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Faces of the ARCF

Krystal Craddock – One Member Who Has Benefited from Research Funding

Krystal Craddock, RRT-NPS, CCM, Elk Grove, CA


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Introducing the AARC Strategic Plan

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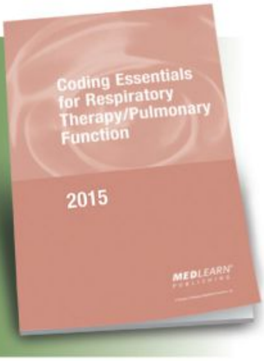

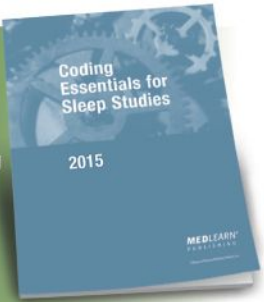

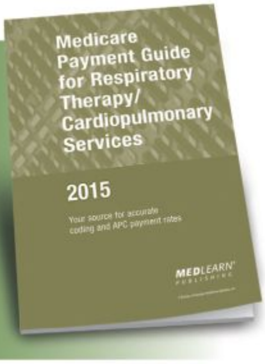

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Dealing with Death and Dying

by Jonathan Fanaroff, MD, JD

> "To cure sometimes, to relieve often and to comfort always."
> — *Dr. Edward Livingston Trudeau*

Modern medicine is filled with amazing advances and technological marvels. This has had direct benefit for patients. Median survival for a child born with cystic fibrosis in 1980 was less than 20 years; today that same child can expect to live nearly 40 years, with hope of course for even more advances. Dealing with death and dying, however, remain a common occurrence for many respiratory therapists. This can be a very difficult and emotional experience, and yet often there is little education or support. Acknowledging difficulties in accepting death and dying, understanding the stages of grief, and identifying counseling or other outlets for addressing caregivers in need of assistance can help respiratory therapists to cope with what is often the most difficult part of one's professional career.

about the author...

Jonathan Fanaroff, MD, JD, is associate professor of pediatrics, NICU associate medical director, and director of Rainbow Center for Pediatric Ethics at Rainbow Babies & Children's Hospital in Cleveland, OH.

Supporting the dying patient

The fact that a patient is dying does not necessarily mean that "curative" measures are withdrawn. At the same time, comfort measures aimed specifically at relief of pain and stress are critical. Indeed, caregivers must focus on relieving the four domains of suffering: physical, spiritual, psychosocial, and emotional.

Acknowledge the death

Acknowledging that a patient whom you've cared for has died is one of the most important steps you can take to deal appropriately with your feelings. This is not always easy. Respiratory therapists are always busy, and clinical demands in an emergency room or intensive care unit continue even after a death. It can be very helpful, however, for the respiratory therapists, along with physicians, nurses, and other team members, to take just a few moments to "debrief" and acknowledge what has occurred. Colleagues are often uniquely able to empathize, understand, and support one another when given the chance.

Grief

The death of a patient often triggers a cascade of emotions in the respiratory therapist, especially when there has been a long-standing relationship between the therapist and the patient. Swiss psychiatrist Elisabeth Kübler-Ross first described the emotional stages experienced during grief.[1] They include:

- **Denial** – a feeling of numbness; often acts as a protection of the intensity of the loss
- **Bargaining** – thoughts about what could have been done differently; feelings of guilt or remorse
- **Depression** – sadness at the extent of the loss; feelings of loneliness and isolation
- **Anger** – feeling helpless, powerless, and mad at others; may be angry in general or directed toward others or spiritually
- **Acceptance** – healing can begin when the death is acknowledged and accepted.

It is important to recognize that the Kübler-Ross stages do not necessarily occur in order; in fact, it is common for the respiratory therapist to experience a multitude of feelings at the same time.

Seeking additional support

While grieving the death of a patient is normal, for some respiratory therapists and other health care professionals there can be a number of significant negative impacts. Wilson and Kirshbaum[2] have researched the effects of patient death on nursing staff, and their findings can be extrapolated to the respiratory therapist. Physically, the RT may find themselves crying excessively or unable to sleep. Emotional relationships with family members and friends may be strained. Finally, work performance may be affected.

A supportive work culture may help the grieving RT. Supportive cultures acknowledge the loss when a patient dies, as well as the role of the caregivers. Attending funerals or holding a brief memorial in the hospital can provide an outlet for shared grief. Additionally, training on the grief process and helping individuals to develop coping strategies may be effective. Finally, professional counseling may be a valuable resource when the respiratory therapist feels particularly intense, prolonged, or severe grief.

Death is an unfortunate but unavoidable aspect of caring for ill patients, and it is completely normal for the respiratory therapist to grieve when this occurs. This is never easy, and it is common to experience difficulty in accepting the death of a patient. It is important for RTs to realize that they are not alone. Acknowledging the death, seeking support from colleagues, and creating a supportive work culture are important measures to help deal with the loss of a patient. Professional counseling can be very helpful when the RT feels particularly intense, prolonged, or severe grief. ■

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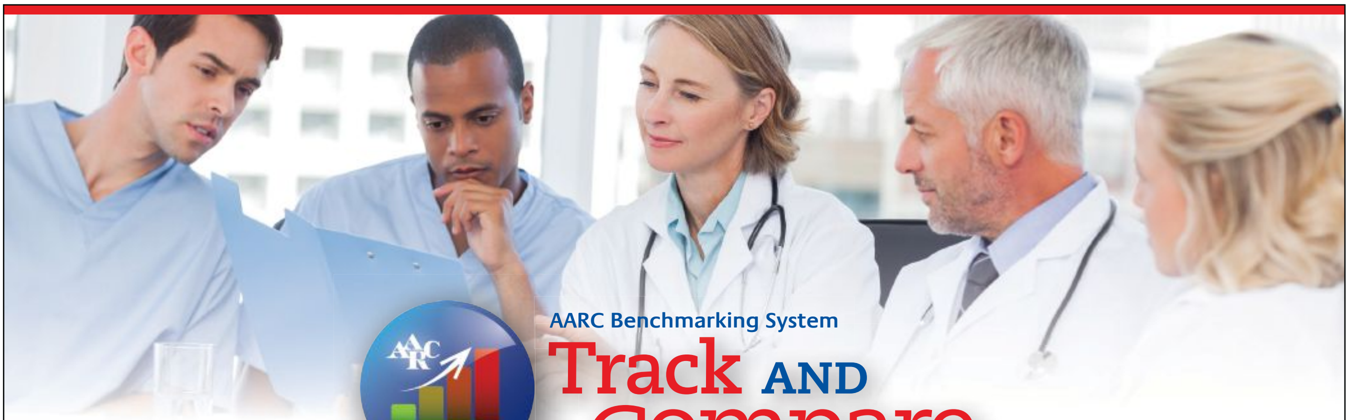


Treatment of the Adult Patient with Cystic Fibrosis

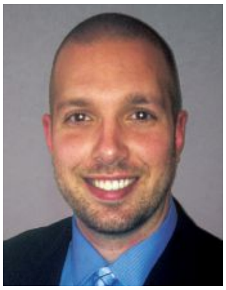
by Chad Weagraff, MBA, RRT-NPS

Cystic fibrosis (CF), a genetic disorder that primarily affects the lungs and pancreas, occurs in 1 in 2,000 people and can also affect other organs in the body that produce mucus or bodily fluids. The cells in a CF patient's organs do not function properly, resulting in thicker than normal secretions. The thicker than normal secretions in the lungs and pancreas cause CF patients to have difficulty in breathing and digesting their food.[1]

Advancements in CF therapy

Cystic fibrosis patients continue to live longer than ever before with the continuing advancements in therapy. A key factor in more and more adults living with cystic fibrosis is the improved treatments that the CF patients receive in childhood. These improved therapies can simply be a strict regimen for their treatments and therapies during both ill and well times. Daily management of the pediatric CF patient will teach them that striving to be healthy will help them stay as healthy as possible as an adult. The median survival age for CF patients from 1955 until today has increased from 5 to 41 years old.[2] The treatment management of CF patients includes maintaining lung function as near to normal as possible by controlling respiratory infection and clearing airways of mucus, administering nutritional therapy to maintain adequate growth, and managing any respiratory or digestive complications that may occur.[3]

about the author...



Chad Weagraff, MBA, RRT-NPS, is the night-shift coordinator at University Hospitals Case Medical Center at Rainbow Babies and Children's Hospital in Cleveland, OH.

Recent scientific advancements

Airway clearance techniques with autogenic drainage or positive expiratory pressure devices have long been a standard in CF therapy. Inhaled bronchodilators, inhaled steroids, inhaled antibiotics, and inhaled mucolytics continue to be part of the daily maintenance of the disease for CF patients with respiratory symptoms. There continues to be new research and treatments along with improved medications that are targeting the primary problem with CF patients in the attempt to cure or treat the root cause of CF. Arikace™ (InsMed Inc., Bridgewater, NJ) and levofloxacin are inhaled antibiotics that showed promise in trials for treating CF patients with colonized *Pseudomonas aeruginosa*. AeroVanc™ (Savara Pharmaceuticals, Austin, TX) is an inhaled dry-powder version of vancomycin that has shown a significant reduction in methicillin-resistant *Staphylococcus aureus* density in CF patients trialing the medication compared to CF patients receiving a placebo.[4]

Gene therapy, new medications, lung transplants, or individual lobe transplants from live donors are some of the newest advances or improved areas in the treatment of CF patients with an affected respiratory system. Gene therapy is still in the research phase, but it does show promise that the molecular defect in the cystic fibrosis transmembrane conductance regulator (CFTR) can be corrected using small molecule drugs and the success of gene therapy.[5] While gene therapy would not treat the symptoms of CF, it would attack the genetic problem itself at the CFTR, preventing and eliminating the symptoms altogether.

Ivacaftor, an oral medication that the U.S. Food and Drug Administration (FDA) has approved for treating CF, targets the faulty gene and its protein product, CFTR.[6] Ivacaftor was approved for CF patients two years old and older[2] (but was originally approved only for CF patients older than six years).

Vertex Pharmaceuticals (Boston, MA) was attempting to use lumacaftor in combination with ivacaftor for improvements in lung function for CF patients 12 years and older. The combination is used for CF patients with two copies of the F508del mutation. This combination still requires FDA approval, but the research looked positive for improving the quality of life of CF patients and finding a possible cure.[7] Further FDA research failed to find the efficacy of lumacaftor positive for treating CF patients. The company's combination of lumacaftor and ivacaftor together as the brand name Orkambi™ is still being decided.[8]

There are possible adverse reactions to ivacaftor. CF patients receiving ivacaftor showed increases in liver enzymes that require monitoring monthly and annually while receiving ivacaftor. Use of ivacaftor frequently included adverse reactions such as abdominal pain, headache, low blood sugar, common cold, diarrhea, rash, nausea, and dizziness. More side effects can be found on the product label.[9]

Managing the adult vs. the pediatric CF patient

Adult CF patients take the same medications and perform the same types of airway clearance therapies as pediatric CF patients. A difference between the two age groups is that the pediatric patients typically perform their treatments with a parent or RT's supervision. Adults must be responsible for their own therapy, especially when they are not admitted to the hospital. Noncompliance is a significant obstacle with adult CF patients.

Cystic fibrosis patients being compliant and performing preventive care during early childhood will assist them to survive longer. A CF patient's lung function and health decreases over their lifetime. An obvious benefit for pediatric patients over adults is that their lungs have not experienced the longer term damage that their adult counterparts have endured. Pediatric patients being compliant with their treatment regimens on a daily basis will carry over into their adult lives, and they will have a much better chance at living longer with a higher quality of life.

Psychosocial influences in self-management

The daily therapy of a CF patient can be extremely time consuming. When a CF patient has to do their airway clearance and take their medications every 4–12 hours lasting up to an hour each time, their day fills up quickly. The treatments take away from social events, which can be especially difficult for pediatric patients and can be psychologically depressing during such an influential time in their lives. During routine examinations of both adult and pediatric CF patients, the clinician should pay attention to the mental attitude of the patient and even ask them how they are feeling about everything.

Research has shown that CF patients have similar psychological and psychosocial lives as those of individuals without cystic fibrosis. Evidence shows that the depression and psychiatric problems arise when the disease becomes severe. There have been studies that have shown there is little to no correlation between the respiratory impairment and psychological function of a CF patient. CF patients are continually weighing their quality of life versus the changes in their clinical health. Adults, although noncompliant at times, are aware that their quality of life can be negatively affected if they are noncompliant, resulting in their worsening clinical health.[10]

Role of the RT

A respiratory therapist assists a CF patient with their therapy while they are in the hospital and provides them with education on their disease that they can use both inside and outside of the hospital. The education can consist of how to perform their therapies, what therapies to perform, and when they should perform them. All treatments and medications should be based on a physician's order. The RT can elaborate on the therapies or medications and answer any questions that the CF patient may have. The CF patients who are admitted to the hospital typically are admitted on a routine basis. The CF patients become as familiar with the RTs who

provide their care as do the RTs with the CF patients. Currently, there is not a cure for CF, so the RT is — and will continue to be — a major player on the team battling cystic fibrosis. ■

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The Difference Between State Licensure and NBRC Credentialing

by Chelsea Earhart, MBA

The NBRC frequently receives calls or questions from practitioners who are confused about the renewal of NBRC credentials in relation to the renewal of a state license to practice respiratory therapy. This article will address the differences between the two distinct entities and the importance of renewing both.

Continuing Competency Program

Beginning with credentials issued July 1, 2002, the NBRC's Continuing Competency Program (CCP) was put in place to assure the public and others that individuals credentialed by the NBRC continue to demonstrate a level of excellence in professional knowledge, skills, and abilities as respiratory therapists and pulmonary function technologists. The purpose behind the CCP is to establish standards by which continued competency of credentialed practitioners working in defined areas of respiratory care, including assessment, may be determined. The CCP was designed to enhance and contribute to the continued competence of credentialed respiratory therapists and pulmonary function technologists, as well as to demonstrate concern for patient safety. Most individuals required to participate in the program have successfully renewed their national credentials issued by the NBRC by providing evidence that they continue to meet current standards of practice.

about the author…

Chelsea Earhart, MBA, is assistant executive director of the National Board for Respiratory Care.

All credentials subject to the CCP must be renewed every five years. There are three ways to renew credentials subject to the CCP: retake and pass the respective examination for the highest credential held, take and pass a new NBRC credentialing examination, or provide proof of completion of a minimum of 30 hours of Category I Continuing Education (CE) acceptable to the NBRC. If a practitioner does not use one of the three routes of credential renewal and allows the credential(s) to expire, the practitioner will no longer be able to use the credential designation(s).

The effect of allowing a credential to lapse can be widespread. An expired credential means that unless the practitioner takes steps to reinstate the credential, they are no longer recognized as holding the national designation. For those allowing their CRT or RRT credential(s) to expire, a practitioner's lapsed credential(s) may violate their licensure status, causing the state to re-evaluate whether the practitioner has violated the terms of licensure by no longer holding the national credential. This may cause a practitioner to lose their license to practice respiratory care in their state.

