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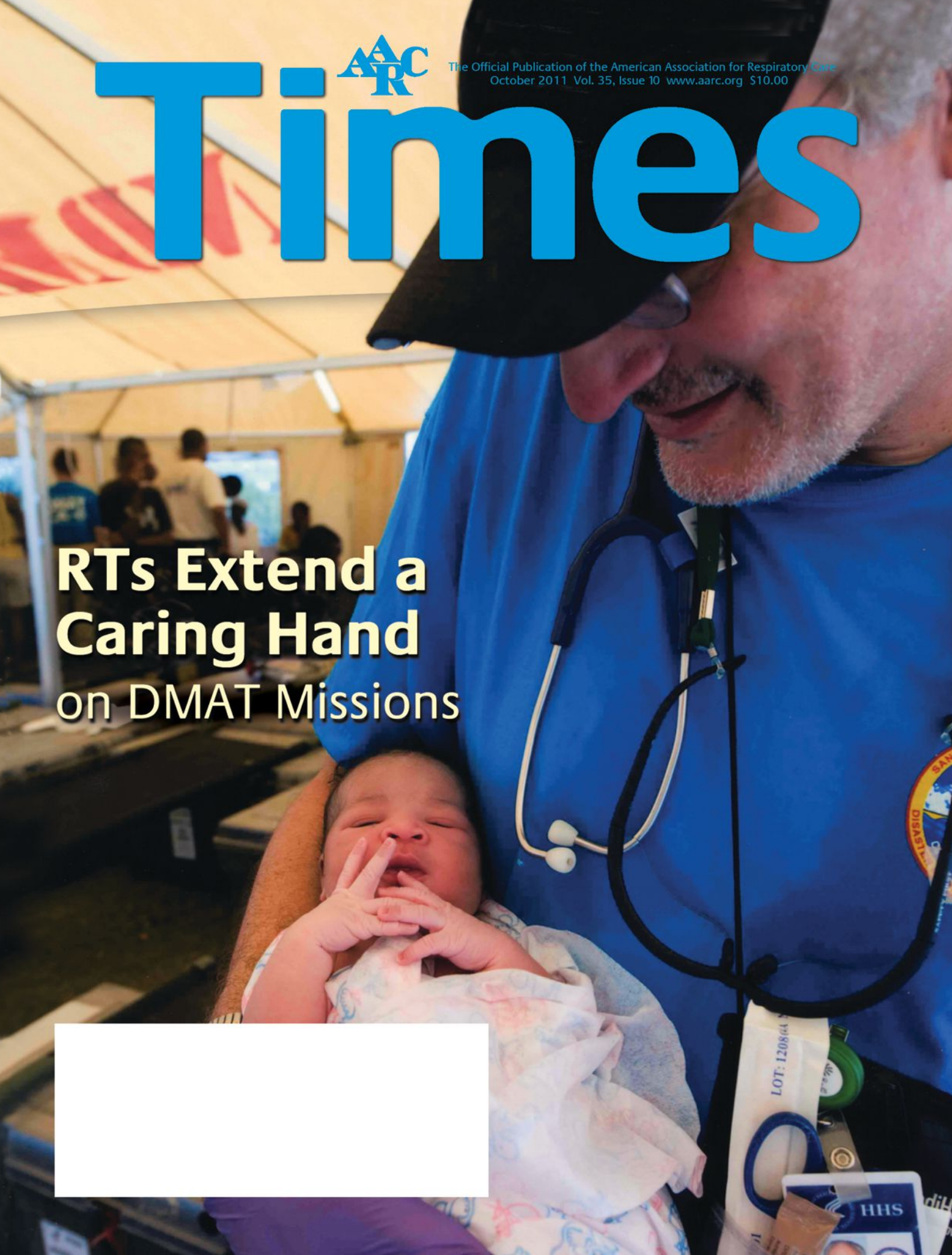

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About the cover: Alan Roth, MS, RRT-NPS, FAARC, a CA-6 DMAT team member from California, comforts a newborn in Haiti.

AARC Strategic Plan

AARC Vision/Mission Statement: The American Association for Respiratory Care (AARC) will continue to be the leading national and international professional association for respiratory care. The AARC will encourage and promote professional excellence, advance the science and practice of respiratory care, and serve as an advocate for patients, their families, the public, the profession, and the respiratory therapist.

AARC Strategic Objectives

• Validate the science of respiratory care and the value of the respiratory therapist (RT) in providing respiratory care by supporting, conducting, and publishing research information.

• Promote respiratory therapists as the best providers of respiratory care by assuring that the science that clarifies the value and role of the RT is provided to those stakeholders whose decisions and actions need to be guided by that information.

• Promote respiratory therapists and the American Association for Respiratory Care by developing and implementing promotion and marketing campaigns targeted to unique audiences.

• Assure the Association has the resources to meet the needs of its members and that the AARC has the needed financial, volunteer, and staff resources needed to accomplish the implementation of the strategic plan of the Association.

The complete version of the Association's Strategic Plan is available to AARC members online at www.aarc.org/members_area/resources/strategic.asp.

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Helping the Elderly Patient with Cognitive Impairment in the ICU

by Zachary Gantt, RRT, and Morgan Gantt Smith, BSN, RN

Cognitive impairment of patients in the ICU setting is a significant problem for clinicians. There are many risk factors associated with cognitive impairment, and there are serious potential sequelae. Identifying individuals with more risk factors, conducting accurate confusion assessment, and alleviating or reducing ICU-related delirium by addressing modifiable factors (e.g., medications) are critically important for the best possible outcomes for critically ill patients. According to Vanderbilt University, the first step in delirium treatment is early recognition.[1]

ICU delirium: an all-too-common problem

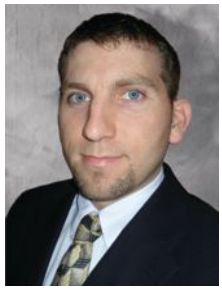
Delirium is defined as "an acute and fluctuating disturbance of consciousness and cognition" and is very common in critically ill patients. Acute delirium has been documented to occur in up to 80% of ICU populations.[2] Delirium has been shown to cause increased morbidity and mortality, higher incidence of nursing home placement, longer and more costly hospitalizations, more difficult ventilator weaning, and a higher incidence of nosocomial infections.[2-4] One study showed a strong correlation between increased number of days of ICU delirium and death within one year after discharge.[5] Additionally, critical illness-associated delirium can lead to chronic cognitive impairment, which can include memory and attention difficulties, impaired mental processing speeds, and general intelligence degradation.[6] According to Milbrandt and Angus, nearly half of acute respiratory distress syndrome survivors manifest neurocognitive sequelae two years after recovering from their illness.[6] This highlights the urgent need to reduce ICU-associated delirium.

The causes of delirium in the ICU are not fully understood, and multiple underlying mechanisms are likely to be present in any given individual. Neurotransmitter abnormalities and diffuse brain injury have been identified as two possible causes. The use of benzodiazepines, opioids, and anticholinergic medications have also been implicated in higher incidences and/or longer duration of ICU delirium.[6,7] Pre-existing dementia or chronic cognitive impairment predispose people to a higher risk for poor ICU outcomes. This group of people is highly vulnerable to ICU-induced delirium.[3] Pre-existing cognitive impairment is often undiagnosed prior to ICU admission, making confusion and cognitive impairment difficult to assess. Pisani et al reports that the prevalence of pre-existing cognitive impairment in the older population could range between approximately 19–38%.[8]

Improving cognitive impairment

Accurate assessment and detection of cognitive impairment in the ICU patient is critical and is the first step in reducing delirium. Early recognition of delirium and predisposing risk factors allow health care providers to minimize or eliminate such risk factors.[1] Accurate assessment of delirium in a ventilated patient can prove challenging for health care providers. Daily spontaneous awakening trials have been shown to reduce length of ventilation by an average of three days and reduce total length of hospitaliza-

about the authors...



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tion.[9] Researchers at Vanderbilt University have developed a bundle, called the ABCDE bundle, to decrease length of ventilation, decrease delirium, and increase mobility — all leading to improved outcomes. The ABCDE bundle stands for "awakening and breathing coordination, delirium monitoring, and exercise/early mobility."[10,11] The bundle calls for daily sedation vacations and aggressive sedation reduction, as well as avoiding benzodiazepines when possible. Initiatives similar to Vanderbilt's ABCDE bundle show great potential for reducing or preventing ICU-associated cognitive impairment.

Medications are the most common culprit in ICU-associated delirium. Medications with anticholinergic effects such as tricyclic antidepressants and antihistamines are particularly dangerous. Other medications that express anticholinergic properties are often overlooked. These include digoxin, glucocorticoids, and furosemide, all of which are very commonly used in the critical care setting. Anesthetics such as propofol also have anticholinergic effects and have been positively associated with the incidence of delirium. Neurotransmitters such as dopamine, serotonin, and norepinephrine have also been linked to ICU-associated cognitive dysfunction. These medications are all commonly used in the care of critically ill patients, which makes it very important to identify precipitating medications for each individual so that culprit medications can be limited or avoided during the course of treatment.[6]

Besides medication avoidance, there are other emerging treatments for ICU delirium that include low-dose haloperidol treatment, gabapentin administration, cognitive rehabilitation and repeated reorientation, providing for cognitively stimulating activities, early mobilization, timely removal of catheters and restraints, use of eye glasses and hearing aids, early correction of dehydration, and therapeutic hypothermia. A study on the effects of haloperidol, which can counteract cognitive effects of anticholinergics, showed reduced severity and duration of cognitive impairment and decreased length of hospitalization in patients following surgery. Gabapentin is thought to be beneficial due to its opioid sparing effect on the brain. Cognitive rehabilitation and hypothermia are yet to be supported by research as beneficial but are emerging as possibilities.[1,6]

> Delirium can cause increased morbidity and mortality, higher incidence of nursing home placement, longer and more costly hospitalizations, more difficult ventilator weaning, and a higher incidence of nosocomial infections.

Treating ICU delirium

Cognitive impairment is a serious issue in the ICU, perhaps more prominent than previous studies have indicated. Early recognition of pre-existing dementia and identification of risk factors are key to understanding, diagnosing, and treating ICU delirium. Protocols including sedation vacation, aggressive sedation reduction, and early mobility can decrease length of stay and improve patient outcomes. ■

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ADDITIONAL READING

Campbell NL, Khan BA, Farber M, et al. Improving delirium care in the intensive care unit: the design of a pragmatic study. Trials 2011; 12:139.

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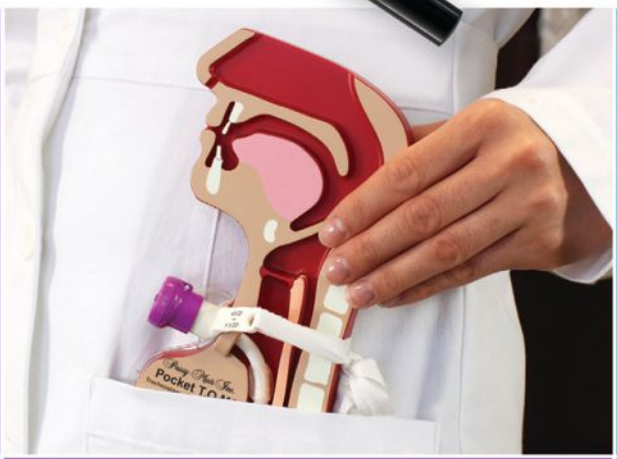

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Household Air Quality and the Asthma Patient

by Thomas J. Kallstrom, MBA, RRT, FAARC

Today, people in the developed countries spend approximately 80% of their time indoors.[1] In the United States, our homes can harbor the very triggers that exacerbate chronic pulmonary conditions like COPD and asthma. These aggravating agents could present in the form of airborne allergens, fragrances, cigarette smoke, or particulates. We teach our patients about the common triggers (dust mites, cockroaches, molds, and dander), but it is important to drill down further in our interviews with them so that we get a better understanding of other potential triggers in the home. Ultimately, the best way to understand what the home environment is like is to make a home visit. Unfortunately, this may not always be a practical approach for the acute care-based respiratory therapist.

Aggravating agents

An example of an aggravating source is volatile organic compounds (VOCs). VOCs are often found in air fresheners and fragrances that patients or caregivers use to remove or mask odors. A single fragrance could contain hundreds of chemicals that react with ozone in ambient air to form secondary pollutants, including formaldehyde.[2] A recent study revealed that the average number of VOCs emitted in 25 different household products yielded an average of 17 VOCs per product. These products included personal care products, cleaning supplies, and air fresheners.[3] The health effects of VOC exposure may well be implicated in asthma, even in low exposure.[4] We are still learning about the relationship between VOCs and asthma exacerbation; but the best advice to follow would be that if there is a relationship between cause and effect, the patient with asthma should attempt to reduce or eliminate exposure to VOCs when possible.

Cleaning agents are another potential asthma trigger in the home. A recent study noted that the main sensitizers contained in cleaning products are disinfectants, quaternary ammonium compounds (e.g., benzalkonium chloride), amine compounds, and fragrances. The strongest airway irritants in cleaning products are bleach (sodium hypochlorite), hydrochloric acid, and alkaline agents (e.g., ammonia and sodium hydroxide), which are commonly used. Exposure to the ingredients of cleaning products may give rise to both new-onset asthma, with or without a latency period, and work-exacerbated asthma.[5] This is concerning for patients who may do house cleaning. Perhaps it might be better for another person to do this chore.

Another concern is often seen in the inner city where patients and families utilize gas cooking ranges as a means to heat their dwellings in the cold months of the year. This practice results in the release of nitrogen dioxide (NO_2) and particulates, which according to the Environmental Protection Agency can irritate a patient's eyes, nose, and throat and could cause shortness of breath.[6] Researchers have found a cause-and-effect relationship in preschool children with asthma who are exposed. In fact, higher indoor NO_2 concentrations were associated with increased asthma symptoms in preschool inner city children.[7] This exposure was found primarily in African-American children. I saw this firsthand in many of my home visits in the inner city of Cleveland many years ago as part of an asthma disease management program. When I would ask parents of patients or the patients themselves why they had all four gas burners on the stove running on high, I was told it was to heat their home. This certainly is concerning for patients who have their

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

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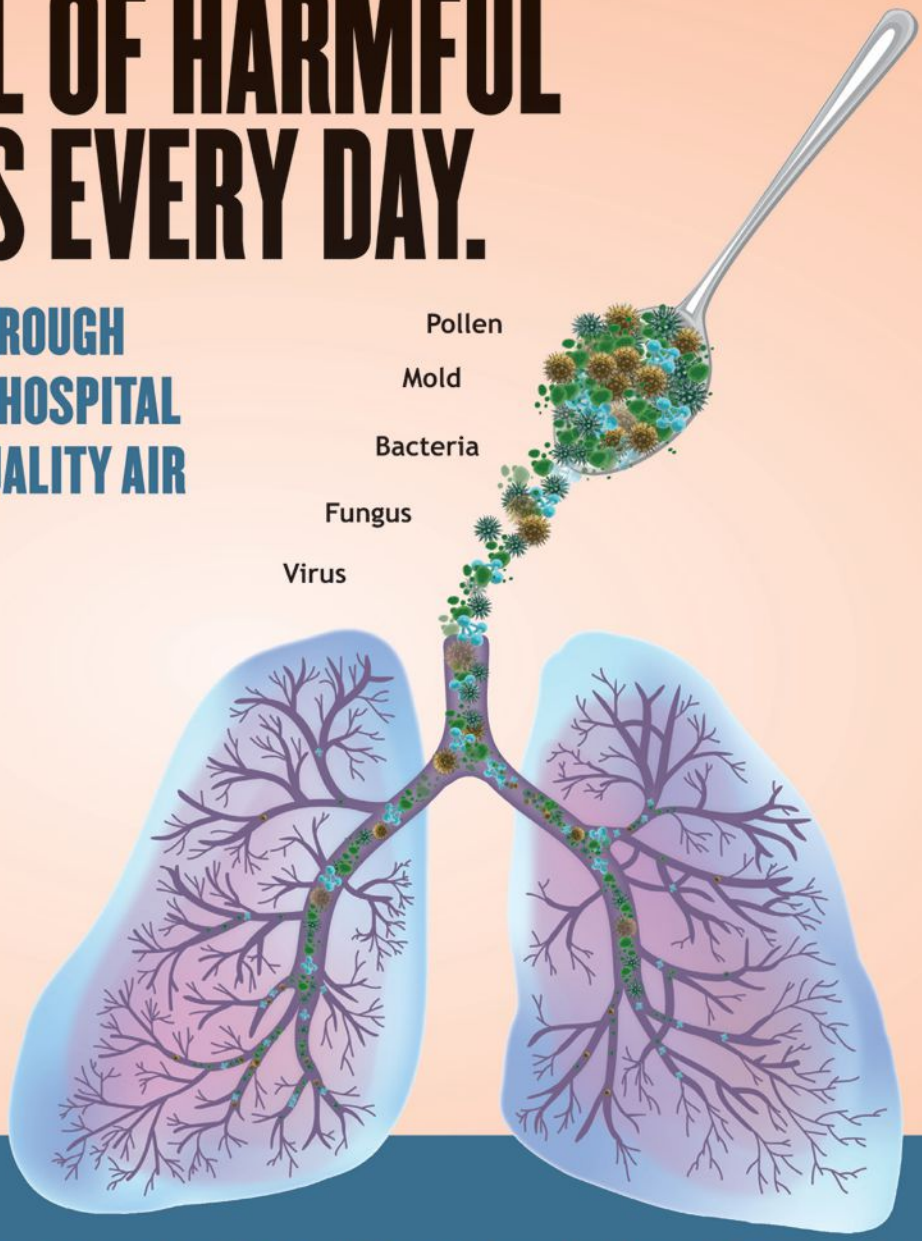

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asthma aggravated as a result of this exposure. In cases like this, alternative sources of heat need to be explored by the caregiver.

Exposure to secondhand tobacco smoke is yet another irritant that can easily exacerbate an asthma patient. According to the Centers for Disease Control and Prevention, secondhand exposure to tobacco smoke causes heart disease and lung cancer in non-smoking adults and sudden infant death syndrome, acute respiratory infections, middle ear disease, exacerbated asthma, respiratory symptoms, and decreased lung function in children.[8] Asthmatic children are exposed to secondhand smoke, especially in the inner city where a recent study found that in over half of the homes indoor smoking was taking place.[9]

One would think that simply smoking in another area of the home or the use of air cleaners might be the answer, but there is not a lot of evidence that supports this conclusion.[10] Patient/family education and counseling seem to be the most logical first step in helping them recognize the deleterious effect that secondhand smoke causes to those around the home. In fact, The Joint Commission mandates that all hospitalized patients be asked about smoking. If the answer is in the affirmative, our next step is to offer more education and counseling or at least counseling referrals.

Patient education

Dealing with a population of patients with asthma, we find that each has particular indoor triggers in their homes that may aggravate their condition. Sometimes it is obvious and other times not so much. As clinicians we must not only treat but also educate our patients about their indoor air quality as well as many of the chemical agents that they may come into contact with. The AARC has a course on teaching patients about indoor asthma triggers. It can be found at www.epapartnershiparcf.org/courses/lecture_hall.cfm and is available free to members. I encourage you to access this link to learn more about how you can help your patients be better self-managers of their disease. ■

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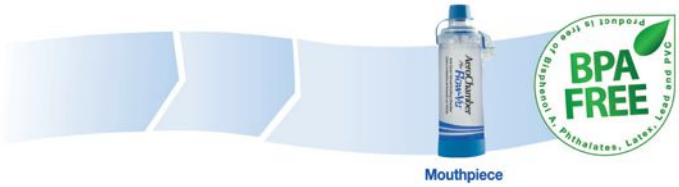

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Identifying Sleep Therapy Effectiveness

by Tara Vander Laan, BS, RRT-SDS, RPSGT

According to the National Sleep Foundation, more than 18 million people are estimated to have obstructive sleep apnea (OSA). Sleep-disordered breathing (SDB) has become more recognized and diagnosed in recent years. Research and education have improved recognition of sleep medicine. With SDB becoming diagnosed earlier and more often, it is imperative to assess treatment outcomes and improve patient compliance.

Both the American Academy of Sleep Medicine (AASM) and The Joint Commission developed standards requiring determination of the presence or absence of sleep apnea as well as the severity of the disorder before initiating treatment. By diagnosing the patient first, it allows for a baseline of disease severity as well as any adverse symptoms, comorbidities, and possible complications that a patient may develop. The diagnosis of OSA can be made by either an attended full-night polysomnogram at a testing facility or an unattended portable home monitoring device. Screening devices, such as nocturnal overnight oximetry, also have been used to assess the need to do further testing. Overnight oximetry may show a classic saw-tooth saturation pattern, which is highly suggestive of SDB. (Note: Overnight pulse oximetry readings should be over-read by a highly trained individual for the most accurate interpretations.)[1]

Once the diagnosis of SDB is established, it is imperative for patients to be treated with optimal therapy to help improve overall compliance. Treatment can range from positive airway pressure (PAP) to oral appliances to surgical procedures or behavioral modifications — and a combination is often used to treat patients effectively.

Assessing sleep therapy effectiveness is a multifaceted approach. A polysomnography with treatment is performed to allow for direct monitoring of the oxygenation, arousals, respiratory events, snoring, cardiac arrhythmias, and sleep architecture.

