Times

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Dental Specialist and RTs Take On OSA

Bradley Eli, DMD, MS, (center) and his colleagues, Majel Carnell, CRT, and George Lannon, RRT, collaborate to treat obstructive sleep apnea patients in San Diego, CA.

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Cover photo by Bradford Tennyson, San Diego, CA

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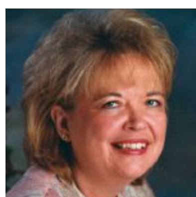

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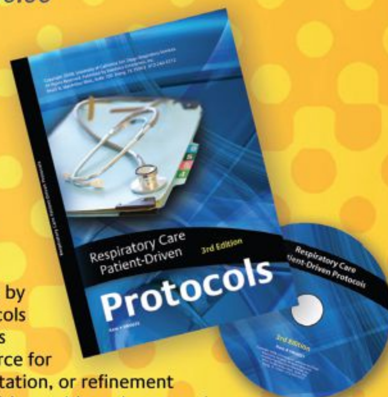

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Ventilation for Life

Monitoring Mechanical Ventilation at the Bedside

by Thomas Piraino, RRT, FCSRT

Currently, arterial blood gas continues to dominate decisions for ventilator adjustments despite lack of evidence that better gas exchange implies prevention of lung injury or improved outcomes. The current focus in the intensive care unit is for lung protective ventilation, and this has sparked interest in other monitoring options that may not be new in terms of their use but are now more readily available for use at the bedside. Respiratory therapists have the ability to utilize various monitoring tools to individualize the care of the patient rather than provide routine care that may not be appropriate. The following article will focus on monitoring the passively breathing (sedated) patient and will discuss some important waveforms, as well as advanced monitoring options that are being discussed in the current literature.

Waveform monitoring

The decelerating inspiratory flow pattern used in pressure-targeted modes can give the clinician a very basic understanding of the patient's compliance and resistance (time constant). High airway resistance tends to cause a flattened (rather than decelerating) inspiratory flow pattern (see Figure 1), and changes in compliance alter the rate (slope) of deceleration (see Figure 2).

In volume-targeted modes, resistance and compliance of the respiratory system can be assessed visually using the pressure-time waveform. An inspiratory hold maneuver (or inspiratory pause) will result in a plateau of the airway pressure demonstrating the alveolar pressure used to calculate respiratory system compliance and elastance, whereas the difference between the peak and plateau pressure represents airway resistance. An end-expiratory pause can be utilized to assess auto-PEEP in a passive patient. The pressure-time waveform usually drops quickly when the ventilator cycles from inspiration to exhalation; and when exhalation is held, the pressure will rise again if there is significant auto-PEEP.

about the author...

Thomas Piraino, RRT, FCSRT, is the best practice clinical educator for respiratory therapy services at St. Joseph's Hospital Hamilton and assistant clinical professor (adjunct), anesthesia department, division of critical care at McMaster University in Hamilton, ON, Canada.

The stress index assesses the shape of the pressure-time curve when using a volume-controlled mode with a constant-flow pattern and can be used to determine if there is tidal recruitment, or over-distention, during a positive pressure breath. It has been used as a method for adjusting positive end-expiratory pressure (PEEP) at the bedside.[1]

If a patient is making spontaneous efforts and demands more flow from the ventilator, the pressure-time waveform will have a "scooped" appearance because less pressure is being generated when volume is delivered at the predetermined flow rate. There are a number of important observations that can be useful during spontaneous breathing to monitor asynchrony such as premature or delayed cycling, and missed inspiratory efforts.

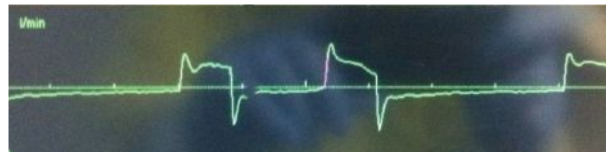

Figure 1. Image of a flow waveform showing a "flattening" inspiratory flow pattern during a passive positive pressure breath next to a more decelerated flow pattern when the patient makes an active effort.

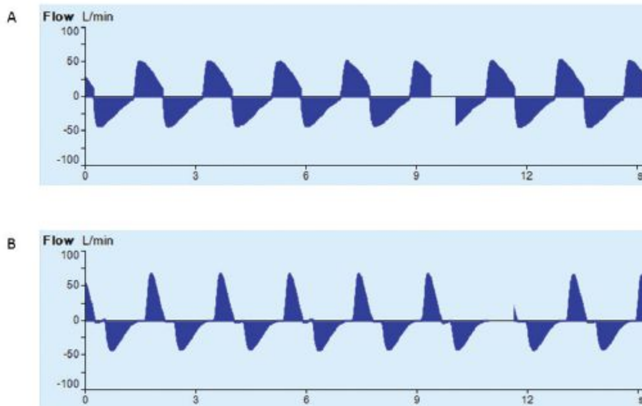

Figure 2. A flow waveform while a patient is in the prone position (A), compared to the flow waveform when the patient was returned to the supine position (B). Notice the change in the slope of deceleration caused by worsening compliance in the supine position.

Most modern ventilators allow you to freeze your waveforms and maneuver the cursor along the scale to determine monitored values with precision.

Volumetric capnography

Capnography has caused confusion in the ICU due to discrepancies between end-tidal carbon dioxide ($EtCO_2$) and arterial carbon dioxide tension ($PaCO_2$). In patients with acute respiratory distress syndrome (ARDS), this discrepancy is generally due to an increased physiological dead-space fraction; and in COPD patients, it can be due to insufficient exhalation (i.e., air-trapping).

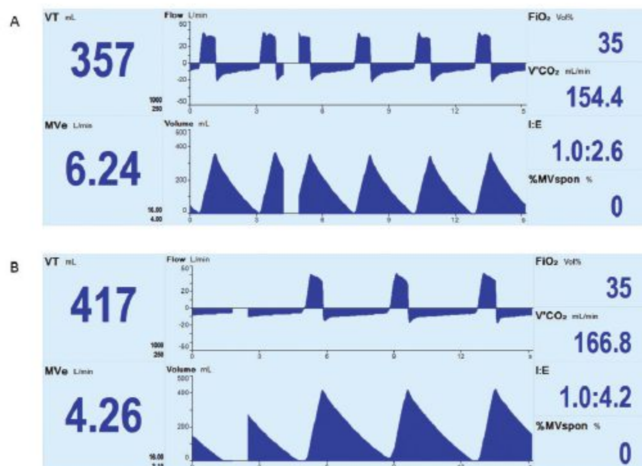

Figure 3. Patient is being ventilated passively with a respiratory rate (RR) of 22 bpm and insufficient exhalation time (A). The RR is decreased to 14 bpm, which resulted in the patient making spontaneous efforts resulting in a total RR of 16 bpm (B). The lower RR caused a significant reduction in minute ventilation and minimal increase in tidal volume. However, the volumetric capnography was being monitored and improved. The $PaCO_2$ from an arterial blood gas also improved (was lower) compared to the previous ABG.

Volumetric capnography uses the same technology but adds more value to critical care monitoring.[2] Monitoring volumetric capnography in COPD patients can be very useful when making ventilator adjustments to minimize air-trapping, as lowering minute ventilation can be a concern when patients are hypercapnic (see Figure 3). Also, volumetric capnography can be used to accurately calculate dead-space fraction.[3]

Transpulmonary pressure

Transpulmonary pressure (P_{TP}) is the difference between airway pressure (P_{AW}) and the pleural pressure outside of the lung. Pleural pressure can become

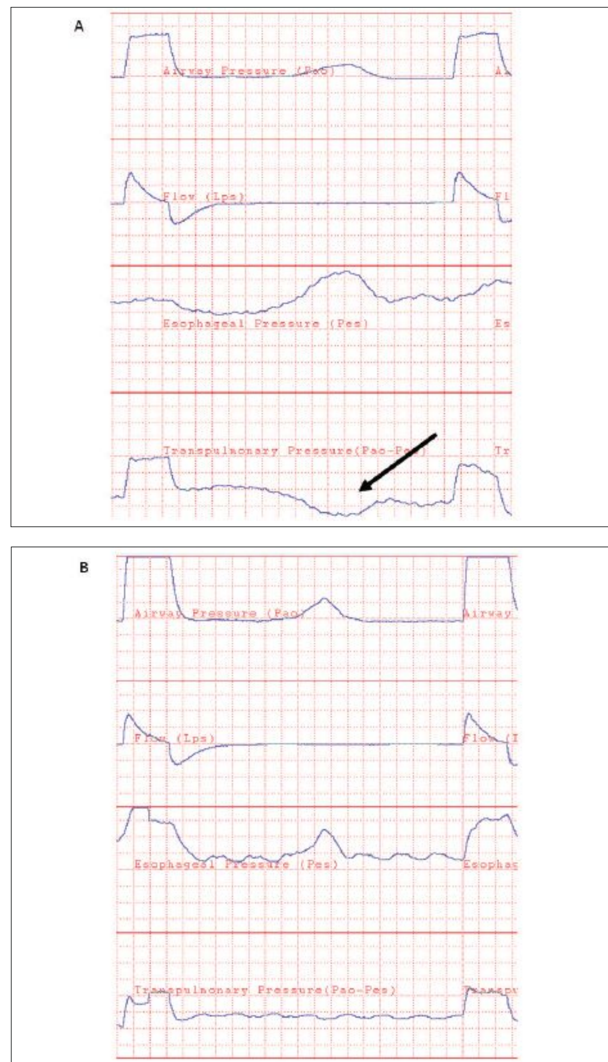

Figure 4. (A) The change in airway and P_{ES} are not equal — indicated by a drop in the PTP waveform during a "chest push." Therefore, the catheter is not in the correct position. (B) The change in P_{AW} and P_{ES} is equal, indicated by no change in the P_{TP} waveform during a chest push. Therefore, the catheter is in the correct position.

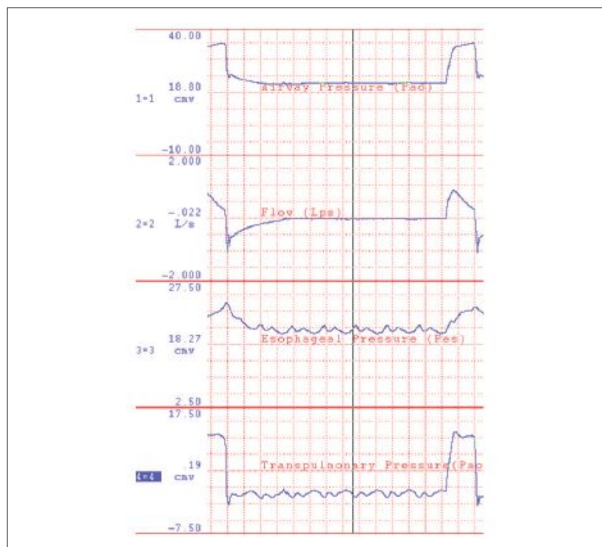

Figure 5. An expiratory hold was done on the ventilator to measure expiratory P_{TP}. The P_{AW} and P_{ES} are equal, resulting in a P_{TP} of 0 cm H_2O. The PEEP is considered optimal.