No longer holding an NBRC credential may affect a practitioner's status in the workplace. Therapists who no longer hold the CRT credential will lose the ability to become eligible for the RRT credential. Additionally, organizations requiring the advanced-level RRT credential as a condition of employment may re-evaluate the nature of a respiratory therapist's employment or consider adjusting the pay scale for any employee not meeting predetermined professional requirements for respiratory care practitioners.

The main source of confusion usually stems from practitioners believing that renewing a state license to practice also renews their NBRC credential(s). Although 49 states use the NBRC's CRT or RRT credential as the basis for licensure, the state licensing boards and the NBRC are completely separate entities. All states that require a license to practice respiratory care also require some form of license renewal. Each state has different requirements on the length of time required between renewals and the method of renewal. Additionally, states also differ on the required status of NBRC credentials when renewing a state license to practice. If a practitioner is unsure about what requirements are necessary in their state, it is best to contact the state licensing board directly to find out what is required in the state(s) where the license(s) are held.

In order to ensure that neither NBRC credentials nor a state license to practice lapse, it is important to keep all contact information current with **both** organizations. This ensures that important notices regarding these two very crucial career tools are received. It is also imperative to note that state licensure boards, the AARC, and the NBRC do not share common databases, CEU records, or contact information. Each organization has its own database systems and processes for practitioners to submit the necessary information required for renewal.

Question/answer sources

More detailed information regarding compliance with the CCP can be found on the NBRC website at www.nbrc.org. For questions about how a change in credential status (such as expiration) may affect employment, practitioners are encouraged to speak with their employer. Additionally, the individual's state licensure agency should address how credential status may affect a state-issued license to practice. A directory of these agencies can be found on the NBRC website at http://apps.nbrc.org/statelic/.

The NBRC Board of Trustees and its committees are interested in your comments, questions, and concerns. You may contact the NBRC at 18000 W. 105th St., Olathe, KS 66061, by email at nbrc-info@nbrc.org, by phone at (888) 341-4811, or visit www.nbrc.org. ■

The Kindest Job in the World!

by Jim Nelson

On one long-ago day, we stood in front of a preacher and uttered "…'till death do us part…." We meant it at the time, but who could have envisioned the situation that we found ourselves in? Over the years, we have taken turns playing nurse, helping out, taking over sometimes really unfamiliar roles while the other one healed from some random hurt. Thing is, we always healed.

There are two kinds of maladies. Acute illnesses or injuries vary in severity and oft-times come on suddenly. It may take a cast or chemotherapy or just time; but both parties, the patient and the spouse, know that they are normally curable.

On the other hand, chronic means forever. Chronic conditions do not go away. They have no cure, nothing that will heal them, nothing to look forward to but many months — perhaps many years — of illness, of deterioration.

However, it can also bring about one of the strongest, sweetest, most astounding relationships known to man; that of the patient and the caregiver. The fate of a caregiver can be that of a life put on hold. Taking over the responsibilities of the care of a fellow human being takes a really special kind of love. If the patient has some manner of serious acute condition, a condition that is likely to kill them very soon, it is easy to summon up the generosity to volunteer for the caregiver's role. After all, regardless of the degree of involvement, it is not likely to last very long. There will always be the sense of self-satisfaction, the admiration of others. As wrong as it may seem, it makes it easier to put oneself in the position of sacrifice.

The caregiver for the patient with a chronic illness — with COPD or MS or ALS — is faced with both certainty and uncertainty. They can be certain that their efforts will grow more complex, more onerous, more time-consuming as the disease progresses. The major uncertainty involves time. It can be a lonely business, knowing that the burden of care may last for many years.

about the author…

Jim Nelson is a retired accountant and COPD patient. Both he and his wife Mary teach the value of humor and a good attitude.
©Jim Nelson, 2015

That is assuming that the relationship is looked upon as a burden. Sometimes it is. However, there is also the loving relationship of which we spoke earlier. The third party in the relationship, the chronic condition that can threaten the status quo, can be very strong. Consequently, the willingness to sacrifice time, to put aside a life for another, so often comes from love.

My wife of 51 years has been a hospice volunteer for 20 years. She has had the honor to be with so many families, so many patients and their caregivers over the years. She has always been a kind, patient counselor, a healer.

Lucky for me

Due to several factors, including the sins of my youth, I was diagnosed with severe COPD at age 55. Suddenly, there was a reason for my perpetually weak lungs. Suddenly, I was the patient and Mary was the caregiver. Suddenly, our relationship took on a whole new aspect. We knew that as the disease took over my breathing, my life, Mary would be saddled with more of the duties of our existence. That's how it works. As time passed, we learned as much as we could about lung disease. We became involved with the American Lung Association and the COPD Foundation. We developed and taught classes to others on living with lung disorders. We tried to keep as active as possible. Nonetheless, the disease continued to take its toll; and it was becoming obvious that I was approaching the stage where hospice care would be indicated.

We both knew of the value of the hospice organization, of the incredible support offered by the medical staff, by the counselors, by the volunteers. They do not take the place of the caregiver. Rather, they supply support, assistance, and respite from the constant responsibilities. They give advice, a sympathetic ear, a shoulder to cry on. For the patient, they offer comfort, freedom from pain, dignity. We also knew that hospice is, in way too many cases, called

Jim and Mary Nelson

too late. The mistaken notion that calling hospice is “giving up” keeps too many people away from the services that could do so much good for everyone involved.

The only cure for COPD is a double lung transplant. In December of 2011, I was blessed with a new set of lungs! Mary and I are still teaching the classes and working with lung patients, and she is still active with hospice. Life is good. Told you I was lucky!

RTs impressed us

“One of the banes of the existence of COPD patients is the exacerbation, the lung infection, the pneumonia that knocks them down so badly. It brings on a choice: fighting through the increased weakness and shortness of breath to regain a semblance of their former quality of life or simply accepting their newfound disability. It was such an episode that first led me to the respiratory therapy unit at St. Joseph’s Hospital in Tucson. They were a wealth of information, of guidance, of encouragement! I was so impressed with them that Mary and I eventually became a part of their educational program, teaching patients and caregivers how to deal with their disease. To our great delight, we have also become a part of the teaching process at Pima Medical Center, offering our story and guidance to RT students.” ■

Caring for Veterans with Amyotrophic Lateral Sclerosis

by Charles J. Gutierrez, PhD, RRT, FAARC

In 2006, the Institute of Medicine (IOM) reported evidence that military service was associated with an increased lifetime risk of developing amyotrophic lateral sclerosis (ALS).[1] Also known as Lou Gehrig's disease or motor neuron disease, ALS is a neurodegenerative disorder characterized by muscular paralysis arising from dysfunction of upper (brain) and lower (bulbar and spinal) motor neurons and leading to muscular denervation, atrophy, and spasticity. Although most cases occur sporadically, about 10% are associated with genetic and/or epigenetic factors.[2] Onset of disease can be clinically heterogeneous and may follow variable, patient-specific clinical trajectories.

Most patients succumb to the disease in 1–5 years; and many exhibit symptoms of chronic ventilatory insufficiency, which may lead to acute ventilatory failure. The plan of care consists of treating symptoms, pain, and distress to maintain best health-related quality of life (HRQOL).

Meeting the challenge

In 2008, ALS became an illness compensable by the Veterans Administration (VA). Later that year, neurorespiratory therapists at the Michael Bilirakis Spinal Cord Injury Center at the James A. Haley Veterans Hospital in Tampa, FL, reconfigured their mode of practice to treat veterans with ALS.

Although neurorespiratory therapists had been treating patients with cervical spinal cord injury (CSCI), traumatic brain injury, and multiple sclerosis, treating ALS was different because there was scant scientific literature regarding best practices for enhancing pulmonary function in this patient population. However, having successfully provided protocol-driven care to returning wounded warriors, neurorespiratory therapists were accustomed to designing and implementing evidence-based protocol-guided interventions and began developing protocol-driven neurorespiratory care for patients with ALS.[3]

The first order of business was to recognize that important differences exist between patients with neurotrauma and those with ALS. After being clinically stabilized, veterans with community-associated or combat-associated neurotrauma usually improve enough to enter intensive neurorespiratory rehabilitation (INR), where further improvements in spontaneous ventilation may occur. In contrast, veterans with ALS often exhibit progressive decline in spontaneous ventilation and are generally not deemed candidates for INR. The challenge of treating ALS was significant for therapists accustomed to successfully transitioning patients through INR, weaning them from mechanical ventilation, and returning them to their communities.

about the author...

Charles J. Gutierrez, PhD, RRT, FAARC, is a neurorespiratory clinical specialist at James A. Haley Veterans Hospital and the VA Health Services Research & Development Center of Innovation on Disability and Rehabilitation Research in Tampa, FL.

Proof-of-concept model

In 2005, the Consortium for Spinal Cord Medicine (CSCM), with support from Paralyzed Veterans of America, published the first evidence-based, clinical practice guideline for managing respiratory issues following spinal cord injury.[4] Although the CSCM guidelines were not originally intended for ALS patients, pulmonary complications encountered in patients with neurotrauma and those with neurodegenerative disorders are similar. Hence, our neurorespiratory therapists used these guidelines to identify components that might be applicable to veterans with ALS.[5] Currently, there is widespread agreement that guidelines similar to those produced for patients with CSCI are needed for patients with amyotrophic lateral sclerosis. Perhaps a national clearinghouse like the Agency for Healthcare Research and Quality would be amenable to formulating ALS-specific clinical guidelines.[6]

Our interest in developing protocols for our patients, including those with ALS, grew out of findings suggesting that protocolized care is associated with improved outcomes.[7] Respiratory therapy students who train at our center receive hands-on experience in using research to formulate protocols;[8] and from 2009–2011, students with advanced academic standing participated in a mentored, hospital-based clinical research practicum that enabled them to deliver protocol-driven therapeutic interventions to ALS patients and to determine whether desired clinical outcomes had been attained.

This educational program became a proof-of-concept model for translating anecdotal observations into high-level clinical evidence needed for developing ALS-specific protocols. The new guidelines will become an integral part of training for neurorespiratory therapists who care for veterans with ALS.

Outreach with a mobile laboratory

Because ALS often results in progressive decline in ventilatory muscle function, patients should receive serial pulmonary function testing to detect declining function that may herald ventilatory insufficiency and the need for noninvasive mechanical ventilation. Further declines may presage ventilatory failure and the need for tracheostomy, mechanical ventilation, or terminal palliative care. Approximately 42% of veterans with ALS reside in rural communities, far from urban referral centers where medical expertise, special pulmonary function testing methods, and clinical interventions are typically located.[9] As the disease progresses, many patients find it impossible to travel to a site where pulmonary function can be tested and where they can confer with neurorespiratory therapists about best practices for managing ventilatory complications.

Now, thanks to a grant from the Veterans Health Administration Office for Rural Health, researchers at James A. Haley Veterans Hospital, Center for Innovation on Disability and Rehabilitation Research, in transdisciplinary collaboration[10] with clinicians at the Michael Bilirakis SCI Center, are developing a mobile laboratory staffed by neurorespiratory therapists who will perform in-home pulmonary function testing and provide neurorespiratory consultation during the same visit.

The ALS Pulmonary Function Testing/Neurorespiratory Care Mobile Lab is scheduled to begin operation soon and will focus on patient-centric care for veterans in rural communities whose neurodegenerative disease process has greatly decreased their mobility. By monitoring pulmonary function in veterans with ALS, our therapists will be able to initiate proactive treatment with mechanical in/exsufflation and/or noninvasive mechanical ventilation. These interventions mitigate declines in forced vital capacity and may prolong survival.[11]

The project will also make it possible for patients in motorized wheelchairs to perform pulmonary function tests in sitting and supine positions, allowing the therapists to evaluate the effects of muscular denervation, atrophy, and spasticity on diaphragmatic function. Additionally, therapists will measure airway resistance using an impulse oscillometry system.[12] This is intended to help researchers elucidate the impact that a progressively restrictive disease process has on the airways, lung tissue, and chest wall and to develop interventional methods.

In order to assist the in-home caregivers of these veterans in providing the best possible care, therapists will offer post-PFT onsite neurorespiratory consultation as well to provide patient-centric clinical, procedural, and/or training recommendations to improve HRQOL. In the future, additional resources are expected to be available in the form of assistive technologies that will prompt patients and/or their caregivers to perform peak cough flow and/or incentive spirometer measurements so that mechanical in/exsufflation, portable tracheal suctioning, and noninvasive ventilation can be administered by caregivers when measurements are below a critical threshold. The same technology may also enable hospital-based clinicians to monitor usage patterns of home-based respiratory modalities that may indicate declining pulmonary function and prompt clinical intervention by home-based caregivers.

Overriding mission

Ultimately, the mission of neurorespiratory therapists will be what it has always been — to help veterans with ALS experience the best health-related quality of life while medical scientists continue the quest for interventional strategies that may mitigate ALS-associated declines in pulmonary function. ■

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Important Milestones in Neurorespiratory Care at the James A. Haley Veterans Hospital

by Charles J. Gutierrez, PhD, RRT, FAARC

In 2005, the year prior to the Institute of Medicine report on amyotrophic lateral sclerosis (ALS) in veterans, the AARC formally acknowledged the importance of neurorespiratory care as a clinical subspecialty by supporting establishment of the AARC Neurorespiratory Roundtable. This reaffirmed the Association's recognition that patients with neurotrauma and neurodegenerative dysfunction exhibit medical, psychosocial, vocational, rehabilitation, and economic challenges that are significantly different than those encountered by able-bodied patients. This awareness also implied that clinicians aspiring to practice neurorespiratory care would be expected to possess specialized training in neuroscience and neurorehabilitation in preparation for their role as neurorespiratory therapists.

Residency training

Recognition of neurorespiratory care as a clinical subspecialty by the AARC, plus publication of evidence-based, clinical practice guidelines by the Consortium for Spinal Cord Medicine, set the stage for the first neurorespiratory residency training program for Registered Respiratory Therapists at the Michael Bilirakis Spinal Cord Injury Center. The aim of the program was to train RRTs to address the unique clinical needs of patients with spinal cord injury.

Among other things, residents learned that patients with cervical spinal cord injury (CSCI) could exhibit significantly altered pathophysiologic responses. Bronchoconstriction and bronchorrhea, commonly encountered after spinal cord injury, could occur as a result of parasympathetic predominance.[1] Normal blood pressure of 120/80 in able-bodied patients could represent hypertension in those with CSCI. Decreased liver function due to CSCI could appreciably prolong the half-life of some medications, thus increasing the potential for polypharmacy in spite of correct, able-bodied dosages.

Collapse of alveoli, mucus plugging, and consolidation are common pulmonary complications in patients with neurologic disorders and are responsible for significant morbidity and mortality. Hence, neurorespiratory residents received hands-on experience in performing chest optimization as a prelude to neurorespiratory rehabilitation. Chest optimization consists of: 1) placing patients in 10-degree Trendelenburg body position, 2) providing mechanical in/exsufflation-assisted tracheal suctioning, 3) providing lung hyperinflation, and 4) providing aerosolization of bronchodilators by small volume nebulizer.[2] This intervention may mitigate increased work of breathing, thereby preparing patients to use abdominal weights and variable spring-loaded resistance valves to improve strength and to perform on-vent/off-vent endurance training prior to undertaking progressive spontaneous breathing trials.