The first objective of treatment is to decrease the apnea-hypopnea index (AHI) or respiratory disturbance index (RDI). When initiating PAP therapy, the goal is to eliminate respiratory events, thus decreasing the AHI/RDI to the normal range of <5. When this goal is reached, oxygenation saturation levels return to a normal baseline and no longer demonstrate the saw-tooth pattern that typically accompanies respiratory events.

When an optimal pressure is achieved, arousals associated with respiratory events improve. This has a positive effect on sleep architecture. This is often noted in a more normal sleep pattern that includes stability of stage N2 and N3 along with the cyclic pattern of rapid eye movement (REM) occurring approximately every 90–120 minutes.

Snoring is an important symptom to consider once an optimal pressure is found. Residual snoring may be a sign of upper airway resistance, especially if it appears to have a crescendo pattern. PAP pressure should be increased for unambiguous snoring when optimizing therapy. Cardiac status needs should also be addressed, especially if a patient appears to be compromised due to SDB. One of the most common arrhythmias seen is bradytachycardia, which is usually noted in conjunction with respiratory events. This often corrects itself once optimal continuous positive airway pressure (CPAP) treatment is applied.

As sleep architecture returns to normal or near normal with treatment, symptoms of SDB improve. Patients may begin to feel improvement in energy levels and cog-

about the author...

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nitive function. Morning headaches may disappear. Depression symptoms may improve. It is important to monitor a patient's comorbidities, such as refractory hypertension and atrial fibrillation.

Positive airway pressure

PAP is considered the first choice in treatment of SDB. This can include both CPAP and bi-level PAP. The sleep standards recommend either a full-night titration polysomnogram or a split-night polysomnogram for obtaining a patient's optimal pressure. Optimal pressure is defined by the AASM as an RDI <5 for at least 15 minutes, which includes supine REM sleep and SpO_2 ≥90%. PAP pressure should be increased to correct apneas, hypopneas, respiratory effort-related arousals, and unambiguous snoring.

Adaptive servo ventilation is a form of PAP used to treat complex sleep apnea or Cheyne-Stokes respiration. Adaptive servo ventilation allows for:

- Auto-titration of CPAP or bi-level PAP to prevent airway collapse
- Automatically calculated back-up rate for central apneas
- Pressure support ventilation during periods of hypoventilation.[2]

Once a patient's treatment has been optimized, stability of sleep architecture should improve. There are PAP devices specialized for patients with neuromuscular diseases such as amyotrophic lateral sclerosis or thoracic cage abnormalities. Along with neuromuscular disease, one of three other criteria needs to be met. While breathing the prescribed FiO_2, a patient needs one of the following:

- $PaCO_2$ ≥45 mm HG
- SpO_2 ≤88% for >5 minutes with COPD not contributing to the pulmonary limitations
- Maximum inspiratory pressure <60 cm H_2O or forced vital capacity <50% predicted.

Patients do not need a diagnosis of SDB to qualify for this modality, but they can still qualify for it if they are diagnosed with it.[2]

Oral appliances

Use of oral appliances should also be considered as an effective treatment for mild to moderate OSA. It effectively reduces AHI. In severe OSA, oral appliances do not reduce AHI as effectively as CPAP; however, both were successful at improving subjective symptoms like sleepiness and neuro-cognitive issues. There are two main types of oral appliances: mandibular repositioning appliances and tongue retaining devices. The device used should be determined for each individual patient based on the anatomic issues causing the SDB. To ensure therapy is effective, the AASM recommends a patent should undergo a polysomnogram with the oral appliance adjusted and in place.[3]

Surgical intervention

Surgical procedures are an option for OSA patients. There are many different procedures available including uvulopharyngopalatoplasty (UPPP), maxillar mandibular advancement, and even tracheotomy. These may be done as a single procedure or coupled together. Surgical options are considered when patients are intolerant of PAP, unable to correct SDB with PAP, or have an anatomical correction (i.e., tonsils).

The UPPP is the removal of tonsils, posterior soft palate/uvula, and closure of tonsillar pillars. This procedure is not considered highly effective. In two randomized studies done, AHI had an overall reduction by 33%; however, the residual AHI remained elevated, averaging 29 per hour.[4]

Maxillar mandibular advancement enlarges the velo-orophypopharyngeal airway. This procedure has been shown to reduce AHI by up to 87% in patients with severe OSA. There is no standardization in selecting patients for this procedure. Patients with hypopharyngeal narrowing upon radiological imaging may benefit from this procedure.[4]

Tracheotomy is effective in treating SDB. This is not to be used for patients with central apneas or central hypoventilation, nor is it commonly used as it is invasive and possibly causes respiratory infections.[4]

Behavior modifications

Positional sleep therapy is a treatment option for patients with positional sleep apnea or may be used in conjunction with another form of treatment like PAP therapy. In one study, positional sleep therapy was compared to CPAP. Both modalities effectively reduced AHI from 11 per hour to two per hour. Mean oxygenation was unchanged compared to baseline, but the low SpO_2 increased from 85% to 89%. Positional sleep therapy was found to be comparable to CPAP treatment in patients with positional sleep apnea. It is the AASM's consensus that positional sleep-disordered breathing should be documented through a PSG before using it as a primary therapy.[5]

Weight loss should be recommended to patients who are overweight based on a BMI >35. It should be combined

with other SDB therapy. With weight loss of greater than 10%, the AASM standard is to repeat a PSG to determine if PAP therapy is still needed.[5]

As the AARC recognizes, the adherence to CPAP over the course of the first year of use is at 50%. Optimal pressures on CPAP machines are virtually useless unless the patient complies with treatment. A patient may often become discouraged if small problems are not quickly corrected. It is a process just to find the correct interface for a patient as well as to educate and reeducate on the importance of the disease itself and treatment adherence. For patients who seek other options, effective treatments are available depending on severity of the disease. ■

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The View from Here

Lessons Learned

by Jason Burton

For most health care students, clinicals are a way of life. These long days of learning are to prepare us for the real world of working as a professional in health care. My chosen path along the hospital highway is that of respiratory therapy. I am currently in my last quarter in the respiratory program at North Central State College in Mansfield, OH. Graduation is right around the corner, then I must pass my post-graduate exams to become registered by the state of Ohio.

This journey in becoming a respiratory therapist has taught me a lot about myself and about life itself — how precious it really is. We often hear the cliché "life is too short" or "live your life one day at a time." Now I truly understand the deeper meaning of these statements just from my clinical experience alone. Just with a flick of a finger, a person's life and world can be turned upside down and be changed forever. One minute you're a walking, talking healthy adult with lots of aspirations and dreams; then suddenly some traumatic event occurs and you're fighting for your life from a hospital bed.

about the author...

Jason Burton is a respiratory therapy student at North Central State College in Mansfield, OH.

New perspective

It was summer quarter 2010, in the midst of the July heat, that my perspective of life changed just from one day at my clinical rotation at a local hospital. I began my first rounds in the adult ICU and came to my first patient (for confidentiality, I will call him Jerry). Jerry was on a ventilator, and his lower left leg had just received a fasciectomy to relieve pressure and attempt to get the perfusion back. After I finished my vent check and gave Jerry his treatment, I began to fill out his chart.

Meanwhile, a group of medical students were doing their morning rounds and came to Jerry's room. I learned this 42-year-old man was on his lunch break one day at a popular restaurant to get a salad and was carjacked in the parking lot, which ended badly for Jerry. He was shot in the abdomen and groin area, but he still had enough strength to crawl into the restaurant to tell the hostess to call for help. The bullets shattered his intestines and tore up his vasculature, including his femoral artery.

As the physician was talking to the medical students about his leg and the fasciectomy, he stated all the procedures failed and there was nothing more they could do for his leg. The physician told his students Jerry would go to surgery for amputation of his left leg just under the knee. Thoughts were racing in my mind about what I heard and how this man's life just turned upside down in a matter of moments on his lunch break.

The clinical experience makes or breaks students, and it doesn't matter if you are a nursing or respiratory student. We are going to see bad things. This is the way to find out if you have what it takes to become a clinician and work in a hospital.

Another lesson learned

The day of my first clinical rotation was mostly O_2 rounds and basic assessment of vitals. I was nervous and scared as I walked into my first patient room — in fact, so nervous I forgot to wash my hands and put gloves on! It was 6:15 am and I had to wake this elderly patient to do my assessment. I thought... there is no way I'm going to wake this man up just to take his pulse! Needless to say, I got through it and eventually all the butterflies went away from entering patients' rooms and doing my assessment and interacting with the patients.

Little by little, as time and more clinical rotations came and went, I witnessed all types of patients with all kinds of diseases, conditions, and traumas. From time to time, I got the "wow" factor or the "I can't believe what I just saw" moments. Thankfully, these eye openers didn't get the best of me and start me second guessing myself about my career decision. All or some of these moments though, eventually make you sit back and ponder about life. What is life? How is my life different from these patients? Am I living a good life? For me, it all started to sink in when a trauma physician told his medical students they had to take Jerry's leg.

Once I really became aware of how precious life is and stopped taking it for granted, I used this to my advantage in all of my clinical experiences that were to come. It also made me open my eyes and become more grateful for my wife, my two beautiful and healthy kids… and I became grateful for just me. All this adds up to more pep in my step because I have more confidence in myself and the way I now look at life. This confidence also allows me to become a confident RT and be able to genuinely give 100% to these patients and their families in their time of desperate need.

The patient's touch on RTs

They say "one man gathers what another man spills." Well, that is true. I can tell you from experience that all I have gathered in my clinical rotations all spilled from life itself. This life is going to have hurt and sorrow; people are going to get sick or become a victim of a senseless crime, as in Jerry's case. My "awakening" came at the expense of all the patients I have seen along my journey to become an RT. The light shined bright on me that day in Columbus. I have my clinical experience to thank, but most importantly, I have Jerry to thank. ■

Helping Your Pulmonary Patients

by Cheryl West, MHA

At the AARC we often receive requests for assistance from members who are trying to help their pulmonary patients with a variety of concerns ranging from post hospital assistance with clinical care, or helping home care patients needing additional non-medical services, or locating support groups for those who care for patients with particular respiratory diseases.

And there aren't standardized answers. Usually what you find is that the resources that might be available in one state (or even in one locale), won't be the same in every state. This column will list a few ideas where you might find (or direct your patients to find) some help. It's not inclusive but should serve as a starting point. I'm going to focus on some of the generally available resources that might be obtainable whether or not your patients have been hospitalized.

Medicare

First start with the federal Medicare program for your patients or clients who might be eligible. Medicare is hugely complex, with different benefit categories all having different coverage, payment, and qualifications. The agency has tried, through their consumer-based website (www.medicare.gov), to make it easier to find answers to beneficiaries' common questions and concerns. In addition, the website also provides a toll-free Help Line at 1-800-MEDICARE and even a staff of ombudsmen to assist with the really complicated issues. However, Medicare covers only a portion of the services a pulmonary patient might need outside the hospital. So what non-Medicare resources might be available?

about the author...

Cheryl West, MHA, serves as director of government affairs for the AARC.

Administration on Aging

One untapped resource for patients who are out of the hospital is the federal Administration on Aging, or AOA (www.aoa.gov). While the AOA is a federally based program, the focus of this agency is to provide "boots on the ground" — that is, local state-based offices with staff who not only know the area but know the available services. The goal of the AOA is to keep seniors at home and as independent as possible by providing non-medical services. Right from the main page you can go to Find Local Program. It's a great untapped gateway to helping make the senior more independent.

Learn to "Google"

If your patients are Medicaid-eligible, again there are resources that they could qualify for whether it is for clinical services or other non-medical support services. I'm a firm believer in "Googling" to quickly find the right website. So if I'm looking to find, for example, the Vermont Medicaid Program, it's often much more direct if I do an Internet search for "Vermont Medicaid" rather than starting from a state government's main page.

Depending on your state, services and programs supported by the state government can also be available for its residents that are not linked to the Medicaid program for the poor and the disabled. State help might be there for individuals of all ages, and this is especially true for children under 18 who have medical or developmental conditions.

Pinpointing these state-sponsored programs can be trickier as the information is often hard to find when

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searching state government websites. Working through local or state chapters (e.g., the American Lung Association or a local AARP office) could open the doors to finding not only these somewhat elusive state assistance programs but put you in contact with private support groups that might know of additional services or help that could be available in your area. Large national consumer-based organizations, such as the aforementioned American Lung Association (www.lungusa.org) or the Asthma and Allergy Foundation of America (www.aafa.org/esg_search.cfm) provide links from their main pages to local support groups or programs. The American Lung Association encourages organizing Better Breathers Clubs, which many respiratory therapists are very involved in. The Cystic Fibrosis Foundation (www.cff.org) has a main page link to find state and local chapters. Then there are Internet-based support groups such as EFFORTS, or Emphysema Foundation for Our Right To Survive (www.emphysema.net/default.asp), which provides information for COPD and other lung-disease patients. These are just a few of the patient organizations that could provide a road map to finding local help, services, and resources for pulmonary patients or their families.

> Respiratory therapists are not only critical in the delivery of health care services but they also serve as advocates for their pulmonary patients.

RTs as the information resource

The AARC is firm in its conviction that respiratory therapists are not only critical in the delivery of health care services but they serve as advocates for the pulmonary patient. Respiratory therapists, whether employed in a hospital, rehabilitation facility, nursing home, physician's office, home care, or other care site can be an important information resource to pulmonary patients of all ages and their caregivers. ■

Do You Need or Want an Employment Contract?

by Anthony L. DeWitt, JD, RRT, FAARC

The law in almost every state provides that most employees are employees at will, meaning that they can be fired for any reason or for no reason, but not for an unlawful reason. The exception to an "at will" employee is an employee with a contract who is employed for a specific term with specific rights under the contract. Normally, an employee hired in this manner is an executive or a senior employee, and the employer wants to protect itself by getting an agreement up front about not only what the duties and responsibilities are, but what happens if the relationship doesn't work out. But contracts aren't always necessary, and signing one isn't always wise.

It is black letter law (a rarely disputed principle of law) that a contract is really just a formal promise. If a person breaks a promise laid out in a contract, a court has the power to enforce the agreement. In order to be binding, a contract must include:

- A definite offer ("employment as sales manager for a period of one year"
- An acceptance of that offer (usually provided by a signature)
- Consideration (which just means that both parties give and take in the transaction).

Where a court finds that a promise has been made with the required formality, a court will require the parties to perform that contract or will award damages to the person injured by the breach.

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.

Covenant not to compete

Most employment contracts are not actually negotiated. They are handled on a "take it or leave it" basis. But there are some things in employment contracts that can cause problems for both parties down the road. The most serious of these is the "covenant not to compete." These can lock an employee out of a geographic area; and if they are too broad, a court will not enforce them, causing the employer problems.

A covenant not to compete is a promise that says after the termination of the employment relationship, the employee won't take a job within a certain geographic area for a certain amount of time. This is normally done to prevent a competitor from coming in and hiring a manager who has built up a loyal clientele in an area and thereby obtaining the benefit of the employee's prior relationship.

Because a covenant not to compete is a restraint of trade under the law, courts look at them very carefully when they are called to enforce them. Covenants must be reasonable both in terms of the time employment is restricted and the area where an employee cannot compete. A covenant that restricts employment inside one state for 12 months will most often be found to be enforceable because it is reasonable. A contract that forbids employment as a salesman or manager anywhere in the United States for a period of five years would be unreasonable and unenforceable. However, there is a lot of room between those two extremes, with courts making determinations about matters on a fact-by-fact basis. Depending on the nature of the agreement and the amount of any severance payments, courts sometimes modify covenants or refuse to enforce them in order to prevent them from being unfair.

Contracts often don't provide an employee with a great deal of protection. Even where a contract states that an employee will be hired for a fixed term (e.g., two years), there are usually provisions in the contract for discharge for cause. And some contracts state that either

party may terminate with 60 days notice. For that reason, an employment contract is not a guarantee of continued employment. All an employment contract really does is set down in writing the rules that govern a person's employment. And almost all of them provide for some period of non-competition after that period of employment.

For that reason many lawyers counsel that an employment contract is seldom in the employee's favor. They suggest that any employment contract be narrowly drawn, and that if a non-competition clause is included, that there be some way to protect the employee if separation from the company is involuntary (e.g., due to a layoff).

Often with company mergers, mid-level employees with employment contracts are the most seriously affected. Even though their job performance may be exemplary, an employee may be terminated or laid off as a cost-saving strategy. When that happens, it is unfair to hold the employee to a geographic limitation on employment because he hasn't sought a job change. But absent language in the employment agreement specifying that only voluntary termination triggers the non-competition clause, the employee may still be barred from working in the same area even though he's done nothing wrong.

When you need an attorney

Frequently, employment contracts are provided to an employee at the same time the job is offered, and an immediate signature is requested. If a business is legitimately interested in retaining your services, they will not mind if you have an attorney look over the agreement and explain its terms and conditions to you. Most lawyers do this kind of thing for a small fee. It is often well worth it. An attorney may be able to modify or amend the terms of the agreement in a way that is ultimately helpful to you.

Employers also should consider whether they need to offer employees a contract. If the concern is the protection of proprietary information (e.g., patient lists, pricing information, and trade secrets), a better approach may be to solicit a trade secrets access agreement that does not lock the employer into a long-term contract but does provide for protections of trade secrets and proprietary information.

Whatever the decision, employment contracts should be drafted and amended only by attorneys because the law in most states is that any ambiguities in the agreement are construed against the party that drafts the agreement. Seeking legal help to determine the need for such contracts is a wise expenditure of funds by both the employee and the employer. ■

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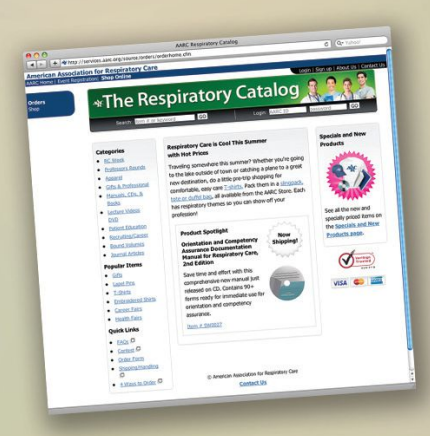

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Ventilation Reports in the Literature

The following studies on mechanical ventilation are shedding light on the evolving care of the ventilated patient.

PEEP plus surfactant may mediate lung injury at birth

Positive end-expiratory pressure (PEEP) plus surfactant treatment may decrease lung injury from initiation of ventilation with high tidal volumes, report Cincinnati Children's Hospital Medical Center investigators publishing ahead of print in the *American Journal of Physiology, Lung Cellular and Molecular Physiology* on Aug. 19. Their study randomized preterm, surfactant-deficient sheep to one of five groups:

1. No PEEP, no surfactant
2. PEEP 8 cm H_2O, no surfactant
3. No PEEP plus surfactant
4. PEEP 8 cm H_2O plus surfactant
5. Control — CPAP 2 cm H_2O

Results showed sheep that received PEEP during the initiation of ventilation at birth had a decrease in early mediators of lung injury, while surfactant administration changed the distribution of injury and had a moderate added protective effect.

Lung protective ventilation strategies underused during surgery

A new study out of the University of Michigan finds patients with a known history of acute lung injury (ALI) may not be receiving lung-protective ventilation strategies during surgery. The investigators looked at ventilation parameters in 1,286 patients, 242 of whom had a preoperative diagnosis of ALI.

Tidal volumes were approximately 8.7 cc/kg predicted body weight in both groups, while peak inspiratory pressures were 27.87 cm H_2O on average in the non-ALI group and 29.2 in the ALI group.

The authors concluded, "These findings suggest that anesthesiologists are not using lung protective ventilation strategies when ventilating patients with low $PaCO_2/FiO_2$ ratios and ALI, and instead are treating hypoxia and ALI with higher concentrations of oxygen and peak pressures." The study was published in *Anesthesiology*.

Reducing VAP

Two recent studies suggest ways to reduce the incidence of ventilator-associated pneumonia (VAP):

- Virginia investigators found even a single administration of chlorhexidine (CHX) to the mouth and oropharynx can have a significant impact on the number of VAP cases diagnosed among trauma patients on mechanical ventilation. Their study was conducted among 145 patients who were randomly assigned to 5 mL of CHX or a control group. Patients were assessed for VAP at 48 and 72 hours. In patients with no evidence of pneumonia at baseline, 55.6% of the control patients had developed VAP by 48 or 72 hours compared to 33.3% of those in the intervention group. The study was published in September ahead of print in *Heart & Lung*.
- Canadian researchers who reviewed 13 randomized clinical trials on endotracheal tubes with subglottic secretion drainage noted a reduction in VAP with the use of subglottic secretion drainage in 12 of the studies. Subglottic secretion drainage led to shorter ICU stays, decreased duration of mechanical ventilation, and increased time to the first episode of VAP. The study was published in August ahead of print in *Critical Care Medicine*.

Extubation readiness test falls short

An extubation readiness test using pressure support set to match the endotracheal tube size may underestimate the number of children who are not ready for

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extubation, report Boston investigators publishing ahead of print in *Pediatric Critical Care Medicine* on June 9.