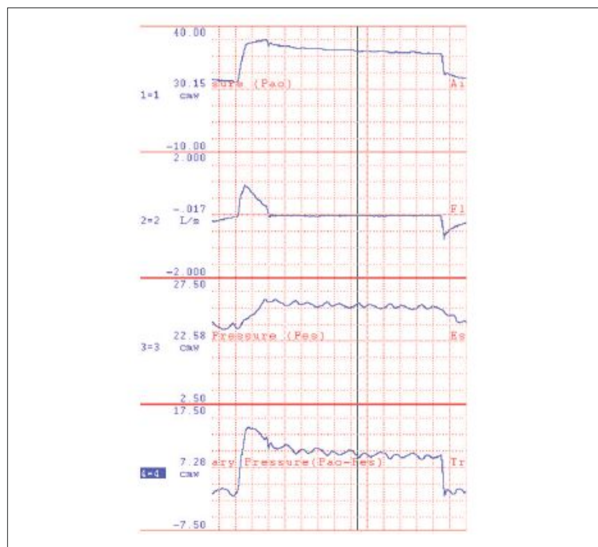

Figure 6. An inspiratory hold was done on the ventilator to measure lung stress (inspiratory P_{TP}). The lung stress (difference between P_{AW} and P_{ES}) is ~ 7 cm H_2O.

positive in the more dorsal regions when patients are being passively ventilated and has been found to be elevated in critical illness.[4] For a lung to stay "open," PEEP must be greater than or equal to the pleural pressure outside the lung (minimum P_{TP} of 0 cm H_2O). The pressure felt by the lung during inspiration also depends on the pleural pressure (lung stress). Direct measurement of pleural pressure would be highly invasive, which is why esophageal pressure (P_{ES}) is used as a surrogate ($P_{TP} = P_{AW} - P_{ES}$). There are two methods for measuring transpulmonary pressure found in the literature. One is the direct method, which uses P_{ES} as a surrogate for pleural pressure to set PEEP and limit lung stress;[4] the other is the elastance-derived method, which uses the relative change in esophageal pressure.[5] Currently, only the direct method has been used in a published randomized controlled trial to set PEEP and limit lung stress.[6]

An esophageal balloon catheter is placed in the lower third of the esophagus (30–40 cm in most adults). Cardiac oscillations should be present (as the catheter sits behind the heart), and position adjustments are done using a gentle "push" of the abdomen or chest during an expiratory hold (see Figure 4). PEEP is adjusted until it is equal to the end-expiratory P_{ES} as measured during an expiratory hold (see Figure 5). Lung stress is determined by performing an inspiratory hold and subtracting the P_{ES} measured during the inspiratory hold from the plateau P_{AW} (see Figure 6). Previously, a lung stress limit of 25 cm H_2O was used.[6] More recent animal data suggests further limiting lung strain to 1.5 (lung stress of 20 cm H_2O as per the stress and strain relationship).[7]

Electrical impedance tomography

Electrical impedance tomography (EIT) uses a belt of electrodes placed around the patient's chest to measure the impedance of air within it. When a breath is delivered, impedance changes and the device displays regional ventilation distribution throughout the lung. Monitoring the changes of ventilation distribution in real-time can help to individualize ventilation and

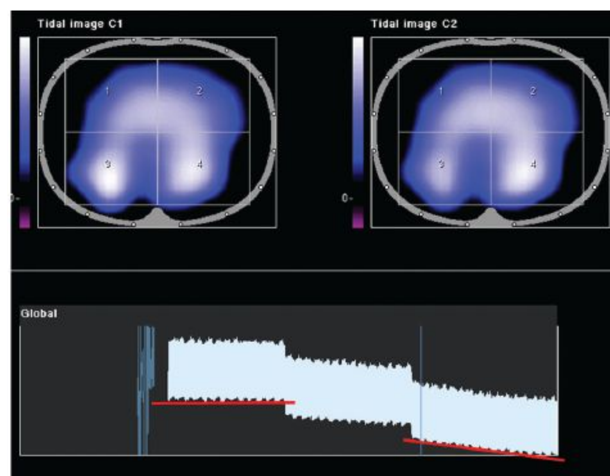

Figure 7. This trend view using EIT shows a noticeable shift in the end-expiratory impedance indicating alveolar instability.

balance over-distention and lung collapse.[8] Ventilation can be trended over time, and evaluation of end-expiratory lung impedance (representative of end-expiratory lung volume) can be monitored during PEEP titration to provide insight regarding alveolar stability over time (see Figure 7). In North America, this device is not yet available for commercial use in the United States but has been used clinically at the bedside in Canada since 2013.

There are a variety of available tools and techniques respiratory therapists can use to monitor mechanical ventilation at the bedside; I've covered only a few. I truly believe the future of mechanical ventilation and our ability to improve patient outcomes depends on our ability to gain a deeper understanding of our patient and individualize and optimize mechanical ventilation early. There can never be a "one size fits all" approach to mechanical ventilation. We need to use multiple modalities to understand, interpret, and adjust mechanical ventilation in the ICU. ■

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The Relationship Between Sleep and Obesity

by Lutana Haan, MHS, RRT, RPSGT

As we all have heard, obesity rates are on the rise, and there are interactions between sleep and obesity.[1] Sleep is important for its overall role in general health, as well as being restorative for the brain.[2] Inadequate sleep or sleep deprivation has multiple negative effects on an individual, ranging from daytime sleepiness to hormonal changes. This article will discuss several of the new findings in sleep and obesity, the role obesity plays in obstructive sleep apnea (OSA), patient treatment options, and the way respiratory therapists can help.

Sleep and nutrition

Our 24-hour society has impacted the duration of sleep many individuals get. Studies have shown that obesity rates are higher in those individuals who sleep less than seven hours per night.[2] A link has been found between insufficient sleep and increased appetites. Individuals make healthier food choices when they have adequate sleep, whereas sleep deprivation tends to lead individuals to crave empty calories;[3] part of this craving is attributed to hormones released during sleep. Several hormones have been identified that are related to digestion and sleep. Leptin is a hormone that participates in the regulation of caloric intake, helps in satiety, and is produced in fat tissue with higher levels found in obese patients. Ghrelin is another hormone that increases appetite and is secreted by the stomach and hypothalamus; it has been found in higher levels in obese OSA patients when compared to obese individuals without OSA. Sleep deprivation decreases glucose tolerance and increases insulin resistance. Studies have suggested that sleep deprivation results in decreased insulin sensitivity at the peripheral receptor sites, which can eventually exhaust insulin at pancreatic sites.[4]

about the author...

Lutana Haan, MHS, RRT, RPSGT, is an assistant professor in the department of respiratory care at Boise State University in Boise, ID.

Obesity and OSA

Obstructive sleep apnea is the recurrent occlusion of the upper airway during sleep that leads to oxygen desaturations and arousals from sleep. OSA can lead to hypertension, diabetes, and cardiovascular disease. Obesity is one of the strongest risk factors for OSA. One study found a 40% prevalence of OSA in moderately overweight males who were otherwise healthy.[2] In individuals with a body mass index (BMI) greater than 40, the prevalence of individuals with OSA varies between 40% and 90%. One factor that leads to OSA is abdominal or centrally located fat, which is higher in men. It is not surprising then, that males have higher rates of OSA. Women tend to carry their fat on their hips, making them less likely to develop OSA. Neck circumference is also associated with high rates of OSA in both men and women (greater than 17 inches in males and 16 inches in females is significant).[5]

Airway shape and size has been identified as a factor in OSA.[4] When the airway diameter is reduced, it is more prone to obstruction. Increasing body fat and obesity increases the likelihood of airway collapse. Obesity reduces resting lung volumes; and this can reduce the traction on the trachea, increasing the likelihood of collapse. Studies have shown that individuals with OSA have a more oval shape of the pharyngeal airway and an increased thickness of the lateral pharyngeal walls. These anatomical features predispose obese patients to increased airway collapse.[4] OSA may become more severe with weight gain and may improve with weight loss. OSA also results in fragmented sleep that leads to daytime sleepiness.[4] In the obese patient with OSA, there is potential to develop daytime hypoventilation, cor pulmonale, and respiratory failure. Daytime sleepiness can reduce one's mood

along with reducing the level of physical activity, which can develop into a vicious cycle of increasing weight and worsening OSA.

Treatment options

Positive airway pressure (PAP) is the gold standard in treating OSA. The pressure splints the airway open during inspiration and exhalation. Effective PAP therapy reduces or eliminates OSA, improving oxygenation, sleep, daytime sleepiness, cognition, and overall health status. The biggest downfall of PAP is adequate compliance. Some patients adjust fairly easily to the therapy while others need continuous support. When PAP is initially implemented, there are many challenges for the patient and the clinician because of the inconvenience, mask issues, claustrophobia, ill-fitting equipment, swallowing air, and the potential to still be symptomatic.[3] The sooner these issues are addressed, the better the chance of successful therapy.

Multiple studies have shown leptin levels decrease in patients once treated with continuous positive airway pressure (CPAP). One study reported that after two nights of CPAP treatment, Ghrelin levels were also decreased in OSA patients.[2]

Oral appliances are appropriate for mild to moderate levels of OSA. Dentists and orthodontists trained in sleep medicine can assess the likelihood of successful use. The oral appliances are custom-made and mainly focus on advancing the jaw forward to open the airway. Complications include jaw stiffness and mandibular joint pain.[3]

Several surgical interventions can be used when there are anatomical variances that affect the airway. These include nasal reconstruction, pharyngeal surgery, maxillomandibular advancement, and tracheostomy; each has its own set of individual benefits and risks.[3]

As mentioned above, weight loss has been shown to reduce OSA severity. Behavioral changes, including proper sleep hygiene, diet, exercise and adherence to prescribed treatment, should be encouraged in all OSA patients in order to help improve quality of life.[3] The OSA symptoms make it extremely difficult to treat with weight loss alone, mainly due to the difficulties associated with hormone regulation and daytime sleepiness, which must be overcome in order to significantly reduce one's weight.

Inpatient screening tools for obese patients with undiagnosed OSA

The STOP Bang Questionnaire is widely used and consists of short yes/no questions related to **S**noring (loud snoring), **T**ired (feeling of), **O**bserved (observed apneas), Blood **P**ressure (treated for hypertension), **B**MI (>35), **a**ge (>50), **n**eck size (>17 men, >16 female), and **g**ender.[6] It has been found to be an effective tool to screen for OSA to identify people with moderate-to-severe OSA. Patients who answer "yes" to five or more of the questions are considered at high risk.[6] In the Mallampati score, which has been used to detect the ease of intubation with a score of 1–4, higher numbers also indicate higher risk of OSA.[7]

Sleep labs need to accommodate obese patients

Sleep labs that are treating the obese patient population are adapting to their needs with bigger beds, wide doors, larger wheelchairs, wider hallways, larger range on the weight scale, larger belts, modified rooms for the obese patient, and larger stretchers for transport. These adaptations will help improve the environment and the quality of testing when evaluating the obese patient.

Role of RTs in patient population

In the obese OSA population, to treat the obstructed airway, expiratory positive airway pressure (EPAP)/CPAP is used, and it can require up to 20 cm H_2O EPAP, especially during REM sleep when the airway loses smooth muscle tone. Bi-level therapy may be indicated if obesity hypoventilation is present or there is improved tolerance to high CPAP pressures.

Another consideration is that masks are not designed to be worn tight, and pressure sores often develop when masks are strapped down too tight. The mask should be able to be pulled slightly out from the face when secured to allow a cushion of air to fill up the mask to seal on the patient's face. ■

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Hospital-based Smoking-cessation Programs: What Are You Doing?

by Thomas J. Kallstrom, MBA, RRT, FAARC

Does your respiratory care department participate in smoking-cessation education? There certainly is a need for this now more than ever. In fact, according to the Centers for Disease Control and Prevention (CDC), 18% of adults in America still smoke cigarettes.[1] This is an astounding 42 million smokers. While the numbers have decreased over time, some seem to have leveled out — with 18–20% of Americans still smoking. Sadly, more than 20 million Americans have died as a result of tobacco use since 1964, according to the U.S. Surgeon General in his report released in January 2014 titled "The Health Consequences of Smoking — 50 Years of Progress." Not surprisingly, the report also still strongly links secondhand tobacco smoke exposure to cancer, respiratory and cardiovascular diseases, and adverse effects on the health of infants and children.[2]

Besides the obvious health reasons for smoking cessation, there are other good reasons why you may want to develop or enhance a smoking-cessation program in your hospital. One rests with The Joint Commission. In 2012, The Joint Commission established the Tobacco Cessation Performance Measure Set. There are six components of this measure, which include:[3]

- Tobacco use
- Screening
- Treatment provided or offered
- Treatment
- Treatment provided or offered at discharge
- Assessing status post discharge.

about the author...

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

The Joint Commission has put more bite into expectations this time compared to its earlier mandate that specified that for patients who were admitted with myocardial infarction, pneumonia, or congestive heart failure, there needed to be a report of the numbers of these patients who were counseled during their admission. The 2012 expectation is that hospitals will identify and document smoking behaviors, provide evidence of counseling, and at discharge provide referrals for further cessation counseling and prescribe medications used for cessation. There also must be documentation regarding the patient's smoking status at 30 days post-discharge.

Government supports coverage

The Affordable Care Act (ACA) has also mandated that private health insurers cover smoking-cessation counseling as well.[4] This includes tobacco no-cost cessation treatments. The ACA has also directed Medicaid to provide for Medicaid coverage of comprehensive tobacco-cessation services for pregnant women, including both counseling and pharmacotherapy, without cost sharing as stated in Section 4107 of the ACA, P.L. 111–148, which amended Title XIX (Medicaid).[5] Having this offered with no cost sharing brings down the costs of medical care. In fact, according to the Centers for Medicare & Medicaid Services, a 2007 study by the American Legacy Foundation estimated that if all smokers enrolled in Medicaid programs stopped smoking, the Medicaid program would save $9.7 billion after five years. As of 2009, the CDC reports that 45 of the 51 Medicaid programs

(88%) covered some tobacco-cessation services for both pregnant and non-pregnant individuals.

More education needed

Of course, to be a smoking-cessation expert, you also need to receive the requisite education. An interesting survey published in 2014 found that there is an average of only 165 minutes of tobacco-cessation education as part of the curriculum in respiratory care programs.[6] Of this, only 70 minutes were actually devoted to aids for cessation, assisting patients in quitting, nicotine pharmacology, and principles of addiction. Approximately 40% of the respondents felt that they did not receive adequate education in the curriculum. They noted barriers to enhancing tobacco training were: lack of available curriculum time, lack of faculty expertise, and lack of access to comprehensive evidence-based resources. At the same time, three-fourths of the respondents expressed interest in participating in a nationwide effort to enhance tobacco-cessation training. Perhaps the lack of universal education and adequate time for smoking cessation at the program level will necessitate more post-pedagogical education programs.