Evidence-based protocols

Neurorespiratory therapists have lead a transdisciplinary effort to design, develop, and implement evidence-based protocols that address the complex respiratory needs of paralyzed patients. An important feature of the neurorespiratory care subspecialty is its emphasis on clinical research.[3] Learning to identify important clinical questions, obtain articles from scientific databases, grade the quality and strength of potential evidence, and prepare articles for review by a clinical team are important skills for these therapists. Also of importance is quantitative analysis to determine whether improved patient care outcomes have been attained. Randomized evaluations of the implementation and effectiveness of evidenced-based guidelines can help determine which protocol(s) are effective in addressing a given set of patient care challenges.[4] ■

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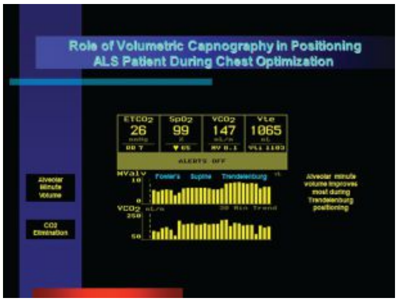
The AARC's Neurorespiratory Roundtable Is 10 Years Old!

The Neurorespiratory Roundtable just turned 10. AARC Roundtables are small groups of Association members working in a certain area of care who want to connect and discuss topics important to their practice. Discussions occur over the Association's social network, AARConnect.

To join the Neurorespiratory Roundtable, log on to AARConnect and search for "Roundtables." Click on the Neurorespiratory Roundtable link, then "Join Community" to begin having conversations with other members about topics like NIV treatment for amyotrophic lateral sclerosis (ALS) patients, treating the multiple sclerosis patient, ventilator protocol and treatment options for ALS patients, and much more. Membership in all of the AARC Roundtables is free of charge to all AARC members. ■

To measure diaphragmatic function of ALS patient in new ALS PFT/NRC Mobile Lab, neurorespiratory clinical specialist will perform pulmonary function testing in upright and supine positions.

Neuorespiratory clinical specialists are part of the transdisciplinary research team designing and testing equipment for the new ALS PFT/ NRC Mobile Lab.

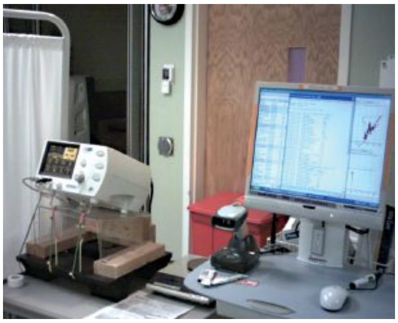


Role of Volumetric Capnography in Positioning ALS Patient During Chest Optimization

Alveolar Minute Volume

CO2 Elimination

Alveolar minute volume improves most during Trendelenburg positioning



In SCI-B Ventilator Rehab Unit, noninvasive cardiac output monitoring identifies changes in pulmonary function of ventilator-dependent patients with neurotrauma or neurodegeneration.

James A. Haley Veterans Hospital, Michael Bilirakis SCI Center, Tampa FL

SCI-B Ventilator Rehab Unit, SCI Center, opened in 2003 with emphasis on rehabilitating and weaning ventilator-dependent patients with cervical spinal cord injury.

Patient Transition from Hospitals

by Thomas J. Kallstrom, MBA, RRT, FAARC

Oct. 1, 2015, will be the one-year anniversary since the Medicare COPD readmission penalties were put in place. Certainly a lot of attention has been directed toward this issue and rightly so. As an association that represents the interests of our patients and members, this penalty certainly should draw your attention; and, hopefully, you have a program in place that is addressing this already. If you have not, it is still not too late to start.

Why are the COPD readmission penalties so important? According to the COPD Foundation, there are 24 million Americans under the age of 65 with COPD; and of those who are admitted to the hospital, almost 20% readmit within that 30-day window.[1] From a payer perspective, with the cost of care at an average of $7,500 per admission, it is no wonder why these penalties were put in place.

These reasons include:

- Poor pre-discharge planning
- Inadequate communication to out-patient providers
- Inadequate medication/safety education
- Patient education that is not taught at the patient or caregiver's level of health literacy
- Poor handoff
- Poor post-discharge communication with patient/caregiver (often this is communication with the durable medical equipment supplier).

RTs can make a difference

Despite the barriers to a successful transition out of the hospital, it is incumbent on the patient to get that first follow-up visit with the clinician. This fact alone should reduce the likelihood of a readmission. This was shown in a very large study (over 62,000 patients) that demonstrated that patients were much more likely to not be readmitted (14% fewer ER visits and 9% fewer readmissions) if they had an early follow-up visit with their physician.[2] This particular analysis concluded that the continuity of a post-discharge visit is a modifiable factor that may reduce relapse. This makes sense because it is during this 30-day window that patients and caregivers will likely follow (or not follow) practices that position the patient to have either a successful or failed outcome. This is an opportunity for the respiratory therapist to impact readmission reductions.

Respiratory therapists can make a difference in bringing down readmissions in programs both in and outside the hospital. The AARC stands ready to ensure there are tools and networking that will assist you in being successful. Go to http://connect.aarc.org where you will find a discussion group called COPD Best Practices. It is on this site that you will find protocols and practices of other RTs who have already put programs together and are willing to share their program information with others. You do not have to reinvent the wheel (so to speak).

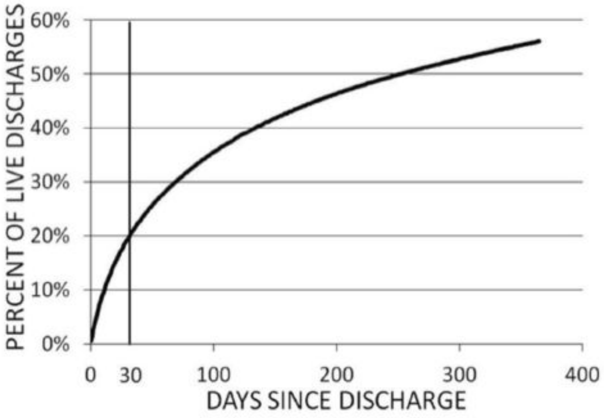
about the author...

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

COPD Readmission Summits

What else is the AARC doing to promote the role of the respiratory therapist as a leader in reducing COPD readmissions? We have presented and have been an active participant at several COPD Readmission Summits in 2013, 2014, and 2015. The most recent was the Second COPD Readmission Summit that was held in Washington, DC, in March 2015.

The first and second COPD Readmission Summits were hosted by the COPD Foundation. The outcomes of the 2013 summit, with collaboration of the stakeholder groups, had four recommendations:



Almost 20% of COPD patients are readmitted within 30 days.

1. Programs to reduce hospital readmissions should include efforts to promote patient self-management skills specific to COPD, including appropriate use of medications (e.g., inhaler devices, supplemental oxygen), smoking cessation, and pulmonary rehabilitation. A rigorous evaluation of different approaches, including engaging caregivers, peers, and community health workers is needed.

2. Patients hospitalized with COPD exacerbations commonly have several clinically significant co-existing chronic and acute conditions (e.g., cardiovascular disease, pneumonia, and mental health disorders). Results of studies suggest that co-existing disorders contribute to hospital readmissions more often than does a respiratory deterioration due to COPD. Strategies to reduce hospital readmissions in this population therefore need to adequately account for co-existing disorders during and after hospitalization.

3. Efforts to reduce hospital readmissions may be harmful. The only study conducted in the United States demonstrated excess risk of death in patients assigned to a comprehensive care management plan.[3] This observation highlights the need for appropriate monitoring of adverse events (including readmissions to other hospitals or out-of-hospital deaths) when implementing strategies to reduce hospital readmissions in patients recovering from COPD exacerbations.

4. A variety of hospital readmissions reduction programs are being implemented across the United States. A strategy to connect groups who are engaged in developing, testing, and implementing programs to reduce hospital readmissions is needed. The COPD Foundation has established a learning library (www.COPDfoundation.org/Praxis.aspx) to share best practices and to identify opportunities to inform the development of multicenter studies.

RTs must be part of the solution

I would encourage you to go to this link (http://journal.copdfoundation.org/jcopdf/id/1048/National-COPD-Readmissions-Summit-2013-Integrating-COPD-into-Patient-Centered-Hospital-Readmissions-Reduction-Programs#sthash.7bGuh0xs.dpuf) to learn more about the first summit.

The findings of the second summit (2015) have not yet been released, but I can assure you that one of the recommendations was to position the respiratory therapist as part of the multidisciplinary team front and center in playing a more significant role in managing and educating patients during an admission and post-discharge.

We have a golden opportunity to be a part of the solution to the COPD readmission problem. Opportunities like this need to be acted upon because if we do not step up and be leaders in this effort both in the hospital and post-discharge, others will. ■

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A Path to Success to Improve COPD Outcomes

by Charlene Raley, RRT

As the two Political Advocacy Contact Team (PACT) representatives from South Dakota, Charlene Raley, RRT, and Carleen Waltner, RRT, participated in the 2015 Respiratory Therapy Capitol Hill Advocacy Day and scheduled meetings with their senators and representative. Their mission was to educate these members of Congress on the importance of how South Dakota RTs could help improve their state's pulmonary health through the emerging telehealth technologies. Moreover, there was legislation that would do just that — the Medicare Telehealth Parity Act. They had an interesting meeting with staff from Sen. John Thune's office, who listened attentively to their presentation on the telehealth issue but then asked if they could be more specific. In other words, they wanted to know just how RTs are impacting patient care through the use of telehealth services and especially if they could show how an emerging way to provide care was working or could work better in South Dakota.

Following is their response to that inquiry, which they hope will be informative not only to Sen. Thune's staff but to all respiratory therapists. ■

— Cheryl A. West, MHA
AARC's Director of Government Affairs

about the author…

Charlene Raley, RRT, is a patient educator at Avera McKennan Hospital in Sioux Falls, SD.

As a health care organization and as health care providers, we are all challenged with the new imperative to deliver the highest level of care while simultaneously becoming more cost effective. The COPD patient population represents a huge opportunity in this regard. As respiratory therapists, our direct involvement in developing better approaches to patient education and actively participating in multidisciplinary rounding for all COPD patients has quickly become an important focus. While this vital imperative is quite achievable in major metropolitan institutions, the paucity of respiratory therapists in rural hospitals and outlying clinics can present significant challenges, as is the case within our system. For us, the issue is that many of our patients are admitted to our institution but, following discharge, return to homes located in distant rural areas. As such, continuing follow-up care is problematic. Many believe, us included, that passage of the Medicare Telehealth Parity Act would go a long way in resolving this perplexing problem.

Step 1

Our journey to improve COPD outcomes began In November 2012 when the respiratory care team at Avera McKennan Hospital and University Health Center in Sioux Falls, SD, was tasked with defining and creating a multidisciplinary approach to reducing the COPD readmission rate. Our initial step was to see if we could identify common denominators that contributed to the current 20% readmission rate. However, we soon learned that our patients' needs went far beyond just treating their symptoms when they presented with an exacerbation, only to later send them home with a handful of prescriptions. This led us to ask the question, "what if we could identify the high-risk COPD patient at the time of admission (or readmission) instead of waiting until after discharge?" Would this help us better reach our goal by identifying characteristics or recurrent episodes unique for each individual patient?

While we did have the information technology (IT) infrastructure to collect post-discharge data, we realized that we needed to create a report that would begin tracking the patients on the day they actually were admitted/readmitted. In collaboration with our IT department, we were soon able to generate a true time report. Reviewing and analyzing these reports over time gave us valuable insight into the various elements that characterize and impact this high-risk patient population, both individually and collectively.

Step 2

Another important step along our journey was to have one of our respiratory therapists trained and designated as a COPD coordinator. We envisioned this individual as someone who would work to develop and coordinate the care, education, and follow-up of our COPD patient populations. This meant not only working directly with COPD patients and family but also ensuring that all RTs in our department were equally versed in the current Global Initiative for Chronic Lung Disease (GOLD) guidelines. We felt it extremely important that all messaging to our patients be consistent, irrespective of who or when any patient encounter occurred. The COPD coordinator was also responsible to reach out to other providers and solicit their involvement, especially for the management of comorbidities.

We were fortunate that within our entire Avera Health Network, we were able to bring together the various other care providers we felt we needed. This included nurses, physicians, social workers, and pharmacists. Our goal was to identify what educational material should be developed and then to standardize it system wide. We believe that the use of standardized education materials in all primary care clinics, hospitals, and critical access hospitals became one of the fundamental building blocks in making our program successful. For one of our clinical sites where an RT isn't available, having the ability to use telehealth is a vital tool. In those situations, our RTs can educate caregivers and patients across the system.

Interestingly, at Avera McKennan Hospital and University Health Center, the work of the COPD coordinator not only started to improve outcomes in a noticeable way but also heightened the clinical awareness and professional appreciation for RTs throughout the entire system. Most importantly, this program created a smooth transition to providing consistent and standardized education to all care providers in our system, thereby helping to eliminate gaps that can occur with inconsistent communication.

Not surprisingly, as a result of our new appreciation for population-based health, we now recognize that patients have one or more unique situations in their daily lives that need to be addressed. Identifying these unique needs allow us to set specific learning goals to help mitigate the negative impact on recovery and successful disease control. To that end, we embraced the "teach-back" approach to patient education. We feel that if the same method is not used all the time and important content reinforced each time, simple things such as smoking relapse, proper medication management, and failure to keep follow-up appointments can easily contribute to preventable readmissions.

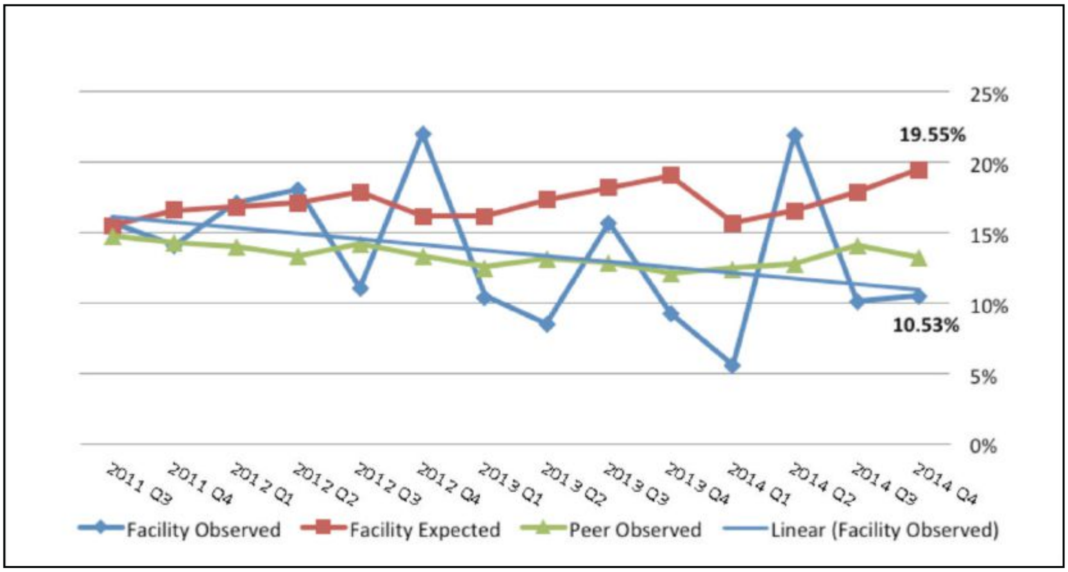


Figure 1. 30-day readmission rate from third quarter 2011 to fourth quarter 2014

Step 3

All of our educational tools are based on the current GOLD guidelines, and we are very serious about the importance of educating the primary care providers on the clinical significance of the guidelines. Tools used for patient education must be clear, concise, and easily understood. As we discovered, patient education efforts also need to include a pathway to help identify which patients may need financial assistance with medication as well as social resources.