The researchers analyzed results for 755 extubation readiness tests performed in 538 patients. Five hundred children passed the test. Extubation failure was defined as the need for re-intubation or unplanned noninvasive ventilation within 24 hours. The failure rate was 11.2%, with 5.8% requiring re-intubation. Results linked mechanical ventilation for more than 48 hours with an increased risk of extubation failure. These children had an 18.5% failure rate despite passing the extubation readiness test. Most of the extubation failures in the study were attributed to inadequate gas exchange due to lower respiratory tract dysfunction.

The authors conclude, "A spontaneous breathing trial using pressure support set at higher levels for smaller endotracheal tubes overestimates readiness for extubation in children and contributes to a higher failed extubation rate." They suggest collecting objective data during the extubation readiness test to help identify patients who will benefit from extubation to noninvasive ventilation.

The role of PEEP and FiO_2 in predicting outcomes for ALI/ARDS

Recent results from the long-running ARDS Network trial show the addition of baseline PEEP does not increase the value of PaO_2/FiO_2 in predicting mortality in acute lung injury/acute respiratory distress syndrome (ALI/ARDS) patients. However, adding baseline FiO_2 to PaO_2/FiO_2 may be useful in identifying subsets of patients with low or high mortality. The researchers arrived at those conclusions after analyzing baseline physiologic data and outcomes on 2,312 patients at 40 ARDS Net hospitals across North America. The findings were published this September in *Critical Care Medicine*.

Study gauges hospitalizations, costs, for kids on long-term mechanical ventilation

University of Michigan researchers who analyzed all hospitalizations for a group of children up to age 20 who required long-term mechanical ventilation have found that while the length of initial hospitalization for these children remained about the same between 2000 and 2006, total admissions were up by 55%. Other findings include:

- The 55% growth in additional hospitalizations for children needing long-term mechanical ventilation support helped fuel a 70% increase in subsequent health care costs.
- Infants less than one year old made up 25% of the population but consumed about 50% of the health care resources used by the group.
- Infants had the longest length of hospitalization and highest in-hospital mortality rates.
- In the final years of the study, the demand for additional care was greatest in patients between one and four years of age.

The study was published online in *Pediatrics* in May.

New method improves aerosol delivery during NIV

A new aerosol drug delivery method for use during noninvasive ventilation (NIV) may ensure more of the drug is retained by the lungs, report researchers from Virginia Commonwealth University who tested an approach called enhanced condensational growth (ECG) that uses a submicrometer or nanoaerosol to reduce extrathoracic deposition and increase droplet size. In a study conducted in an adult nose-mouth-throat replica, the ECG delivery approach significantly reduced the drug deposition fraction when compared with a control, and aerosol size increased. When the researchers increased the delivery temperature of the aerosol stream from 21° C to 35° C, the total drug deposition was further reduced while the aerosol growth was maintained.

"Application of the ECG approach may significantly improve the delivery of pharmaceutical aerosols during NIV and may open the door for using the nasal route to routinely deliver pulmonary medications," write the authors. The study was published in the April issue of the *Journal of Aerosol Medicine and Pulmonary Drug Delivery*.

Surfactant depletion during mechanical ventilation affects regional pulmonary metabolic activity

Boston investigators who used positron emission tomography with 18F-fluorodeoxyglucose (18F-FDG) to conduct a noninvasive assessment of regional metabolic activity in the lungs of mechanically ventilated sheep conclude "surfactant depletion produces increased and heterogeneously distributed pulmonary 18F-FDG uptake after four hours of supine mechanical ventilation." Poorly aerated dependent regions of the lung showed the highest level of metabolic activity, suggesting locally increased inflammation. However, 18F-FDG uptake in normally aerated regions was low and similar between lungs.

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1. Coffin S, Klompas M, Classen D, et al. Strategies to prevent ventilator-associated pneumonia in acute care hospitals. Infect Control Hosp Epidemiol. 2008;29:S31-S40.

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The study was published ahead of print in the *Journal of Applied Physiology* on July 28.

British study makes the case for weaning units

According to British researchers publishing ahead of print in *Critical Care* in March, a specialized weaning unit would benefit patients and save money for the health care system in their administrative health care region.

The investigators analyzed the effects of such a unit by looking at a database of 7,848 admissions to three ICUs over a four-year period. A 21-day cutoff defined prolonged mechanical ventilation (PMV). Results showed one in 16 patients required PMV, and these patients used 29.1% of all general ICU bed days and had longer median hospital stays following the ICU stay, as well as higher mortality rates. They speculate that a three-bed weaning unit would be cost effective for the region, resulting in a potential cost savings of 418,000 Euros.

"Restructuring the current configuration of critical care services to introduce weaning units should be considered if the expected increase in PMV incidence occurs," they concluded. ■

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Therapeutic Hypothermia for Victims of Cardiopulmonary Arrest

by Jeffrey J. Ward, MEd, RRT, FAARC

"Time for the weather report. It's cold out folks. Bonecrushing cold. The kind of cold which will wrench the spirit out of a young man, or forge it into steel."

– Chris Stevens (Cicely, Alaska's radio station KBHR disc jockey on TV series "Northern Exposure")

Hypothermia is generally defined as a decrease in core body temperature below 35° C (95° F). It is further categorized by whether it occurred accidentally or was purposely induced. The latter can be initiated as a protective measure for surgical procedures or following medical events such as cardiopulmonary arrest. In addition, the level or severity of hypothermia has been identified by body temperature ranges (see Table 1).[1,2] The purpose of this review is to briefly describe the physiological changes that occur with hypothermia and the rationale and current evidence for use of therapeutic hypothermia in adults, children, and newborns.

The human body has a complex system to maintain thermal homeostasis in the face of varying activity levels and/or environmental stresses. Heat gain reflects the heat liberated as a side-product of cellular chemical processes, primarily in muscles and liver; it is often described in association with the metabolic rate. The respiratory quotient (R or RQ) summarizes CO_2 production/O_2 consumption (VCO_2/VO_2). Heat is lost from the body via radiation, conduction, convection, and evaporation. Peripheral thermoreceptors on the skin transmit impulses to the hypothalamus. Nuclei in the preoptic anterior hypothalamus function as core thermoreceptors. With hypothermia, the hypothalamus responds to effect heat production (e.g., shivering) or conservation by limiting heat loss (e.g., peripheral vasoconstriction).[3,4] Measurement of core body temperature can be performed using electronic thermometers in the rectum, urinary bladder, pharynx/esophagus, as well as infrared tympanic thermometry in the ear canal.[5]

about the author...

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Accidental hypothermia

In the United States between 1999–2002, there was an average of 1,150 deaths/year with a hypothermia-related diagnosis listed as the cause of death. It is a relatively uncommon mortality with an estimated incidence of four per 1,000,000 population/year.[6] In the past, hypothermia victims were most frequently in the urban homeless population due to poor nutrition, inadequate clothing, and insufficiently heated living spaces in winter months. However, recreational exposures in cold environments are now also a major cause. Following a skiing accident, a 29-year-old Swedish woman sustained the lowest recorded body temperature of 13.7° C (56.7° F) in which a human has survived.[7] Cold water immersion near-drowning is significant due to water's greater conductivity for heat. Death can occur in one hour when water temperature is 10° C (50° F), and prolonged exposure to water temperatures of even 26° C (79° F) can lead to hypothermia.

Besides environmental settings, a number of physical conditions predispose to hypothermia. These include: extremes of age, malnutrition, dehydration, hypoglycemia, hypothyroidism, septicemia, and altered perception to cold such as dementia, substance and alcohol intoxication; plus substance abuse (e.g., narcotics) may prevent shivering and alter vasomotor tone. In addition to aforementioned systemic changes, frost-

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Table 1. Physiologic and Pathologic Changes Associated with Hypothermia

Severity Level	Body Temperature	Cardiovascular	Respiratory	CNS & Neuromuscular	Other
Mild	35–32.2° C 95–90° F	Tachycardia; vasoconstriction; increased cardiac output and blood pressure (BP)	Tachypnea then bradypnea and VE, ↓ VO_2, bronchospasm, left-shift of Hb-O_2 curve decreasing O_2 release	Depression of cerebral metabolism, confusion Shivering, ataxia	**Increased release in catecholamines, adrenal steroids and thyroxine. Diuresis**
Moderate	32.2–28° C 90–82.4° F	Bradycardia and decreased cardiac output (CO), increased arterial and ventricular arrhythmias	Hypoventilation, 50% ↓ in VCO_2 &VO_2 loss of protective airway reflexes. Metabolic (lactic) acidosis. V/Q mismatching	EEG abnormalities, progressive depression of consciousness, papillary dilation. Hyporeflexia, diminished shivering, and rigidity.	**Increased renal blood flow, renal glycouria, no insulin activity, impaired hepatic metabolism coagulopathy.**
Severe	< 28° C < 82° F	Further decrease in BP, heart rate, and CO; increased ventricular dysrhythmias	Pulmonary vascular congestion/pulmonary edema, 75% ↓ in VO_2.	Amnesia, apathy, and dysarthria, loss of cerebrovascular autoregulation and declining cerebral blood flow, coma, loss of ocular reflexes, decrease in EEG activity. No shivering, peripheral areflexia.	

MODIFIED FROM: Danzl DF, Pozos RS. Accidental hypothermia. N Engl J Med 1994; 331(26):1756-1760.

bite of extremities involves the freezing and destruction of tissues. The age-adjusted rate of hypothermia-associated death is directly related to age with a significant increase occurring after 69 years of age.[6]

Physiologic changes associated with significant level or duration of hypothermia can cause derangements in virtually every body system. Table 1 summarizes those of major importance. Of significant concern are increases in global sympathetic discharge and oxygen consumption with shivering. In addition, hemoglobin's chemical dissociation with oxygen is altered; and oxygen is not released to tissues until O_2 tension levels are lower than normal (often called "left-shift"). Arrhythmias, especially atrial fibrillation, commonly occur even with mild hypothermia. Ventricular fibrillation is increasingly more likely to occur at temperatures below 32° C. Profound bradycardia may occur, and a prolonged assessment of pulse is required (The American Heart Association recommends 30–45 seconds) to verify absence of pulse before commencing CPR.

Therapeutic hypothermia (adults)

In spite of the deleterious pathophysiologic effects of hypothermia, researchers and clinicians have been intrigued by the effect of lowering cerebral oxygen consumption with mild hypothermia as a therapeutic measure to reduce cerebral ischemia or anoxic damage. For many years, hypothermia has been used during major cardiac surgery requiring cardiopulmonary bypass as well as in neurosurgery. It was postulated that there was potential for this approach to lessen the death rate (225,000 in the United States and a similar number in Europe) of out-of-hospital arrests as well as anoxic encephalopathy (if resuscitation was successful). Interest was supported by studies of laboratory animals and increasing numbers of case reports of full recovery following documented cold water immersion drowning. This was more common in children. The use of moderate hypothermia after perioperative cardiac arrest in adults was initially reported as two case series in the late 1950s by a group at Johns Hopkins University. They used a cool-

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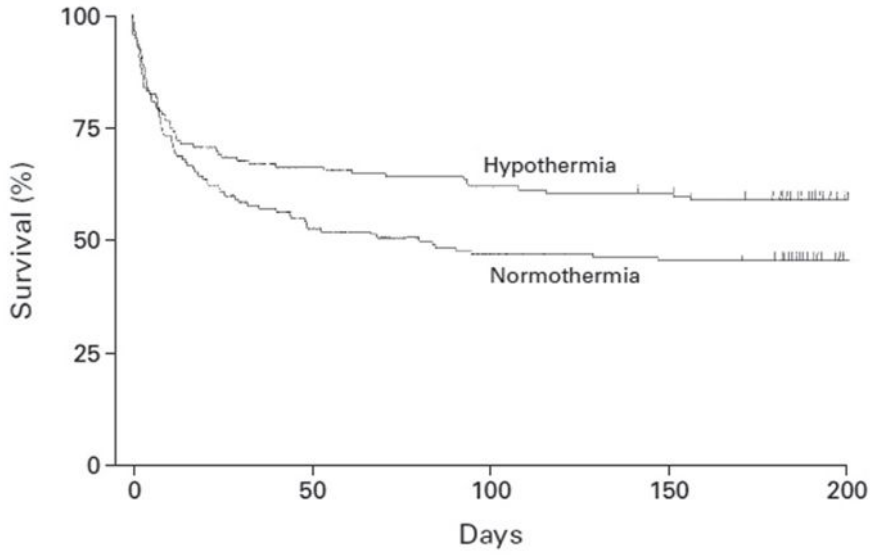
Figure 1. Kaplan-Meir Graph Describing Survival Benefit of Mild Hypothermia Following Out-of-Hospital Arrest



No. at Risk					
Hypothermia	137	92	86	83	11
Normothermia	138	74	66	64	9

USED WITH PERMISSION FROM: Hypothermia after Cardiac Arrest Study Group. Mild therapeutic hypothermia to improve the neurologic outcome after cardiac arrest. N Engl J Med 2002; 346(8):549-556.

ing blanket to create (moderate hypothermic) core temperatures of 31–32° C and controlled shivering with small doses of meperidine (Demerol®) (Sanofi-Aventis, Bridgewater, NJ), promethazine (Phenergan®) (Wyeth Pharmaceuticals Inc., Philadelphia, PA), and chlorpromazine (Thorazine®) (GlaxoSmithKline, Research Triangle Park, NC). Of 19 patients resuscitated, 12 were given therapeutic hypothermia and six survived without (apparent) residual brain damage. The duration of their cooling ranged from 34–84 hours.[8,9] However, results were inconclusive and there was little further investigation until the 1990s when temperatures in the mild range (32–33° C) were used in experimental work with rats.[10,11] Additional clinical trials and pilot studies showed favorable neurologic results with mild hypothermia in out-of-hospital arrests in adults.[12-14]

In 2002, a random controlled single-center study in Australia and a multi-center random controlled study from Austria independently corroborated significant survival benefit of hypothermia post cardiac arrest.[15,16] In the larger Austrian study, half of the 375 post-arrest patients received mild cooling (32–34° C) for approximately 24 hours. In the hypothermic group, mortality at six months was 41% compared to 55% for normothermic patients (see Figure 1). The effect of therapeutic cooling provided an adjusted risk ratio of 0.62 (95% confidence interval of 0.36 to 0.95). In addition to mortality, they reported outcomes of six-month assessment of neurologic status. At six months, 55% of the hypothermic patients had a favorable neurologic outcome compared to 39% who remained normothermic. The adjusted risk ratio was 1.47 (95% confidence interval, 1.09 to 1.82).[16] A series of more recent studies have continued to confirm the advantages of therapeutic hypothermia for adult victims of arrest.[17-19]

Although hypothermia does lower cerebral metabolic oxygen consumption by 6% for each 1° C reduction, additional complex chemical and mechanisms for the neuroprotective effect have been postulated. It is felt that hypothermia blocks negative intracellular effects from high calcium and glutamate concentrations and lessens

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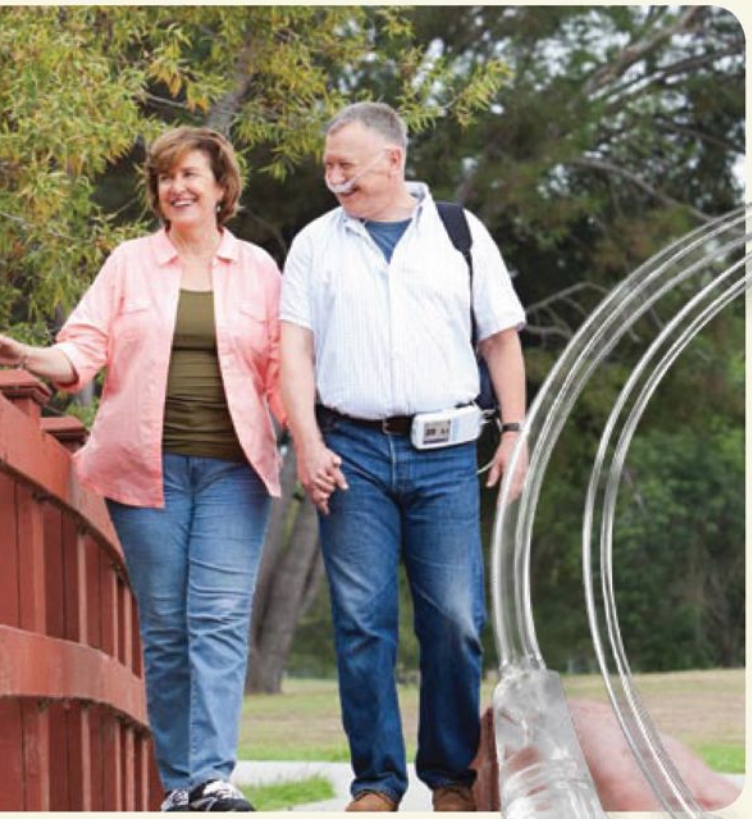

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Table 2. Methods for Applying Therapeutic Hypothermia in Adults

System	Details	Comments
Ice bags/packs or wet towels	May result in greater fluctuations. Does not enable controlled rewarming.	Readily available; inexpensive; labor intensive; requires closer monitoring.
Dry water immersion via water-circulating blankets or adhesive gel-coated pads	Cooling rate approximately 1.4° C/hr.	Control modules provide servo regulation to attain target temperature.
Air circulating blankets or pads		
Endovascular IV iced fluids	500 mL to 30 mL/kg saline 0.9% or Ringer's lactate.	May be applied in prehospital setting. Rapid fluid loading may predispose to pulmonary edema.
Intravascular heat exchanger	Placed in femoral or subclavian veins. Average cooling rate of 0.8–1.2° C/hr.	
Cardiopulmonary bypass		Expensive; requires high-technology support and monitoring.

the inflammatory response that occurs following cardiac arrest.[15,16]

The growing number of studies and quality of evidence for the use of mild therapeutic hypothermia has translated into updated (2010) American Heart Association (AHA) and European Resuscitation Council (ERC) guidelines for temperature management.[19,20] At this point, the AHA and ERC suggest evidence is high enough to recommend hypothermia for adults who are comatose after return of spontaneous circulation (ROSC) and who have cardiac arrest associated with shockable ventricular fibrillation (VF) rhythms.[20,21] A recently published registry of 1,145 out-of-hospital arrests corroborated those recommendations, suggesting poor outcomes for patients receiving hypothermia with nonshockable arrests with pulseless electrical activity or asystole.[22] In the 2010 AHA Guidelines, an algorithm for immediate post-cardiac arrest care identifies hypothermia as a tactic to consider.[21] Although the ideal time to achieve a target temperature has not been shown to be an independent predictor of neurologic outcome, cooling is suggested to begin promptly (<1–2 hours) after ROSC and can be initiated pre-hospital. A temperature level of 32–34° C should be maintained, but length of duration is less clear; 12 to 24 hours is currently suggested.[19,20] There are no strictly held contraindications to prevent initiating therapeutic hypothermia. Relative contraindications include severe systemic infections, established multiple organ failure and pre-existing coagulopathy.[20]

At this point there is no single method that has been shown to be superior to others for implementing induced hypothermia. Selection will depend on the clinical situation and available resources. Three phases are described: induction, maintenance, and re-warming. Table 2 lists techniques that have been identified in the literature. Induction of cooling is facilitated by sedation and neuromuscular blockage to prevent shivering. Magnesium sulphate may be given to reduce the shivering threshold. Maintenance should use temperature monitoring to avoid fluctuations. Devices with feedback loop control are convenient. For accurate monitoring of core temperature, thermistors placed in the urinary bladder or esophagus are necessary. Besides an unwanted drop in temperature below 32° C, there are a number of other complications of hypothermia that also warrant monitoring. Patients are at increased risk for coagulopathy, arrhythmias, and hyperglycemia. Rewarming should occur slowly, although the optimal rate is yet unclear. There is some consensus that 0.25–0.5° C/hour is a reasonable approach.[20,21]

Neonatal-pediatric hypothermia

The previous discussion on hypothermia has focused on adults. However, newborn and pediatric patients are at increased risk of accidental hypothermia. In spite of

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the contribution of brown adipose tissue (BAT) in non-shivering thermogenesis, especially premature and low birthweight newborns are at risk due to immaturity of thermoregulatory systems, large surface area to body mass ratio, and decreased amount of BAT.[23] Extended cold stress can lead to respiratory distress, hypoxia, metabolic acidosis, coagulation defects, renal failure, and delayed adoption of extrauterine circulatory changes. Prevention of heat loss due to evaporation and radiation are commonly employed in delivery rooms. Further neonatal ICU interventions such as heated mattresses, radiant warmers, and skin-to-skin contact are often used.[24]

Toddlers/children are at high risk for death due to near-drowning accidents where hypothermia frequently accompanies submersion. Case reports of recovery from protracted cardiac arrest after cold-water drowning provided the impetus research for therapeutic hypothermia in pediatric critical care during the late 1970s and early 1980s.[25-27] In contrast to adults, cardiac arrest in the neonatal and pediatric practice is caused primarily from a respiratory event causing asphyxia (such as drowning or in the Reye syndrome) in contrast to ventricular fibrillation in adults. The consequences of that etiology result in a period of hypoxia or anoxia preceding the arrest, and appear to be more detrimental in terms of dismal survival rates of 9–13%.[28] Because hypothermia is regarded as hazardous for neonates, cooling only the head with devices was researched in the early 2000s and found to have significant neuroprotective effect in birth asphyxia.[29] In 2005 two large clinical trials tested both head cooling and whole body hypothermia. Cooling was performed by a mattress and blanket system. Both studies found significant decrease in mortality and neurologic dysfunction in children with birth asphyxia; head cooling was not quite as successful for infants with very severe dysfunction.[30,31] Other studies have not demonstrated a mortality benefit but did confirm improved neurologic outcome of newborn survivors.[32] The 2010 AHA's neonatal resuscitation guidelines currently recommend that therapeutic hypothermia be provided to newborns born at ≥ 36 weeks gestation with moderate to severe hypoxic-ischemic encephalopathy. Therapy should be initiated within six hours of delivery, continue for 72 hours, and rewarming should occur over a minimum of four hours.[33]

Prospective clinical studies of therapeutic hypothermia for the pediatric age group have not yet provided high-level evidence. The 2010 AHA guidelines for pediatric resuscitation suggest mild hypothermia be considered for children who remain comatose after resuscitation from cardiac arrest and adolescents resuscitated from sudden, witnessed, out-of-hospital VF cardiac arrest.[34] Planning is underway for a multi-center study.[28]

A potential problem may exist when neonates or pediatric patients require humidification during therapeutic hypothermia when mechanically ventilated. Passive and active heat moisture exchangers may not create adequate humidity levels and should be used with caution. Heated humidifiers should be set at 31–33°C but may lead to overhumidification.[35]

A final point of interest relates to whether supplemental oxygen may need to be titrated to achieve normoxic arterial levels following return of spontaneous circulation when post-resuscitation patients may be receiving therapeutic hypothermia. At this point, the data appears inconclusive. In neonates, their antioxidant enzyme defense systems and other factors may render them more vulnerable to hyperoxia and suggest risk of resuscitation with high FIO_2s.[36] A number of studies have focused on oxidative injury of mitochondrial enzymes or lipids that may modify damage to the brain and/or heart; this may be more critical during the early post-resuscitation reperfusion period.[37-39] Recently, a study of ICU admission oxygen levels in (normothermic) adults post cardiac arrest showed an association of hyperoxia (PaO_2 ≥ 300 torr) with increased mortality post cardiac arrest compared to normoxic or hypoxic levels.[40] At this time, there is no data comparing a similar cohort of hypothermic patients. ■

DISCLOSURE

Jeffrey J. Ward is not affiliated with any of the products or companies mentioned in this article.