The AARC has many resources for respiratory therapists. First and foremost, I would encourage you to join the Tobacco-Free Lifestyle Roundtable (http://connect.AARC.org). As an AARC member, you are able to join this group and interact with others. This is a great way to share ideas as well.

The AARC also has free to its members a manual called "Clinicians Guide to Treating Tobacco Dependence."[7] The guide was made through the tireless efforts of the Tobacco-Free Lifestyle Roundtable and other interested colleagues. This 2014 guide was released as an all-inclusive document that covers the problem, the neurochemistry of addiction, counseling (including motivational interviewing), and reimbursement strategies for the respiratory therapist just to name a few. As Steven A. Schroeder, MD, noted in the foreword: "RTs are in a unique position to help smokers quit. No other action they can take compares with the clinical impact of stopping smoking. Read this guide carefully, use it for your patients, and thereby improve the health of the nation."

These are just a couple of examples that will provide you with the networking and the resources necessary to be part of or lead a smoking-cessation program in your hospital. I urge you to take the challenge and be a smoking-cessation champion in your facility. ■

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Clinical Perspectives

The New ATS/ERS Guidelines for Pulmonary Rehabilitation

by Chris Garvey, MSN, FNP, FAACVPR

Pulmonary rehabilitation (PR) is well understood to improve dyspnea, exercise capacity, and quality of life in persons with COPD.[1] The 2013 American Thoracic Society (ATS)/European Respiratory Society (ERS) Statement on Pulmonary Rehabilitation updates the current evidence of PR effectiveness and gives important insights into effective clinical practice.[2] RTs play a key role in providing effective PR with a goal of improved clinical outcomes and long-term improvement in patients with chronic lung disease. Across the continuum of care, RTs are vital to improving referrals to pulmonary rehabilitation as well as PR clinical effectiveness and follow-up care.

The recent ATS/ERS statement, authored by 46 international PR experts, is the most complete and up-to-date resource to describe the impact and importance of pulmonary rehabilitation. The statement defines PR as "a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies that include (but are not limited to) exercise training, education, and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors."[2]

about the author...

Chris Garvey, MSN, FNP, FAACVPR, is a nurse practitioner at the University of California San Francisco's sleep disorders center, as well as manager of pulmonary and cardiac rehabilitation at Seton Medical Center in Daly City, CA.

What's different about the ATS/ERS PR statement?

Important changes since the 2006 ATS/ERS pulmonary rehabilitation statement reflect our current understanding of the complex nature of COPD as a multisystem disease frequently associated with comorbidities. An integrated care approach is recommended to optimize patient management.[3] Health behavior change is now considered a key element of PR required to achieve long-term benefits and important outcomes. Additional important advances in pulmonary rehabilitation include:

1. Further evidence of effectiveness of various forms of exercise training as part of PR, including interval training, strength training, upper limb training, and transcutaneous neuromuscular electrical stimulation.
2. PR provided in patients with other chronic respiratory disease (interstitial lung disease, bronchiectasis, cystic fibrosis, asthma, pulmonary hypertension, lung cancer, lung volume reduction surgery, and lung transplantation) translates into improvements in symptoms, exercise tolerance, and quality of life.
3. Patients with milder COPD derive similar improvements in symptoms, exercise tolerance, and quality of life from PR as those with more severe disease.
4. PR shortly after hospitalization for COPD exacerbation is effective, safe, and may reduce subsequent hospital admissions.
5. Exercise rehabilitation during acute or critical illness reduces functional decline and improves recovery.
6. Appropriately resourced home-based exercise training reduces dyspnea and increases exercise in COPD.
7. Technologies are being adapted and evaluated to support exercise, education, exacerbation management, and physical activity in the context of PR.
8. Outcomes assessment has broadened to include evaluation of knowledge and self-efficacy, lower and upper limb muscle function, balance, and physical activity.

9. Anxiety and depression are common in persons referred to PR, may affect outcomes, and can be improved by PR.
10. Future goals include increasing the applicability and accessibility of PR to effect behavior change.

Where do we start?

Pulmonary rehabilitation is based on an individualized care plan by an interdisciplinary team within a framework of initial and ongoing assessments. Key features include assessment of disease severity and comorbidities. Before beginning an exercise training program, an exercise assessment is needed to individualize the exercise prescription, evaluate the need for supplemental oxygen, help rule out cardiovascular disease, and support the safety of PR.[3,4] The goals of PR include improving symptoms, exercise, independence, participation in activities of daily living, quality of life and long-term health-related behavior change.

The evolution of PR exercise training

Recent areas of emphasis include the importance of transferring gains in functional capacity in the PR setting to increased physical activity in daily life. An example of this is a well-designed three-month trial of outdoor Nordic walking in 60 patients with COPD that was found to significantly improve exercise capacity and physical activity, with gains sustained beyond nine months after the initial intervention.[5]

Interval training uses a modified form of endurance training with short intervals of high-intensity exercise interspersed regularly with periods of rest or lower intensity exercise. Interval training improves exercise capacity and health-related quality of life similar to endurance training with the advantage of fewer symptoms despite high absolute training loads.[6,7]

Compared to endurance or aerobic training, resistance or strength training using repetitive lifting of relatively heavy loads results in greater increases in muscle mass and strength and less dyspnea and fatigue.[8,9] Combining endurance and strength training provides complementary benefits in persons with peripheral muscle dysfunction due to chronic respiratory disease.

Novel forms of exercise such as transcutaneous electrical neuromuscular stimulation (TENS) of leg muscles using involuntary muscle contraction may be considered an alternative to more traditional exercise methods. TENS improves leg muscle strength and exercise capacity with reduced dyspnea in stable severe COPD with poor baseline exercise tolerance. TENS can also be continued during COPD exacerbations. TENS does not increase dyspnea or cardiocirculatory demand and is considered generally safe and well tolerated.[10–12] Devices should be used only by trained clinicians who should follow all device precautions, including avoiding use in persons with demand pacemakers, implanted defibrillator or other implanted electrical devices, a history of stroke, and use of electrodes near the heart region.

Clinical facilitators of exercise training

Several factors may work to improve exercise performance. Persons with hypoxemia benefit from clinical evaluation of desaturation during rest and exercise and appropriate titration of oxygen. Optimizing maintenance bronchodilators in those with COPD leads to improved exercise training and potentially allows exercise at higher intensities. Use of noninvasive positive-pressure ventilation either during sleep or exercise augments the benefits of an exercise program in COPD patients. The presumed mechanism is by allowing increased work-rate performance via unloading of respiratory muscles. The benefit appears to be most marked in severe COPD, and higher positive pressures may lead to greater improvements.[13, 14]

PR in conditions other than COPD

Persons with chronic respiratory diseases other than COPD experience impaired exercise and quality of life, as well as increased dyspnea and fatigue.[15–17]

Although there is less robust evidence supporting PR in non-COPD disorders, well-designed studies have shown benefits of pulmonary rehabilitation in chronic respiratory diseases including interstitial lung disease, bronchiectasis, cystic fibrosis, asthma, pulmonary hypertension, lung cancer, lung volume reduction surgery, and lung transplantation. Further research in these areas is needed, and RTs can lead the way.

Behavior change and collaborative self-management

The ATS/ERS statement strongly supports the educational component of pulmonary rehabilitation that promotes adaptive behaviors and improved self-efficacy (e.g., the confidence in successfully managing one's health needs). Clinicians should be aware that a traditional didactic or instructional lecture approach alone is unlikely to fully achieve optimal benefits.[18] Collaborative self-management strategies promote self-efficacy through increasing the patient's knowledge and skills needed to effectively partner with the health care team

to optimally manage their illness and comorbidities. Self-management includes core strategies — such as setting goals, solving problems, making decisions, and taking action based on a predefined action plan. Action plans for early recognition and treatment of COPD exacerbations play an important role in reducing health care utilization. Action plans can be used either as part of PR or independently, using a case manager.

End-of-life care is important to patients with chronic lung disease and their caregivers, yet discussions regarding advance care planning and completion of advance directives are often neglected. Pulmonary rehabilitation can provide the forum to discuss these issues with patients and family members.

The role of the RT in pulmonary rehabilitation

Respiratory therapists make up the largest clinical discipline in the PR setting in the United States. This supports the importance of pulmonary rehabilitation involvement as both leaders and active team members providing effective PR. Areas that RTs can actively influence include improving patient function, symptoms, quality of life, and health care utilization. Particularly important is the RT's role in recommending PR to appropriate patients and raising physician awareness of PR as the standard of care in chronic, symptomatic lung disease. RTs play a critical role improving the science and evidence base of PR through clinical trials, document development, and publication. RTs can lead implementation of updated PR modalities, including exercise options and related adjuncts, the use of pulmonary rehabilitation in lung disease other than COPD, behavior change and self-management skills, and encouraging long-term improvement in physical activity.

For more in-depth information on this very important issue, see an official American Thoracic Society/European Respiratory Society Statement: Key Concepts and Advances in Pulmonary Rehabilitation.[3] ■

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Adult Critical Care Credential Live Preparatory Course

March 20, 2015 Winfield, IL

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In 2012, the National Board for Respiratory Care (NBRC) released the Adult Critical Care Specialty Examination (ACCS) for Registered Respiratory Therapists who have at least one year of experience working in the adult critical care environment. This credential (RRT-ACCS) is unique to the daily tasks of an adult critical care specialist and demonstrates an enhanced skill level in a fast-growing specialty within the field.

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March 20, 2015 – the AARC will host a one-day, live prep course in Winfield, IL that also includes an online supplement for enhancing knowledge in this area. This special course provides the RT with 7.0 live CRCE and 6.5 non-traditional CRCE.

Course Content

This course will provide you with the skills to pass the credentialing exam along with a comprehensive understanding of the critically ill patient in an intensive care environment. Course enhances knowledge of the critical care environment, practices, and procedures that impact patient outcomes. Aligned with the test matrix of the NBRC, this course prepares participants to successfully pass the Adult Critical Care Specialty (ACCS) examination and most importantly, to become a better clinician.

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Methods and Results from the Job Analysis of Pulmonary Function Technologists

by Robert C. Shaw, Jr., PhD

A job analysis study of pulmonary function technologists (PFTs) was conducted in 2013. Compared to studies of the past, this study was affected by the decision that the board of trustees had made about assessing candidates for the CPFT and RPFT credentials over the same body of content. In the past, a pair of studies had been done to support the content of separate examinations that were developed for each credential. Going forward, achieving the CPFT or RPFT credential will be respectively differentiated by earning a score high enough to equal a low-cut score or a high-cut score. NBRC plans to begin the new examination on June 17, 2015.

Methods

A task inventory approach was applied for this study. A list of 275 task statements was developed by an eight-person advisory committee. Each task described the behavior of a technologist. The advisory committee organized the task list around three major domains, each of which was divided into three minor domains, which yielded a total of nine content domains.

Respondents were asked to assess the importance of each task that was performed within their facilities by a general pulmonary function technologist without differentiating whether the technologist had the responsibilities of an entry-level or an advanced-level person. This was a new method compared to past studies when task ratings were separately collected in the context of entry-level and advanced-level personnel. A scale gave each respondent four points to indicate how important he or she perceived each task to be plus a zero point to indicate when a task was not among the responsibilities of a technologist.

Respondents were identified by soliciting the entire population (n=6,561) of credentialed pulmonary function technologists from the NBRC database who had an email address. The American Association for Respiratory Care membership organization supported the study by blasting emails that contained survey access information to the populations of its members who belonged to the (1) Diagnostics Specialty Section (n=895) and the (2) Management Specialty Section (n=1,762). In total, 9,218 contacts were attempted. However, we knew that some people existed in more than one of the three groups, and we knew that there would be some inactive email addresses.

The survey was opened for responses on July 9, 2013. A reminder message was sent on July 30, 2013. Access to the survey was closed on August 12, 2013.

Tasks from the inventory could be excluded based on (1) extent-in-practice results from those who selected the zero point on the rating scale, (2) average importance results based on rating scale responses of 1, 2, 3, or 4 from the whole sample, and (3) average importance results after subgroups had been formed from responses to background information items within the survey. A total of 14 sets of subgroup task analyses were used to mitigate any potential overrepresentation or underrepresentation of subgroups within the population. The mitigation method involved giving each group an equal opportunity to exclude a task regardless of subgroup size.

about the author...

Robert C. Shaw, Jr., PhD, is the psychometrician for NBRC programs at the National Board for Respiratory Care in Olathe, KS.

Results

Just more than 1,000 email addresses proved invalid, and just less than 100 people opted out of study. There were 1,224 sets of valid survey responses received.

A plot of sample sizes and expected error in observations indicated that additional respondents would not have produced a practical reduction in error within observed results. Coefficient alpha values as indicators of consistency within each major domain were no lower than 0.948. Intraclass correlation values as indicators of the likelihood of observing the same data from other samples from the population were no lower than 0.998.

Most (95.5%) of respondents found no gaps in the content expressed by the task list when asked to assess the adequacy of the list.