During the patient's hospital stay, daily follow-up education by an RT assures that the patient is properly self-administering the correct inhaled medications. We also assess each patient's peak inspiratory flow rate to determine if they have sufficient inspiratory effort to adequately inhale their medication in a manner that proper lung deposition is achieved. For those patients who are unable to generate adequate peak inspiratory flow, the appropriate inhaled therapy medication is recommended to the prescribing physician. Pathophysiology of the disease is also discussed, including the consequences of non-adherence with the prescribed home care regimen. We also use the Epworth Sleepiness Scale to screen those patients who should be evaluated for sleep disorders.

At the time of discharge, a care transitions team is utilized to assure that a follow-up appointment has been scheduled with the patient's primary care provider and to again provide and reinforce relevant patient education. Patients are also evaluated for outpatient pulmonary rehabilitation. If the assessment deems that the patient would benefit from the program, an automatic referral is generated. The outpatient pulmonary rehab program at Avera McKennan and University Health Center includes more disease state education, strength and resistance training, nutritional counseling, both physical and occupational therapy assessments and, if needed, a speech therapy assessment and psychological counseling.

Selling teleheath

However, some patients live quite a distance from our facility, which precludes their participation in formal pulmonary rehab. For this reason, we eagerly await passage of the Medicare Telehealth Parity Act, which will then allow us to maintain sustained patient engagement when distance precludes participation in our onsite program.

Reducing COPD readmissions is not the sole responsibility of inpatient care providers. To be successful, it must involve all providers across the entire continuum of care — from the hospital to the home. Furthermore, efforts must be patient-centric; and sustained patient engagement is vital for continued success. For these reasons, follow-up care and continued education on the fundamentals of COPD and continued adherence with evidence-based maintenance therapy must be provided and encouraged by home care RTs, personnel in skilled nursing and residential care facilities, and all clinic staff. We have found that educating and helping these patients stay out of the hospital has been a much larger undertaking than we anticipated.

Although our initial efforts did prove successful, we realize that there is still more to be done. Eventually, telehealth will greatly reduce the burden for patients and their caretakers residing in rural areas by giving them access to RTs in their current living environment or community. ■

Who Ya Gonna Call...

by Anthony L. DeWitt, JD, RRT, FAARC

There are few jobs like health care where what you see on a daily basis changes you and where you are prohibited from discussing it with others as a matter of privacy and respect. Perhaps the closest comparison is the intelligence world, where analysts see all kinds of data that are inherently interesting but cannot discuss it with anyone outside their job. When you cannot discuss the things you see and do on a daily basis, it creates stress, job dissatisfaction, and burnout.

The patient-physician privilege, sometimes known as the patient-health care provider privilege, is a legal rule that says that what you tell a provider must remain confidential. It does not mean, however, that what you say to another health care provider cannot be compelled to be disclosed in court.

about the author...

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

Meet Julie

Julie is a 32-year-old reformed alcoholic. She has a history of hospitalizations for “blackouts”; but in the 10 years since she quit drinking, she’s had no issues. One bright Sunday morning a man talking on a cell phone rear-ends her car, causing significant back injuries.

If Julie sues and puts her medical condition at issue, she waives the privilege with respect to her medical records. Some courts will construe the waiver narrowly, based on what is pleaded, while others will permit a full collection of prior medical records. Julie may even be compelled to sign a release giving the defendant full access to her medical records.

Clinicians, however, are sometimes drawn into a legal gray area when an attorney for the defendant seeks information *outside* the medical records. If Julie has waived her privilege to her medical records, in many states that waiver only goes to the injuries she is claiming and any related injuries to that portion of her body. A prior back injury would be related; prior alcoholism would not.

In most states, a clinician is permitted (subject to local court and privilege rules) to have an “*ex parte*[1]” discussion with a health care provider. It is the provider that decides whether to have this discussion and how much to reveal. As a general rule, it is almost never a good idea to have a discussion off the record with anyone about a former or current patient.

In every state, the deposition is the preferred mechanism for collecting information. Depositions are conducted under oath in front of a court reporter. Both sides are represented and get to ask questions. If a lawyer starts down a path that is off limits, the other lawyer can object. In depositions, even if you are just a witness in an automobile case, you need a lawyer to represent you. If you exceed the waiver in the case (e.g., by discussing Julie’s prior bouts with alcoholism), you could be liable for breach of fiduciary duty. Your lawyer is there to keep that from happening.

Just as the patient has a privilege, there are people that you deal with who can cloak what you tell them in a privilege. Knowing that the privileges exist and what their limits are can keep you from making bad decisions about disclosing details of patient care.

The lawyer-client privilege is probably one of the oldest privileges other than the physician-patient. A lawyer cannot be compelled to testify against you, with just a few notable exceptions. If you use a lawyer to help commit a crime or a fraud, the lawyer can be compelled to testify. For example, if you use a lawyer to draft up an agreement as a means of swindling your neighbor, in many states the lawyer can be compelled to testify because it is against public policy to use a lawyer to commit a felony.

The theory behind the privilege (both lawyer and physician) is that the professional needs to know the truth in order to help you. That is why the privilege exists. In order to ensure you tell the truth, the lawyer must not be able to tell anyone else what you say.[2] However, just as with the crime-fraud exception, there are certain situations in which the lawyer's duty to the legal system trumps her duty to the client.

Meet Bill

Bill is a power company lineman and is approached by a young man with a hoodie. He sees the young man reach into his jacket. Bill doesn't wait to see what's coming out. He draws his lawfully authorized concealed weapon and shoots the young man dead.

In his initial interview with his lawyer, he admits he did not see a gun but was in fear for his life because other power company workers had been robbed in the area. Bill believes what he did was right and refuses a plea deal.

On the second day of trial, after the forensics, Bill is called by his lawyer to testify about what happened. In his testimony he says, "I saw a gun, it was shiny, and the sun reflected off it, and so I shot. I don't know what happened to the gun. Someone must have picked it up."

Bill has just committed the crime of perjury. He has testified untruthfully in a criminal trial. What the lawyer does now depends on state law. His lawyer knows he is testifying falsely. The lawyer will first try to get Bill to change his testimony; and if he cannot, then he must withdraw from the case, if possible, without revealing the falsehoods. Some jurisdictions (e.g., Massachusetts, District of Columbia) do not mandate disclosure of the false testimony and, in fact, permit it to come in by narration (i.e., without questions from counsel). In other jurisdictions (like Missouri), the lawyer must tell the court that his client testified falsely. Either way, a lawyer cannot be party to deceiving a court.

The priest-penitent privilege is an absolute privilege. A priest or other religious confessor is morally obligated to go to jail for contempt rather than reveal the contents of the confessional. While it is rare for a religious leader to go to jail rather than testify (most courts do not compel priests), the privilege covers things that a penitent would confess (e.g., wrongdoing). Discussing the facts of a code blue in the ICU with your pastor might arguably be outside the privilege (negligence need not be "confessed") and could result in your pastor being called to testify.

Married persons also have a marital communications privilege. This exempts from compelled disclosure the communications between a legally married husband and wife. The U.S. Supreme Court said in *Wolfie v. United States*, 291 U.S. 7 (1934) that the spousal privilege was "regarded as so essential to the preservation of the marriage relationship as to outweigh the disadvantages to the administration of justice." Again, however, just because a privilege exists does not make everything said exempt from disclosure. The privilege is held by the person who is asked to testify. So a spouse can be asked to disclose what their spouse said about a relationship with a patient. The spouse is free to disclose (in most jurisdictions) the contents of the communication where the spouse admitted an inappropriate sexual relationship. Perhaps more importantly, the privilege only covers communications and would not prevent a spouse from testifying to what was seen.

There are really only three appropriate choices for a therapist who needs to discuss confidential patient situations occurring at work:

- The therapist may discuss the situation with a supervisor (because a supervisor has a need to know, where a co-worker may not).

- The therapist may discuss the matter with a licensed counselor, psychologist, or psychiatrist (but not in group therapy or in a way that discloses patient identity).

- Finally, the therapists may discuss the matter with their own attorney in the context of seeking legal advice.

These options tend to be the most secure ways in which a therapist can vent about stressful incidents. This is because the individuals involved have both a moral and a legal duty not to violate your privacy (and by extension, the patient's privacy), and all can be compelled to account for any breach in court or before their licensing agencies. If your spouse tells her aunt, and the aunt tells three or four others, it will not be long before the breach will be tracked back to you.

In World War II they said, "Loose lips sink ships." In the 21st century, they can sink careers. ■

FOOTNOTES

1. Latin for "on one side only"
2. The privilege extends to anyone in the direct employment of the lawyer including paralegals and secretaries.

RTs Can Become Respiratory Care

by Robert Grajewski, MBA, MPA

When Dieter Kirsch found it difficult to get his toddler, Jordi, to complete breathing exercises through a nebulizer to treat his cystic fibrosis — a genetic respiratory disease from which about 15,000 children in the United States suffer[1] — Kirsch came up with an innovative solution.[2]

Generally speaking, for nebulizer treatments to work best, patients need to breathe in and out slowly and deeply so that the medicine can fill their entire airway. However, getting the fidgety toddler to sit still for a half hour or more each day to breathe in and out at an appropriate time and depth was a nearly impossible task, according to the *Fast Company* article, "Using Gamification To Get Sick Kids Excited About Their Treatment."[3]

As a result of this experience, Kirsch began thinking about a completely new nebulizer system that could get Jordi motivated and focused when undergoing his daily breathing treatments. Kirsch's idea? Hook up his son's nebulizer to a video game that could register and respond to Jordi's correct completion of his breathing exercises. The outcome? After each correct breath into the nebulizer, Jordi would start to win his video game. For instance, his breathing in and out would control a hot air balloon bobbing up and down, all while avoiding a lot of obstacles.

Named the Jordi Stick®, Kirsch aims to market this nebulizer gaming device to kids all around the world. The device is a relatively simple, low-cost, hardware attachment that is able to hook into a person's existing nebulizer and treatment plan to use the gamification platform.[2]

Product Innovators

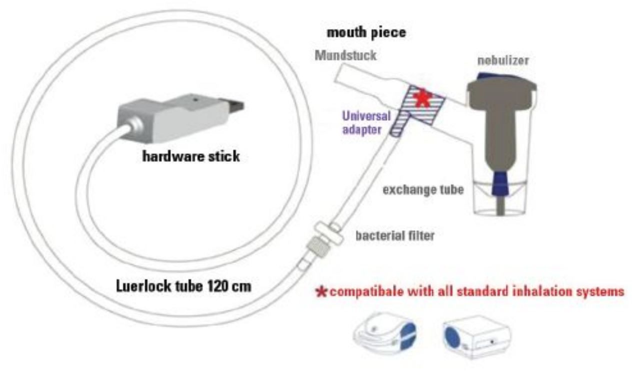
To see an idea come to life, a person traditionally needed to have significant time to spare, money to spend, and a vast amount of industry expertise. If that were still the case, however, the Jordi Stick likely would never have come to fruition since Kirsch is not in the medical field at all — instead working as a professional skydiver. He had no previous experience developing an invention and simply used his son's nebulizer treatments as inspiration. Fortunately for him, the innovation industry is changing. There are new opportunities for idea funding and support, opening doors for everyday people like Kirsch — as well as working medical professionals — to create, develop, and market their creative solutions.

While the process may not be easy, it can be accomplished when a person has the right kinds of tools. From open innovation platforms — such as Unilever Global[4] and Edison Nation Medical (ENM)[5] — to online crowd-funding sources such as SpigitEngage®[6] and InnoCentive[7] — medical professionals now have the resources and information needed to bring their ideas to life while still thriving on their "day job."

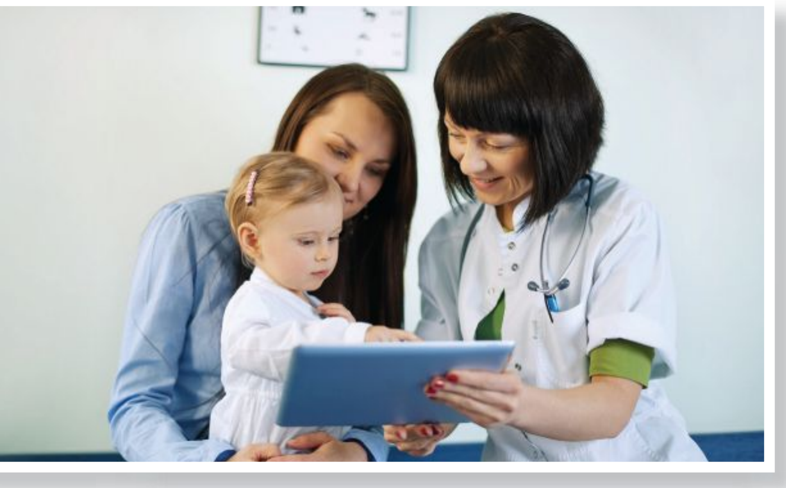
RTs as innovators

New, innovative products transform industries every day — especially in the respiratory care profession. Respiratory therapists, in particular, play a vital role in the health care innovation industry as they have extensive patient-care experience and a deep understanding of the inner workings of respiratory care and patient treatment plans. More than most, they are well suited to identify the deep-rooted challenges that exist in the ventilation industry; and they can come up with practical and innovative solutions to meet unique patient needs.

Respiratory care saves lives, and failure to innovate in this profession is simply not an option. As the medical care delivery system faces increased pressures due to rising costs, ongoing reform efforts, and higher patient expectations, the call for process, product, and systematic innovations has never been greater. Who better to answer the charge to innovate than practicing RTs? With frequent patient interactions and a keen awareness of efficiency gaps, respiratory medical professionals are among the most informed and successful health care innovators in the industry today.



Jordi Stick® founders



Ventilation technology, along with the rising cost of health care, is growing more expensive. Extrapolating 2.7 episodes of mechanical ventilation per 1,000 people is estimated to cost about $27 billion, composing 12% of all national hospital costs, according to the U.S. National Library of Medicine.[8] To be successful, new health care innovation must improve upon the current standard of medical care without causing harm to patients. As such, a formal evaluation process must be conducted (which is generally a time-consuming process).[9] For practicing medical professionals, however, this process is made slightly easier as they have direct access to their peers, allowing them to preliminarily identify the medical efficacy of their innovation, giving them an advantage.