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International Speakers Address Non-Invasive Ventilation

The "2011 Update on Non-Invasive Ventilation" symposium takes a look at choosing the right device and the right interface, indications for NIV & setting up an effective NIV program.

- *NIV experts Stefano Nava, MD, Italy; Michelle Chatwin, UK; joined by Robert Kacmarek and John Davies, USA.*

"Respiratory Care in 2011: The North American-European Perspective" covers approaches to NIV and liberation from mechanical ventilation on both continents.

- *Michelle Chatwin, UK; Paolo Navalesi, MD, Italy; joined by Dean Hess and Timothy Myers, USA.*

Record-Breaking Open Forum

With 20 sessions on the agenda, we're offering more original research than at any other AARC Congress in history! This record number of accepted abstracts reflects that respiratory therapists are increasingly analyzing their work and reporting the results to their peers.

The Buying Show

Over half of attendees state that the ability to see and manipulate products in the Exhibit Hall plays an important role in the decision to attend. Join your colleagues at the largest respiratory buying show in the world to make purchases on the showroom floor at pricing better than you can get back home. Don't just attend the exhibit to evaluate equipment. Secure purchase orders now and come prepared to buy.

4 Full Days of Education

With the opportunity to earn up to 25 CRCE® credits, don't miss a moment of the sessions – including ***"The Biggest Loser"*** symposium on Tuesday. You'll hear about OSA and obesity from specialists in the field and actual participants in the television program.

View the advance program online at www.AARC.org/education/meetings

You will find all the information you need to boost your career in respiratory care at the **AARC's 57th International Respiratory Convention and Exhibition in Tampa, FL, this Nov. 5–8**. Here's a preview from five speakers scheduled to present topics everyone wants to know more about.

5 Sessions Not To Be Missed

AARC Congress 2011 speakers provide a preliminary overview of their presentations

1 Approaches to Liberation from Mechanical Ventilation: The North American Perspective

Who: **Timothy B. Myers, BSRT, RRT-NPS**

What: Director, Woman's & Children's Respiratory Care & Procedural Services and the Pediatric Heart Center; Adjunct Assistant Professor of Pediatrics

Where: Rainbow Babies & Children's Hospital and the MacDonald Hospital for Women; Case Western Reserve University School of Medicine, Cleveland, OH

Mechanical ventilation is a critical care intervention utilized for acute respiratory failure and other disease entities. A primary goal is to liberate patients from mechanical ventilation as early as possible to minimize the risk for prolonged or iatrogenic complications, including ventilator-induced lung injury, ventilator-associated pneumonia, increased length of ICU and hospital stay, and increased cost of care delivery. Different models of care have demonstrated different outcomes for other disease etiologies or clinical interventions. In this lecture, I will review the evidence related to liberation from mechanical ventilation, and approaches to achieve that goal taken from different models of care. ■

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Kittredge Memorial Lecture Takes Aim at "Great Mistakes"

Everyone makes mistakes, and people in our profession are no exception. This year's Phil Kittredge Memorial Lecture, "Great Mistakes in Respiratory Care: How Evidence Has Changed Clinical Practice," will take a closer look at the mistakes made in respiratory care over the years and what we can all learn from our experiences with treatments and technologies that were once considered "gold standard" but have since been discredited by medical research.

"Logic, experience, and good old common sense have always helped us to choose the best therapy for our patients," says Lecturer Bruce K. Rubin, MD, MEngr, FAARC. "But logic and common sense can be harmful or deadly, even when backed up by generations of experience."

Dr. Rubin invokes medical treatment delivered to our first president to illustrate his point. "George Washington received state-of-the-art care for his throat infection and died — not from the infection but from the aggressive therapeutic bloodletting. Many of the things we routinely do today may someday be seen as the therapeutic equivalent of bloodletting." He will discuss the "things we have learned from carefully conducted research as well as how to design a good study and the limitations of evidence-based medicine for the respiratory therapist."

Dr. Rubin is the Jessie Ball duPont Distinguished Professor, chair of the department of pediatrics, and a professor of biomedical engineering at the Virginia Commonwealth University School of Medicine in Richmond. ■

Using WiFi in Clinical Competency – the iPad Experiment

Who: **Douglas Masini, EdD, RRT-NPS, FAARC**

What: Program Director

Where: Armstrong Atlantic State University, Savannah, GA

In the recent past, onsite documentation of student competency using an available biomedical education database service required access to a stationary computer terminal or a mobile device that often challenged real-time documentation. The iPad Experiment tested real-time documentation on the iPad, which was used to access the hospital's WiFi for immediate documentation of time, location, and validation of clinical activities.

With the iPad, clinical competency can be correlated with the individual student, and you can display the correct date and time at the bedside without searching for a computer terminal. Real-time documentation also maps the location of instructors and trainees in the facility, providing evidence as to which units they have visited and what procedures they have done throughout the day. I will discuss how real-time documentation may offer increased precision in documentation of trainee competency, as well as talk about new opportunities to evaluate risk and improve patient safety. ■

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THE BIGGEST LOSER COMES TO AARC CONGRESS 2011

Ashley Johnston (left) and her mom, Sherry, report the CPAP therapy they received at ***The Biggest Loser*** Ranch allowed them to sleep comfortably for the first time in a long time.

If you're a fan of ***The Biggest Loser®*** on NBC TV, you know the premise behind the show is to help morbidly obese people lose weight. While much of what goes on in front of the camera is centered around the contestants' work in the gym, behind the camera they receive lots of medical attention as well. Respiratory therapists have been playing an active role in helping them with their sleep apnea problems since the spring 2009 season.

At the AARC Congress you'll get to hear what it has been like to work with ***The Biggest Loser*** contestants in a special symposium featuring Pam Minkley, RRT, CPFT, RPSGT, from Philips Respironics, and Dody Jordahl, CRT, a respiratory therapist who works for a local DME that supplies equipment to ***The Biggest Loser*** Ranch and onsite care to the contestants.

Find out more at www.AARC.org/education/meetings

Dody Jordahl (left) and Pam Minkley (right) look on as Ashley shows her remarkable weight loss back stage at the finale of Season Nine.

"Philips Respironics became involved with ***The Biggest Loser*** six seasons ago," explains Minkley. "The company provides OSA diagnostic testing in conjunction with a local sleep center, therapy devices, and follow-up care for contestants both during the show and after elimination under the direction of the show's physician."

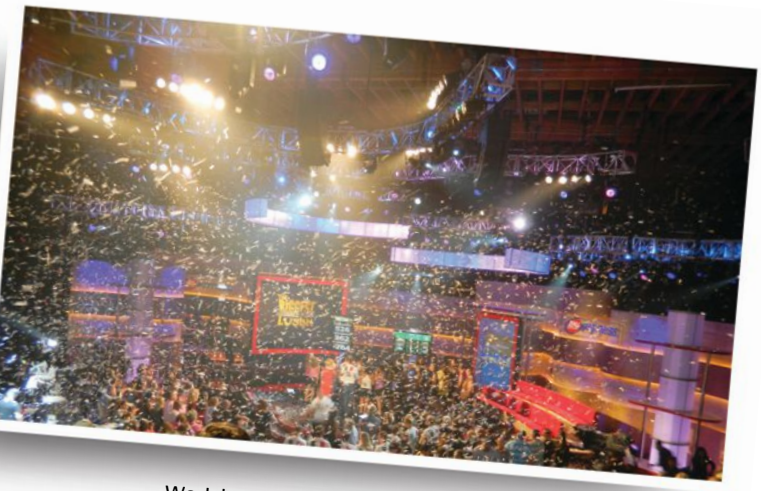
Minkley and Jordahl will discuss everything from the role of education and follow-up in achieving optimal CPAP compliance to their own experiences with OSA diagnosis and treatment on the Ranch and how they can be incorporated into your practice. "The compliance challenges faced by the contestants on the show are similar to those faced by many OSA patients, and the lessons learned — as well as the clinical follow-up — can be applied in everyday situations," says Minkley.

Pam Minkley (third from right) joins the cast for an AWAKE meeting, ***Biggest Loser*** style.

The session will also feature two stars of the show. ***Biggest Loser*** Trainer Brett Hoebel, who holds a BS degree in psychology and biology and was a pre-med major at Claremont McKenna College before going into the fitness field, will kick off the session with a discussion on the comorbidities associated with OSA and how diagnosis and treatment can make aggressive weight loss safer.

Season Nine Contestant Ashley Johnston will conclude the symposium with an account of how the OSA education and follow-up assistance she and her fellow contestants received at the Ranch helped them reach their weight loss goals. "Ashley will be able to share how weight loss and being adherent to her PAP therapy have led to better sleep and an improved quality of life," says Minkley. "She is an example of how OSA can impact anyone at any age and is not limited to older men."

Don't miss this exciting opportunity to learn more about how OSA affects those who are morbidly obese — and what you can do in your own practice to help these patients return to health. ■



Work begun on the Ranch doesn't end with the season finale. Minkley and her colleagues continue to follow the contestants after the show is over, helping them transition to local care in their home towns.

The How To's of Pulmonary Rehabilitation

Who: **Debbie Koehl, MS, RRT-NPS, AE-C**

What: Pulmonary Rehab and Patient Education Program Coordinator

Where: Indiana University Health Methodist, Indianapolis, IN

Pulmonary rehabilitation (PR) is one of the best things we can do for our pulmonary patients to keep them healthy, prevent further hospitalizations, and in some cases prepare them for a lung transplant. It is a program of exercise and education and is very comprehensive.

As part of our Congress this year, I'll be speaking along with a group of PR program leaders to help all of us gain the knowledge we need to ensure we are providing the best services to our patients. Trina Limberg, BS, RRT, FAARC, Gerilynn Connors, BS, RRT, FAARC, and I will be sharing our knowledge on billing, staffing, program development, and program certification. My presentation on program certification will specifically provide a better understanding of the American Association of Cardiovascular and Pulmonary Rehabilitation's program certification application. ■

Are Novel Modes Really Necessary?

Who: **Brian Walsh, MBA, RRT-NPS, FAARC**

What: Director of Respiratory Care

Where: Children's Medical Center, Dallas, TX

The U.S. Food and Drug Administration requires medical device manufacturers to submit a pre-market notification if they intend to introduce a device into commercial distribution for the first time or reintroduce a device that will be significantly changed or modified to the extent that its safety or effectiveness could be affected. Known by most as the 510(k), this provision has led to a tremendous influx of modes of ventilation that resemble each other, opening the door to clinical confusion at the bedside. Yet, there is only one knob on the ventilator to date that has been shown to reduce mortality. In this lecture I will review the evidence that has been conducted in pediatric patients regarding invasive modes of ventilation and lay the groundwork for the use of individualized modes of ventilation. ■

Using Ventilator Discontinuation Protocols

Who: **Carl Haas, MLS, RRT, FAARC**

What: Education and Research Coordinator

Where: University of Michigan Hospital & Health Centers, Ann Arbor, MI

As soon as patients are committed to invasive ventilation, clinicians begin thinking about when and how to reduce support. Clinical protocols help ensure the application of best-evidence medicine in a consistent manner and have been implemented for many management strategies, including ventilation discontinuation. Should protocols be used on all patients? Who should control the protocol — the physician, the respiratory therapist, the ventilator? What are the key elements of a good protocol? This lecture will review the literature supporting the use of weaning protocols, as well as explain how to develop and implement a ventilator discontinuation protocol. ■

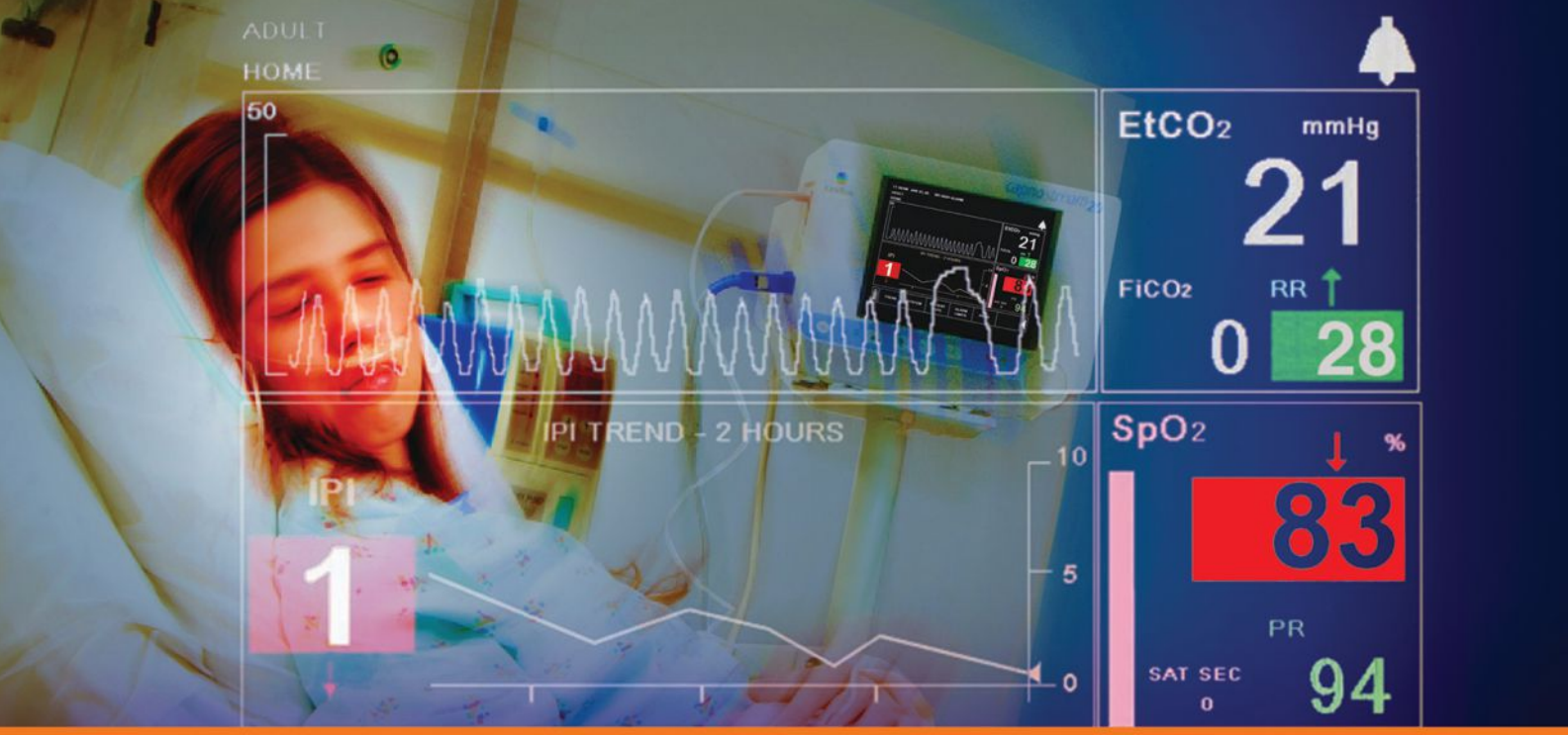
Egan Lecture Recaps Major Milestone in Military Casualty Care

Care of the wounded soldier has come a long way since World War II, when about 30% of soldiers died from their injuries. By Vietnam, that figure had dropped to 24%; and in our most recent conflicts, it's declined to just 10%. Much of this progress is due to the development of the Air Force's Critical Care Air Transport Teams (CCATTs). Consisting of a critical care physician, nurse, and respiratory therapist, CCATTs have been credited with saving many lives that would otherwise have been lost.

This year's Donald F. Egan Lecture will explore the changing face of en-route care and what it has meant — not just for the soldiers it has saved but also for trauma care across the board. Jay Johannigman, MD, who holds a Bronze Star for his work as deputy commander of the 332nd Expeditionary Medical Group in Iraq in 2004 and played an integral role in the development of the CCATT concept, will talk about the development of these lifesaving teams. He will explain how practice guidelines, standards of care, and clinical management algorithms have been significantly revised as a result of the lessons learned during the global war on terror.

"There is no greater privilege than caring for our injured warfighter," says Dr. Johannigman. "The CCATT team and the subsequent evolution of en-route care has had a dramatic impact on our capability of caring for the wounded. The challenge of today and the imperative for tomorrow is to ensure that care in the air is equivalent to care on the ground. This means that seamless critical care has to transition from the far forward setting all the way to CONUS [continental United States] without interruption. This mandate provides challenges for equipment, caregiver, and the AE [aeromedical evacuation] system."

Dr. Johannigman is a professor and chief of the division of trauma and critical care at the University of Cincinnati in Ohio. ■



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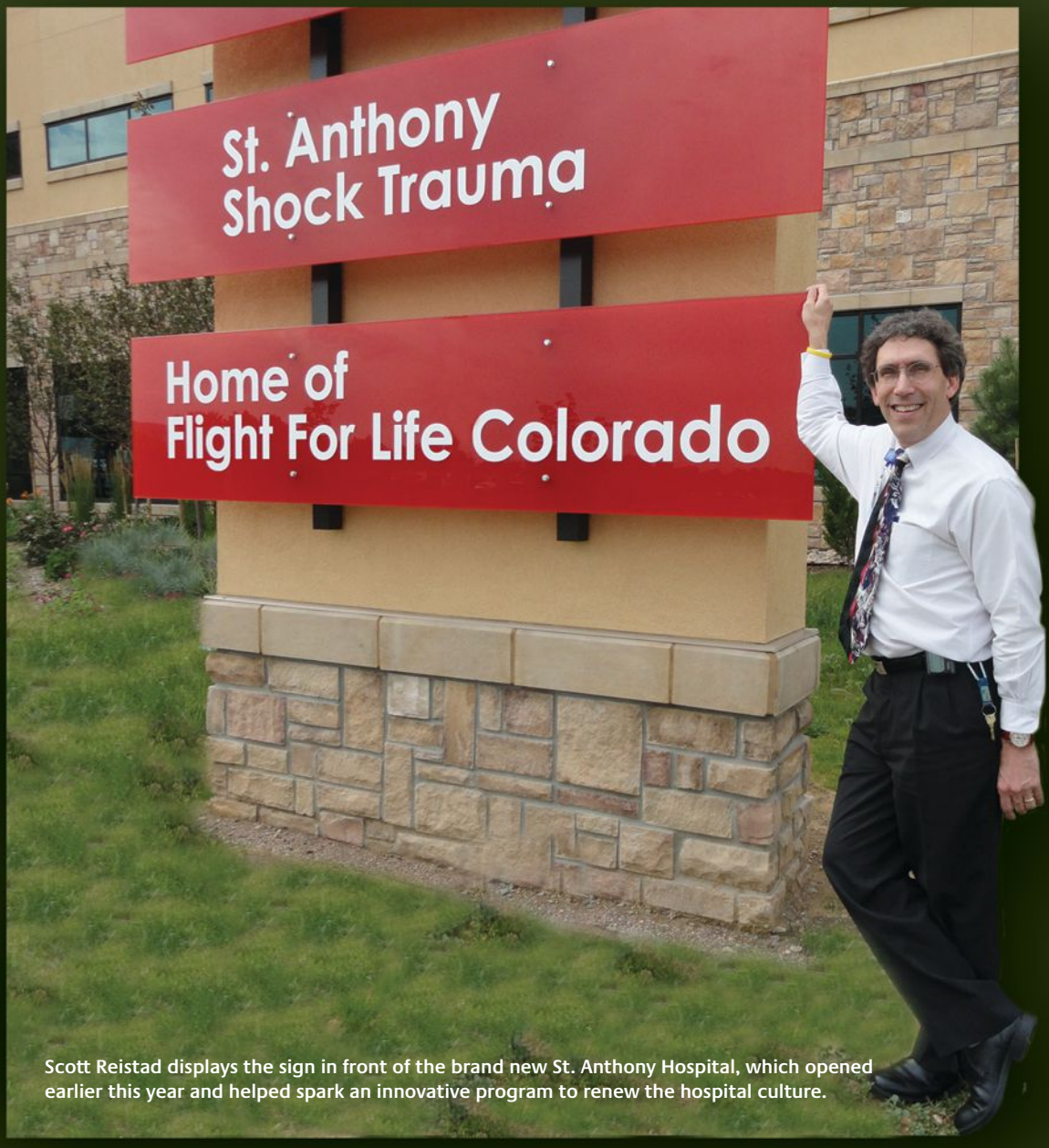
Success Story: Scott Reistad Is on a Mission To Promote "Caring Excellence"

by Debbie Bunch

AARC member heads up his hospital's program for cultural renewal



Scott Reistad displays the sign in front of the brand new St. Anthony Hospital, which opened earlier this year and helped spark an innovative program to renew the hospital culture.