Advisory committee members' comparisons of observed demographic characteristics of the sample to what they knew about the population of technologists revealed no surprises, which would have suggested that the sample was different in important ways from the population. As described in the methods section, the advisory committee used 14 sets of subgroup task analyses to mitigate against being misled by the results from the whole sample in case any subgroups had been disproportionately represented in the sample as compared to the population. After 62 tasks were excluded from examination content based on observed extent-in-practice results, no additional tasks were excluded by the remaining exclusion rules. Therefore, examination content will be developed around 213 tasks.

Specifications for the examination will involve 100 multiple-choice items, each of which presents four options to candidates. Items on each examination will be divided among nine content domains and three levels of cognitive complexity. The decisions of the advisory committee about content domain weights were influenced by results from a survey item that had asked respondents to indicate their preferences, if the decision had been theirs to make. Decisions about cognitive level weights were based on a consensus among members of the advisory committee.

After observing results of a survey item about the percentages of pediatric and adult cases who were tested in pulmonary function labs, the advisory committee decided to designate 90% of examination items for general or adult patients while 10% of the examination will involve pediatric patients.

The endpoint of the decisions about examination content and specifications that were made by the advisory committee can be observed within the detailed content outline document, which can be viewed from the NBRC's (www.nbrc.org) website.

Summary

The NBRC conducted a job analysis study in 2013 to inform the content of, and the design specifications for, the pulmonary function examination. Examination results will be used to confer CPFT and RPFT credentials to candidates starting on June 17, 2015. The two credentials will be associated with a low cut score and a high cut score that will be compared to total scores from the examination.

After starting with a list of 275 tasks, study methods directed the advisory committee to base examination content on 213 tasks that were observed to be critical. Criticality was associated with being extensively performed and being highly important as indicated by responses from 1,224 technologists.

Specifications for the examination will involve 100 multiple-choice items, which will be divided among nine content domains, three cognitive levels, and either general (90 items) or pediatric (10 items) patients.

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

General Counsel

Like Kicking a Skunk

by Anthony L. DeWitt, JD, RRT, FAARC

For many years I have collected aphorisms. An aphorism, if you're not familiar with the term, is "a terse and often ingenious formulation of a truth or sentiment usually in a single sentence."[1] I have frequently shared these truths in my writings here, sometimes hidden within the descriptions of the accounts of litigation. Principles such as "pigs get fat, hogs get slaughtered" are aphorisms that express a fundamental human truth (in the case of the pigs, that greed ultimately leads to self-destruction).

It will come as no surprise to anyone who thinks about it, but actions taken in anger — particularly actions that relate to employment, supervision, and family relationships — often bring people to a bad end. Recently, no less than a federal judge was arrested by Atlanta police for assaulting his wife. In the heat of anger, the person who runs out of ideas is the first person to ball up his fist. Imagine spending your entire life getting to a position where your job cloaks you with life tenure (no one can fire you, and it takes an act of Congress to lose your job) and throwing it all away because you could not control your anger.

So many of the bad decisions that managers make are related not to the things employees do or say but, rather, to the manager's reaction to the things employees do or say. To use another aphorism, "no one ever sees who throws the first punch."

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.

Who threw that punch?

Jim was a department manager who ran a tight operation and kept track not only of his individual employees but also of his supervisors. When one supervisor took more than an hour for lunch on a lazy Friday afternoon, Jim called him into the office and wrote him up. The supervisor reminded Jim that he had missed far more lunches than he had taken over the course of a busy flu season and that he was salaried and did not punch the time clock. Jim reminded him that the supervisor had a duty to be a "good example" for other therapists. In a moment of utter frustration, the supervisor stood up, made an inappropriate gesture involving a digit, and walked out, refusing to sign the discipline.

Jim was furious. Employees would later report that his face was beet red, spittle was flying from his mouth, and his screaming upset patients on the floor down the hall from the department. Every other word from Jim's mouth involved a hyphen, and more than a few four-letter words went with these hyphens.

Jim put the documents together to terminate the supervisor but found himself on the wrong end of discipline, with his supervisor receiving nothing. The inappropriate gesture was not witnessed, and the supervisor denied it. However, the explosion of anger and contempt emanating from Jim was evident for 200 meters in every direction.

Think of it this way. You're walking in the garden and get stung by a bee. A prudent person might be upset, but she wouldn't find the beehive and knock it down. That's only going to get you stung many more times. Yet reacting in anger to what goes on in the workplace has the same effect as knocking over the beehive or, in the expression above, is as wise as "kicking a skunk."

The "show cause" order

Whenever a supervisor or manager is personally insulted by a staff person, it may well be insubordination; but here is where the legal world can teach us an important lesson. Every lawyer impassioned by the justice of his cause has, from time to time, gone outside the bounds of argument and said something intemperate. Judges are used to it. They make decisions that are often unpopular. However, when litigants and lawyers react badly, with name-calling or foul language, very few judges move immediately to contempt of court. Judges are taught that the power to punish for contempt (like the power to discipline employees for insubordination) should be used wisely and with a cool head. Rather than immediate contempt citations, judges issue what is called a "show cause" order:

"On September 2, 2014, counsel for Plaintiff shall appear at a hearing and show cause why he should not be held in contempt for referring to this Court as a 'mean-spirited snake.'"

Rather than take up the issue when the Court is angry over the comment, the Court remembers that revenge is a dish best served cold and holds its anger in check. Inevitably, the pleadings filed by the lawyer offer a dozen apologies for the misconduct. The lawyer is led back into the fold, and the Court is spared the necessity of a punitive sanction.

Balancing discipline

While no manager likes to experience disrespect or be called names, sometimes there is a great value in tempering justice with mercy. The ability to accept a few insults without erupting like a dormant volcano is an important skill. Insults delivered in private or in the heat of passion should almost always be forgiven — not because forgiveness is necessarily earned but because it never hurts to be magnanimous and recognize that people often say things they do not mean. Almost everyone winds up regretting acting in anger. Apologies should always be accepted if offered, and that should be the end of it. Remember, "He who angers you, controls you."

A public challenge to a manager's authority, or one that involves patients or the public, should usually meet with more severe sanctions. A later apology here does not relieve the taint because it is never heard by the public and others most affected.

Sometimes there is great value in tempering justice with mercy. The ability to accept a few insults without erupting like a dormant volcano is an important skill.

Employee discipline is a very tricky road to navigate. There is always a fine balance. Great managers are those who learn early in their careers how to achieve that balance. ■

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TAX-SAVING IDEAS FOR 2014 AND BEYOND

by Tony Lovio

It is tax time once again. It seems we just get by one year and it's here again. Typically in these articles I try to quickly hit many topics, but for 2014 there are several hot areas that I think are worth spending some more informative time on — not only to help you be better prepared to endure another tax season but also to be more informed on how tax situations can impact you all year long. These areas include:

- School tax credits
- The Affordable Care Act
- Identity theft and scams
- Other good information.

While I can't guarantee anything, perhaps the following ideas may make your job a little easier. Remember also that the tips and information listed here are for general information purposes only. Your factual circumstances are unique to you; and if you think these points can possibly help, you should consult with a local tax professional. All publications referred to herein are available on the IRS website at www.irs.gov or by calling 800-TAX-FORM (800-829-3676).

School tax credits

I have mentioned these in past articles, but I cannot stress enough the opportunity you might have here. Are you, your spouse, or a dependent heading off to college? If so, here are some opportunities from the IRS whereby some of the costs you pay for higher education can save you money at tax time. Here are several important facts you should know about education tax credits:

American Opportunity Tax Credit (AOTC). The AOTC can be up to $2,500 annually for an eligible student. This credit applies for the first four years of higher education. Forty percent of the AOTC is refundable. That means that you may be able to get up to $1,000 of the credit as a refund, even if you don't owe any taxes.

Lifetime Learning Credit (LLC). With the LLC, you may be able to claim a tax credit of up to $2,000 on your federal tax return. There is no limit on the number of years you can claim this credit for an eligible student.

One credit per student. You can claim only one type of education credit per student on your federal tax return each year. If more than one student qualifies for a credit in the same year, you can claim a different credit for each student. For example, you can claim the AOTC for one student and claim the LLC for the other student.

Qualified expenses. You may include qualified expenses to figure your credit. This may include amounts you pay for tuition, fees, and other related expenses for an eligible student. Refer to www.IRS.gov for more about the additional rules that apply to each credit.

Qualified Expenses

- Eligible educational institutions. Eligible schools are those that offer education beyond high school. This includes most colleges and universities. Vocational schools or other post-secondary schools may also qualify.
- Form 1098-T. In most cases, you should receive Form 1098-T, Tuition Statement, from your school. This form reports your qualified expenses to the IRS and to you. You may notice that the amount shown on the form is different than the amount you actually paid. That's because some of your related costs may not appear on Form 1098-T. For example, the cost of your textbooks may not appear on the form, but you still may be able to claim your textbook costs as part of the credit. Remember, you can only claim an education credit for the qualified expenses that you paid in that same tax year.

Income limits. These credits are subject to income limitations and may be reduced or eliminated, based on your income.

Note: Beyond the above, you may be able to deduct work-related educational expenses paid during the year as an itemized deduction on Form 1040, Schedule A. This can include the many seminars and online courses that AARC offers to you as well as education at the AARC Congress and Summer Forum. There are deduction rules, so refer to my February 2014 AARC *Times* article or IRS Publication 970.

Affordable Care Act tax provisions for individuals and families

The Affordable Care Act, or health care law, contains health insurance coverage and financial assistance options for individuals and families. The IRS administers the tax provisions included in the law. Visit www.HealthCare.gov for more information on coverage options and financial assistance.

What you should know about the health care law…

The Individual Shared Responsibility Provision requires you and each member of your family to have qualifying health insurance (called minimum essential coverage), have an exemption, or make a shared responsibility payment when you file your federal income tax return. If you get your insurance coverage through the Health Insurance Marketplace, you may be eligible for a Premium Tax Credit (PTC).

Coverage

- If you are like most people, you probably already have qualifying health care coverage and don't need to do anything more than continue your insurance.
- If you don't have or maintain coverage, you will have to get an exemption or make a payment with your federal income tax return.
- If you don't have coverage, you may be able to get it through the Health Insurance Marketplace.

Credits

- If you get coverage through the Health Insurance Marketplace, you may be eligible for the PTC.
- The PTC can be paid in advance to your insurance company or to you when you file your federal income tax return. Find out more about the option to get it now or get it later. For more information, see IRS Publication 5120.
- **Note:** As of this writing, the availability of the PTC in certain states is being challenged in the court system, including the Supreme Court. Stay current in the news if this impacts you.

Payments

- If you don't have coverage or qualify for an exemption, you may have to make an Individual Shared Responsibility payment when you file your income tax return.
- For 2014, generally, the payment amount is the greater of 1% of your household income above your filing threshold or $95 per adult ($47.50 per child) limited to a family maximum of $285.

You will report your coverage, exemption, or payment on your federal income tax return. These payments will increase in future years.

Tax scams and identity theft

A few months ago, I received a phone call from the "IRS." They said I owed several thousand dollars in back taxes and that I had ignored all attempts to contact me. I had to come up with this money now or I was going to have my passport revoked, be arrested in two days, and put in jail for nine years. When I strongly pushed back, they hung up.

This is but one example of the frauds and identity thefts being perpetrated today. Identity theft remains a top priority for the IRS in 2014. Identity theft is one of the fastest growing crimes nationwide, and refund fraud caused by identity theft is one of the biggest challenges facing the IRS and you as a potential victim.

Tips To Protect You from Becoming a Victim of Identity Theft

- Don't carry your Social Security card or any documents that include your Social Security number (SSN)
- Don't give a business your SSN just because they ask. Give it only when required.
- Protect your financial information.
- Check your credit report at least every 12 months.
- Secure personal information in your home.
- Protect your personal computers by using firewalls and anti-spam/virus software, updating security patches, and changing passwords for Internet accounts.
- Don't give personal information over the phone, through the mail, or on the Internet unless you have initiated the contact or you are sure you know whom you are dealing with. *Remember, the IRS will never call you and demand money.*
- If you think you've been a victim of identity theft involving the IRS, check the IRS website for information on whom to contact and report your issue to.

About the Author

Tony Lovio, AARC controller, is CPA certified in Michigan and Oklahoma, and his Texas certification is currently in process. He has more than 30 years experience in public, private, and non-profit accounting as a chief financial officer, controller, or finance director and has written tax-tip articles for *AARC Times* for several years.

Other good information

Last, in rapid-fire sequence, are a series of tips on tax deductions and good financial stewardship:

- Miscellaneous tax deductions subject to the 2% adjusted gross income limit:
  - Non-reimbursed work-related travel, hotel, food, and transportation
  - Expenses related to searching for a new job in the same profession
  - Educational expenses, as discussed above. This can include expenses for going to the AARC Summer Forum, AARC Congress, or educational classes.
  - Other unreimbursed employee business expenses (i.e., mileage).
    Note: Commuting expense is not deductible.
  - Certain required work clothes and uniforms
  - Dues paid to professional associations. This includes the AARC (less non-deductible AARC lobbying estimate of 20%).
  - Licensure fees
  - Tools or equipment purchased as needed or required for your job
  - Tax preparation fees
  - Certain investment fees.