Perhaps, much like Dieter Kirsch, RTs have had an ah-ha moment when they came up with an innovative solution to a health care problem — but being full-time, working professionals, they couldn't afford to quit their job. Pursuing a career as a full-time inventor may be out of the question, but that doesn't mean an RT should give up on that innovative idea. There are plenty of resources available that can help someone reach their invention goals.

As our delivery system faces increased pressures, ongoing reform efforts, and higher patient expectations, the call for process, product, and systematic innovations has never been greater. Who better to answer the charge to innovate respiratory care than practicing RTs?

Innovate using open innovation

One available resource is an open innovation platform that can be used to identify new ideas, inventions, and products in the health care industry to improve patient care and lower day-to-day costs. In contrast to traditional startup accelerators and incubators, open innovation platforms create an environment where working professionals can submit an idea in its earliest form by allowing the most valuable ideas to be identified, patented, funded, and developed.

When Terri Barton-Salinas and Gail Barton-Hay — both registered nurses with a combined 56 years of nursing experience — noticed the hazards of using clear, nearly indistinguishable IVs, they decided to create a practical solution they knew would work: color-coded IVs that make it easier for medical professionals to distinguish between the different lines. As a result of open innovation, ColorSafe IV Lines® (Guerneville, CA) are now available around the world.[10]

How does an open innovation platform generally work for medical professionals? Companies that use this platform (such as ENM) call on inventors to confidentially submit their ideas to teams of experienced evaluators, legal professionals, and commercialization experts. There is generally a variety of means through which an invention idea can be commercialized, including start-up accelerators or incubation models — both of which provide access to mentors, decision-makers, and global distribution — or, in the case of ENM, through the licensing or incubation of top ideas and the sharing of any subsequent revenues the company is able to generate from these activities.

In the respiratory care community, open innovation can help catapult professionals with the best understanding of a problem to actually empower them to create a solution — and the need is truly great. With this form of free-flowing innovation, the health care industry will stay competitive and agile because their research and development cycle is shortened.

Becoming an innovator

Current medical innovations are leveraging technology and new medical advancements to make a patient's respiratory condition more manageable. For instance, some of the more recent product innovation trends include updated mechanical ventilation systems, aerosol therapy, and airway clearance techniques, among many others. However, there is still a long way to go in discovering patient-centered ways of leveraging existing technology, with room to develop completely new ones.

That's why the AARC has partnered with ENM, a health care innovation marketplace, to reach its community of respiratory care professionals who have the potential to turn their innovative respiratory care ideas into practical solutions that will improve patients' lives. Because of this partnership, AARC members have a dedicated online portal through which they can submit their ideas to ENM for evaluation and potential commercialization.

Working directly with people who have ideas or inventions — big or small — ENM seeks to improve the current standard of care by empowering people to submit and create new medical products. Whether it's through a specific product search or an open call for submissions, ENM provides a pathway through which respiratory therapists can submit their medical invention as well as gain support and inspiration during the ideation and development process.

There's never been a better time to harness the talent and innovation of every stakeholder in the care continuum, including respiratory care professionals. We look forward to working with the AARC to help the inventors within the respiratory care community explore the possibilities of commercialization of their great ideas while improving patient care. ■

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Edison NATION MEDICAL

Do you have an idea you want to develop? Submit it on AARC's exclusive submission portal at c.aarc.org/go/edison

About the Author

Robert Grajewski, MBA, MPA, is president of Edison Nation Medical. He also co-founded two online companies and spent five years in venture capital and private equity investing in companies across numerous industries.

Where **Hard** Questions

AARC Sputum Bowl creates the kind of energy only a respiratory therapist could understand

by Debbie Bunch

You might not think an obscure question about blood gases or aerosol therapy could bring a crowd to its feet — but that happens every year at our annual knowledge bowl.

Answering textbook questions about respiratory care is generally not considered a “fun” activity. However, there is one major exception to that rule — and it takes place every year at the AARC Congress.

We’re talking about the annual Sputum Bowl, of course. Since the late 1970s, respiratory therapists from across the country and around the world have joined their colleagues at this iconic event to watch as both practitioner and student teams go head-to-head to see who possesses the largest collection of respiratory knowledge on the planet.

This year’s competition will be no exception. “State Sputum Bowl teams are competing for slots in the national bowl right now; and the Sputum Bowl Committee is hard at work on plans for the big finals night on Nov. 9,” says Committee Chair Sherry Whiteman, BHS, RRT. “Trust me, it will be the place to be for anyone who plans to attend the meeting this year in Tampa.”

Getting better all the time

The excitement created by the Sputum Bowl has increased markedly in recent years, thanks in large part to an update in 2012 that took advantage of new technology and streamlined the event. The addition of 21st century game show elements like “Risk/Reward” and “Ask The Expert” livened up the competition for teams during the preliminary rounds, and the committee kept their pledge to get the audience more involved in the competition during finals night as well with “Ask the Posse” and an audience participation game during half-time using the latest in audience response technology.

Technology will be front and center this year in Tampa, too, as the bowl will for the first time feature “Video Visuals” — questions delivered up on the big screens. “With everyone so accustomed to learning visually these days, we thought adding videos to the mix would be a great way to drive home key questions for both the teams and the audience members,” says Whiteman.

This Renegade Team from Texas took top honors in last year’s AARC Sputum Bowl.

Meet High-spirited *Fun*

Sputum Bowl Impressions from Two Novice "Renegades"

by Laurene Eckbold, BA, RRT-NPS

My colleague, Adrienne Trzonkowski, BS, RRT, and I participated in the Sputum Bowl at AARC Congress 2014 as first-time members of a Renegade Team. Our adventure began when we responded to an email sent by another colleague, Jefferson Mixell, BS, RRT, who was interested in forming the team. Jefferson and the fourth member of our team, Kyle Hitchens, BSRC, RRT, were new RTs in our department but veteran Sputum Bowlers, having participated on student teams at previous conferences. Neither Adrienne nor I had ever even seen a Sputum Bowl tournament.

When all was said and done, Adrienne and I agreed that we did not begin preparing early enough! We started studying in mid-November for the December event. Our diverse work schedules did not permit us to have any group study sessions. Go-to study sources were school textbooks and sample questions provided by Jefferson or found on the Internet.

On the five-hour flight, however, we studied our Dana Oakes blue books diligently. (Great resource, very portable, but such tiny print!) As we were both nervous and anxious not to disappoint the team, we reviewed and quizzed one another in the hotel room and on breaks between lectures as well. Jefferson and Kyle seemed more laid back and confident — not inclined to waste their time in Vegas on studying.

The Sputum Bowl organizers and judges struck just the right blend of fun and business. Hawaiian shirts, respiratory care jokes, and upbeat music played during the judges' deliberations all added to the event's festive atmosphere. Participants were collegial, shaking hands before each round and wishing one another well. It was reassuring to have our own small cheering section in the audience.

A few questions into our first round, I thought, "Well, either you know it or you don't," and that realization calmed me. However, there are times when information that you "know" inexplicably flees your brain. For example, it is possible (and mortifying) for an experienced NICU RT (me) to forget what the acronym APGAR stands for!

Our goals were to stay in the competition for more than two rounds and not embarrass ourselves. We achieved those goals and also had great fun. The experience made me want to participate in a future Sputum Bowl and perhaps even work with the organizing committee. ■

Laurene Eckbold, BA, RRT-NPS, is a staff therapist at Christiana Care in Wilmington, DE.

Laurene Eckbold

"Will this make it easier or harder for the Sputum Bowl teams, who are so used to answering oral questions alone? Only time will tell!"

The bowl will be streaming on Twitter again this year too, giving everyone a chance to take part in the fun, whether they're at the meeting or not.

Renegades welcome

Until last year's competition in Las Vegas, only teams that had won on the state level could compete in the Sputum Bowl. That rule did a 180-degree turn in 2014 with the addition of the Renegade Teams, and Whiteman says they'll be back in Tampa. "These teams are made up of people who haven't won a state bowl, and in some cases, have never competed in any Sputum Bowl, state or national, before," she says. "We had great fun with these scallywags last year in Las Vegas and are looking forward to having even more of them join in the fun this year in Tampa."

Indeed, one of those teams — Grant Pipes, RRT, Angie Switzer, BSRC, RRT-NPS, and Julie Boganwright, BS, RRT-NPS, from Texas — actually took home the first place prize in the practitioner bowl for their efforts!

The deadline for applying as a Renegade Team is **Aug. 31**, so there's still plenty of time left to gather a group of colleagues and start training for the competition. The good news is, you can access a list of references used to compile the Sputum Bowl questions at www.aarc.org/resources/programs-projects/aarc-sputum-bowl/. In fact, everything you ever wanted to know about the Sputum Bowl is on that site as well.

Another exciting aspect of the 2015 event for students is the fact that student teams who register to play in the bowl will receive free registration to the AARC Congress. “We really thought we needed to reward our student teams, who invest so much time and energy into the competition,” says Whiteman. “At a time when many of them have extra expenses related to their schooling, we figured a price break would be the best way to let them know how much we appreciate their involvement.”

It’s all ours

The Sputum Bowl offers everyone in the profession a chance to get together for a fun event that only we can understand, and it’s a great opportunity to let your hair down, too. In fact, some of the biggest names in the field have done just that over the years — most notably the late H. Frederick Helmholz, Jr., MD, who would come to the competition every year dressed to match the theme of the event. Stay tuned — more Sputum Bowl plans will appear in upcoming issues of *AARC Times* this year. Be sure to make your plans now to attend Sputum Bowl 2015 on Monday evening, November 9, during the AARC’s 61st International Respiratory Convention & Exhibition in Tampa, FL. ■

The ARCF: *It's YOUR Foundation*

AARC President Frank Salvatore explains what the ARCF does for respiratory therapists and why *you* should care

by Debbie Bunch

> The ARCF is the only foundation that specifically supports the scholarship and research of respiratory therapists.

Back in the early 1970s, the professional organizations associated with the respiratory care profession consisted of the AARC, National Board for Respiratory Care, and Joint Review Committee for Respiratory Therapy Education (the precursor to today's Commission on Accreditation for Respiratory Care or CoARC). However, something was missing: a group to raise funds to support scholarship and research in the growing profession. Leaders put their heads together and established the American Respiratory Care Foundation (ARCF) to fill that gap and to support funding opportunities for respiratory care professionals. However, today many respiratory therapists still don't realize what the ARCF is and how it benefits their profession.

In this two-part feature, we have the answers. *AARC Times* interviewed AARC President Frank Salvatore, Jr., MBA, RRT, FAARC, who explains the purpose of the ARCF, what it means for practicing therapists, and perhaps most importantly, why they should get onboard with their support.

AARC TIMES: Why is it important for the respiratory care profession to have a foundation devoted to furthering education and research in the profession?

FRANK SALVATORE: The ARCF mission is dedicated to promoting respiratory health through the support of research, education, and patient-focused philanthropic activities in respiratory care. Many advances in our profession have come directly from the research supported by our Foundation. Our profession needs the American Respiratory Care Foundation to continue doing its work in order to move forward. In today's changing health care climate, the work supported through our Foundation could move respiratory therapists into directions that further show our importance as health care providers in the many areas where our services are delivered.

WHAT ARE SOME OF THE SPECIFIC WAYS THE ARCF "GIVES BACK" TO THE RESPIRATORY CARE PROFESSION?

In June we saw the 54th Respiratory Care Journal Conference sponsored by our Foundation. From these Journal Conferences alone, we've seen the emergence of hot-topic issues related to the care of our patients that are influencing how we deliver care. The Journal Conferences tackle subjects that are important to clinicians working in the profession of respiratory care — topics for which relevant published information is judged to be lacking, incomplete, or unacceptably biased. The Journal Conference articles are the most read among all the Journal articles. I challenge everyone to think about what supporting the Foundation — that supports the science of our profession — really means. It's human nature for people to think about their own careers and their own jobs before thinking globally about the profession. After all, we all have lives outside of respiratory care. We have loved ones to care for, bills to pay, food to put on the table, and money each month to save for that dream vacation or our children's college tuition. However, I challenge people to think about the bigger picture. Journal Conferences lead to advancements in science, which lead to changes in clinical practice guidelines and evidence-based practice. These documents, in turn, change the way we care for patients, expand our roles and responsibilities, and indirectly lead to more jobs and higher salaries.

Our Foundation has also led the way in the globalization of our profession through the International Fellowship Program, which since 1990 has given health care providers from outside the United States the chance to come here and visit best-practice locations to learn about respiratory care and take that information back home to their countries.

The ARCF gives out grants, awards, and fellowships that have highlighted work done by those in our field who strive to promote and advance our profession.

THE ARCF IS THE ONLY FOUNDATION SPECIFICALLY DEVOTED TO RESPIRATORY THERAPISTS, SO WHAT WOULD YOU LIKE TO SAY TO RTs ABOUT WHY THIS IS IMPORTANT TO THEM?

I often hear respiratory colleagues around the country express concern that RTs are not recognized for the work we do — that the AARC does not do enough to promote the profession. The Foundation recognizes the unsung heroes of our profession every year through grants, awards, and fellowships. In fact, the ARCF produced a video in 2014 that was played on American Airlines flights. This video showcased the work of the RT and the role we play on the health care team. It takes funding to do these types of things. Respiratory therapy will rise to the next level and be recognized as a pivotal part of the health care continuum as we develop research into education and practices aimed at advancing our profession. RTs' support of the Foundation will help to increase our worth and recognition within health care. We need to put our money where our mouths are and help show the world our value. Our Foundation is positioned to do just that for us.

WHY SHOULD INDIVIDUAL RTs SUPPORT THEIR FOUNDATION?

If every RT in the AARC contributed $5, we'd put a quarter of a million dollars into our Foundation's accounts. Think how much research can be funded by that! The time for all of us to contribute is now. I challenge every one of our members — and even the nonmembers who may be reading this article—to give back to your profession by donating to the ARCF.

IN RECENT YEARS, THE FOUNDATION HAS HOSTED FUNDRAISING EVENTS AT THE AARC CONGRESS. HOW DO YOU BELIEVE THESE EVENTS ARE HELPING TO RAISE AWARENESS OF THE FOUNDATION? WHAT'S PLANNED FOR THIS YEAR'S CONGRESS?

In the past two years, our Foundation's "super events" have definitely raised the awareness of its existence. In Anaheim, the American Respiratory Care Foundation hosted the Night at the Museum to kick off fundraising for our Virtual Museum — which is now up and running on the AARC website at http://museum.aarc.org/ — and the room was not only filled with hundreds of participants

Support the respiratory care profession! AARC President Frank Salvatore has thrown down the gauntlet by asking every AARC member to donate $5 to the ARCF. You can answer the call right now by going online to www.arcfoundation.org/support/donations.cfm. ■

but lined with some of the devices, educational tools, and practices of our past.