Every clinician out there today is devoted to delivering the best possible care to every patient he sees. But in the real world so many things can get in the way of fulfilling that goal. At St. Anthony Hospital in Denver, leaders decided to launch a special initiative to promote excellent care, and they asked their respiratory therapy department director to take the lead.

These days it's not unusual for respiratory therapy managers to assume responsibility for other ancillary departments in their hospitals. So the second part of Scott Reistad's job title — he's director of respiratory care, sleep labs, and caring excellence at St. Anthony Hospital in Denver, CO — is pretty much self-explanatory. But exactly what is "caring excellence," and how did this 29-year veteran of our profession come to be in charge of it? The answer to that question is rooted in a mindset Reistad can probably trace all the way back to his own experiences lying in a hospital bed with severe asthma as a child.

From illness to health

"The modalities and medications used to treat asthma when I was a child included ephedrine, high-dose steroids, theophylline, and home IPPB [intermittent positive-pressure breathing] treatments with isoproterenol — obviously archaic now," says Reistad, RRT, CPFT, FAARC. "I spent weeks in the hospital every year from age 5 to 15, and when not in the hospital, I was never really well." A caring respiratory therapist — known as an "inhalation therapist" back then — had a profound impact on the young Reistad and led him not only to pursue the profession, but to pursue it with a passion for the very spirit of "excellence" he is now overseeing at St. Anthony.

"Why she affected me so greatly is that she treated me as just a kid versus as a 'sick kid,'" he says. "After she was done with her work, she would come back and play games with me and inspired me to want to be like her."

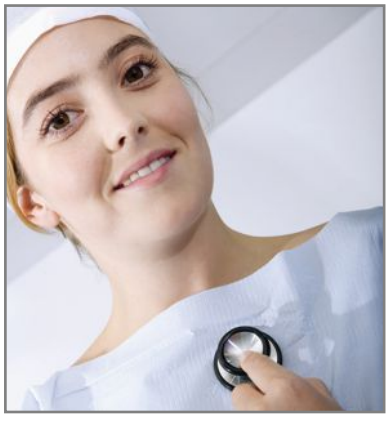
AARC RESOURCES AT THE READY

Managers, do you want to instill more caring and excellence in your own team of respiratory therapists? Scott Reistad says the first place to turn to for help is your professional association. "The AARC has so many opportunities for leaders to grow not only their own skills but also those of their departments," says the manager. He believes every leader and potential leader should participate in the AARC Specialty Sections and their email discussion lists, the leadership book club and the other educational opportunities offered.

Reistad explains that tapping into the resources of the AARC is the best way for both managers and bedside therapists to "impact their corner of the world in a powerful way and in doing so ultimately change the way health care is delivered." Log on to www.AARC.org to see the various resources available. ■

Reistad's life mission statement is: "inspiring people to greatness"

Luckily, cromolyn sodium came along and changed Reistad's life from one of illness to health, and he went on to earn his bachelor's degree in respiratory therapy and theology from the University of Mary in North Dakota. Early on in his career he adopted a life mission statement of



"inspiring people to greatness," and he's lived up to that mission by investing his time and talents into helping the RTs in his department develop a "quality first" mindset. Indeed, across the country through his work with the AARC (he was Management Section Specialty Practitioner of the Year in 2009), he has held to this mindset. "What has given me my greatest thrill in my career is that I have been able to mentor many RTs to become leaders in departments across the country, to grow RTs in their technical careers, and to even provide interpersonal skills for RTs in their personal lives," says the AARC member.

Caring Excellence: Every Touch, Every Time

Outcomes from Reistad's department show how well he has accomplished his goals. "For quite a number of years, St. Anthony, like most hospitals, has been participating in an associate satisfaction survey," explains the manager. He fostered an initiative called "Expectations" that he put into place for his therapists. Basically, he has provided them with a list of things they can expect from him plus a list he will expect from them in return, and

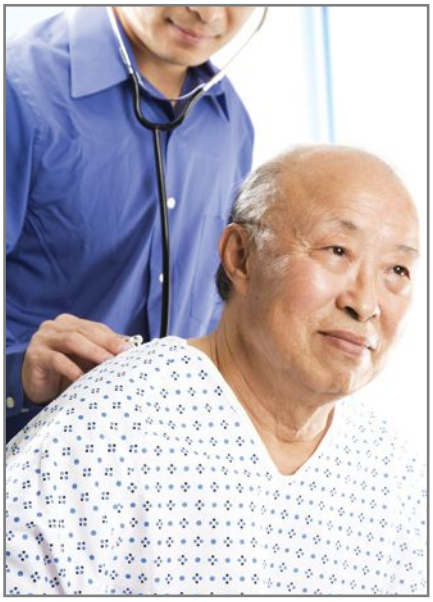
the RT department has come in with consistently high scores. What is perhaps even more impressive is the fact that the department of 52 went for nearly two and a half years without any turnover at all.

So when St. Anthony decided to embark on a "cultural renewal" program aimed at getting everyone up to speed on its new focus on "Caring Excellence: Every Touch, Every Time," Reistad seemed to be the natural choice to oversee it. "As the administrative team was strategizing as to how the organization could continue to improve these scores, the results that I had achieved in my department came up in discussion," he says. "I was asked if I would help coordinate enhancing leadership skills, interpersonal skills, and patient care skills." Reistad already had some experience with these kinds of activities at his previous job, where he was part of a Leadership Resource Team, and he jumped at the opportunity to lead the program. "I was very humbled and honored to be asked," he says.

His boss is glad he did. "Scott is one of the best leaders at St. Anthony to exemplify what we are trying to achieve in our cultural renewal process," says Administrator of Operations Ryan Tobin. "Scott has the passion and drive to help make this renewal a success, and our staff sees that in his daily interactions and teachings."

Establishing a game plan

Reistad says several factors came together to drive the Caring Excellence initiative at St. Anthony. First, the hospital was getting ready to move into a new facility and thought the change in



physical space presented the perfect opportunity to re-create the way staff treated each other and the patients they serve. The organization was also working hard to improve its associate satisfaction scores, as well as its patient satisfaction scores, which like other hospitals, it is now reporting via the government's new Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. "By embarking on a program of cultural renewal, St. Anthony could accomplish all three," says the manager.

Reistad kicked things off with a program targeting supervisory staff in the facility. He established a game plan as to how to proceed, which included teaching both leadership skills and interpersonal skills to 246 leaders. After that key group of charge nurses, leads, supervisors, managers, directors, and others went through the training, Reistad identified nine other leaders in the hospital to help him teach the same concepts to nearly 2,000 associates and volunteers.

The curriculum was developed using leadership concepts from books, seminars, and the personal knowledge Reistad says he gained from his leadership mentor. "The administrative team gave me the responsibility and authority to coordinate the program," he notes. "My supervisor at the time was incredibly supportive of my efforts and helped me navigate through issues that arose."

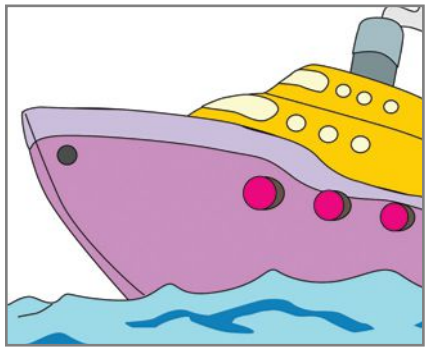
To help hardwire the skills and concepts into the staff, he established a leadership book club similar to the one he's been leading through the AARC for the past several years. He also issues a "Thought of the Week" that he believes helps keep the concepts fresh and alive as the program moves forward. Next, he plans to partner with the hospital's human resources department to bring these concepts to newly hired associates, and he's serving on an engineering culture council being established to drive these concepts in his entire 12-hospital health care system.

Ryan Tobin says Reistad has been integral in getting cultural renewal off the ground at St. Anthony; and by modeling the concepts inherent in the initiative, he and his fellow leaders are ensuring cultural renewal will continue to gain traction throughout the organization. "His challenge and goal is to help make associates realize this is how we now do things in our organization and it's just not a 'flavor of the month' process," says the operations administrator.

The ship is turning

"To make a significant change in how the 2,500 staff members in our organization move forward with improving associate and patient satisfaction is an ongoing and challenging goal," Reistad says and then cites a favorite quote by Gandhi: "First they ignore you, then they laugh at you, then they fight you, then you win." He also likens the process of culture change to that of turning a large ship. "One exerts a great deal of force for a long time with seemingly few results, and then suddenly momentum is built and the ship successfully turns. This is a project that our organization will be involved with for the foreseeable future."

While he knows it will take time to get everyone on board, Reistad says signs of success are already visible in the facility. "Our HCAHPS scores have slowly been improving due to this program and other initiatives that have also been put in place," he points out.

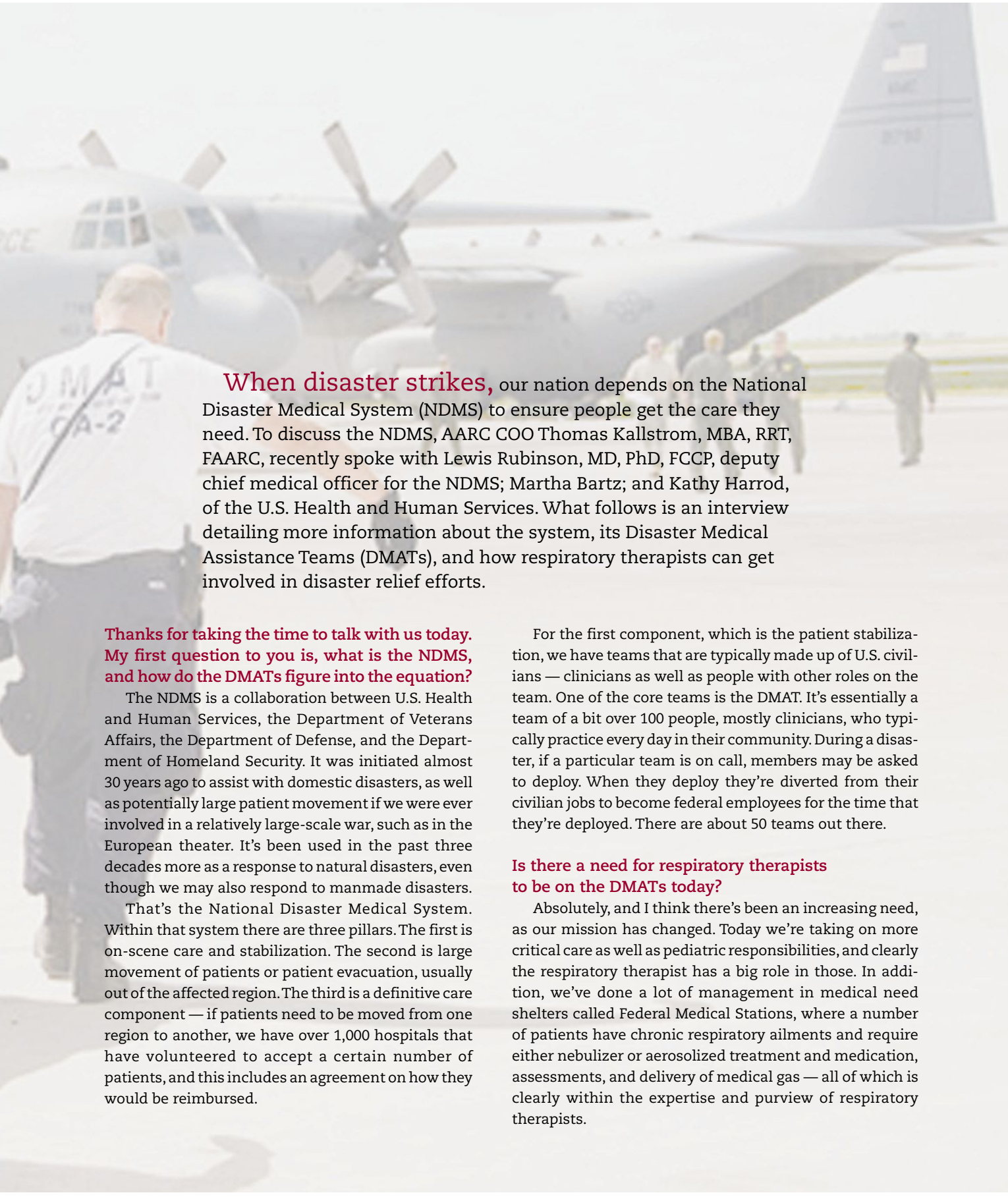


Reistad has received numerous positive comments about the program as well, and leaders are reporting good results from implementing some of the strategies in their own departments. "The sense is that there has been a change in the way we are treating each other and treating the patients."

As for Reistad's own staff, he says they continue to serve as a great example for others. "The concepts of caring excellence are really the leadership and interpersonal skills that I have been living out and espousing in my departments for many years. Our collective efforts have made the department a role model; and because of this, I have had the opportunity to spread caring excellence throughout the organization." ■

The National Disaster Medical System Wants You!

Whether it's a hurricane, flood, tornado, or terror attack, civilian clinicians who have agreed to serve on federal disaster response teams make the difference between lives saved and lives lost.



When disaster strikes, our nation depends on the National Disaster Medical System (NDMS) to ensure people get the care they need. To discuss the NDMS, AARC COO Thomas Kallstrom, MBA, RRT, FAARC, recently spoke with Lewis Rubinson, MD, PhD, FCCP, deputy chief medical officer for the NDMS; Martha Bartz; and Kathy Harrod, of the U.S. Health and Human Services. What follows is an interview detailing more information about the system, its Disaster Medical Assistance Teams (DMATs), and how respiratory therapists can get involved in disaster relief efforts.

Thanks for taking the time to talk with us today. My first question to you is, what is the NDMS, and how do the DMATs figure into the equation?

The NDMS is a collaboration between U.S. Health and Human Services, the Department of Veterans Affairs, the Department of Defense, and the Department of Homeland Security. It was initiated almost 30 years ago to assist with domestic disasters, as well as potentially large patient movement if we were ever involved in a relatively large-scale war, such as in the European theater. It's been used in the past three decades more as a response to natural disasters, even though we may also respond to manmade disasters.

That's the National Disaster Medical System. Within that system there are three pillars. The first is on-scene care and stabilization. The second is large movement of patients or patient evacuation, usually out of the affected region. The third is a definitive care component — if patients need to be moved from one region to another, we have over 1,000 hospitals that have volunteered to accept a certain number of patients, and this includes an agreement on how they would be reimbursed.

For the first component, which is the patient stabilization, we have teams that are typically made up of U.S. civilians — clinicians as well as people with other roles on the team. One of the core teams is the DMAT. It's essentially a team of a bit over 100 people, mostly clinicians, who typically practice every day in their community. During a disaster, if a particular team is on call, members may be asked to deploy. When they deploy they're diverted from their civilian jobs to become federal employees for the time that they're deployed. There are about 50 teams out there.

Is there a need for respiratory therapists to be on the DMATs today?

Absolutely, and I think there's been an increasing need, as our mission has changed. Today we're taking on more critical care as well as pediatric responsibilities, and clearly the respiratory therapist has a big role in those. In addition, we've done a lot of management in medical need shelters called Federal Medical Stations, where a number of patients have chronic respiratory ailments and require either nebulizer or aerosolized treatment and medication, assessments, and delivery of medical gas — all of which is clearly within the expertise and purview of respiratory therapists.

DMAT training exercise

We've also heard of another type of team — the Mobile Acute Care Strike Team, or MAC-ST. How does a DMAT differ from a MAC-ST?

The MAC-ST is a specialized component within the NDMS system. All MAC-ST team members are DMAT members, but not all DMAT members are MAC-ST members.

The MAC-ST is a specialized critical care team used if ICUs need to be evacuated. They hold the patients at an evacuation site until the Department of Defense's critical care teams can fly the patients to safety. There are some additional missions they may go on, such as expanding critical care, but it's typically all-around critical care.

So, just as with the DMAT, you are also in need of respiratory therapists for the MAC-STs?

Absolutely. And again, you can't be on a MAC-ST without being a DMAT member. So you join as a DMAT member and then your team nominates you to go through MAC-ST training, which typically consists of one basic class per year and an advanced class per year, as well.

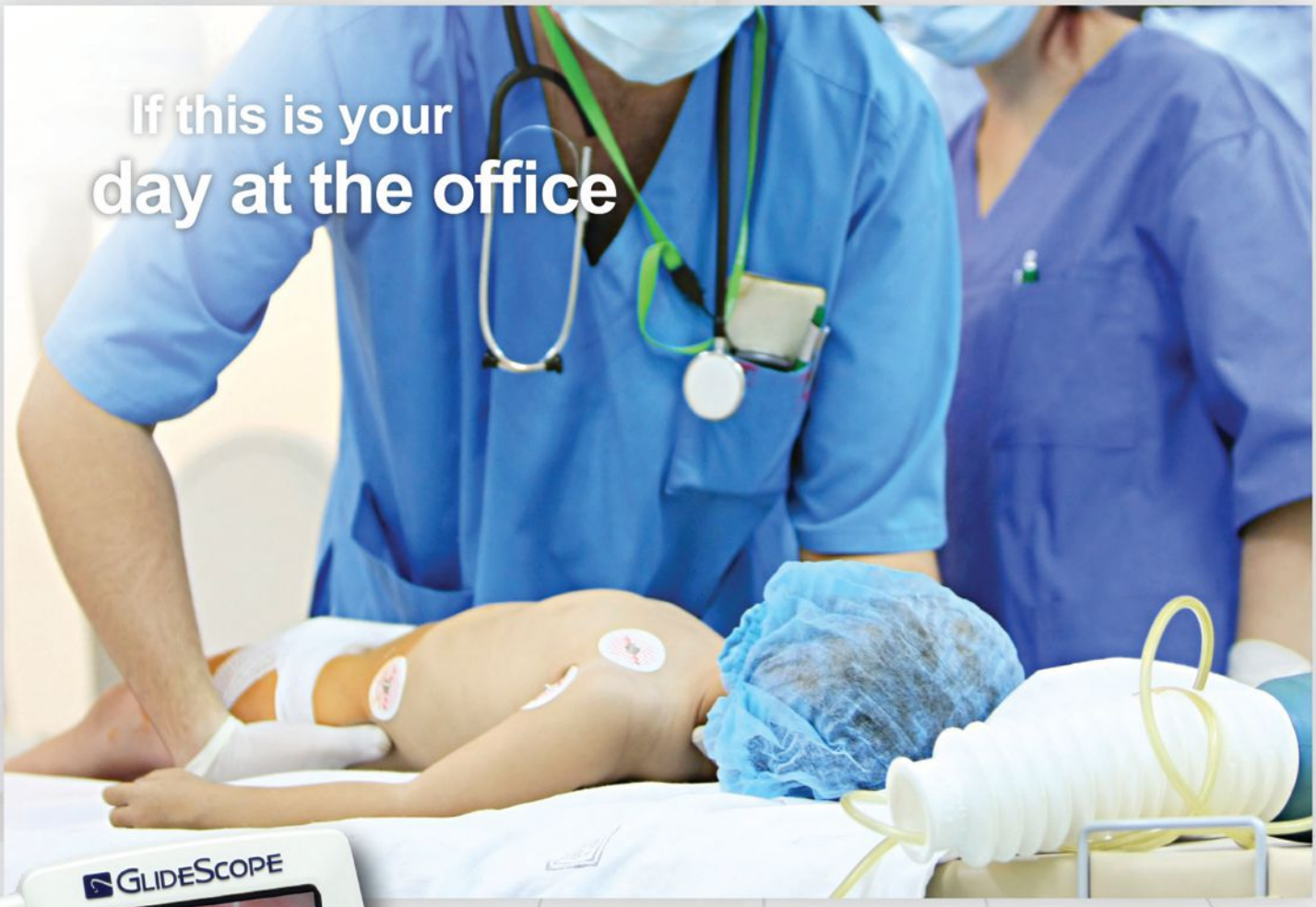
Who are some of the other people on the DMATs?