- Mileage rates – 2014
  - 56 cents per mile for business miles driven
  - 23.5 cents per mile driven for medical or moving purposes
  - 14 cents per mile driven in service of charitable organizations.

- Get a big refund in 2013 or maybe 2014, too?
  - Consider adjusting your payroll withholding.

- Do you know what's in your credit report?
  - Request a free copy annually from each of the credit agencies via www.annualcreditreport.com

- If possible, do some tax planning during the year.
  - Look at deferring income into the next year and accelerating expense into the current year as the next year-end approaches. (Example: Pay the January mortgage payment in December.)
  - Have any realized stock gains? Maybe you could sell some of your losers to offset the gain and save tax.

Dealing with the annual income tax exercise is inevitable and not fun; but hopefully the above information has given you some thoughts on how to make it more tolerable. ■

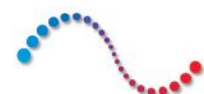
— 2015 —

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

A SALUTE to Our CORPORATE PARTNERS

The combined efforts between the respiratory care profession and manufacturers in seeking ways to improve the quality and outcomes of our patients make us natural partners in today's healthcare continuum.

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.



All Night, Every Night

California dental specialist takes on obstructive sleep apnea

by Debbie Bunch

(Left to right) Robyn Forbes, CMA; Majel Carnell, CRT; Bradley Eli, DMD, MS; George Lannon, RRT; and Gensis Lugo, RN

Bob is like a lot of patients with obstructive sleep apnea (OSA). He never suspected he had it and only went to the doctor after his wife saw a news report about the signs and symptoms on TV and said, "Honey, that's you." He reluctantly agreed to an overnight polysomnogram and even more reluctantly agreed to give the positive airway pressure (PAP) device the doctor prescribed for him a try. A durable medical equipment (DME) provider came out to the house and set him up on the equipment. He went ahead and put it on that night, only to ditch it two hours later, telling his now frustrated spouse, "I'm not wearing that dang thing."

Respiratory therapists who treat OSA patients are all too familiar with that scenario; but at a specialty sleep treatment practice with offices in San Diego, CA, they're finding some better solutions to the problem of treating this potentially life-threatening condition. Bradley Eli, DMD, MS, and his colleagues, Majel Carnell, CRT, and George Lannon, RRT, treat OSA as the lifelong condition it is for most people, offering them a full range of treatment options and the ongoing care and support they need to achieve good sleep all night, every night.

With the help of two respiratory therapists on staff, Dr. Bradley Eli is making a difference in the lives of people with OSA.

Majel Carnell and Dr. Eli

Photos by Bradford Tennyson, San Diego, CA (www.bradfordtennyson.com)

Multidisciplinary approach

Dr. Eli says his interest in treating patients with OSA grew out of his expertise as an orofacial pain specialist. "Orofacial pain specialists have extensive experience and insight in treating OSA and other sleep breathing disorders, in part because the patients we see with chronic orofacial pain conditions often struggle with compromised sleep," he explains. "We help patients find the treatment strategies to manage their pain condition over time, and sleep treatment options are a key component to overall health and quality of life." He and others in his specialty have also learned that what works for one patient may not work for another, and they are equipped to work with patients over time to find the right solution for them. Sometimes that means combining treatments into a customized and individualized strategy.

"For treating patients diagnosed with OSA, our offices use a multidisciplinary, patient-centered, disease-management model of care," says Dr. Eli. In addition to the two respiratory therapists, the practice includes a medical assistant, certified sleep coordinator, integrative health care provider, and health psychologist. "This was modeled after the training I received in the pain field and is used in the treatment of other lifelong conditions."

He believes a big team is necessary because OSA simply requires more than an initial sleep test followed by a prescription for a PAP device or dental appliance. There's a wide range of treatment options available today, and patients have the right to know what they are and use more than one if that's what it takes to achieve a good night's sleep. "Our group provides all of the currently available non-surgical treatment options that are in the marketplace — this means all forms of PAP therapy, several options for oral appliances, nasal dilators, pillows, sleep and stress management coaching, weight management, and medication. I'm sure I missed a few, but suffice it to say if it's out there, we do it."

For OSA patients who opt for surgical procedures, the practice coordinates pre-surgical treatment planning, post-surgical pain control when needed, and ongoing post-surgery management. "Most surgical procedures are not curative; therefore, improved apnea is still monitored and treated as needed, also as a lifetime illness," says Dr. Eli. His practice also keeps tabs on factors like increased BMI, age, and additional diseases that may require updated testing. He credits this comprehensive approach, coupled with ongoing one-on-one care, for the high compliance rates achieved by patients — currently 96% for those on PAP and 97% for those with oral devices (self-report).

PAP equals RTs

Despite the complete range of OSA treatments offered by his practice, however, Dr. Eli is quick to point out that PAP therapy is still the gold standard for the condition; and he tries to get his patients to begin with it whenever possible. That's why he decided to bring respiratory therapists into his office. "I needed dedicated RTs who would work with our patients immediately, in the first few weeks of delivery, to troubleshoot and coach," he says. "I believe that the patient's health is paramount; and in terms of OSA treatment, we try to get it right as soon as possible, before a patient stops caring or trying."

Majel Carnell was the first to come on board. "I became aware of this opportunity through a friend," she explains. "I love a challenge, and Dr. Eli is a challenge-driven type of provider — constantly pushing forward with the 'what would be best for the patient' mentality." After discussing ways to best serve their patients, she says Dr. Eli realized the value of opening and maintaining a DME company focused solely on sleep and put her in charge of the effort. It proved to be a bigger job than she ever imagined — Carnell says she was amazed at the paperwork associated with becoming an accredited DME provider — but was well worth the investment in time, energy, and money. She says, "I was astounded by what Dr. Eli has been willing to go through to get this done but am very proud to have been a part of the beginning and

"They want and need more than just bags of tubes and filters sent in the mail." Majel Carnell says part of this problem has to do with recent insurance changes that have resulted in an extremely impersonal treatment process for people with OSA.

to continue on as part of the ongoing business to deliver the finest, most specific treatment available to our patients and partners."

George Lannon says his interest in joining the practice stemmed in part from a family member who suffers from OSA. "I was familiar with PAP treatment, but after looking and listening to the approach that Dr. Eli took to patient care, it was a real expansion in my view of the disorder," he says. "I did not realize that there were so many different and successful ways to address this difficult problem."

Carnell says her primary patient care responsibilities center around the review of sleep testing, discussing information with the patient, participating in case conferences, assembling and noting data downloads, and managing all phases of her patient's care. "Since all of our treatment plans are focused on confirming compliance before they are measured for effects, I am also responsible for noting when alterations are needed to provide the maximum treatment success."

Lannon is involved in all phases of PAP therapy, from initiation and modification through adaptation and confirmation. He also oversees home sleep testing set up and download, PAP set up and download, and like Carnell, participates in case conferencing, reporting, and compliance monitoring. He says Dr. Eli's strategy of listening to his patients and taking their opinions into account is one of the main reasons he took the job. "This treatment approach, paired with a forward-thinking doctor who made the patient-centered mentality a priority, allowed me to see that matching patients with their desired treatment would result in better compliance and ultimately better results."

Dr. Eli says that Carnell and Lannon are an integral part of the practice's comprehensive and unbiased treatment planning group. "They make recommendations, and they develop positive patient relationships. The input of the RTs in treatment meetings and case planning is critical to the success that we enjoy."

If he didn't have these therapists to meet with patients, coordinate care with other providers, and encourage adherence to treatment, he doesn't believe he would be able to offer the comprehensive care he knows is vital for OSA patients. "I give our RT staff credit for improved patient experience — quality and satisfaction — and high levels of compliance resulting in reduced overall costs of care for the patients."

Wide range of referrals

Dr. Eli says patients are referred to his practice from medical specialty and primary care groups. They often also receive referrals from DMEs that, out of frustration, will provide information about his practice to patients who have failed their initial treatment. Other patients

RT George Lannon

locate the practice through their own search for a solution. "We should talk more about the highly motivated patients seeking to get treatment that really works for them," he says. "In general, most are very motivated to get the sleep they desire and will do whatever it takes to make that goal."

In other cases, patients arrive seeking help on a diagnosis made years ago. Dr. Eli notes that it is not unusual for patients to come into the office with 10-year-old continuous positive airway pressure (CPAP) machines. "Before we reorder a similar device, we re-test them and acquaint them with today's machines and masks," he explains. "They want and need more than just bags of tubes and filters sent in the mail." Majel Carnell says part of this problem has to do with recent insurance changes that have resulted in an extremely impersonal treatment process for people with OSA. "Patients are often tested and then simply told to get a PAP, without their results or what is actually wrong with the patient ever being discussed directly with them. As you can imagine, this can be very frustrating and confusing."

By contrast, in their practice, they provide patients with personalized care throughout the process. "Many of the current care providers do everything by phone, and patients really value the face-to-face interaction that we provide," Carnell says. How does the practice get around the insurance obstacles plaguing others in the field? Dr. Eli says that unlike a DME that is only reimbursed for equipment delivery, he assumes full responsibility for the treatment of his patients' chronic and life-threatening condition and thus can bill for his services. "When we deliver combination therapy, it is treated as a medical necessity — not for us to make money," he emphasizes. Often, the practice also ends up saving money for the insurer by working more closely with the patient to accept PAP therapy in lieu of more costly treatments.

"If they are predisposed against CPAP, we can get the equipment returned quickly." He also notes patients can get everything they need for their OSA treatment right in his office instead of having to go from place to place to obtain referrals and evaluations.

Additional training needed

Dr. Eli believes that involving more members of the dental community in the treatment of OSA patients could greatly improve the treatment these patients receive. "The dental community is keenly interested in participation in treating OSA and can add tremendous value if they are integrated into a sleep treatment team that is able to provide comprehensive services," he states. On the plus side, dentists have and maintain ongoing relationships with their patients over the course of routine visits, they are comfortable working with appliances and equipment, and they understand the importance of comfort and fit.

To get more dentists on board with this type of care, however, Dr. Eli believes most will require additional training. Right now, that training appears to be lacking. According to Dr. Eli, too many DMEs and medical groups are simply contracting with dentists to fabricate oral appliances for their patients, with no education or follow up provided. He notes, "So who bears the responsibility for the patient, we ask?" Dentists who do nothing more than take a course on making an oral appliance leave patients without the crucial information they need to effectively use the device. "They lack the medical training to adequately inform the patient, encourage the patient to consider PAP therapy, and to even know if the patient is compliant — yet in these instances, the patient and dentist consider the patient to be 'treated,'" explains Dr. Eli.

That goes back to his strong belief that PAP therapy deserves at least a try. "In our offices, if a patient strongly prefers an oral appliance for initial treatment, I am interested in why that is their position. Do they have ex-

perience with PAP treatment already; and if so, when?" When patients note they have tried positive airway pressure before with no success, he advocates for a do-over, saying that they will still work with them over time to try CPAP for a week and coach them if necessary to reconsider PAP therapy.

Dr. Eli believes more of his colleagues in the dental profession could do the same. "What I am saying is that I do see dentists becoming active members of the sleep treatment community. Plus, I believe that they can provide a level of specialty that is beyond the levels that are currently generally available — a treatment specialist able to deliver positive airway pressure and oral appliances, but only with more training or better integration into a comprehensive practice like our model." He has been offering consulting services to RTs and dentists in this regard.

A goal worth pursuing

Study after study has shown PAP therapy is effective in treating OSA, but statistics continue to paint a fairly dismal picture of its acceptance by patients as a treatment method. By some accounts, half of the people referred for the therapy will be noncompliant one year later. Many other treatments are now available to help patients with OSA, and practices like the one run by Dr. Eli in California may bode well for those patients. As the case of Majel Carnell and George Lannon illustrates, RTs have a key role to play in those practices. "Respiratory therapists are experts in the treatment of OSA," says Dr. Eli. "What I would suggest to RTs is to consider any opportunity they can identify to work in a center that provides comprehensive treatment and understands the disease management model."

Both Carnell and Lannon say it's a goal worth pursuing for respiratory therapists interested in sleep. "In a model like this, you have more options and more tools to help the patient be successful with a good night of sleep," says Lannon. "It's a personal relationship that is formed and followed — we care about the patient's progress, and we let them know their success is important to us."

Says Carnell, "Having the opportunity to match the appropriate treatment for each patient to achieve a compliance goal of 100% all night, every night, is a good feeling and very rewarding." ■

What We Can Expect from the New Congress

by Cheryl West, MHA

Now that we know the results from November's national and state elections, what are the general implications for health care policy nationwide and the possible implications for the respiratory profession? Plus, by extension, how will it affect the pulmonary patients that you serve? As always, this is a bit like looking into a crystal ball, as unexpected events can upend even tenuous predictions.

Congress

Because the Republicans have gained enough seats in the Senate to become the majority party and also increased their majority in the House of Representatives, the dynamics of the House and Senate have significantly changed from the previous Congress (2012–2014).

