands

Food Allergy Research & Education (FARE), a nonprofit organization working on behalf of Americans with food allergies, has expanded its FARE Clinical Network to include 28 centers of excellence across the country. Launched in 2015, the FARE Clinical Network serves more than 56,000 patients with food allergies. The individual centers also serve as sites for clinical trials for the development of new therapeutics and developing best practices for the care of patients with food allergies. FARE plans to further expand the network to 40-50 sites within the next three years. ■

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

Special Advertising Section

# Industry Update

Featuring information on products and equipment from manufacturers

# Calendar of Events

**AARC & State Society Programs**

**September 20-21**
Killington, VT
VT/NH SRC Annual Meeting
Contact: Lisa Darling Email: darling@apdmh.org

**September 22-23**
Muncie, Indiana
Respiratory Therapists: Secret Agents of Healthcare
Contact: marytodd25@yahoo.com, (812) 779-6842

Submissions for the next available issue are due September 19.

For information on submitting calendar events, contact: Beth Binkley, AARC Times 9425 N. MacArthur Blvd, Suite 100, Irving, TX 75063-4706 (972) 243-2272 Fax (972) 484-2720 E-mail binkley@aarc.org



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