Clinicians vary from physicians in a number of disciplines, mostly from emergency medicine; nurses, again mostly from the emergency medicine background although some are critical care nurses or other specialty nurses; and physician's assistants, pharmacists, paramedics, and EMT-basics.

Then there are logistics support people, as well. Some on the teams who know a lot about security, who know a lot about what we call "forced help protection" or safety. So a lot of different expertise is brought to bear for the team, and a lot of people wear more than one hat. You don't just go out with a team of clinicians, because you need people who have knowledge about security or who have knowledge about logistics. If you don't have the right medical tools, they know how to get them. They know how to communicate, and they know how to make sure the team is taken care of in terms of water, food, etc. Clinicians in isolation are not useful. So again, it's a *team* of collaborating expertise.

What qualifications would a respiratory therapist need to join one of these teams?

Ideally, we're looking for RRTs, although we will consider some CRTs, depending on what they're doing. The ideal person is someone who feels very comfortable both with very, very sick patients as well as with a wide range of respiratory therapy. We're looking for someone who can teach MDI usage, do peak flow monitoring and patient education, and especially someone who also has considerable experi-



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ence in both the pediatric and the adult populations. Of course, we know that there are many adult-only therapists, pediatric-only therapists, some who just work on the floors, some who just work in ICUs — but the ideal person is going to have extensive experience across all of that. Even a good knowledge of outpatient DME would be very useful, especially for missions involving medical need sheltering. Knowing a lot about oxygen concentrators and what equipment is out there would be very useful.

How many respiratory therapists do you need?

We're ultimately looking for several hundred. There are less than a hundred RTs in the system right now. Our goal is to have at least a handful for each team. Our specialized teams, like our International Medical Surgical Response Teams — there are three of those, one in the east, one in the south, and one in the west — tend to be where RTs are currently concentrated. So we can always use more respiratory therapists on those specialized teams. The DMATs definitely need therapists, and a lot of these therapists will also hopefully consider undergoing MAC-ST training and being on the MAC-ST teams, as well.

Are there specific parts of the country where RTs are needed more than others?

There are some teams that have no therapists; and as part of the human resource effort, we can work with the AARC to let them know which state teams have no therapists and try to prioritize those states.

However, we really need respiratory therapists across all our teams. I would not discourage anyone from looking at the DMAT just because there are already several on the DMAT that's closest to your geography. I'm not aware, really, of any team that's filled all its respiratory therapy needs.

If respiratory therapists join a team, what is their obligation?

Even when your team is on call, you're not involuntarily obligated. But basically, your team is physically on call two months out of the year, and there is the expectation that you will also keep the two-week period after you're on call somewhat free in case you go out toward the end of the month. Deployments are typically an agreement for two weeks. They may be shorter, but when you go out the door, you're expecting that it will be a two-week deployment. So the expectation is always two months a year on call with the two-week tail. If you also join a MAC-ST, there will be additional on-call time for the MAC-ST separate from your DMAT time.

It really comes down to what kind of obligation you can make. We hope that people are excited and are able to be on call. Typically, being on call does not mean you need to clear your schedule. It just means you plan so that if something happens, you can get out the door quickly without having to make a ton of separate arrangements at work. But no one is expected to leave that schedule entirely open for months, because you may or may not be deployed.

The other thing is, we do ask that you get permission from your employer to join the team. There are also some protections for our folks when they are deployed. So you do have the same protections as Army personnel or our military colleagues who are reservists and get called to duty.

Are DMAT and other team members reimbursed, or is this strictly volunteer work?

If you serve on one of these teams, you become a federal employee as soon as you are activated. When you actually have a mission and your team is activated, you go "on the clock" and you are paid according to the level of government service for which you were hired. Typically, that depends on your experience and your job classification.

So you get paid, and you have different coverages, just like you would if you were a federal employee, for that period of time when you are activated. When you're demobilized and go back into your civilian job, you will no longer be paid except when you are activated again.

Surely a lot of AARC members will have an interest in doing this. How can they sign up?

You have to go through a formal federal employment hiring process, just as any other federal employee does. You can either contact the National Disaster Medical System here in Washington, DC, or contact a DMAT in your local area and talk to the leadership there (www.phe.gov/Preparedness/responders/ndms/teams/Pages/recruitment.aspx).

We're also going to have a booth at the AARC Congress in Tampa this November, where we'll be providing some information and even helping people initiate the process.

So people can sign up right there at our Congress?

Yes, but again, the sign-up is only the beginning of the process. Ultimately, you'll go through a lengthy credentialing process, from security investigations to fingerprints. One of the hardest things we have to deal with is the fingerprinting, which actually requires a pretty rigorous process. We're going to try and bring that to the AARC Congress to reduce that barrier.

Typically, people should expect the process to take between six months to one year. So it takes some patience and commitment. But most people who go through the process and come out the other side feel very happy that they're a part of something important for our country.

Thank you for taking the time to explain this to us. Is there anything else you'd like to tell our members at this point that we might not have covered?

Well, the question many people ask is: Why do this through the NDMS rather than some other voluntary system? There are some good systems out there, but you always want to go to a system that has all the right things. It needs to be within the overall delivery of care system.

If you're just going to travel with a bunch of people who have the right intentions but aren't plugged in with the authorities who are making sure that the care is seamless and consistent with the needs, you may really be working at odds with what the community actually needs. The National Disaster Medical System, being a government entity, is absolutely integrally involved both in domestic and international efforts. When we go out we work with the State Department and the regional World Health Organization groups to make sure that we are coordinated with everything else. That's the first thing.

The second thing that I think is very relevant to respiratory therapy is, it's really important that you have the scope to do what you need to do. Respiratory therapy is a pretty equipment-dependent practice, and you want to deploy with a group who's going to make sure you have what you need to be able to practice your profession. We have an enormous logistics footprint to ensure we get the right medical equipment out the door quickly to do the job. And again, we have the ability to measure peak flows and deliver aerosolized medications, mechanical ventilation, and medical gas. That's crucial if you really want to be able to take your tools into the field. It's not easy to do unless you have a system that's always being built to be able to provide that.

Then the third thing is that you want to be part of a system that keeps you safe, that's looking out for your well being, that knows a lot about safety, that can also ensure that you are not taking resources from the groups you are coming to manage. So the team needs to be able to rely on its own transportation, its own fuel, its own food, and its own water, and that's part of the tenants of our system. I think we do disaster response right. We still could always get better. ■

A Salute to our 2011 Corporate Partners

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

The link between the respiratory profession and manufacturers is clear. If respiratory practice expands, so too does the economy for our industry partners.

As health care budgets shrink and patient care becomes increasingly complex, our mutual challenges become greater. The synergy of the corporate partner concept is an effective way to address those needs utilizing our combined skills and resources.

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Kimberly-Clark ET tube performs well in study

A study in the June issue of the *Journal of Critical Care* found Kimberly-Clark's polyurethane-cuffed endotracheal tube resulted in a decrease in ventilator-associated pneumonia rates, from 5.3 per 1,000 ventilator days to 2.8 per 1,000 ventilator days. The study was conducted by researchers from the University of Michigan and was partially supported by the Kimberly-Clark Corporation.

Forest Laboratories drug now on the market

Forest Laboratories Inc.'s Daliresp™ (roflumilast) became available in pharmacies throughout the United States in June. According to the company, the FDA has approved Daliresp as a treatment to reduce the risk of COPD exacerbations in patients with severe COPD associated with chronic bronchitis and a history of exacerbations. An oral tablet taken once daily, Daliresp is the first and only selective phosphodiesterase-4 inhibitor to be approved, according to Forest. While the specific mechanism by which the drug exerts its therapeutic action is not well defined, it is thought to be related to the effects of increased intracellular cyclic AMP in lung cells.

Vapotherm and Hippo Medical to cover Korean market

Vapotherm has signed an exclusive distribution agreement with Hippo Medical of Seoul, Korea. Hippo will cover all of Korea for the Vapotherm acute care product line. "We are pleased to announce this new partnership with Hippo to bring high-flow therapy to the Korean market," Steve Orwig, acute care manager with Vapotherm, was quoted as saying. "We had several options for our distribution in Korea, but we ultimately selected Hippo based on the professionalism of their sales and marketing organization and the enthusiasm they share for the large market potential for high-flow in the market."

Aerotel Medical, Cinterion, win award for M2M technology

Aerotel Medical Systems and its partner Cinterion have won *Connected World Magazine's* prestigious gold Value Chain Award in the home health category for Aerotel's e-CliniQ™ system and the Connect-CELL™ telehealth home care hub. The award recognizes successful corporate adopters of cellular machine-to-machine (M2M) technology and the solution providers that make their success possible. Intended for home-based chronic disease management applications, the Aerotel Connect-CELL hub automatically collects data from Bluetooth®-enabled medical sensing devices as well as wired devices and uses a Cinterion M2M module to securely send data over cellular networks to a health monitoring center. There clinicians can log in to access health measurements and determine treatment approaches.

Maquet, Aerogen, release partnered product

Maquet Critical Care has teamed up with Aerogen to release an integrated unit that provides Aerogen nebulizers for the Maquet SERVO-i® ventilator. The technology allows the caregiver to nebulize suspensions and solutions without heating or degrading the drug. John Power, CEO of Aerogen, was quoted as saying: "The potential for Aerogen's advanced technology to reach the Maquet customer base is a very exciting one. We were delighted with the opportunity for our technologies to work together."

ResMed acquires BiancaMed

ResMed has acquired BiancaMed, a privately owned Irish maker of sleep and breathing medical equipment. The acquisition focused on BiancaMed's SleepMinder device, which uses biometric software and a touchless motion sensor to measure and monitor sleep and breathing in a hospital or at home. The experimental device is currently undergoing FDA review for potential sale in the United States. BiancaMed will become part of ResMed's ventures and initiatives division, which was created in May to explore business opportunities in chronic diseases related

to sleep-disordered breathing, such as heart failure and COPD.

DeVilbiss Heathcare reports good results for sleep study

DeVilbiss Healthcare recently sponsored a randomized, double-blind, crossover clinical study comparing the company's SmartFlex Technology (a new exhalation pressure relief solution to enhance patient comfort) with standard auto-PAP therapy. The study confirmed SmartFlex Technology to be equally effective to standard auto-PAP therapy in that respiratory events and oxygen saturation during sleep were normalized. In addition, treatment with SmartFlex showed a lower leak rate. Improved daytime energy levels, ability to relax, and nocturnal sleep were also demonstrated with SmartFlex Technology, according to the company. Results were presented at the Associated Professional Sleep Society's 2011 SLEEP Conference and Exhibition in Minneapolis, MN.

Southern Home expands APNEA Rx division

Southern Home Medical Equipment Inc. is expanding its APNEA Rx durable medical equipment division. According to the company, adoption of the APNEA Rx brand has been aided by the popularity of the Respi-Care respiratory therapy program. "The new business growth within APNEA Rx is the result of the hard work of our staff and the integration of programs like Respi-Care across our affiliated holdings," says Jeff Sarvis, president and CEO of Southern Home. "We anticipate APNEA Rx to sustain its organic growth through both increased market penetration and the adoption of broader service offerings."

Medline Industries exhibits VAP control products

Medline Industries Inc. showcased its evidence-based solution to help prevent VAP, along with its innovative infection prevention products, at the APIC 2011 Annual Conference held in Baltimore, MD, last June. The company's VAPrevent clinical program features Chlorhexidine Gluconate (CHG) oral rinse, revolutionary educational packaging, and comprehensive clinical education. Its innovative infection prevention products include the BioFriend™ BioMask™ (Series A), BIOGUARD® barrier dressings, and the PerfecTemp OR table pad.

CareFusion symposium addresses HCAIs

CareFusion gathered international experts together for an adjunct symposium aimed at addressing strategies and standards to reduce health care-associated infections at the first International Conference on Prevention and Infection Control in Geneva, Switzerland, last summer. Steve Klis, senior vice president at CareFusion International, noted: "The main causes of incidence include surgical site and catheter-related blood stream infections, as well as ventilation-associated pneumonia. Through our knowledge and comprehensive product portfolio, CareFusion is uniquely positioned to be the catalyst in bringing experts together to address this growing global issue."

Masimo VP, medical center patient safety head, share award

James Welch, vice president of patient safety initiatives at Masimo Corporation, and George Blike, medical director of patient safety training at Dartmouth-Hitchcock Medical Center, recently received the AAMI Foundation's Institute for Technology and Healthcare Clinical Application Award. They had collaborated on a cross-industry implementation of Masimo Patient SafetyNet™ at Dartmouth-Hitchcock. Installation of the remote monitoring and wireless clinician notification system based on Masimo SET® Measure-Through Motion and Low Perfusion pulse oximetry monitoring led to a significant drop in key clinical outcome measures, including 65% fewer rescue events and 48% fewer ICU transfers. It also reduced annualized ICU time by 135 days.

Agennix announces results of Phase II trial on sepsis drug

A recent Phase II trial in severe sepsis on the activity and tolerability of talactoferrin (an oral immunotherapy) met the primary endpoint of reducing 28-day all-cause mortality, according to Agennix AG. Talactoferrin was shown to have an effect across a broad range of patients with different baseline characteristics. Results were presented at the 14th World Conference on Lung Cancer in Amsterdam. A Phase II/III trial is now underway to further evaluate the use of talactoferrin in sepsis patients.

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

Marketplace

Featuring information on products and equipment from manufacturers

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

RC Currents

IN THE NEWS

Celebrate RC Week Oct. 23–29

Join us in celebrating and honoring the respiratory care profession during Respiratory Care Week at the end of this month. Send an announcement to your hospital newsletter and tell a success story. Do something special to acknowledge group or individual contributions in 2011. Plan an event with your rehab patients. Or participate in the DRIVE4COPD Adopt-A-Company campaign. The official RC Week website at www.AARC.org/rcweek is loaded with great ideas, resources, links, and tools to make planning easy. After RC Week, be sure to upload your photos to that site, too! ■

RTs
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Read the Rest of the Story at AARC.org

- Videos highlight benefits of AARC membership on YouTube — www.aarc.org/headlines/11/08/you_tube.cfm
- Gates Foundation grant to help AARC member deliver life-saving treatment to resource-limited nations — www.aarc.org/headlines/11/08/rob_diblasi.cfm
- Digital *AARC Times* and Respiratory Care deliver added educational value — www.aarc.org/headlines/11/08/education.cfm

Shorter Telomeres May Increase Emphysema Risk for Smokers

Could telomeres — those bits of repetitive DNA sequences at the end of chromosomes — hold the key to emphysema? Johns Hopkins researchers who studied telomere length in mice believe the answer may be yes. Their study showed mice with shorter telomeres were more likely to develop emphysema after exposure to cigarette smoke for six hours a day, five days a week, for six months. Mice with longer telomeres did not develop emphysema after similar exposure.

"These results are one of the clearest examples of telomere length, which is an inherited factor, interacting with an environmental insult to cause disease," study author Mary Armanios, MD, was quoted as saying. "In fact, our results in mice suggest that short telomeres might contribute to how cigarette smoke accelerates aging in the lung in some individuals." Dr. Armanios and her colleagues previously linked telomere length to the development of idiopathic pulmonary fibrosis.

The new study was published online ahead of print in the *American Journal of Respiratory and Critical Care Medicine* in July. ■

Synthetic Trachea Grown from Patient's Own Stem Cells

A tracheal cancer patient in Stockholm, Sweden, recently became the world's first person to receive a synthetic trachea made with his own stem cells. The trachea was constructed out of polymers with a spongy and flexible texture and modeled after the specific shape of the patient's trachea. The new trachea was then bathed in a solution of the patient's stem cells, which caused the cells to grow inside and outside of the structure, turning it into a living structure that was then implanted into the patient. Since the trachea was made from the patient's own stem cells, his body accepted the new organ without rejection. The transplant was widely covered in news reports last summer. ■

RT Student Members: Send Us Your Stories and Editorials

AARC Times is always looking for good stories from AARC student members that relate special experiences and give the RT student perspective on the respiratory care profession they have chosen as a career. We have published the stories of several student members in *AARC Times* this year, and we continue to encourage you to share your experiences.

Have you volunteered at a summer asthma camp or helped organize a smoking-cessation program in your state? Perhaps you witnessed a lifesaving event outside the hospital setting or experienced something that took your breath away. Whatever the story, we would like to review it.

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

New Technique Restores Breathing Following Spinal Cord Injury

Using a peripheral nerve graft coupled with an enzyme, researchers from Case Western Reserve University School of Medicine have successfully restored 80–100% of breathing function in an adult rodent model of spinal cord injury (SCI).

The investigators grafted a section of peripheral nerve to bridge an SCI at the second cervical level, which had paralyzed one-half of the diaphragm, then injected the enzyme chondroitinase ABC, which opened passageways through scar tissue formed at the insertion site and promoted neuron growth and plasticity. Nearly 3,000 severed nerves entered the bridge, and 400–500 nerves grew out the other side near disconnected motor neurons that control the diaphragm. Chondroitinase ABC prevented scarring from blocking continued growth and reinnervation. The restored breathing function noted in the rodents was maintained through a six-month follow up. The study was published in the July 14 online edition of *Nature*. ■

Honoring Military RTs

If you are a respiratory therapist currently serving your country in the military, *AARC Times* would like to publish a story and photo about your service or deployment.

Please go online at www.AARC.org/go/mm where you will find an online form you can fill out to provide information about your service and deployment. You can also download your photo there.

Once we receive your information, we may use it to prepare an "RC Currents" story about your service in the military. The AARC honors those who serve, and we would like to share your story with your respiratory care colleagues here and abroad. ■

Industry Profile: Pulmodyne, Inc.

Brad Quinn (left), Pulmodyne's president, and Jeff Quinn, executive vice president

Pulmodyne Executive Vice President Jeff Quinn shares some background on his company and what it has to offer the respiratory care profession today.

***AARC Times*:** How long has your company been in business, and what kinds of devices do you manufacture?

Jeff Quinn: The company was founded in 1985 by my brother Brad and myself. Pulmodyne is a completely integrated ISO 13485, FDA-registered medical device manufacturer located in Indianapolis, IN. We specialize in disposable air management products and offer a wide variety of innovative products for use in the anesthesia, respiratory, home care, emergency, and pre-hospital markets. Our product portfolio includes the Blom Tracheostomy Tube System, the O2-RESQ System for immediate CPAP, and BiTrac Face Masks and Circuits for both hospital and home care use.

***AARC Times*:** What projects or new features are you working on for the future?

Jeff Quinn: Future products include a disposable variable generator in the O2-RESQ product line and additional mask offerings in the BiTrac line for both hospital and home use. We are also in development on several projects that will expand our product offerings.

***AARC Times*:** How do your products improve patient care, and how does this impact the respiratory therapist?

Jeff Quinn: The Blom Tracheostomy Tube System currently has four standard-sized tracheostomy tubes with four different inner cannula styles that you can choose from to meet the needs of your patients for better comfort and care. The four cannulas are a standard cannula, the subglottic suctioning cannula, the speech cannula, and the low-profile valve.

The subglottic suctioning cannula can provide continuous above-the-cuff secretion removal for better patient comfort and care. The current literature is full of studies indicating that subglottic secretion removal lowers the incidence of ventilator-associated pneumonia, thus reducing the cost of patient care, not to mention bedside therapist time since the patient can be connected to continuous suctioning.

The speech cannula allows the patient to speak in his own natural voice and provides the clinician the ability to work with a ventilator-dependent patient as soon as the patient is cognitive and able to speak. It can be used with either the cuff inflated or deflated, so the caregiver and patient do not have to wait until the patient can tolerate cuff deflation in order to start speech rehabilitation. Smell and taste return to the patient, greatly enhancing quality of life.

Unlike other tracheostomy tubes on the market today, the Blom Tracheostomy Tube System allows the clinician to perform subglottic suctioning and speech rehabilitation without an invasive and costly tracheostomy tube change.

The O2-RESQ System is designed to deliver immediate CPAP to patients suffering from congestive heart failure and other shortness of breath issues. Being totally disposable, the product is very considerate of the EMS provider's time and allows him to get back into action instead of waiting for equipment to be returned to his rig. In the hospital the efficiency of the O2-RESQ System really shines, as the mask that was set up in the ambulance can remain in place; it is a true hospital non-invasive ventilation (NIV) mask, which makes fit and seal issues much easier for the therapist. The continuum of care can be carried on with additional system features to help patients with more critical needs while not impacting the use of high-cost ventilation equipment.

This system has also been shown to be effective in helping medical directors establish and maintain protocols, and in the hospital it offers simplicity during periods when trained therapists are not on duty. Upcoming additions to the line include a disposable variable control unit allowing the titration of both oxygen and flow. This unit can be added in the field and also comes in preassembled versions for hospital use.