Since there was a party split in the last Congress (with the Republicans holding the House of Representatives and the Democrats holding the Senate), when either body would pass and send legislation over to the other side, most bills were simply not acted upon by the other house of Congress. Complex national issues — such as immigration reform, Medicare revisions, energy policy, or components of the Affordable Care Act — had bills written that were often crafted by the philosophical or political viewpoints of some legislators. The result, as we all witnessed, was nothing much was accomplished. As the media phrased it, "gridlock prevailed."

Now, one party, the Republicans, holds the majority in both houses of Congress. In general, the agenda — the issues transformed into legislation for the House and Senate — will more than likely coincide. We can then expect legislation to move through much more quickly and be passed by Congress.

about the author...

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

Making changes to the vast Medicare program (49 million beneficiaries and counting, and a rising cost that topped $492 billion just in 2013) could be on the congressional legislative agenda. What those changes might be is too soon to tell. However, many members of both parties agree (some more vocally than others) that the Medicare program must be revised, reformed, or strengthened, or else face the prospect that Medicare will be bankrupt in the not-too-distant future.

Speculation around Washington, DC, is focused on the possibility that beneficiaries (especially those with higher incomes) will have to contribute more — that is, pay more for their benefits. Perhaps monthly premiums for Medicare Part B will be increased, co-insurance on certain benefits such as home health care (which has never had a co-pay) may be implemented, and the expansion of the concept of instituting competitive bidding programs to Medicare provider services beyond what is now in place for Medicare durable medical equipment could be on the legislative agenda.

Of course, legislation passed by Congress is only one part of the democratic equation under our system of government. Legislation enacted by Congress must be signed into law by the president, and President Obama will veto legislation that does not comport with his administration's agenda. With enough Democrats still in Congress, there would not be enough votes (two-thirds of each House) to override the president's veto.

Where do respiratory therapy and our agenda and issues fit into this revised Capitol Hill dynamic? Dealing with just one party (the Republicans in this case) makes it easier for any advocacy group to educate and gain support. When Congress was split between the two parties,

the issue — the "I can't support this bill, not because I don't like it, but because the other party likes it" — isn't in play that much anymore.

The AARC, with support from our state societies, RT members, and patient partners will continue to push for wider expansion of federal health programs (with a focus on Medicare) that document cost savings and join with other associations and organization partners to make the case for increased appropriations for pulmonary disease research, data collection, and support. We will — and we must — keep the presence of the respiratory therapy profession in front of members of Congress and their very influential health staff. Not to do so would quickly result in losing the ground and the recognition it has taken the profession years to establish.

State elections

The Republican election wave was also clearly evident in the governors' races and in the make-up of state legislatures.

One issue still to be on many state legislative agendas in 2015 that could indirectly impact RTs is whether or not the 24 states that thus far have declined to take the Medicaid expansion offered under the Affordable Care Act will reverse that decision in 2015. How does this impact respiratory therapy? With more individuals having access to health care through Medicaid coverage, the patient pool would be expanded. Those who might have needed RT services but had no insurance to pay for the services would now have greater access to the professional respiratory therapist. Keep an eye on pressure from state hospital associations to push for the state to accept expanded Medicaid coverage. Being paid something, even fairly low Medicaid reimbursements, is better than no payments at all.

State societies, just as the AARC on a national level, must be vigilant in monitoring state legislation and regulations. There continues to be an increased effort to allow lower cost para-professionals or disciplines with limited training, education, or competency testing to provide an expansive set of services that go well beyond their traditional scope of practice for which they are trained.

Of course, any movement that might indicate that the viability of the respiratory therapist license may be in jeopardy through state legislation must and would be met with the utmost opposition.

The upcoming 2015 legislative session, both on a national and a state level, may provide intense challenges but also great opportunities. In either case, the AARC, your state societies, respiratory therapists, and our patient partners will be there to meet whatever comes our way. ■

Many members of both parties agree that the Medicare program must be revised, reformed, or strengthened — or else face the prospect that Medicare will be bankrupt in the not-too-distant future.

Industry Update

Featuring information on products and equipment from manufacturers

Bronchoscopy System

Vision-Sciences' new EndoSheath bronchoscopy system is the latest addition to its innovative endoscopy line for the critical care market. The new bronchoscope features design improvements for instrument maneuverability, suction capacity, and handling ergonomics intended to enhance physician ease-of-use while maintaining the unparalleled efficiency, cost-efficacy, and patient safety elements of the sterile, disposable EndoSheath technology. The BRS-5100 bronchoscope is fully compatible with the 7000 Series Vision System®, the company's new all-in-one ultra-portable endoscopy imaging platform. www.visionsciences.com

Test Lung Design Modification

Michigan Instruments Inc.'s new design modification to its' Training and Test Lung (also known as the "Michigan Lung") includes PneuView3, an innovative, intuitive software interface that allows for simulation of hundreds of patient scenarios. The system is comprised of a precisely engineered mechanical test lung (or lungs), a set of electronic sensors, a signal conditioning package, and an integrated micro control unit. The PneuView3 software application calculates and displays, in real time, numerous respiratory parameters and waveforms that can be exported for later review. www.michiganinstruments.com

Forehead Adhesive Sensor

Masimo's new TFA-1 transflectance forehead adhesive sensor offers clinicians the power of Masimo SET® Measure-through Motion and Low Perfusion™ Pulse Oximetry on an alternative monitoring site for rapid detection of oxygen saturation changes during low perfusion. TFA-1 single-use sensors for adult and pediatric patients provide SpO_2, pulse rate, perfusion index, and PVI® measurements. The TFA-1 transflectance forehead adhesive sensor is CE marked and available for purchase in CE countries. www.masimo.com

Sedation Analytics Application

A new capability on the CareFusion Respiratory Knowledge Portal can help clinicians improve patient care for ventilated patients. The new Sedation Analytics application combines data from CareFusion mechanical ventilators and the company's Alaris® System infusion pumps to identify variability from the ICU sedation protocol. Specifically, the Sedation Analytics application can measure compliance with the hospital's protocols for sedation vacations and spontaneous breathing trials, and can detect increases in sedation over a specified limit. www.carefusion.com

Connected Care Solution

ResMed's new Air Solutions is a forward-thinking connected care solution for treating sleep-disordered breathing that can benefit all stakeholders in the care continuum. The Air Solutions platform has data-driven components that span from diagnosis to treatment, compliance management, and patient engagement. Included in the platform are ApneaLink™ Air, AirSense™ 10 Series, AirCurve™ 10 Series, AirFit™ Masks, the AirView™ Monitoring and Compliance Management System, and myAir Patient Engagement Application and Software. www.resmed.com

Clinical Surveillance System

The Welch Allyn Connex® Clinical Surveillance System integrates three additional monitoring parameters designed to help avoid adverse events into the Welch Allyn Connex® Vital Signs Monitor. The Connex CSS solution offers acoustic respiration from Masimo, Microstream® end-tidal carbon dioxide technology from Covidien, and contact-free motion, heart rate, and respiratory rate monitoring from EarlySense. The system can also include an optional central station for remote viewing of patient status and alarm notification capabilities to deliver critical patient alarms where and when staff need them. www.welchallyn.com

Pulmonary Harmonica

The Pulmonica® pulmonary harmonica is designed especially for the non-musician to play with long, slow, deep, and complete breaths across any three to four holes. It focuses on complete diaphragmatic breathing without hyperventilating — no songs needed. The very low resonant pulses are felt in the lungs (and often in the sinuses) and loosen secretions so they can be more easily coughed out. Unlike any other harmonica, the Pulmonica is tuned to always sound pleasant. www.pulmonica.com

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

If you provide respiratory care outside of the United States, and would like to share and expand your knowledge, please consider applying for our International Fellowship Program.

The **International Fellowship Program** is a sponsored activity of the American Respiratory Care Foundation (ARCF). Since 1990, health professionals from more than 63 countries have shared experiences, knowledge and developed lasting friendships through this exceptional program.

The three-week program takes each participant to two host cities in the United States and concludes with attendance and acknowledgement at the AARC's International Respiratory Congress. Learn more at:

www.arcfoundation.org/international/fellows/

APPLICATIONS ACCEPTED THROUGH JUNE 1

APPLY AT: www.arcfoundation.org/international/fellows/

For more information contact:

April Lynch

Email: lynch@aarc.org

Phone: 972-243-2272

Industry Watch

Positive results for COPD drug Anoro® Ellipta®

Respiratory Medicine has published positive results from a third lung function study comparing the efficacy and safety of Anoro Ellipta, the combination long-acting muscarinic antagonist (LAMA)/long-acting beta2-adrenergic agonist (LABA), with the LAMA tiotropium in patients with COPD. Results showed a statistically significant improvement of 112 mL compared with tiotropium for the primary endpoint measurement of lung function using trough FEV_1 at the end of the treatment period (day 169). For the secondary endpoint measurement of lung function using weighted mean FEV_1 0–6 hours at the end of the treatment period (day 168), the drug showed a statistically significant improvement of 105 mL compared to tiotropium.

Monaghan's Aerobika® improves COPD outcomes

The Robarts Research Institute at Western University in London, Ontario, has released a study demonstrating that, after three weeks of daily use, Monaghan Medical's Aerobika device provides statistically significant outcomes in patients with COPD and bronchiectasis. Improvements included increased mucus clearance, decreased cough frequency and breathlessness, and enhanced exercise tolerance. Patients also reported an overall improvement in quality of life. No adverse events were reported while using the device.

FDA approves drugs for IPF

The U.S. Food and Drug Administration has approved two new drugs for the treatment of idiopathic pulmonary fibrosis (IPF): Ofev (nintedanib) and Esbriet (pirfenidone). Both drugs were granted fast track, priority review, orphan product, and breakthrough designations and were approved ahead of their prescription drug user fee goal dates. Ofev is manufactured by Boehringer Ingleheim Pharmaceuticals Inc. Esbriet is made by InterMune Inc. Ofev is a kinase inhibitor that blocks multiple pathways that may be involved in the scarring of lung tissue. Esbriet acts on multiple pathways that may be involved in the scarring of lung tissue.

Peregrine Pharmaceuticals publishes Ebola research

According to Peregrine Pharmaceuticals Inc., the *Journal of Immunology Research* has published a peer-reviewed manuscript related to preclinical research demonstrating that the company's lead drug candidate — bavituximab, a phosphatidylserine (PS)-targeting antibody — exhibits specific and strong binding to Ebola virions and Ebola virus-infected cells in vitro.

"The recent outbreaks of Ebola infections highlight the need for novel clinical treatments and new combinations that are effective in treating the disease," Jeff T. Hutchins, PhD, vice president, preclinical research at Peregrine Pharmaceuticals, was quoted as saying. "We have a number of active collaborations exploring the potential of PS-targeting antibodies in infectious diseases; and the results just published, along with a growing body of scientific literature, support potential applications of our PS-targeting platform in virus infections including Ebola."

Covidien receives 510(k) clearance for new monitoring system

The FDA has issued 510(k) clearance for the Nellcor™ Portable SpO_2 Patient Monitoring System, according to Covidien. The company notes that the system is the only commercially available portable oximeter that is equipped with home care and sleep study modes and complies with IEC 60601-1-11 standards for devices used in the home health care environment. The system can be used in the six-minute walk test, critical congenital heart disease screening, and the car seat challenge test.

Philips Respironics debuts sleep website

Philips Respironics has launched a new resource for sleep apnea patients. SleepApnea.com is a comprehensive online resource designed to provide sleep apnea patients with the information they need to efficiently navigate every step in their personal sleep apnea journey — from diagnosis through treatment and ongoing management of the condition. It can also be an extension of the educational services provided by home care providers, sleep physicians, and sleep labs. The resource is intended to help these organizations better educate patients on sleep apnea, its risks, and their therapy by providing key resources, including a symptoms quiz; information on potential therapy, equipment, and other solutions; guidance on living with sleep apnea; and personal stories from patients.

ProMetic Life Sciences takes on IPF drug

ProMetic Life Sciences Inc. will pursue IPF as one of its PBI-4050 orphan indications following the completion of a favorable external review of data by an independent panel of world experts on the disease. "Our preclinical data has demonstrated robust improvements in pathology and breadth of response in key biomarkers implicated in the progression of this deadly disease," according to Pierre Laurin, president and CEO of ProMetic. "After thoroughly reviewing both the pre-clinical and phase I safety data, our scientific advisers strongly recommended to advance the investigation of PBI-4050 for IPF."

Patent protection filed for AffloVest®

International Biophysics Corporation has filed for U.S. patent protection of its AffloVest and has also recently confirmed exclusive ownership rights concerning the manufacture, sale, and distribution of the AffloVest in its markets. "With variable intensity settings and multiple treatment modes, AffloVest brings affordable, customized treatment to patients with chronic illnesses like cystic fibrosis and a severe form of COPD called bronchiectasis," CEO David Shockley was quoted as saying.

DeVilbiss sees growth after return to U.S.