Last year in Las Vegas ARCF hosted the Night at the Vineyards. Again, it was an opportunity for everyone to meet with their peers and our Foundation's leadership and trustees. In my opinion, they topped what had already been a memorable evening the year before.

So what's planned for 2015? I'm not sure I'm at liberty to divulge that information right now; but since we'll be in Tampa this year, I'm sure that "water" will have a part to play.

OF COURSE, NOT EVERYONE IS ABLE TO ATTEND THESE MEGA EVENTS. SO, THAT BRINGS US BACK TO HOW RTs CAN HELP.

Absolutely. In the end, a nice evening is something to be had; but in the long run we need to give, regardless of whether we're going to an event or not. Our Foundation has played, and will continue to play, a pivotal role in the outcome, advancement, and promotion of our profession. It takes money to do that.

As I've said previously, even a small donation of $5 by every AARC member would result in a significant bump in much-needed revenue for our Foundation. Plus, I want you to know I'm not just sounding the horn here for you to donate. I've lived my life by asking others to do what I myself would do — in other words, I'm not a "do as I say, not as I do" type of person. I've given several years to our Foundation every year for the past few years. So I'll take the lead on this one and pledge my money to the ARCF right now — and will also hope to see many of my fellow members at the 2015 fundraising event in Tampa. ■

American Respiratory Care Foundation

ARCF Chair Michael Amato

Mission Statement

The American Respiratory Care Foundation is dedicated to promoting respiratory health through the support of research, education, and patient-focused philanthropic activities in respiratory care.

ARCF AT A GLANCE

The American Respiratory Care Foundation supports a host of programs for furthering scholarship and research in the respiratory care profession:

- **Undergraduate Student Awards** help RT students complete their education in associate and bachelor's degree programs.
- **Postgraduate Student Awards** assist students seeking advanced degrees in respiratory care or another field.
- **Research Fellowships** are awarded for top abstracts presented at the Open Forum at the AARC Congress.
- **Achievement Awards** honor those who have gone above and beyond in specific areas of the profession, such as international practice, cardiopulmonary public health, home respiratory care, patient education, and innovation in education.
- **Literary Awards** recognize the top papers published in Respiratory Care over the past year.
- **Research Grants** are issued to those seeking to perform meaningful studies directly related to the provision of respiratory care.
- **Journal Conferences** bring together leading clinicians in respiratory care to delve into the bread-and-butter topics of the profession.
- **The International Fellowship Program** fosters a vigorous exchange of ideas among U.S. RTs and their colleagues from abroad.
- **The International Endowment Fund** supports education and research into the provision of respiratory care in other nations.

For detailed information about these programs, including applications and application deadlines, visit www.arcfoundation.org. Be sure to watch the video on the "About ARCF page" for an inside look at the ARCF. ■

AARC

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Visit Our Facebook Congress Page:
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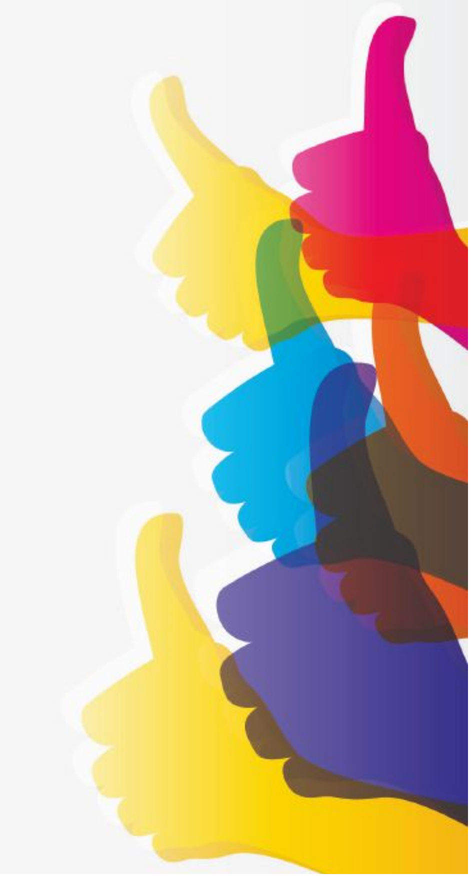
* CRCE credits apply to most sessions. AARC Congress is an educational meeting of the American Association for Respiratory Care.

Faces of the ARCF

These 9 AARC members stand as shining examples of the Foundation’s commitment to RTs

by Debbie Bunch

The American Respiratory Care Foundation (ARCF) exists to support scholarship and research in the profession; and over the years, hundreds of respiratory therapists have been honored with Foundation awards. Who are these RTs, and what did they do to deserve the recognition? Here we tell their stories.



WHO: Charity Clark, MS-OHRD, RRT

WHAT: Clinical Practice Manager

WHERE: Via Christi Clinic, Wichita, KS

AWARD: NBRC/AMP Gareth B. Gish, MS, RRT Memorial Postgraduate Education Recognition Award

Charity Clark was a busy student, wife, and mother working toward her master's degree at Abilene Christian University in Abilene, TX, when she decided to apply for the Gish award two years ago. "I was encouraged by a fellow respiratory therapist and mentor of mine, Karen Schell, DHSc, RRT-NPS, RPFT," she recalls. "Many years ago Karen planted a seed within me, and it has definitely grown… applying for this award was part of that growth."

The monetary part of the award helped her finish her degree, but that was only a small part of what she got in return for her application, says Clark. "The award inspired me to use my expanded knowledge to lead others and help advance health care." Today she has entered the brave new world of disease management, where she works to bridge the gap between the acute care setting and outpatient care for patients with respiratory conditions. "I am working to knock down hurdles and provide new and innovative nontraditional avenues for our chronic disease patients to improve their health and avoid hospital readmissions."

WHY SHE BELIEVES THE ARCF IS VITAL: "The Foundation empowers each of us to be a part of something greater beyond our organization. We all utilize information from the work of therapists across the world that has been funded by the Foundation." ■

WHO: Krystal Craddock, RRT-NPS, CCM

WHAT: RT III, COPD Case Manager

WHERE: UC Davis Medical Center, Davis, CA

AWARD: Charles W. Serby COPD Research Fellowship

Krystal Craddock wasn't thinking about winning any awards when she submitted an abstract on the positive outcomes from her hospital's COPD disease management program to the Open Forum at AARC Congress 2013. However, since all abstracts accepted to the Open Forum are in the running for one of the ARCF fellowships, she ended up winning an award. "Our program was created to help COPD patients understand their disease, better treat their disease, and reduce recurrence of admissions for COPD exacerbations," Craddock says. "When we realized the impact our program had made on our hospital readmission rates, we wanted to share our findings with other RTs to show that a RT-driven program to educate COPD patients and facilitate COPD exacerbation treatment is necessary."

Craddock says the recognition she received from winning the Serby award has also done wonders for her career. Over the past couple of years, she has been promoted to RT COPD case manager supervisor and has assisted other hospitals across the nation in setting up similar programs in their facilities.

WHY SHE BELIEVES THE ARCF IS VITAL: "Respiratory therapy is a growing profession but still under-acknowledged and under-utilized in many hospitals. By supporting the Foundation, we are showing pride in our profession as well as showing we want to grow and expand within our scope of practice. Research is something more RTs need to be a part of, especially when it involves pulmonary patients and improving their quality of life." ■

WHO: Amber Galer, BS, RRT

WHAT: Staff Therapist, Outpatient Sleep Lab

WHERE: Primary Children's Hospital, Salt Lake City, UT

AWARD: NBRC/AMP Robert M. Lawrence, MD Education Recognition Award

You wouldn't have pegged Amber Galer as someone who needed a boost in confidence to further her career back when she was in school, but she says winning the 2010 Lawrence award gave her just that. A student in the bachelor's degree program at Weber State University in Ogden, UT, at the time, she was actively involved in her program's Ventilator 5K, serving as a student representative on the Utah Society for Respiratory Care (USRC) board of directors, and had recently traveled to Ghana in West Africa along with faculty members at Weber to work on a research project involving spirometry testing in heavily polluted areas.

"Winning the award provided me with an essential confidence that pushed me to be a better student," she says now. "I was able to study confidently toward achieving my RRT credential and earning my BS degree with less stress, like test fees and tuition." In the years since, she has worked alongside her former professors as a lab assistant at Weber, traveled to China to teach respiratory care practices and principles, served as president of the USRC, worked with the Utah Tobacco Free Taskforce, and presented at various conferences and published articles pertaining to respiratory health.

WHY SHE BELIEVES THE ARCF IS VITAL: "Respiratory therapists are the frontline in pulmonary emergencies, COPD education, tobacco cessation, and rehab; and we are also important patient advocates. The ARCF has supported and funded students striving for higher education, research, and awards since 1974, helping to supply the cardiopulmonary experts required for these programs." ■

WHO: Zach Gantt, RRT

WHAT: CEO and Director of Clinical Services

WHERE: Encore Healthcare, Livingston, TN

AWARD: Philips Respironics Fellowship in Noninvasive Respiratory Care

Research into the effectiveness of respiratory home care is lacking. Zach Gantt set out to help remedy that situation with a study on hospital utilization among COPD patients being treated with noninvasive positive pressure ventilation (NIPPV) in the home who were also enrolled in a home-based pulmonary rehabilitation program. "There was little data out there to support these types of programs," he says. "My goal was to prove that combining the two — a respiratory therapist-lead disease management program and NIPPV — could produce sustainable outcomes and, in turn, reduce hospitalization costs."

Gantt says the Philips Respironics award is the highest honor he has received in the profession to date and has really boosted his career. "Since winning the award last December, I have started my own business and now contract with various manufacturers and skilled nursing facilities," he says. "This award has helped me to build credibility as to what we offer to our partners and patients."

WHY HE BELIEVES THE ARCF IS VITAL: "As respiratory therapists, research is the foundation of proving our skills, new therapies, and technologies. This is crucial in today's health care environment, where showing our value as a profession is more important than ever before." ■

WHO: Angela King, BS, RRT-NPS, RPFT

WHAT: Vice President, Clinical Services

WHERE: Mobile Medical Maintenance, Spencerville, IN

AWARD: Thomas L. Petty, MD Invacare Award for Excellence in Home Respiratory Care

Going the extra mile for her patients is "par for the course" for Angela King — and why she was selected to receive the prestigious Petty award at AARC Congress 2014. In addition to providing excellent day-to-day care for her patients, she has gone to court to acquire insurance coverage for a portable ventilator and battery backup for a Duchenne's muscular dystrophy patient who was denied the coverage by his insurer, essentially leaving him in bed and on bi-level positive airway pressure 24/7. That patient has now gotten a job and is a productive member of society.

She fought another battle with an insurance company involving a patient who was given oxygen when he needed mouthpiece ventilation instead, and she won. She even rose to the occasion for an Australian tourist who reached out to her after her ventilator failed while touring the United States. In quick fashion, King delivered another ventilator with backup batteries to the woman, telling her to have fun and return them when she got back home. Countless other patients also have benefited from her treatment and advice as she has traveled around the country to help those in need — often at her own expense.

King says receiving the Petty award touched her heart. "Due to reductions in reimbursement over the past several years and RTs not being recognized by Medicare, home care can be challenging," she says. "It felt so good to know that Invacare and the AARC recognize that home care therapists work hard and that we contribute positively to the community health care system."

WHY SHE BELIEVES THE ARCF IS VITAL: "I know the Foundation does a lot for us. Without the ARCF, there would be no special recognition for home care RTs at all." ■

WHO: Carl Hinkson,
MS, RRT-ACCS, FAARC

WHAT: Assistant Manager, Respiratory Care

WHERE: Harborview Medical Center, Seattle, WA

AWARD: William F. Miller, MD Postgraduate Education Recognition Award

Carl Hinkson had a bit of an ulterior motive for applying for the 2011 William F. Miller award. "The scholarship includes registration, some lodging, and airfare to the AARC Congress; and I had an abstract to present that year," he says now. Winning it would have helped offset the cost of his trip at a time when expenses to complete his master's of respiratory care leadership program at Northeastern University were mounting up. "The AARC Congress is a great place to learn and network. Of course, the money from the scholarship itself went toward paying for tuition."

Completing his master's degree has made a huge difference in his career, says Hinkson. Not only did the additional education solidify his qualifications for his job, it also opened the door to research opportunities. "I have been able to participate in more research projects at work and complete more projects in my workplace," says the manager. He notes the collegial relationships he has developed along the way are priceless, too. "The advice and wisdom of the collective Northeastern alumni has been a blessing."

WHY HE BELIEVES THE ARCF IS VITAL: "There are many professions with multiple foundations that support scholarship and research grants. This allows for more research and career advancement. The ARCF is the only foundation that gives awards to respiratory therapists. When someone gives money to the Foundation, they are promoting and contributing to the respiratory care profession." ■

WHO: Lynda T. Goodfellow,
EdD, RRT, FAARC

WHAT: Professor and Associate Dean for Academic Affairs

WHERE: Georgia State University, Atlanta, GA

AWARD: William F. Miller, MD Postgraduate Education Recognition Award

A two-week program on "Health and the Adult Educator" at the University of Manchester in Manchester, England, drove Lynda Goodfellow to apply for the 1995 William F. Miller award. The "study abroad" opportunity came as part of her doctoral program in adult education at the University of Georgia, and she needed some extra money to help fund the trip.

As it turned out, she received much more from the application process than simply the chance to travel. "During the application process of writing my essay, I was able to more clearly define my goals and research questions for my dissertation prospectus," she explains. "It really helped me to overcome a hurdle and to be confident in taking the next step."

The lessons she learned by completing the application — not to mention the award itself — also continued to boost Goodfellow's career going forward. "Over the past 20 years, this scholarship has been instrumental in helping me finish my dissertation, move from a non-tenure-track position to a tenure-track position, and continue to move through the promotion and tenure process from instructor to professor," she says.

WHY SHE BELIEVES THE ARCF IS VITAL: "It is so essential for respiratory therapists to be professional role models in the respiratory care profession. Modeling professional behavior through our support of the ARCF provides a way of 'giving back' to the profession. This is important because the Foundation supports education and research, which are the two most credible methods whereby a profession can evolve, expand, and show value. Our patients expect nothing less than this from us." ■

WHO: Tim Op't Holt, EdD, RRT, FAARC

WHAT: Professor, Department of Cardiorespiratory Care

WHERE: University of South Alabama, Mobile, AL

AWARD: Mike West, MBA, RRT, Patient Education Award

When Victory Health Partners was looking for someone to assist uninsured patients with asthma and COPD back in 2003, Tim Op't Holt answered the call, and he's been volunteering at the clinic on a regular basis ever since. Now director of the clinic's Breath of Life COPD and Asthma Education Program, Dr. Op't Holt and his colleagues from the university treat five to nine patients a week and recently expanded their services to include CPAP titration for those suspected of having obstructive sleep apnea.