When it comes to our BiTrac Mask and Circuits, we have two platforms — one set of masks for home use and a complete line of hospital NIV masks and circuits offering versatility and value in today's respiratory departments. The NIV line offers a wide range of masks, many with our exclusive Omni Flex feature, which helps improve mask fit capabilities, thus reducing therapist time with mask fitting issues. Lastly, our NIV circuit easily adjusts to the parameters of most modern ventilation equipment and offers several features not normally found in current NIV circuits.

AARC Times: Do respiratory therapists work for your company; and if so, in what capacity? How has having a respiratory therapist impacted your product line?

Jeff Quinn: Yes, we have two respiratory therapists currently working for Pulmodyne as clinical specialists. Their role with our company is to in-service clinicians, practitioners, and families so they can use our products to maximize patient outcomes.

AARC Times: How do you expect the economy and health care reform to affect how you develop new respiratory care technology over the next two years?

Jeff Quinn: I think in the near term, and beyond for that matter, our products and all products in this industry will need to provide better patient care and comfort as they always have, but they will also have to be more ecologically friendly and more cost effective, given the demands of global health care reform budgetary constraints.

AARC Times: Where do you see the respiratory device industry heading?

Jeff Quinn: I think the domestic respiratory device industry will potentially be impacted by the current health care reform laws, which will unfortunately drive more device manufacturers offshore in a misguided effort to lower cost. Therefore, we must depend on new developments and innovation to guide our future. We live in exciting times. ■

▶ Strange But True…

Tracking Tweets: Johns Hopkins researchers are using Twitter to track health trends around the country. By filtering out 1.5 million health-related tweets from more than 2 billion public tweets between May 2009 and October 2010, they were able to uncover intriguing patterns about allergies, flu cases, insomnia, cancer, obesity, depression, pain, and more.

Let Sleeping Babes Lie: Newborns spend most of their time sleeping, but they still learn to recognize speech sounds within a few short months. Researchers now believe they know how: Their studies show sleeping infants blink more readily when a spoken voice is heard than when a tone or recorded voice is played, suggesting babies learn while sleeping. (June 18 issue of *Developmental Science*)

Another Reason Not To Spit: UCLA researchers have developed a new method of determining a person's age by analyzing his or her saliva. The technique is based on a process called methylation, a chemical modification of one of the four building blocks making up DNA that changes as people grow older.

Oxygen in the Eyes: Statistics show African-Americans are at a higher risk for glaucoma. St. Louis investigators believe oxygen, which can damage the drainage system in the eye, resulting in elevated pressure, may be to blame. In their study (reported in the July issue of *Archives of Ophthalmology*), African-Americans had significantly higher levels of oxygen in their eyes than Caucasians.

Say Cheese: Cornell University investigators have developed an inexpensive, lens-free, pinhead-size camera that they believe could revolutionize everything from surgery to robotics. The camera, which is made from a flat piece of silicon, grew out of a study for imaging brain activity.

Nominate an AARC Member for "Success Stories" or "Interesting People"

Do you know an AARC member who would be a good choice for one of our "people" features in "RC Currents"? If so, provide this information to the editor at the address below: the member's name, job title, place of work, city, and state; why you think they should be featured; and their contact information. Send to: Editor Marsha Cathcart, cathcart@aarc.org with "Success Stories" in the subject line. ■

Teddy Bear Clinic Eases Kids' Fears

RT Sheena Brown teaches kids about lung function using their stuffed animals.

As any pediatric respiratory therapist will tell you, small children don't like medical care and aren't shy about expressing their displeasure. When AnMed Health in Anderson, SC, was getting ready to open a new free-standing Women's and Children's Hospital in 2005, staff wanted to do something to help their young patients become more comfortable with hospitals and medical procedures before they actually had to come to the facility for a medical issue of their own.

Their idea: Host an annual "Teddy Bear Clinic" where kids could bring their stuffed animals in for "treatment." AARC member Mike Shoemaker, RRT-NPS, AE-C, has been serving on the organizing committee ever since. "My role has been helping to plan, recruit volunteers, distribute flyers, etc., to local schools, churches, and other organizations," says the hospital's respiratory care manager. About 60 volunteers from around 10–15 hospital departments usually turn out to help at the event.

The RC department is always out in force. "On 'clinic day' one of the booths consists of a team of respiratory therapists who will provide 'breathing treatments' to stuffed bears, kangaroos, dogs, snakes, and what sometimes appears to be a new species of stuffed animal," says Shoemaker.

The most recent Teddy Bear Clinic was held last spring and registered 279 children and "patients." "The stuffed animal gets a bracelet and everything just like the child would if they were admitted to the hospital," says the manager. One of his favorites from the last clinic was a three-foot-long stuffed worm, whose owner matter of factly said he didn't know his worm had lungs.

Shoemaker says the hospital has received lots of great feedback on the event, and he has personally heard of at least three different children who were better able to tolerate real medical care because of their experience at the Teddy Bear Clinic. "One parent described a child who said to his doctor, 'It's OK, my bear had to get a shot too, and he's a lot better now.'" ■

Mike Shoemaker's son Nick has been serving as the Teddy Bear Clinic's mascot since he was 13.

National Health Observances

- **Respiratory Care Week**; Oct. 23–29; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available; send in your photos to AARC
- **Lung Health Day**; Oct. 26; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available
- **Great American Screen Off**; Nov. 4; AARC, (972) 243-2272; www.AARC.org, or www.drive4copd.com
- **Lung Cancer Awareness Month**; November; Lung Cancer Alliance; (202) 463-2080; www.lungcanceralliance.org
- **COPD Awareness Month**; November; AARC, (972) 243-2272, www.aarc.org
- **World COPD Day**; Nov. 16; Global Initiative for Chronic Obstructive Lung Disease (GOLD); www.goldcopd.org
- **Great American Smokeout**; Nov. 17; American Cancer Society; (800) ACS-2345; www.cancer.org

▶ Transitions


1

Paul Binder, CRT, passed away last summer at his home in Springfield, MO. Binder was a veteran of the U.S. Air Force who began his career in respiratory therapy in 1966. Over the years he served as technical director of respiratory therapy at Saint Louis University Hospital in St. Louis, MO; as chief therapist at Saint Joseph's Hospital in Minot, ND; as a senior therapist at Gottlieb Memorial Hospital in Melrose Park, IL; and as a staff therapist at Saint John's Hospital in Springfield, MO. He retired in July of 2008. (Photo 1)


2

Andrea Diane Houlihan, CRT, passed away in her sleep in June. The recent graduate of the respiratory therapy program at Bossier Parish Community College (BPCC) in Bossier City, LA, was just 25 years old at the time of her death. Her instructors and fellow students remember her as a remarkable therapist with a beautiful spirit and an amazing passion for respiratory care. BPCC has approved a scholarship for RT clinical students in her memory. (Photo 2)

We welcome news about AARC members. Submit job changes, awards, and death notices online at www.AARC.org/transitions. ■

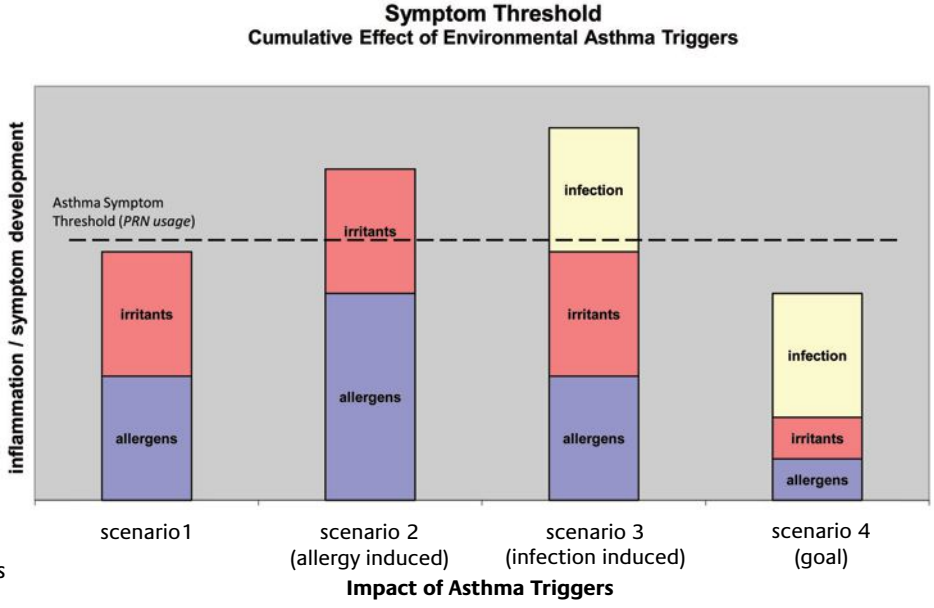
AARC Times Correction

AARC Times incorrectly published a figure in the September "Chronic Disease Manager" column, "Identifying Triggers in the Classroom and Workplace" by Diane Rhodes. An incompatibility between different versions of software used between author and editors caused the error, which added several crossed lines to the figure that were not in the author's original figure.

The corrected figure is shown here.

We also printed an error in the "about the author" paragraph. Diane Rhodes, BBA, RRT, AE-C, is the director of the Department of Environmental Health for the North East Independent School District in San Antonio, TX.

We regret the errors and have now taken measures to eliminate these kinds of misprints in future articles. ■



AARC Member Promotes Pulmonary Fibrosis Stamp

Mari Foster was pleased to be able to honor the memory of one of her patients with this memorial plaque, which now hangs in her department.

When Mari Foster, RRT, lost one of her patients to pulmonary fibrosis earlier this year, she asked the family about donating money to the church for her mass. The family had another idea: Could Foster help them find out how they could help raise money for the Pulmonary Fibrosis Foundation (PFF) instead? They also thought it would be nice if the hospital could honor their family member with a special plaque in the cardiovascular-pulmonary rehabilitation department.

The respiratory specialist at Summa Health System in Akron, OH, got right on those requests. "I asked Leanne Storch, associate vice president of patient outreach at PFF, if she could help get me some donation envelopes," says Foster. "The next thing I knew, the plaque went up, and I donated to the Pulmonary Fibrosis Foundation."

But that was just the beginning. After she donated to the PFF, they sent her a letter asking her to get involved in a campaign they're running to urge the U.S. Postal Service to issue a special stamp in honor of pulmonary fibrosis. The Foundation believes the stamp could go a long way toward raising awareness of PF and the toll it takes on patients and families, and is encouraging everyone interested in helping people with the condition to use the sample letter on its website to write the Citizens Stamp Advisory Committee asking for support for the stamp.

Foster has already garnered more than 100 letters for the campaign from among her friends and colleagues, and now she's asking her fellow AARC members to step up to the plate and do the same thing. "Whether it be pulmonary rehab, respiratory care, pulmonary function, sleep study labs — you name it — we are all very proud to promote awareness or help in the search for a cure for all our pulmonary diseases," says the therapist. "This one, pulmonary fibrosis, is an incurable lung disease. As the letter states, this disease affects 200,000 Americans; and it is estimated that 40,000 will die this year because there are no FDA-approved treatments or cure."

If you'd like to write in support of the pulmonary fibrosis stamp, visit www.pulmonaryfibrosis.org/. ■

Contribute to Writer's Corner

AARC Times is currently considering brief stories from AARC members for publication in the Writer's Corner section of "RC Currents." Submissions should be under 500 words and contain a cover letter with the member number, contact information such as phone and fax numbers, and email address. Send submissions to cathcart@aarc.org with "Writer's Corner" in the subject line. ■

CALL FOR ENTRIES

AARC Times

PHOTO CONTEST

HERE'S YOUR CHANCE TO HELP CHOOSE THE COVER OF *AARC TIMES* MAGAZINE

HERE'S HOW IT WORKS:

AARC Times will collect photo entries from AARC Members. Contest finalists will receive one year of **FREE DUES** on renewal AND will automatically be entered into the publication's Photo-of-the-Year Contest, which will take place in the November 2011 issue.

The member chosen as the Photo-of-the-Year winner will see his or her photograph on the **COVER** of the February 2012 issue of *AARC Times*!

WHAT KINDS OF PHOTOS ARE WE LOOKING FOR?

Heartwarming photos of your adult patients who rely on your care and guidance and who inspire you.

JUST FOLLOW THESE SIMPLE RULES:

- Provide a signed release for any patients or co-workers pictured in your photos. Members can sign in to access the form at **www.aarc.org/members_area/aarc_times/photo_contest/index.asp** or it can be faxed to you by calling Karen at (972) 406-4661. Photos cannot be published without signed releases.
- Send a brief background story with the photo.
- Photos will not be returned and become the property of the AARC.
- Do not print photos from your home printer.
- Photographic prints of good quality are acceptable. Please **read the requirements we have provided at left** so that you send your photo in a format that can be used and reproduced in a magazine.

IMPORTANT: PLEASE READ THE FOLLOWING PHOTO REQUIREMENTS

Adhering to these requirements will assure that your photograph will be acceptable for publication. A good photograph produced at the wrong resolution may render it unsuitable for reproduction.

➡ **Since the photo is for the cover,** we require a vertical format. Turn your camera sideways to take the photo.

NO

YES

➡ **If your photo is taken with a standard film camera,** we will need a color print and negative shipped to us at **PHOTO CONTEST,** AARC, 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706.

➡ **Most digital cameras give you a choice of settings for image resolution.** Photos taken at lower resolution settings take up less room on your memory card but may not be useable for print productions. Set your camera for the highest resolution photo and save it as JPEG or TIFF.

➡ **We prefer that you mail a CD of your photo since it will probably be too large to be emailed.** If you do try to email, please send it directly to our production manager, Donna Knauf, at knauf@aarc.org and indicate clearly in your email that the photo is for the Photo Contest.

WWW.AARC.ORG

New Members

Welcome to the AARC

U.S. Members

A

Dahlgren-Jensen, Morgann, Anchorage, Ak*

Barrett, Michelle, Dutton, Al*
Gatson, Jocelyn, Birmingham, Al
Harlan, Aaron, Muscadine, Al*
Jimmerson, Michael, Cedar Bluff, Al*
Lawrence, Mamie, Decatur, Al*
Rouse, Julie, Fayette, Al*
Toyer, Windil, Birmingham, Al*
Winkler, Sharon, Mobile, Al*

Andrews, Justin, Hot Springs, Ar
Bell, David, Hot Springs, Ar
Gilmore, Gary, Hot Springs, Ar
Howell, Renea, Hot Springs, Ar
Ivy, Leeann, Walnut Ridge, Ar*
Jarrett, Kellyne, Rogers, Ar*
Jester, Tonya, Hot Springs, Ar
Knox, Ariel, Arkadelphia, Ar
McCallie, Crystal, Hot Springs, Ar
McKamie, Leigh, Hope, Ar
Nooner, Brian, Hot Springs, Ar
Pless, Shawn, Russellville, Ar*
Shepard, Kylie, Malvern, Ar
Smith, Jessica, Royal, Ar
Tillery, Jodi, Hot Springs Village, Ar
Windham, Kelsi, Malvern, Ar

Banda, Pedro, Somerton, Az
Berry, Heather, Tucson, Az*
Bowers, Lorena, Peoria, Az*
Brown, Channa, Phoenix, Az
Christie, Brian, Gilbert, Az
Cosa, Natan, Goodyear, Az*
Delapp, Chris, Tucson, Az*
Delgado, Mia, Glendale, Az*
Desomma, Katelyn, Glendale, Az
Dunseath, Shannon, Phoenix, Az
Dupras, Lacy, Waddell, Az
Evans, Cynthia, Phoenix, Az*
Fisher, Laura, Peoria, Az*
Gelvin, Dax, Mesa, Az*
Gillespie, Nicole, Phoenix, Az*
Goff, Shawnna, Phoenix, Az*
Gossard, Kellie, Phoenix, Az*
Hall, Christopher, Phoenix, Az
Heler, Flavius, Sun City, Az
Jackson, Amy, Goodyear, Az*
Lyell, Amelia, Tucson, Az*
Macias, Sergio, Phoenix, Az
Malone, Dana, Cottonwood, Az
Martinez, Jason, Tucson, Az*
Moran, Sylvia, Tucson, Az*
Munoz, Carlos, Scottsdale, Az
Nunez, Rachel, Glendale, Az*
Penton, Kenneth, Chandler, Az*
Premo, Clifton, El Mirage, Az*
Rodriquez, Idalia, Phoenix, Az
Smith, Dan, Fort Defiance, Az*
Smith, Diane, Chinle, Az*
Tom, Herbert, Ganado, Az*
Vuckovic, Dejan, Glendale, Az
Whisler, Ona, Peoria, Az
Williams, Michelle, Phoenix, Az*

C

Abelida, Lawrence, Carson, Ca
Aguirre, Erick, Anaheim, Ca
Albitz, Colin, Grand Terrace, Ca
Ali, Warda, Modesto, Ca
Alqam, Basel, Bloomington, Ca
Alvarez, Marlon, Lakewood, Ca
Alvira, Amanda, Torrance, Ca
Anderson, Daniel, Huntington Beach, Ca
Angeles, Marcus, Long Beach, Ca
Aquino, Ricardo, Westminster, Ca
Aragon, John, Carson, Ca
Arias, Juan, Los Angeles, Ca
Artiga, Andres, South Gate, Ca
Attebery, Anne, Durham, Ca*
Babb, Scott, Bakersfield, Ca*
Baham, Shannon, Perris, Ca
Baldwin, Jamie, Turlock, Ca
Bamba, Bennett, Elk Grove, Ca
Barajas, Christine, Redondo Beach, Ca
Barber, Clarissa, Barstow, Ca
Barnett, Tania, Camarillo, Ca
Battung, Agathea, Rowland Heights, Ca
Benavidez, Tifani, Riverbank, Ca
Benedetto, Edwin, Simi Valley, Ca*
Bennett, Samantha, Rancho Cucamonga, Ca
Benz, William, San Lorenzo, Ca*
Bergerson, Nathan, Chino, Ca
Berry, Stephanie, Huntington Beach, Ca
Biggs, Kaley, San Bernardino, Ca
Bradley, Kristopher, Long Beach, Ca
Branche, Peggy, Harbor City, Ca
Brannen, Robynn, Simi Valley, Ca*
Bryan, William, Lathrop, Ca
Bryson, Allison, Victorville, Ca*
Cahn, Mark, Carson, Ca
Campbell, Denise, Visalia, Ca*
Carpenter, Angela, Modesto, Ca
Carr, Celine, Manteca, Ca
Cate, Marigrace, Los Angeles, Ca
Cazares, Alejandra, Modesto, Ca
Chadwell, Vangela, Manteca, Ca
Chavez, Briannan, Modesto, Ca
Chen, Xing Zhong, Alhambra, Ca
Chirita, Jason, Corona, Ca
Christensen, Kara, Red Bluff, Ca*
Christian, Tyler, Ripon, Ca
Cisneros Hurtado, Alexis, Manteca, Ca
Citizen, David, Los Angeles, Ca
Clark, Charla, Modesto, Ca
Cochran, Phillip, Ceres, Ca
Cohen, Charlene, Placentia, Ca
Cooper, Joshua, San Diego, Ca
Corral-Silva, Martha, Hawthorne, Ca*
Cox, Selvia, Fontana, Ca*
Crull, Melojy, Stockton, Ca
Cuellar, Michael, Long Beach, Ca
Damos, Jenny, Modesto, Ca
Danforth, Joshua, Stockton, Ca
Davis, Eryn, Modesto, Ca
Davtian, Siranush, Montebello, Ca
Dejoya, Cherwin, Milpitas, Ca
Delacruz, Edgardo, Carson, Ca
Do, Christine, Baldwin Park, Ca
Do, Hong, Hawthorne, Ca
Dumadag, Christopher, Stockton, Ca
Dunn, Jeremy, Ripon, Ca
Ellis, Loretta, Pinole, Ca*
Encarnacion, Shelisa, Long Beach, Ca
Escobar, John, Fontana, Ca
Evans, Suzanne, Modesto, Ca*
Fausto, Andres, Turlock, Ca
Fermer, Mimi, Folsom, Ca*
Francisco, Melissa, Ontario, Ca
Franklin, Sekeyia, Sacramento, Ca
Gallegos, Rebecca, Burlingame, Ca
Gamboa, Cassidy, Covina, Ca
Gamino, Richard, Stockton, Ca
Garcia, Jason, Modesto, Ca
Garcia, Ryan, Anaheim, Ca*
Garibay, Victoria, Turlock, Ca
Garrido, John, Tracy, Ca
Gavras, Steven, Redding, Ca*
Gevarges, Nicole, Modesto, Ca
Gill, Simerpreet, Ripon, Ca
Golsaz, Farnaz, Beverly Hills, Ca
Gomez, Blanca, Merced, Ca
Gomez, Delia, Patterson, Ca
Gonder, Katrice, Ceres, Ca
Gonzales, Michael, Claremont, Ca
Graham, Stephen, Forest Ranch, Ca
Gurule, Amanda, Oakdale, Ca
Hansen, Brent, Tracy, Ca
Harris, Mark, Brea, Ca*
Hayasaka, Tomoko, Gardena, Ca
Heath, Heather, Pleasanton, Ca
Hebert, Neal, Modesto, Ca
Hendrix, Kevin, Chowchilla, Ca
Hernandez, Anna, Modesto, Ca
Hernandez, Cecilia, Pasadena, Ca
Hernandez, Jamie, Isleton, Ca
Hill, Karen, Los Angeles, Ca
Hobbs, Brian, Riverbank, Ca
Hollen, Elizabeth, Santa Barbara, Ca*
Howell, Lucas, Redondo Beach, Ca
Hsiao, Chi-En, Chino, Ca
Huynh, Minh, San Jose, Ca
Huynh, Victor, El Monte, Ca
Jiang, Binhua, Rancho Cucamonga, Ca
John, Karine, Thousand Oaks, Ca
Johns, Kimiko, Carson, Ca
Joiner, Alisha, Huntington Beach, Ca*
Juanero, Kevin, Newbury Park, , Ca*
Kabba, Omar, Gardena, Ca
Kemper, Alex, Pomona, Ca