Since moving its China-based production lines back to the United States in 2013, DeVilbiss Healthcare notes it has seen an increase in demand for those products. As a result, the company has increased its U.S. workforce by over 20% and is positioning itself for growth. "In today's competitive marketplace, customers are demanding reliable products that help them lower their costs," said Ed Murphy, president and CEO. "The high quality and lower total cost of ownership of our products has driven our sales growth. We have hired new people every month since returning these products to the USA."

Aeolus Pharmaceuticals presents studies

According to Aeolus Pharmaceuticals Inc., its recently completed study in non-human primates — demonstrating that 60 days of treatment with AEOL 10150 improved survival from 25% to 50% after radiation exposure to the lungs — was presented at the recent Radiation Research Society meeting.

Other studies showing the significant benefit of Neupogen® and Neulasta® in treating the hematopoietic effects of radiation exposure were presented as well, along with two posters on the benefit of treatment with AEOL 10150 in addressing the pulmonary effects of radiation exposure. The research was funded by the Biomedical Advanced Research and Development Authority and the National Institute of Allergies and Infectious Diseases.

Proteostasis Therapeutics taps leading CF experts

Proteostasis Therapeutics Inc. has appointed six of the world's leading cystic fibrosis experts to form its clinical advisory board. The newly appointed board will serve as a strategic resource for the upcoming selection and study of the company's leading compounds for the treatment of the most common mutation found in the CF population.

The appointees include Dr. Richard B. Moss from Lucile Salter Packard Children's Hospital at Stanford University; Jane C. Davies from Imperial College, London; Michael R. Knowles from the University of North Carolina, Chapel Hill; Felix A. Ratjen from the University of Toronto; Isabelle Sermet-Gaudelus from l´Hôpital Necker-Enfants Malades in Paris; and Pamela L. Zeitlin from Johns Hopkins University.

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

RC Currents

IN THE NEWS

AARC Election Results Announced

AARC President George Gaebler has announced the AARC election results for officers and directors of the Association.

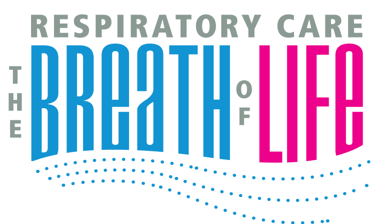
- Vice President for Internal Affairs — Lynda Goodfellow, EdD, RRT, AE-C
- Vice President for External Affairs — Cynthia White, MSc, RRT-NPS, FAARC
- Secretary/Treasurer — Karen Schell, DHSc, RRT-NPS, RRT-SDS
- Directors–at–Large —Timothy Op't Holt, EdD, RRT, AE-C; and Lisa Trujillo, DHSc, RRT.

Three AARC Specialty Sections also held elections, and the chair-elects are: Arianna Villa, BS, RRT (Continuing Care/Rehabilitation); Gene Gantt, RRT (Long-term Care); and Tabatha Dragonberry, BS, RRT-NPS, EMT (Transport).

Frank Salvatore, MBA, RRT, FAARC, who has served as president-elect for the past year, was installed at this year's Annual Business Meeting in Las Vegas as AARC president for a two-year term. ■

Call for Open Forum Abstracts for AARC Congress 2015

The AARC invites you to submit abstracts for the Open Forum at AARC Congress 2015. Considered by many to be the premier event at the AARC Congress, the Open Forum is your opportunity to gain recognition for your research in cardiorespiratory care by submitting an abstract for presentation at the Congress and having it published in Respiratory Care. We now have three different ways you can present your poster at AARC Congress. See https://aarc2015.abstractcentral.com for more details. The deadline to submit abstracts for the Open Forum is May 1, 2015. ■



RTs Celebrate the Breath of Life During RC Week 2014

We hope you enjoyed National Respiratory Care Week! Learn more about how your colleagues celebrated this past October by logging on to www.AARC.org. Thanks for the photos!

Children's National Medical Center, Pulmonary Diagnostics Department, Washington, DC

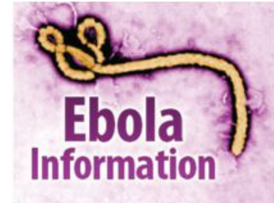
THE EBOLA CRISIS: INFORMATION FOR RTS

Recent news that health care workers in Dallas contracted Ebola as a result of the care they delivered to the first patient diagnosed with the disease in the United States has put health care professionals on heightened alert. In a special Web feature at **www.aarc.org/headlines/14/10/ebola/** we share vital information designed to keep respiratory therapists safe should they encounter the virus in their hospitals. Some of the topics include:

- Ebola information for RTs
- Manufacturers' updates for Ebola
- Join Disaster Response Roundtable and discuss the topic with other AARC members
- AARC University Educational Course: Lewis Rubinson, PhD, MD: Ebola Virus Disease and Implications for Respiratory Care (1.5 CRCE)

Also included are links to news stories on AARC members.

- *Washington Post* article about Dr. Rubinson's experience in Sierra Leone
- *Washington Post* interview with Dr. Rubinson: The exposure
- *Washington Post* interview with Dr. Rubinson: Journey into fear
- *Washington Post* interview with Dr. Rubinson: Alone and waiting
- *Washington Post* interview with Dr. Rubinson: "We didn't come back to hide what we did."
- MSNBC interview with Dr. Michael Anderson: Following Ebola diagnosing guidelines
- In the Hot Zone: Nebraska RTs on frontlines of Ebola fight
- Inside Liberia: An AARC member's experience ■



Check Out Our New Members List Online

The "New Members" list can be accessed at www.AARC.org/new_members. Current AARC members are encouraged to check this site on the first of each month to view the names of individuals who have been approved as "Active Members" of the Association. Any current member may object to a new membership by filing a written objection with the AARC Executive Office at info@aarc.org within 30 days. ■

Howard University Hospital, Washington, DC

Laurel Business Institute, Uniontown, PA

Request for Proposals for AARC Congress 2015

AARC Congress is an international respiratory education meeting that attracts more than 6,000 attendees annually. Preparing for this annual event takes considerable effort with planning that begins more than one full year before the meeting. The AARC invites you to submit proposals for individual lectures or symposia at AARC Congress 2015.

Individuals, groups, or institutions may submit proposals with interest in the practice of cardiorespiratory care. This is your opportunity to present educational content to your peers. If you believe you're a content expert or possess unique knowledge on topics relevant to any specialty section or roundtable, then this is your opportunity to showcase your knowledge on a national stage.

Proposals are encouraged from new and experienced presenters alike. At AARC Congress 2014, nearly 25% of all speakers were first-time presenters. This year it was someone else… next year it could be you! The deadline to submit proposals for sessions at AARC Congress 2015 (Nov. 7–10) in Tampa, FL, is Jan. 8, 2015.

Submit your proposals at https://adobeformscentral.com/?f=t57Jr3lWlP1kY5mQ18pjfw ■

Respiratory Care Education Annual Call for Papers

The AARC will publish Volume 24 of the *Respiratory Care Education Annual* (ISSN 2372-0735) in the fall of 2015. This refereed journal is committed to providing a forum for research and theory in respiratory care education and is listed in the Cumulative Index to Nursing and Allied Health Literature, and in Ulrich's Periodical Database.

The AARC Education Section invites educators to submit papers for consideration. Preference will be given to papers that emphasize original research, applied research, or evaluation of an educational method. Other topics that may be considered include interpretive reviews of literature, educational case studies, and point-of-view essays. Submissions will be reviewed based on originality, significance and contribution, soundness of scholarship (design, instrumentation, data analysis), generalizability to the education community, and overall quality of the paper.

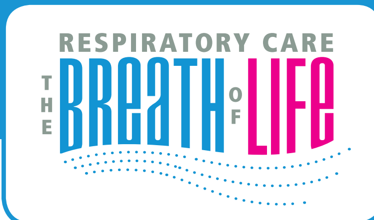
Papers should be approximately 6–10 pages in length and must follow the guidelines as established by Respiratory Care. Abstracts should not exceed 250 words. General guidelines for the manuscript as well as guidelines for preparing the manuscript, text formatting, and reference formatting may be found at http://rc.rcjournal.com/site/includefiles/author_information.xhtml.

For more information, contact Dennis Wissing, PhD, RRT, FAARC, editor, at dwissi@lsuhsc.edu or (318) 573-9788. Electronic copies of completed manuscripts should be sent to edu@aarc.org. Deadline is **Feb. 16, 2015**. ■

Royal Inland Hospital, Kamloops BC, Canada

Midlands Technical College, Columbia, SC

Stanford Children's Hospital, Menlo Park, CA



AARC Leaders Attend Meetings

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

Frank Salvatore, AARC President

- Speaking on "Where the Profession Is and Where It Is/Should Be Going" at the NYSSRC Albany Teaching Day on Feb. 20.

Contribute to Our "Transitions" Column

The AARC "Transitions" column will now be devoted to sharing news about the passing of AARC members.

You can submit news about your colleagues' recent passing by going to www.AARC.org/transitions. Please provide any information about the member's recent obituary so that we can share it with the membership and pay tribute. ■

As Seen on *AARConnect*

Have you looked at what your colleagues are blogging about on AARConnect? You might find an interesting tidbit you can use in your area of respiratory care or maybe answer a question someone has asked. Here is an example of a discussion we found on AARConnect while preparing this edition of the magazine.

AARConnect...
maximizing your membership

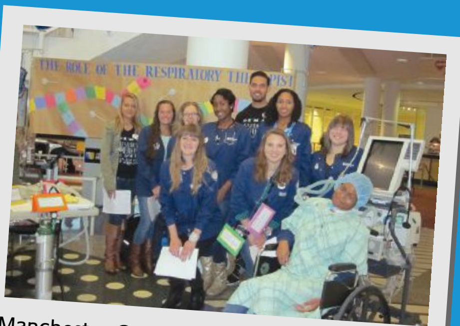
Does anyone use placebo inhalers for teaching your COPD patient population? If so, do you have a policy that you follow? I know The Joint Commission has pretty strict rules regarding the use of placebo regarding patient safety and infection control.

Lisa Landry, RRT — Lead Patient Educator
Morristown Medical Center — Morristown, NJ

In our practice, we have the patients bring in their inhalers at the initial evaluation. During the medication reconciliation, we have them demonstrate their technique. In most cases, they have already taken their medications, so they go through the steps without actually dispensing the medication unless they take their rescue MDI. The staff have placebos, and we demonstrate the appropriate technique if necessary. During the program, we have them bring their meds in again when we do the medication lecture to ensure that they are still in compliance — or if they have new meds that they are using them properly. At discharge, their technique is reviewed again.

At the initial evaluation, if there is an individual who has poor technique, we will have them bring their medications in to every session for follow-up instructions until they have improved their technique.

Priscilla Perruzzi, RRT — Clinical Supervisor
Brigham and Women's Hospital — Boston, MA



Manchester Community College, Manchester, CT

Shawnee State University, Portsmouth, OH

10 Years and Counting

Minimizing opioid-related adverse events is a goal at every hospital; but at St. Joseph's/Candler Hospital in Savannah, GA, health professionals have not only met that goal but exceeded it. Last year the hospital celebrated 10 years without any adverse outcomes in patients receiving patient-controlled analgesia (PCA) following surgery.

Harold Oglesby, RRT, manager of the Center for Pulmonary Health at the facility, and his staff are credited with bringing the accomplishment to fruition. They did it by implementing continuous capnography monitoring on each and every post-surgical patient in their facility.

Oglesby credits his colleagues in nursing and pharmacy for spurring the initiative. "The initial conversation regarding the decision to use continuous monitoring during PCA therapy was brought to light by our friends in nursing and pharmacy," says the AARC member. "Respiratory was brought into the conversation when decisions were being made on whether to use pulse oximetry or capnography." Oglesby says he and his staff came down on the side of capnography, believing it would provide the earliest indication of respiratory depression.

Harold Oglesby and his staff have played a major role in eliminating opioid-related adverse events in post-surgical patients at their hospital.

The initiative was pilot-tested over a six-month period using new PCA and monitoring modules that were integrated into the existing IV safety platform. Lessons learned included the need to ensure the device would work properly on patients in all the general care areas and be free of nuisance alarms.

The pilot period also highlighted the important role respiratory therapists can play in the process. While nursing remains in charge of the day-to-day monitoring, RTs visit each patient every shift and complete an end-tidal carbon dioxide ($EtCO_2$) assessment in the electronic medical record. "The respiratory therapists also take an active role in educating patients and families about the risks of PCA delivery," says Oglesby, which helps them understand why it is important to continue to wear the cannula throughout their hospital stay.

Oglesby has been contacted by a number of other RT managers around the country since implementing the program and is always quick to tell them that one of the keys to success is knowing the limitations of $EtCO_2$ monitoring and using the $EtCO_2$ values as a trend to guide the therapy based on changes in the trends.

He also stresses the fact that while the majority of patients at his hospital receive capnography monitoring alone, there are cases in which pulse oximetry should be added. Patients with an initial SpO_2 (oxygen saturation as measured by pulse oximetry) of 92% or below, with or without supplemental oxygen; those with COPD; and those with a documented history of deep vein thrombosis (DVT) or pulmonary embolism (PE) should receive pulse oximetry as well. The hospital also uses pulse oximetry in patients considered at high risk for DVT or PE and in those with a history of obstructive sleep apnea.