Patient management and education — and smoking cessation, if needed — are provided in each case to help patients manage and control their conditions; and Dr. Op't Holt also gets his students involved to give them a real-world look at what some patients face when seeking quality care for their respiratory problems. He says receiving the Mike West award was a pleasant surprise, not only for himself but for everyone involved. "It was an affirmation of how pleased we are to be recognized for our work there," he explains. "We have helped hundreds of uninsured adults who would have had no other recourse to improve their respiratory status."

WHY HE BELIEVES THE ARCF IS VITAL: "We do what we do, not for recognition but for the health and well being of our patients. The recognition is 'lagniappe' — it brings us something extra in feeling fulfilled in our careers. I think those who receive these awards would still do what they do; but it's nice to have the recognition of our peers, and the Foundation is there to supply it." ■

WHO: Kathy S. Myers Moss, MEd, RRT-ACCS

WHAT: Associate Clinical Professor

WHERE: University of Missouri, Columbia, MO

AWARD: NBRC/AMP H. Frederick Helmholz, Jr., MD, Educational Research Grant

Kathy Myers Moss was getting ready to work on her doctoral dissertation on the effect of entry-to-practice academic degree in respiratory care on credentialing examination outcomes when a friend suggested she take a look at the ARCF website to see if any of the Foundation grants might match her objectives. The Dr. Helmholz grant looked like a perfect fit, and she applied in the spring of last year.

The grant is helping Myers Moss finish her project, and she believes the results will add to the conversations currently underway about education and credentialing in the profession. "It is my hope that the findings of my research might be used to inform evidence-based discussions in support of future academic qualification-related policy development."

Receiving this grant had special meaning for her, too, since she had met Dr. Helmholz on several occasions. He passed away in 2012. "When I learned that I had been selected to receive the Helmholtz funding, I immediately recalled my brief encounters with him, including the time he graciously signed my copy of his published poetry while he was staffing the NBRC booth at the AARC Congress in 1999," she recalls. "I am truly honored to have my name associated with his by my receipt of this grant."

WHY SHE BELIEVES THE ARCF IS VITAL: "Anyone who has been a respiratory therapist for very long knows how quickly our tools and strategies can change, and the ARCF provides support for projects aimed at the creation of new knowledge. Respiratory therapist support of the ARCF assures that these funds will be available to sustain essential research for evidence-based change in the future." ■

RC Currents

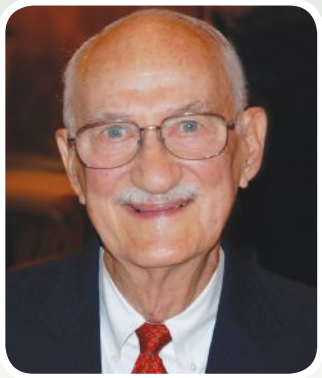
TRANSITIONS

Dr. William Miller Leaves a Legacy

William F. Miller, MD, FAARC, passed away on April 29, 2015, at the age of 95. Dr. Miller was very involved with the AARC and the profession in its early days and was a major contributor to (and trustee of) the American Respiratory Care Foundation (ARCF).

"Dr. Miller was a founding member of the ARCF and held emeritus status as a trustee," says Michael Amato, ARCF chair. "His contributions there were innumerable, and the Foundation and all it does today are because of his leadership."

"Bill was one of the giants in respiratory care who had profound impact on generations of RTs, nurses, physicians, and physical therapists. His vision for higher education of RTs was typical of his foresight," says Sam Giordano, MBA, RRT, FAARC, former AARC executive director and now a trustee of the ARCF.



Dr. William Miller attended the International Respiratory Congress in New Orleans in 2012 at the age of 92.

As a physician in Dallas, TX, Dr. Miller was at the forefront of the respiratory therapy profession in this country. He formed one of the first schools of respiratory therapy with three students in 1963. "He was very supportive of people interested in caring for those with pulmonary disease and needing respiratory therapy," says Ray Masferrer, RRT, FAARC, a former colleague of Dr. Miller at Parkland Hospital and the University of Texas Southwestern Medical School in Dallas.

Masferrer adds, "He was the most influential physician of his time among respiratory therapists and worldwide was known among physicians. His influence was felt in our profession to the roots of making the AARC, the journal Respiratory Care, AARC's Board of Medical Advisors (BOMA), the National Board for Respiratory Care (NBRC), the Joint Review Committee on Respiratory Therapy Education, and our profession what they are today. As early as 1963 he was mentoring college graduates into the art and science of respiratory care — and not just to understand the technology of the time but also the physiology."

Dr. Miller chaired BOMA from 1966–1968 and served as a senior examiner for the NBRC. He was also involved in the early days of Respiratory Care, serving as a medical advisor to the publication as it was getting off the ground.

After his role as professor of internal medicine and head of the pulmonary division at Southwestern Medical School, Dr. Miller formed one of the first cardiopulmonary services in the country at Methodist Hospital in Dallas and recruited Dr. Donald Egan to join him there in his work. Later he became a professor of medicine at Southwestern Medical School.

He was a recipient of the AARC's Jimmy A. Young Medal in 1979 and was also an honorary member of the AARC. He served as a trustee for the ARCF for many years. The William F. Miller Post-Graduate Education Recognition Award is named in his honor and established through his endowment.

The ARCF notes that anyone interested in honoring Dr. Miller may send a donation to: William F. Miller Postgraduate Education Recognition Award, ARCF, 9425 N. MacArthur Blvd., Ste. 100, Irving, TX 75963. ■

AARC Urges
Regulation of Additional Tobacco Products

The U.S. Food and Drug Administration proposed a regulation to extend its authority over all unregulated tobacco products (including e-cigarettes, hookahs, and cigars) more than a year ago.

Now the AARC has joined 30 fellow organizations in writing to President Obama urging him to quickly act on that proposal to ensure children are protected against the aggressive marketing campaigns launched by the manufacturers of these products. We asked that Obama regulate all tobacco products.

"We cannot afford more delays that allow tobacco companies to target our kids with a new generation of tobacco products," says the letter, which was spearheaded by Tobacco-Free Kids. For example, many of the tobacco products in question use 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.

"This public health regulation is long overdue. Further delay will only serve the interests of the tobacco companies, which have a long history of using product design and marketing tactics to attract children to harmful and addictive products," concludes the letter. "We ask for your leadership in ensuring your Administration quickly finalizes the regulation" (see http://bit.ly/1Qg5DUU).

You can do your part too, by taking to Twitter to spread the message. Here are a couple of tweets recommended by our partners in the Tobacco-Free Kids organization:

- Please retweet to @WhiteHouse to give @FDATobacco authority over ALL #tobaccoproducts, including #cigars & e-cigs.
- Did you know there's no federal oversight for ecigs & #cigars? @WhiteHouse must have @FDATobacco set common-sense rules NOW.

AARC Celebrates Allergy & Asthma Network's 30-Year Anniversary

AARC, along with former NFL player Jerome Bettis, joined with the Allergy & Asthma Network as they celebrated their 30th anniversary at the recent Capitol Hill Advocacy Day. Bettis, a long-time volunteer for The Network, went along on visits to Capitol Hill to advocate for the telehealth medicine bill that would include respiratory therapists as providers.

AARC Board Member Natalie Napolitano, RRT-NPS, AE-C, FAARC, accompanied Bettis on congressional visits. ■

Natalie Napolitano and Jerome Bettis visited congressional offices and shared the message that RTs should be part of the Telehealth Parity Act.

Check Out the AARC New Members List Online

The "New Members" column can be accessed 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. Any current member may object to a new membership by filing a written objection with the AARC Executive Office at info@aarc.org within 30 days. ■

AARC Leader Attends Meetings

Throughout the year, AARC leaders and members of the Executive Office staff attend meetings of the Association's state societies as well as other special meetings. In addition to making AARC representatives available for speaking engagements at meetings, the Association funds a special program to help some state societies partially pay for the travel costs of the speakers. Below are some activities AARC representatives are involved in:

Frank R. Salvatore, Jr., AARC President

- Presenting AARC update to the Texas Society for Respiratory Care State Convention July 9-11 in Houston, TX
- Speaking at the Georgia Society for Respiratory Care Summer Meeting July 23–25 in Savannah, GA
- Speaking at the Tri-State Respiratory Care Conference Aug. 5–7 in Biloxi, MS

As Seen on *AARConnect*

Have you looked at what your colleagues are talking about on the *AARConnect* discussion lists? You might find an interesting tidbit you can use in your area of respiratory care or maybe answer a question someone has asked. Here is an example of a dialogue we found on *AARConnect* (under "Pulmonary Navigator/Case Manager") while preparing this edition of the magazine.

AARConnect...

maximizing your membership

I want to see if any of my colleagues has a pulmonary (COPD) navigator-case manager job description that they would be willing to share. I know this is a fairly new concept in our profession but thought it couldn't hurt to ask.

Lastly, I thought I would ask if anyone had any links to articles about having positive outcomes from an RT being a pulmonary (COPD) navigator-case manager.

Thank you in advance for any information that you are willing to share. I look forward to your responses.

D. Christopher Price, BS, RRT, RCP
Wentworth-Douglass Hospital
Dover, NH

If you go to the COPD Best Practices page on AARConnect and look under the "Library" tab, you will find several articles and job descriptions for RT COPD navigators/case managers.

For other organizations that have recently deployed COPD disease management programs using RTs as case managers, please consider sharing in this forum.

Becky Anderson, RRT
Sanford Medical Center Fargo
Fargo, ND

Enter for a Chance To Win a Free Membership Renewal

AARC Times is looking for creative AARC members to enter our annual AARC Photo Contest. Finalists will receive a **free** one-year membership renewal with the chance of their photo being chosen and featured on the cover of the April 2016 *AARC Times*. For information on how to enter, go to www.AARC.org/resources/publications/aarc-times and click on the "Photo of the Year Contest" link. Deadline to submit photos is **Nov. 10, 2015.** ■

Weight Concerns Often Keep Women Smoking

Concerns about weight gain can derail public policy attempts to encourage smoking cessation among women, find University of Illinois at Chicago investigators publishing in a recent issue of *Tobacco Control*. Among women smokers who did not believe smoking helps control weight, a 10% increase in the price of cigarettes was associated with a 6% rise in attempts to quit. A 10% increase in anti-smoking messages led to a 12% increase in quit attempts.

Among women who did believe smoking helps control weight, however, no significant rise in quit attempts resulted from either a price hike or an increase in anti-smoking messaging. The study was based on survey data from about 10,000 smokers in the United States, Canada, the United Kingdom, and Australia. ■

Contribute to "Transitions"

The AARC "Transitions" column is now 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. ■

Strange But True...

What's old is new again: Could MRSA's Achilles' heel be found in a thousand-year-old remedy for eye infections? It may be possible, report researchers from the University of Nottingham. Early tests conducted in mouse models show the eye infection potion, found in a 10th century book, has remarkable effects on the drug-resistant bacteria.

From bad to worse: These days, people with tuberculosis are generally infected with just one strain of the bacteria. That wasn't the case 300 years ago. Five of eight naturally mummified bodies recovered from an 18th century crypt in Hungary had more than one strain of TB, and one individual had three distinct strains. The University of Warwick researchers believe that level of virulence may have been common at the peak of the TB outbreak in Europe.

Tough times: Pupfish residing in the warm springs left over from the receding waters that made Death Valley a lake 10,000 years ago have found a unique way to adapt to their harsher environment: they simply stop breathing for up to five hours at a time. Scientists from the University of Nevada studied it and now believe the lack of respiration shuts down the pupfish's mitochondria, which protects them from harmful reactive oxygen species in the higher temperatures. ■

Interesting Member

Blind Skiing in the Rocky Mountains

by Betsy Thomason, BA, RRT

Forty years ago, Norwegian Americans started Ski for Light, an organization dedicated to fostering cross-country skiing among people with a wide range of visual limitations. For seven ski seasons since 2000, I've participated as a guide for a blind skier in Ski for Light's weeklong international event held at various ski venues from Alaska to New Hampshire. This past January, I spent a week with 200 other skiers at Snow Mountain Ranch in Colorado — one sighted ski guide paired with each skier with limited vision. While we only had a dusting of new snow, the conditions under the skis were perfect because nighttime temperatures descended into the teens, refreezing the ski tracks and keeping them in superior condition for gliding.

This year, I trained and guided Laurie Ann Pokin, a 27-year-old woman with deteriorating vision as the result of retinitis pigmentosa. Laurie Ann had never ever skied before. She was excited about the possibilities and confident in her physical abilities, since she is training to be on the Paralympic Games' judo team.

Cross-country skiing is always a challenge, even at sea level. At 8,750 feet above sea level it becomes especially important to stay focused on the active outbreath and passive inbreath and develop a breathing rhythm to maintain momentum. Since this was not a race, we stopped as needed to manage energy reserves, stay hydrated, and enjoy being in the long broad valley with high peaks in the distance.

AARC member Betsy Thomason is a respiratory therapist at Millennium Respiratory Services in Whippany, NJ.

Laurie Ann Pokin (left) enjoys a special moment with RT Betsy Thomason after completing the three-mile rally. Photo by Bill Quinlan

Blind skiers and their guides get ready for a day on the slopes. Photo by Bill Quinlan

Ski for Light ski trails are machine-laid with two sets of ski tracks side by side. The skier with limited or no sight is usually on the right; the guide is in the left track, giving a concise, verbal description of the track ahead. Most of us ski on either a three-mile or a five-mile course once or twice each day. Since there are lots of wide-open spaces, there's not much congestion on the trails. But there is protocol for passing a slower skier/guide duo and skiing safely on hills and around blind curves. During their training, guides ski blindfolded. Talk about an adventure! It was during this exercise that I truly appreciated all my other senses and the need to trust my body and my guide. It impressed upon me how essential my choice of guiding words is. Do my words make sense to my skier? Does she visualize compass directions as a clock or does she perceive direction as an angle? Does she respond to feet or meters — because skiers come from all over the world!

At the end of each day, Laurie Ann and I reviewed our progress and established the next day's goals to get us ready for the three-mile rally on the sixth day. She was excited about her progression from non-skier to solid beginner. Her well-tuned muscles responded quickly to new lessons, helping her learn energy conservation and safety techniques, so essential to Nordic skiing.

On the sixth day, Laurie Ann skied the whole three miles, crossing the finish line with the impressive double-poling technique. I was a few strides behind — this was her event and she was launched! ■

Contribute to Our "Interesting Member" Column!

We know there are lots of interesting AARC members out there, so if you (or an AARC member colleague) have an unusual or interesting hobby, have volunteered for an event, or have recently done something amazing, please let us share your experiences in this special column for you and by you. Please contact *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org and write "Interesting Member" in the subject line. ■

Cigarette Smoke Makes MRSA Stronger

Methicillin-resistant Staphylococcus aureus (MRSA) is already an aggressive bacteria. Now researchers from the University of California San Diego find that cigarette smoke just ups the ante. MRSA bacteria exposed to cigarette smoke in their study were more resistant to reactive oxygen species and antimicrobial peptides, as well as better at sticking to and invading human cells grown in the lab. In a mouse model, MRSA bacteria exposed to cigarette smoke were more likely to survive, and they also led to pneumonias with a higher mortality rate.