These individuals have been approved for membership in the AARC. Any member may object to a new membership by filing a written objection with the Executive Office within 30 days. *Active Members

Kim, Hay, Lakewood, Ca
Kim, Soojin, Harbor City, Ca
King, Krystal, Gardena, Ca
Kuykendall, Jessica, Lathrop, Ca
Labuga, Ladylou, Turlock, Ca
Lam, Cindy, Gardena, Ca
Lampman, Brenden, Modesto, Ca
Lancaster, Kayla, Hughson, Ca
Landeros, Cristina, Chi, Ca
Lariosa, Heather, Atwater, Ca
Le, Sandy, Santa Ana, Ca
Leal, Michael, Costa Mesa, Ca
Leclerc Hendy, Concepcion, Santa Monica, Ca
Leonardo, Patrice, Merced, Ca
Lim, Heng, Monterey Park, Ca
Limon, Daniel, Whittier, Ca
Lin, Htein, Covina, Ca
Lopez, Cassandra, Modesto, Ca
Lopez, Jose, Bellflower, Ca
Lopez, Lisa, Stockton, Ca
Lopez, Ronnie, Santa Rosa Valley, Ca
Lopez, Samuel, Modesto, Ca
Lucaci, Camelia, Garden Grove, Ca
Lumpkin, Danielle, Ceres, Ca
Luna, Jerry, San Diego, Ca*
Macias, Carina, Modesto, Ca
Marquez, Martin, Manteca, Ca
Mehzun, Lamek, Los Angeles, Ca
Mendez, Bob, Gilroy, Ca*
Menezes, Kili, Atwater, Ca
Merchian, Jon, Long Beach, Ca
Meza, Gerardo, Rancho Cucamonga, Ca*
Middaugh, Jessica, Simi Valley, Ca*
Middleton, Angelica, Modesto, Ca
Miller, Krista, Turlock, Ca
Mizuno, Yoko, Gardena, Ca
Molano, Katrina, Gardena, Ca
Morata, Maita, Modesto, Ca
Moton Jr, Wilmer, Stockton, Ca
Murga, Monique, Irvine, Ca*
Nair, Shane, Bellflower, Ca
Navarrete, Kassandra, Patterson, Ca
Navarro, Joseph, Azusa, Ca
Nguyen, Kristy, Baldwin Park, Ca*
Northern, Alice, Long Beach, Ca
Noun, Viseth, Long Beach, Ca
Obregon, Ulises, Rancho Cucamonga, Ca
Ocampo, Francis, Riverside, Ca
Orendain, Paola, Modesto, Ca
Orteras, Rodolfo, Torrance, Ca
Pang, Alexander, Walnut, Ca
Paredes, Ana, Gardena, Ca
Park, Andrew, Fullerton, Ca
Parker, Taryn, Hawthorne, Ca*
Paz, Ronald, Stockton, Ca
Pennix, Veronique, Hawthorne, Ca
Perry, Jason, Los Banos, Ca
Phan, Srymom, Modesto, Ca
Phillips, Wendy, Riverside, Ca
Pichay, Ronald, Redondo Beach, Ca
Piety, Elena, Redondo Beach, Ca
Plascencia, Diana, Modesto, Ca
Potter, Marrissa, Atwater, Ca
Quiambao, Rose Carolyn, Los Angeles, Ca
Quillen, Crystal, Turlock, Ca
Quirarte, Rosalva, Atwater, Ca
Rahman, Isatu, Stockton, Ca
Ramirez, Eduardo, Stockton, Ca
Ramos, Juanillo, Torrance, Ca
Redondo, Ronnie-Leo, Long Beach, Ca
Reid, Anastasia, Ripon, Ca
Renegado, Jaycee, Stockton, Ca
Reyes, Robert, Modesto, Ca
Reynolds, Jessica, Modesto, Ca
Rezendes, Dwayne, Tracy, Ca
Riffe, Nancy, Brentwood, Ca
Rivera, Bianca, Patterson, Ca
Rivera, Christine, Los Angeles, Ca
Robinson, Jennifer, Murrieta, Ca
Rosas, Luz, Gardena, Ca
Ross, Nicole, Modesto, Ca
Rubianes, Rochelle, Long Beach, Ca
Ruiz, Janette, Riverbank, Ca
Ruiz, Raul, Aliso Viejo, Ca*
Russell, Allan, Hawthorne, Ca
Ryan, Jamee, Riverside, Ca
Sable, Aleksandra, San Diego, Ca*
Saenz, Rachel, Long Beach, Ca
Sanchez, William, Manteca, Ca
Sandhu, Manraj, Modesto, Ca
Sandoval Medina, Sandra, Chula Vista, Ca
Sandoval, James, Modesto, Ca
Sanles, Sergio, Hermosa Beach, Ca
Santana, Victoriano, Salida, Ca
Santiago, Linda, Lathrop, Ca
Santillan, Gustavo, Modesto, Ca
Santos, Judy, Lynwood, Ca*
Sauseda, Johnny, Lodi, Ca
Schwinn, Cody, Patterson, Ca
Shafer, Samantha, Modesto, Ca
Sidmore, Sundina, Hesperia, Ca
Sinclair, Jeffrey A, Modesto, Ca
Singh, Jivteshwar, Tracy, Ca
Sipin, Elva, Torrance, Ca*
Sison Tojino, Russel, Chula Vista, Ca*
Smith, Frank, Riverside, Ca
Smith, Kathy, Mission, Ca*
Sombath, Thomas, Costa Mesa, Ca
Song, Jaemoo, Pleasanton, Ca
Soyangco, Mandy, Tracy, Ca
Spadafore, Michelle, Lathrop, Ca
Stogner, James, Salinas, Ca
Taggart, Natalie, Stockton, Ca
Takei, Saori, Los Angeles, Ca
Thyberg, Regena, Buena Park, Ca
Todd, Matt, Lincoln, Ca*
Topie, Amber, Modesto, Ca
Torres, Jose, Ceres, Ca
Trinidad, Sean, Chula Vista, Ca*
Valencia, Andrea, Moreno Valley, Ca
Veenstra, Christian, San Diego, Ca*
Viramontes, Denise, Turlock, Ca
Walker, Robert, Compton, Ca
Walls, Paul, Brea, Ca*
Wang, Charles, Alhambra, Ca
Waters, Lisa, Carmichael, Ca*
Welch, Adriano, Valley Village, Ca*
Wells, Kimberly, Tracy, Ca
Wigley, Brianna, Stockton, Ca
Wittrig, Hilliary, Modesto, Ca
Wright, Brian, Hughson, Ca
Yanez, Adriana, Whittier, Ca
Yang, You Na, Banning, Ca*
Yendall, Diane, Lake Balboa, Ca
Zebeljan, Daniel, Long Beach, Ca

Baker, Katie, Morrison, Co
Bock, Jessica, Longmont, Co
Chalupa, Brian, Parker, Co
Coar, Jeffrey, Erie, Co*
Cross, Mary, Boulder, Co
Foote, Bretta, Highlands Ranch, Co*
Gibbens, Danny, Aurora, Co*
Hughes, Michelle, Aurora, Co*
Janke, Christopher, Denver, Co
Knudtson, Emily, Denver, Co*
Nation, William, Loveland, Co*
Rogers, Kristen, Colorado Springs, Co*
Waldron, Bernice, Aurora, Co*
Walmsley, Tamara, Lakewood, Co
Wong, Ann, Dacono, Co

Burnhauser, Dean, Stratford, Ct*
Chambers, Devin, Windsor, Ct*
Cruz, Sandra, Newtown, Ct*
Finney, Judith, Bethel, Ct*
Harrington, Donna, Newington, Ct*
Lipson, Joanna, Norwalk, Ct*
Shrive, Judith, Stamford, Ct
Thomas, Louise, Manchester, Ct*

D

Bassett, Keeon, Washington, DC
Murillo, Raquel, Washington, DC
Priego, Victor, Washington, DC

Biselis, Christine, Wilmington, De*

F

Asante, Kwame, Gainesville, Fl
Barber, Sheelagh, Sanford, Fl*
Bigler, Robyn, Orlando, Fl*
Cabezas, Mauricio, Miami, Fl*
Cobb, Kimberly, North Port, Fl*
Covington, Antwan, Miami, Fl
Erven, Marlene, Miami, Fl
Fecitt, Diane, Orlando, Fl*
Georges, Aldline, Fort Lauderdale, Fl
Gonzalez, Yaime, Miami, Fl*
Hilton, Latoya, Davie, Fl
Janvier, Joanne, Miramar, Fl
Kapupara, Daya, Port Saint Lucie, Fl*
Kelly, Kara, Saint Cloud, Fl*
Malivert, Nancy, Fort Lauderdale, Fl
Morgan Crawford, Tanika, Miami Gardens, Fl
Nicholson, Carey, Tarpon Springs, Fl*
Olsen, Erica, Miramar, Fl
Plaza, Walter, Ormond Beach, Fl*
Remy, Jimmy, Jacksonville, Fl
St John, Crispin, Orlando, Fl
Sturgill, Brian, Miami, Fl
Vincent, Jacques, Orlando, Fl
Walker, Brian, Tallahassee, Fl*
Whitson, Tedi, Miami Gardens, Fl
Yagerlener, Janet, Jacksonville, Fl*

G

Alderman, Sky, Alma, Ga*
Aldridge, Carolyn, Augusta, Ga*
Beck, Karen, Marietta, Ga*
Cake, Cheryl, Kennesaw, Ga
Cameron, Kristal, Duluth, Ga*
Coleman, Heather, Dawsonville, Ga*
Dangar, Russell, Griffin, Ga
English, Marcia, Forsyth, Ga*
Fields, Thomas, Crawford, Ga
Foster, Dave, Locust Grove, Ga
Gardner, Amy, Cartersville, Ga*
Gay, Rita, Moultrie, Ga*
Goddard, Scarlett, Eatonton, Ga*
Haarmann, Patricia, Gainesville, Ga*
Harrell, Jason, Atlanta, Ga
Hicks, Garry, Ellenwood, Ga*
Holmes, Yalonda, Stockbridge, Ga*
Hurley, Jennifer, Alpharetta, Ga*
Jah, Sohna, Atlanta, Ga
Jimenez, Luz, Lilburn, Ga
Joseph, Doris, Kennesaw, Ga*
Kelley, Johnathan, Cartersville, Ga*
Knoll, Angela, Alpharetta, Ga*
Lafferty, Carly, Atlanta, Ga
Leonard, Regina, Holly Springs, Ga*
Minucci, Diane, Woodstock, Ga*
Odias, Hubens, Atlanta, Ga*
Pruitt, William, Rome, Ga*
Riley, Raija, Bremen, Ga*
Rynders, Jenny, Smyrna, Ga

Samuel, Debra, Atlanta, Ga*
Steiner, Nancy, Duluth, Ga*
Stepp, Roy, Blairsville, Ga*
Tangalan, Sharda, Loganville, Ga
Tanner, Betsy, Waycross, Ga*
Tyra, Michelle, Peachtree City, Ga
Weaver, Aisha, Riverdale, Ga
Wei, Chia-Hung, Duluth, Ga
Wilkins, Lanetta, Jefferson, Ga*
Winterburn, Pamela, Milledgeville, Ga*

H

Bradshaw, Claudia, Wahiawa, Hi*
Echevary, Vanessa, Kaneohe, Hi*
Melchor, Gary, Aiea, Hi*
Press, Mindy, Lihue, Hi*

I

Morris, Ed, Clive, Ia*
Schafer, Kari, Pella, Ia

Curtis, Mary, Orofino, Id*

Altenburg, Cynthia, Steward, Il*
Arseneau, Valarie, Bourbonnais, Il*
Bell, Cornelius, Chicago, Il*
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Hardin, Robert, Farmer City, Il*
Holder, Linda, Rockford, Il*
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Kay, Ekchhanak Leaders, Glendale Heights, Il
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Si, Abegail, Hainesville, Il*
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Vogel, Suzanne, Urbana, Il*
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McDonald, Patricia, Noblesville, In*
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Robinson, Linda, Merrillville, In*
Stenger, Ashley, Indianapolis, In
Sylvester, Tess, Pendleton, In
Walker, Donna, Indianapolis, In*

K

Ramos, Karla, Liberal, Ks*
Sandberg, Karen, Pittsburg, Ks*

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Aldridge, Christa, Lexington, Ky*
Arnold, Blake, Lexington, Ky*
Baker, Cassandra, Clay City, Ky*
Cornell, Kaylene, Paducah, Ky
Fletcher, Nickolas, Nicholasville, Ky*
Fox, Chelsea, South Shore, Ky
Gaylor Childress, Melinda, Prospect, Ky
Girod, Anthony, Richmond, Ky*
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Jones, Robert, Winchester, Ky*
Jones, Tammy, Winchester, Ky*
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Milstead, Cara, South Shore, Ky
Mosley, Monica, Winchester, Ky*
Mullins, Ashley, South Shore, Ky
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L

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Morris, Chasity, Delhi, La*
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St Romain, Jeffrey, Metairie, La
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M

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Sinigur, Natalya, Agawam, Ma
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Almaroof, Mugniu, Takoma Park, Md
Antoine, Sabine, Silver Spring, Md
Avent, Nitoya, Silver Spring, Md
Bamfoah, Akosua, Frederick, Md
Burton, Tanice, Beltsville, Md
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Davidovich, Amy, Owings Mills, Md*
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Grant, Paula, Silver Spring, Md
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Dolkey, Michael, Wetmore, Mi
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Haske, Jordan, Marquette, Mi
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Storey, Kaitlyn, Marquette, Mi
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Ray, Crystal, Rio Rancho, NM*
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Alexander, Brian, North Las Vegas, Nv
Arquines, Janet, Las Vegas, Nv
Clark, Annalyn, Las Vegas, Nv
Clay, Kizzy, Las Vegas, Nv
Cowan, Tiffany, Henderson, Nv
Flores Soto, Kara, Las Vegas, Nv
Heard, Canesha, Las Vegas, Nv
Jennifer, Moss, Las Vegas, Nv
Minnick, Tiffany, Las Vegas, Nv
Nnaji, Millicent, Las Vegas, Nv
Prusinski, Neil, Las Vegas, Nv
Roman, Jody, Las Vegas, Nv
Rosales, Eric, Las Vegas, Nv
Saywa, Mary, Las Vegas, Nv
Soof, Ramy, Henderson, Nv
Taylor, Paul, Las Vegas, Nv
Vincent, David, Las Vegas, Nv
Zere, Michael, Las Vegas, Nv

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Biller, Brooke, Laurelville, Oh
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Brady, Kara, Wooster, Oh*
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Mojica, Stephanie, Bluejacket, Ok*

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Sharp, Stephanie, Saint Helens, Or*
Wigg, Moriah, Grants Pass, Or*

P

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R

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S

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Vickery, Jennifer, Simpsonville, SC
Wheeler, Katy, Simpsonville, SC
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Hunter, Randy, Cordova, Tn*
Johnson, Jo, Roan Mountain, Tn*
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Bodle, Jaime, San Antonio, Tx
Box, Kristie, Santo, Tx
Buentello, Oscar, San Antonio, Tx
Caddell, Jessica, San Marcos, Tx
Carpenter, Matthew, San Antonio, Tx
Carrington, Hope, Grand Prairie, Tx*
Carter, Marquita, Plano, Tx
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Vasquez, Joseph, San Antonio, Tx*
Wiggins, Tammy, Crosby, Tx*
Wills, Carla, Georgetown, Tx*
Wood, Misty, Denton, Tx*

U

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Aguirre, Sandrelle, Lehi, Ut*
Andersen, Brandon, Stansbury Park, Ut*
Bouwhuis, Kristine, South Ogden, Ut*
Bryan, Cindy, Payson, Ut
Byers, Craig, Bountiful, Ut
Cardon, Andrea, Salt Lake City, Ut
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Dana, Charles, Murray, Ut
Duchac, Tiffany, Roy, Ut
Edwards, Chandra, West Jordan, Ut
Ekenstam, Anthony, Saratoga Springs, Ut
Goudy, Mark, Salem, Ut
Hagen, Gregory, Sandy, Ut
Happel, Amber, South Jordan, Ut
Hawkes, Bryce, Orem, Ut
Haymore, Shauna, West Jordan, Ut
Heffron, Emily, Holladay, Ut
Hernandez, Ryan, South Jordan, Ut
Huggins, Luckner, South Jordan, Ut
Jorgenson, Christina, Eagle Mountain, Ut
Joyner, Chris, Draper, Ut
Larsen, Brent, Saratoga Springs, Ut
Love, Benjamin, Provo, Ut
Manhard, Scott, Bountiful, Ut
Maples, Melody, Park City, Ut
Marrott, Chance, Kaysville, Ut
McCormick, Zachariah, American Fork, Ut
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Social Security No. (last four digits only) _____ Home Address _____

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☐ Director of Clinical Education
☐ Instructor/Faculty/Professor
☐ Nurse
☐ Patient Educator
☐ Supervisor/Coordinator
☐ Student
☐ Director
☐ Medical Director
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☐ Sleep Technologist/Polysomnographer
☐ Disease Manager
☐ Manager
☐ Other
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☐ Sleep Technologist/Specialist

Type of Business

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☐ Skilled Nursing Facility
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☐ Home Health Agency
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☐ Outpatient Facility
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☐ Other
☐ Sleep Lab Hospital Based

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☐ PhD ☐ EdD ☐ MEd ☐ MBA ☐ MS ☐ MHA ☐ MHS ☐ MPA ☐ MPH ☐ MSEd ☐ MSN
☐ MA ☐ BSRT ☐ BSRC ☐ BS ☐ BHS ☐ BSEd ☐ BSN ☐ BA ☐ AAS ☐ AS ☐ AA

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40th Annual ASRC State Meeting
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September 29–30
Pittsburgh, PA
Pennsylvania Society's 2011 Western Regional Conference
Contact Tom Lamphere at (215) 687-2904 or www.psrc.net

September 29–30
Casper, WY
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Contact Stacey Metzger at (307) 577-2546 or www.wysrc.org

October 13–14
Blacksburg, VA
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Contact www.vsrc.org

October 13–14
Indianapolis, IN
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October 14
Harrisburg, PA
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October 23–29
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October 26
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October 27
Newark, DE
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November 4
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Great American Screen Off
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November 4
Tampa, FL
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November 4
Tampa, FL
Pre-Congress Course — Mechanical Ventilation 2011
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November 5–8
Tampa, FL
AARC Congress 2011
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Other Meetings

October 17
King of Prussia, PA
Neonatal Care Today Conference sponsored by Dräger
Contact Ed Coombs at edwin.coombs@draeger.com

November 16
World COPD Day
Contact GOLD at www.goldcopd.org

Submissions for the next available issue are due October 24.

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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50%ile	WEBSITE FOR
25%ile	METRICS

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- Identify "Best Practice" among your peers
- Determine the steps necessary to achieve "Best Practice"

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- COPD is the fourth leading cause of death in the U.S.
- Reducing rates of rehospitalization has attracted attention from policymakers as a way to improve quality of care and reduce costs.[1]
- COPD is the third most frequent reason for hospital readmissions.[1]
- Research shows that supportive palliative care can reduce rehospitalization and increase patient satisfaction.[2]
- There is a quality deficit in routine care of COPD patients, suggesting that increased focus on routine management of COPD care is warranted.[3]
- By teaching patients self management, the clinician can help to decrease the number of readmissions and emergency department visits.[4]

1. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. N Engl J Med 2009;360:1418-28.
2. Brumley R, Enguidanos S, Jamison P, et al. Increased satisfaction with care and lower costs: results of a randomized trial of in-home palliative care. J Am Geriatri Soc 2007;55:993-1000.
3. Mularski RA, Asch SM, Shrank WH, Kerr EA, et al. The quality of obstructive lung disease care for adults in the United States as measured by adherence to recommended processes. Chest 2006; 130;1844-1850.
4. Rice KL, Dewan N, Bloomfield HE, Grill J, et al. Disease management program for chronic obstructive pulmonary disease: a randomized controlled trial. Am J Respir Crit Care Med. 2010 Jan 21.

"The speakers were excellent and very engaging. The introduction by actual patients was great. This will be a course that will be offered to my staff." – Kimberly S. Wiles, BS RRT

"The course was a great in-depth overview of the current concept in COPD and management." – Tim Buckley, RRT FAARC

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This course is jointly sponsored by the COPD Foundation and the AARC.

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