With a 10-year track record of success, the continuous monitoring program at St. Joseph's/Candler Hospital is proving that patient safety initiatives like this one are worth the time and effort hospitals invest in them. Oglesby says the biggest payoff has been the elimination of adverse outcomes in the patients. However, the program has significantly impacted the hospital's bottom line as well. He estimates the facility has saved nearly $4 million by implementing continuous capnography for patients on PCA. ■

Kendall Regional Medical Center, Miami, FL

Kennebec Valley Community College, Fairfield, ME

Stained-glass Mementos

When David Garrett, RRT-NPS, decided to get back into an old hobby last summer, he wanted to make it mean something — not just to himself but also to his young patients at the Children's Hospital of Philadelphia. As a core therapist in the ICU, where he helps manage the care of pre- and post-operative transplant patients, crafting handmade hearts and lungs to present to the kids as they recovered seemed just the thing.

Since last July, he has presented the stained-glass gifts to 13 children and teens and says he's been inspired by the thanks received from the kids themselves and from folks who have seen pictures like the one featured here of 17-year-old Rebecca Voltmer on social media.

"To me personally, the response has been grateful," says the AARC member. "Through others, I have seen on Facebook that they have been well liked by many of whom I don't even know." His hospital took notice last fall, featuring Garrett in its "At a Glance" newsletter, and fellow staff members continue to congratulate him on his efforts as well.

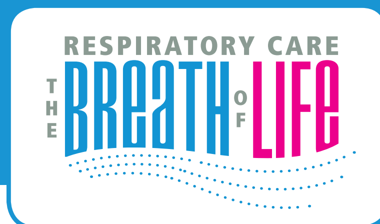
Garrett says the feedback has been nice, but it's the kids who really keep him going. "I enjoy making the hearts and lungs and will continue as long as I can." ■

David Garrett makes these stained-glass hearts and lungs to present to his young transplant patients.

Seventeen-year-old Rebecca Voltmer loved getting this stained-glass heart from Garrett after receiving her heart transplant last summer.

Newman Regional Health, Emporia, KS

Evans Army Community Hospital, Fort Carson, CO



Specialty Hospital of Washington, Hadley, Washington, DC

Strange But True…

Blow it out: University of California Davis researchers are using exhaled breath analyzers to measure the health of bottle-nosed dolphins, which have been dying off in alarming numbers. The specially designed insulated tubes are customized to trap the breath exhaled from the blowholes of the animals.

Home sweet home: Viruses don't always provoke a cough, sneeze, or other symptoms. According to Washington University School of Medicine investigators, the average healthy human carries about five types of viruses in his or her body at any time — without any sign of illness. The researchers looked for evidence of viruses in body habitats such as the nose, skin, mouth, and stool. ■

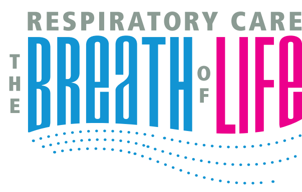
WAKE UP AND BREATHE COLLABORATIVE REPORTS GOOD RESULTS

A study presented at the recent IDWeek conference found spontaneous breathing and awakening trials conducted in 12 adult medical, surgical, and cardiac ICUs resulted in a decrease in the duration of ventilation by more than two days, ventilator-associated events by 37%, ICU stays by three days, and hospital stays by six days. Respiratory therapists and nurses in facilities taking part in the CDC Prevention Epicenters' Wake Up and Breathe Collaborative led the opt-out protocol.

Spontaneous awakening performance rates went from 30% to about 70%. Spontaneous breathing rates rose from 55% to 65%, and spontaneous breathing trials with sedatives went from just over 50% to almost 100%. Self-extubations rose from about 1.5 per 100 episodes to about 4.5, but no increase was seen in the rate of re-intubations. ■

Finding Sick People: *There's an App for That*

A new app called "Sickweather" is using the power of social media to plot outbreaks of disease across the country. Using the location services feature of smartphones, it searches for posts noting specific conditions (i.e., the flu) and then plots them on a map. People who download the app can also report cases of illness directly to the app. You can even zoom in and see individual reports down to the street level. The app is available for free download in the iTunes App Store. The Android app is available on Google Play. ■



Georgia State University, Atlanta, GA

Washington DC VA Medical Center, Washington, DC

East Tennessee State University, Johnson City, TN

Patients Need To Wash Up, Too

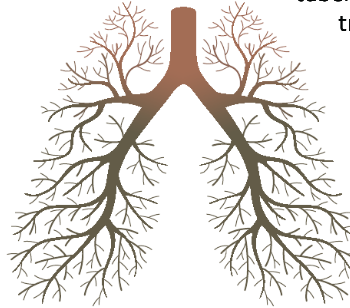
Much has been said about the need for health care workers to adhere to hand hygiene policies, but what about patients themselves? A recent study out of Canada used new electronic hand hygiene monitoring technology involving sensors on all soap and sanitizer dispensers to assess hand-washing behavior among 279 adult patients in three multi-organ transplant units over an eight-month period.

Results showed patients washed their hands only about 30% of the time while in the toilet, 40% of the time during meal times, and 3% of the time when using the kitchens on their units. Hand-hygiene rates were also low on entering and leaving their hospital rooms, at about 3% and 7%, respectively.

The authors note that patients at this hospital were not given any instructions on washing their hands. They believe encouraging hand washing among patients could go a long way in reducing their risk of acquiring an infection while in the hospital. The study was published in a recent edition of *Infection Control and Hospital Epidemiology.* ■

Lung Rejuvenation

Ohio State investigators have found that the lungs of elderly mice are better able to fight off infection with tuberculosis if the mice receive treatment with ibuprofen to reduce inflammation. They compared lung cells from old and young mice and found that in the old mice, genes that make the pro-inflammatory cytokines interleukin-1, interleukin-6, and tumor necrosis factor-alpha were more active. In addition, immune system cells (macrophages) were in an advanced state of readiness to fight an infection — a status that signals inflammation. In young mice, macrophages were in a normal, resting state.



In test tubes, the scientists exposed mouse lung macrophages to TB bacteria. The macrophages from old mouse lungs were quicker to absorb the bacteria than were immune cells from young mice, but that initial robust immune response could not be sustained. From there, the researchers gave old and young mice ibuprofen in their food for two weeks and then examined their lung cells. After this diet modification, several pro-inflammatory cytokines in the lungs of old mice had been reduced to levels identical to those in the lungs of young mice, and the macrophages in old mouse lungs were no longer in a primed state. The study was published in a recent issue of the *Journal of Leukocyte Biology*. ■

Specialty Hospital of Washington,
Capitol Hill, Washington, DC

Providence Hospital,
Washington, DC

Calendar of Events

AARC & State Society Programs

January 22–23, 2015 Ruidoso, New Mexico

New Mexico Society for Respiratory Care Conference

Contact: www.nmsrc.org

February 5–6, 2015 Davis, West Virginia

West Virginia Society for Respiratory Care's annual Winter Conference

Contact: www.wvsrc.org

Other Meetings

May 15–20, 2015 Denver, Colorado

ATS 2015: Pulmonary, Critical Care, and Sleep Medicine

Contact: http://conference.thoracic.org/2015/

Submissions for the next available issue are due Dec. 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

AARC Times Classified Advertising Information & Requirements:

Classified Word Advertisements

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

Ads are featured on the AARC website for one month after publication. Ad may only be placed on the website with an insertion order for placement in an AARC publication. Ad is noncancelable after placement on the website. NOTE: *AARC Times* reserves the right to refuse any advertisement not directly relevant to respiratory care. *AARC Times* does not endorse any advertiser, its positions, practices, services, or products.

We reserve the right to make editorial changes for reasons of clarity and consistency. Every effort is taken to avoid mistakes, but *AARC Times* cannot be responsible for clerical or printing errors. **Deadline for Ad Placement/Cancellation** Deadline for ad placement and written cancellations for the next available issue is Dec 24. Blind ads available. **For Recruitment Advertising Information, Contact AARC Respiratory Jobs** • Respiratory.Jobs@aarc.org • (972) 243-2272 • Fax (972) 484-2720 • 4925 N. MacArthur Blvd., Ste. 100, Irving, TX 75063

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Dean, Pat Capps Covey College of Allied Health Professions
The University of South Alabama
Mobile, Alabama

The University of South Alabama (USA) announces the national search for Dean of the Pat Capps Covey College of Allied Health Professions (www.southalabama.edu/alliedhealth).

The successful candidate will lead a dynamic, rapidly growing, and well-supported college that is a vital part of the university's Division of Health Sciences and the USA Health System, the only academic health science center along the central Gulf Coast. The Health System provides advanced, innovative services through the USA Medical Center, USA Children's and Women's Hospital, the USA Mitchell Cancer Institute, and the USA Physicians group.

The successful candidate will have career-defining opportunities to advance the College of Allied Health Professions and will succeed Dr. Richard Talbott, who is returning to the faculty after a successful 11-year tenure. For a detailed list of opportunities, challenges, and attributes see: http://academic-search.com/data/files/USADeanAlliedHealthProfile.pdf

The college is home to the Biomedical Sciences Department that educates pre-med and dentistry students and as well as seven separately accredited, high-demand clinical departments: Cardiorespiratory Care; Emergency Medical Services; Occupational Therapy; Physical Therapy; Physician Assistant Studies; Radiologic Sciences; and Speech Pathology and Audiology.

The college enrolls 2,235 students and is primarily housed in a state-of-the-art building with well-equipped laboratories. Indicative of its student-centered philosophy and strong national reputation, enrollment has increased an average of 6 percent annually for the last 11 years.

A comprehensive, global university known for excellence in a broad range of disciplines, the University of South Alabama (www.southalabama.edu) is experiencing record enrollment in a new era of dynamic leadership and exponential growth. USA is classified by the Carnegie Foundation as a Research University/High institution.

USA offers undergraduate, graduate and doctoral degrees in nearly 100 areas across 10 colleges and schools with total enrollment of 16,000-plus. Located just minutes from historic downtown Mobile, the 1200-acre main campus is dotted with new buildings, laboratories, and student living/learning facilities.

One of the most culturally rich urban areas on the Southeast coast, Mobile and Baldwin County (www.mobile.org) anchor an international corridor of business and industry. The city is one of 12 in the nation designated by the U.S. Department of Commerce in 2014 as a "manufacturing community," sharing the list with Portland, Cincinnati and Chicago.

For best consideration, applications and nominations should be received by January 23, 2015. Initial interviews will be in early February. The Search Committee will accept confidential applications and nominations until the position is filled.

Applicants should include a letter describing relevant experiences and interest in the position; CV; and names of five references with complete contact information. Nominations should include a letter of nomination with complete contact information for the nominee. Submit materials via MS Word or pdf to USAAlliedHealthDean@academic-search.com. The search is assisted by John B. Hicks, Senior Consultant Academic Search, Inc. John.hicks@academic-search.com 205-345-7221.

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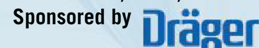
Sponsored by 

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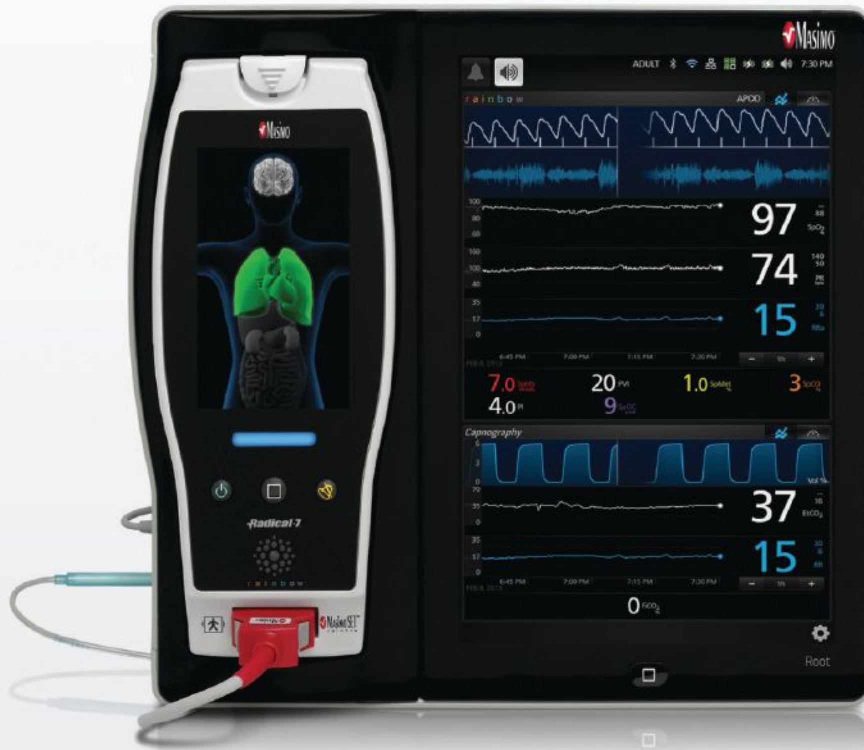

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