The investigators believe cigarette smoke strengthens MRSA bacteria by altering their cell walls in such a way that they are better able to repel antimicrobial peptides and other charged particles. “Cigarette smokers are known to be more susceptible to infectious diseases. Now we have evidence that cigarette smoke-induced resistance in MRSA may be an additional contributing factor,” study author Laura E. Crotty Alexander, MD, was quoted as saying. ■

Advance Directives Aren’t Always Followed

Advance directives are supposed to help health care providers follow the wishes of patients as they reach the end of their lives, but that’s not how it plays out in a lot of cases. According to researchers from the University of Pennsylvania who examined a retrospective cohort of patients from 141 ICUs in 105 hospitals, patients’ wishes often fly out the window once they land in the ICU.

Among the 277,693 patients in the study, 4.8% were admitted to the ICU with preexisting limits on care, and others had documented restrictions on acceptable therapies. These patients tended to be older than those without such limits; and nearly all had preexisting chronic conditions, most commonly chronic respiratory disease and chronic kidney disease.

Overall, 41% of patients who entered the ICU with treatment limitations received one or more forms of life support, and 18% had a reversal of previous treatment limitations during their ICU stay. The chances of care being escalated against patient wishes went up if a critical care physician was in charge of the case. Most interestingly, the odds of having preexisting limitations on care changed during an ICU stay varied widely — from less than 5% in some facilities to more than 90% in others.

Study author Scott Halpern, MD, PhD, MBE, believes there’s great potential for better matching the outcomes of critical care with what people desire through a better awareness and understanding of how treatment decisions are made for those who cannot communicate their preferences. “We suggest that having clear, effective advance directives along with accompanying conversations with potential surrogate decision makers (usually family) is the best way to prevent unwanted care during an ICU stay,” he noted. ■

Study Looks at Interferon for Treating Severe Flu

Why do some children with the flu end up severely ill and hospitalized while other family members recover without incident? Rockefeller University researchers believe they may have found an answer: some kids can't fight off the flu infection due to a rare genetic mutation that prevents them from producing the interferon needed to battle the virus.

The investigators reached that conclusion after studying the DNA of a child who developed acute respiratory distress syndrome after a bout of the flu when she was two and a half years old. They sequenced all the genes in the genomes of the girl and her parents, looking for mutations that might explain her vulnerability.

Results showed the girl had inherited two differently mutated copies of the gene IRF7, which encodes a protein that amplifies the production of interferon. When they infected a sample of her blood cells that should normally produce interferon with the influenza virus, no interferon was measured. In contrast, blood cells from her parents, who each carried only one mutated version of the gene, produced healthy amounts of interferon when exposed to influenza. Based on these findings, the researchers believe interferon may prove to be an effective treatment for some children who become critically ill from the flu. ■

Study Unravels the Mystery of Mucus

Researchers from Washington University School of Medicine believe they are on the path to new treatments for asthma, COPD, cystic fibrosis, and other conditions affected by the overproduction of mucus.

Their work builds on previous knowledge linking higher levels of the protein CLCA1 in the lining of the airways to the overproduction of mucus. Originally, researchers believed this protein was a chloride channel; but subsequent studies disproved that idea, leading investigators to wonder how the protein increases mucus production. These researchers believe another type of channel in the airways called TMEM16A is the missing link — specifically, increased expression of CLCA1 increases the number of TMEM16A channels present in nearby cells — and that's what increases mucus production.

The team is continuing to study these interactions to learn more about how increasing or decreasing expression of the protein or the channel may influence the currents and what impact that may have in airway diseases. "In conditions leading to too much mucus, we may be interested in designing ways to block these currents or reduce them," study author Thomas J. Brett, PhD, was quoted as saying. "On the flip side, these channel currents may be able to compensate for the genetic defect in cystic fibrosis, which causes mucus that is too thick and sticky. In this case, we may be interested in activating them or dialing them up." The study appeared in a recent edition of *eLife*. ■

Adverse Childhood Experiences Raise Asthma Risk

Children who are exposed to even one adverse childhood experience (ACE), such as witnessing drug violence or domestic abuse, are more likely to be diagnosed with asthma.

Researchers recently looked at data from the National Survey of Children's Health conducted among the parents of more than 92,000 children up to age 17. Thirty-one percent were exposed to at least one ACE, with divorce or separation of the parents the most common factor.

Among those exposed to just one ACE, the odds of having asthma rose by 28%. Among those with five or more ACEs, 25% of the kids had asthma, compared to just 12% among children who were not exposed to any ACEs. The study was published in the *Annals of Allergy, Asthma and Immunology*. ■

Possible New Approach for IPF Treatment

Investigators at the Saban Research Institute at Children's Hospital Los Angeles believe they have identified new hope for patients with idiopathic pulmonary fibrosis (IPF). Working with colleagues in Mexico and Canada, they have identified a possible new approach for treatment.

The investigators explain that while excessive signaling of the growth factor TGF-β is recognized as a central player in lung fibrosis, TGF-β signaling plays an essential role in other bodily systems, such as an appropriate immune response, so attempting to treat IPF via a complete therapeutic blockade of the TGF-β pathway won't work. However, they were able to manipulate TGF-β signaling in adult lung mesenchymal cells at selected stages of lung fibrosis, showing that the progression of fibrosis mediated by TGF-β was independent of early inflammatory processes during initiation of fibrosis — an understanding considered vital in designing therapeutic strategies to stop its progression in IPF patients.

They also identified a downstream gene called P4HA3 that is important to the overabundant collagen deposition associated with IPF. This gene encodes a component of prolyl 4-hydroxylase, a key enzyme in collagen synthesis. Inhibition of this enzyme was shown to reduce the TGF-β stimulated collagen production in both cultured fibroblasts and mouse models of lung fibrosis. "Our data indicate that increased expression of collagen prolyl hydroxylase is one of the important mechanisms underlying the proliferation of fibrous tissue that is mediated by TGF-β," study author Wei Shi, MD, PhD, was quoted as saying. "Inhibiting this enzyme appears to be a promising therapy to interfere with excessive collagen production and deposition in IPF patients." The study was published in a recent issue of the *Journal of Pathology*. ■

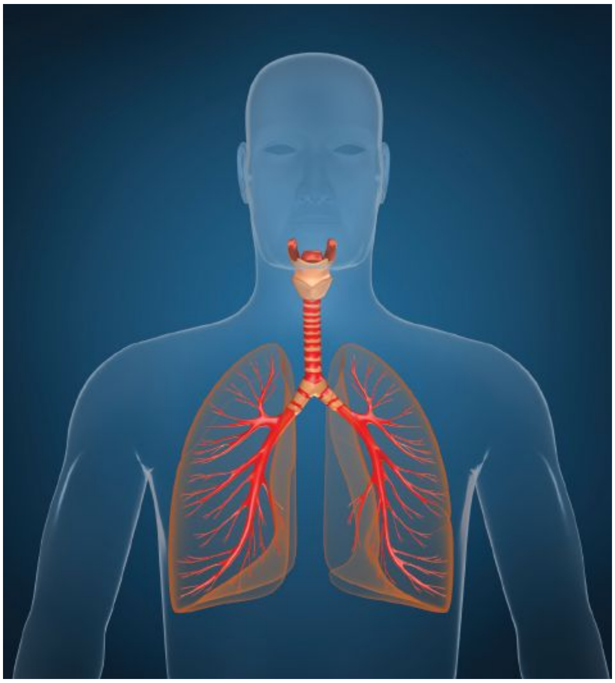
Why Roflumilast Sometimes Fails COPD Patients

Working with investigators in Japan, researchers from Georgia State University and the University of Rochester Medical Center are helping to explain why some severe COPD patients treated with roflumilast seem to develop a resistance to the drug over time. Their research shows the drug, which was designed to inhibit the enzymatic activity of a protein called PDE4, also increases the production of another protein called PDE4B2. The surge of this protein actually increases inflammation and may contribute to the development of tolerance to the drug.

Results also showed the drug works with the major bacterial pathogen that causes symptoms to worsen in severe COPD to increase production of the unwanted protein PDE4B2 in a synergistic manner.

However, there is some good news: the investigators also identified a protein called PKA-Cβ that can be targeted to reduce the unwanted production of PDE4B2. The study appeared in a recent issue of the *Proceedings of the National Academy of Sciences*. ■

Three Gases, Not Two, Drive the Respiratory System



We all learned the basics of the respiratory system in grade school science: hemoglobin delivers oxygen from the lungs to the tissues and carries away carbon dioxide. Not so fast, say researchers at Case Western Reserve University School of Medicine. They have conducted a series of studies showing it's really a three-gas process. Nitric oxide is also involved.

In the most recent study, published in the *Proceedings of the National Academy of Sciences*, the investigators uncovered the key role of nitric oxide in controlling the blood flow in small vessels within tissues responsible for delivering oxygen, known as blood flow autoregulation. When mice were engineered to lack the one amino acid site that carries nitric oxide in their red blood cells, blood flow autoregulation was eliminated entirely and the animals could not oxygenate tissues. "These mice had red blood cells that by all traditional measures are completely normal in carrying oxygen and releasing it and then in picking up carbon dioxide, yet these animals cannot oxygenate their tissues," study author Jonathan Stamler was quoted as saying. "Lacking nitric oxide in red cells, oxygen deficiency could not induce vasodilation, which is essential for sustaining life as we know it." ■

Get Peak Flow Meters for Your Community Events

AARC is offering free disposable peak flow meters for community event activities to AARC members.

Taking asthma education into your community events like health screenings and county fairs is one way to raise the visibility of respiratory therapists and to educate the public about their health and the great work RTs do.

For a limited time, AARC has a quantity of disposable peak flow meters that it can make available to you free of charge — you just pay the shipping. The peak flow meters are to be used for community events only and are not for clinical purposes.

If you would like to get peak flow meters for your community event, contact Kris Kuykendall (kuykendall@aarc.org) at the AARC offices, who can arrange for shipment direct to you. Be prepared with your AARC member number and to tell us a little about your event. ■

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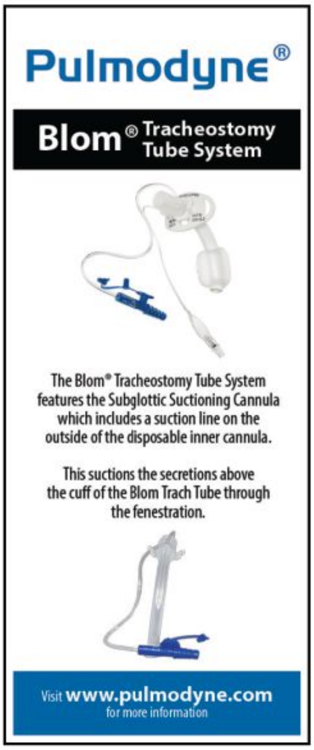
Featuring information on products and equipment from manufacturers



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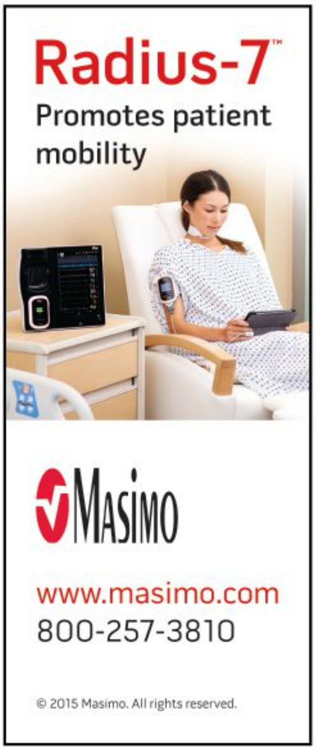

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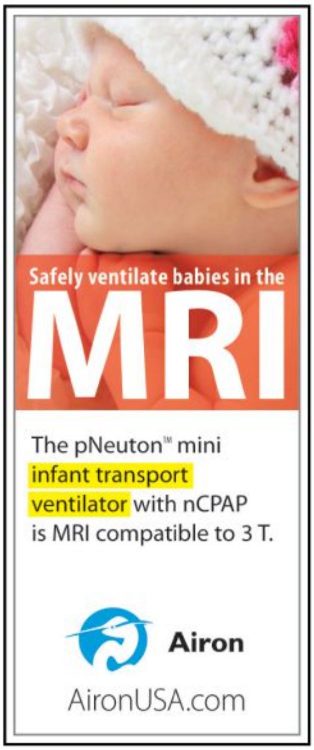

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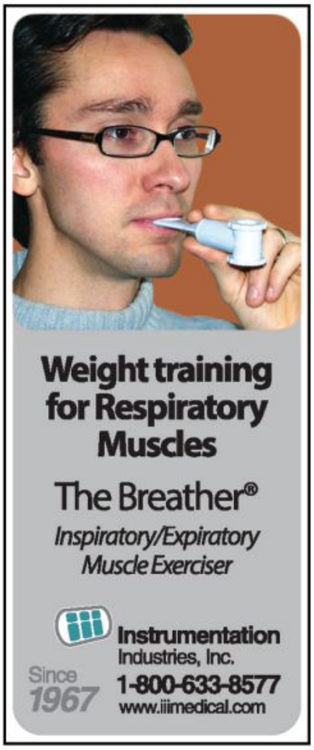

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▶ **Press releases and photos on new products are welcome. Send to Marsha Cathcart, AARC Times editor, at cathcart@aarc.org.**

— 2015 —

Since 1947, the AARC has been leading the effort to advance the respiratory care profession and promote quality respiratory care. Collaborating with our 50 state organizations, we have successfully advocated for the profession at the federal, state and local level.

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AARC Members: $50 for 50 words or less; each additional word, $1. Free Internet placement. Nonmembers: $60 for 50 words or less; each additional word, $1.20. Listings are categorized by state. Following the state listings are United States/International, For Sale/For Rent, Miscellaneous, and Situations Wanted. All copy should be typed double-spaced. All ads will be set in 8-point type. To calculate the cost per advertisement, a "word" is considered to be one or more letters, numbers, or special characters with a space before and after.

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We reserve the right to make editorial changes for reasons of clarity and consistency. Every effort is taken to avoid mistakes, but *AARC Times* cannot be responsible for clerical or printing errors. **Deadline for Ad Placement/Cancellation** Deadline for ad placement and written cancellations for the next available issue is June 17. Blind ads available. **For Recruitment Advertising Information, Contact AARC Respiratory Jobs** • Respiratory.Jobs@aarc.org
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Calendar of Events

AARC & State Society Programs

September 8–11

Myrtle Beach, South Carolina

South Carolina Society for Respiratory Care's 44th Annual Conference

Contact: Scott Lane, www.scsrc.org, SML97@scdmh.org

September 30–October 2

Hot Springs, Arkansas

44th Annual Arkansas Society for Respiratory Care State Meeting

Contact: John.Lindsey@Mercy.net

October 1–2

Bridgeport, West Virginia

West Virginia Society for Respiratory Care's Fall Health Care Conference

Contact: www.wvsrc.org, Cynthia.Keely@gmail.com

Submissions for the next available issue are due June 17.

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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[1] Needham D et al. *Archives of Physical Medicine and Rehabilitation* Vol 91, Issue 4, PP 536–542, April 2010.

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