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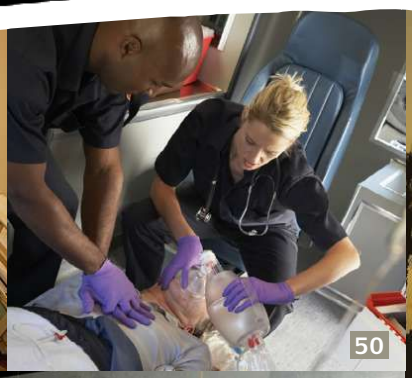

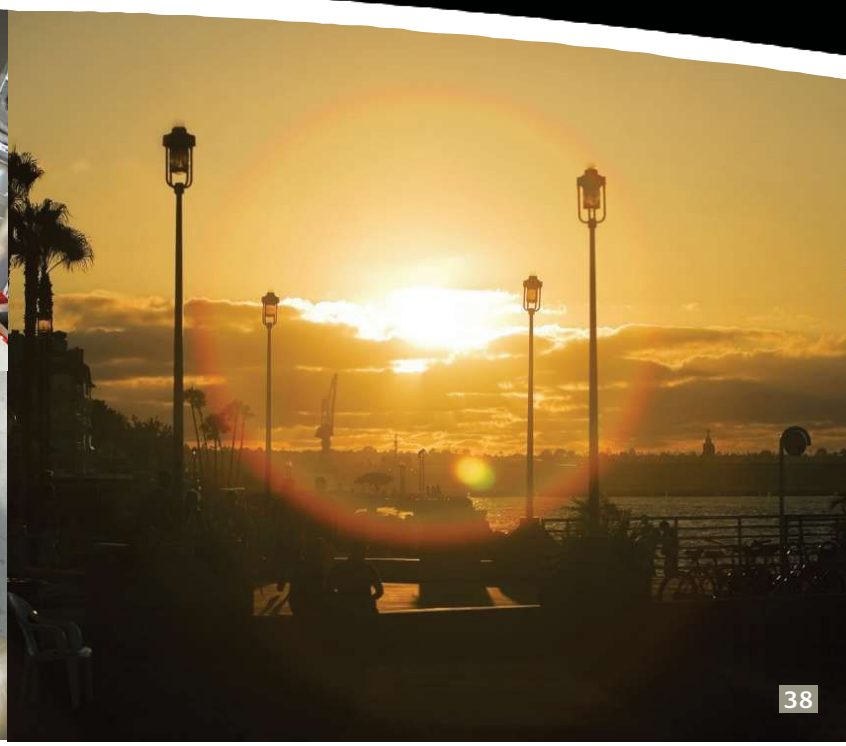

Cover photo by
Kerry J. McNiven, MS, RRT

AARC Strategic Plan

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AARC Strategic Objectives

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

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

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

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

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

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Evidence-based Management of the Obese Ventilator Patient

by Rory A. Mullin, BS, RRT

According to the Centers for Disease Control and Prevention (CDC), in 2010 every state in the United States had a prevalence of obesity greater than 20% in the adult population. It has been well established that obesity, defined as a body mass index (BMI) greater than 30 kg/m^2 by the CDC, leads to a higher risk for multiple medical problems, including heart disease, diabetes, and hypertension, to name a few. (See Table 1 for a breakdown of BMI classification and levels of obesity.) In the clinical environment, these comorbidities lead to increased acuity and length of stay. In 2008, the estimated health care expense for obese individuals came in at $147 billion.[1]

As respiratory therapists, our job is to ensure all patients receive appropriate respiratory care. The obese patient offers a unique challenge to this mission.

Airway care

As with all patients, airway management in the obese patient begins with proper positioning. Placing the patient in the supine position can lead to problems with invasive and noninvasive ventilation. Excessive abdominal tissue can elevate the diaphragm and offer resistance to inhalation. Tissue around the thorax is also increased, causing increased weight on the anterior chest wall, leading to resistance to expansion or decreased extra-pulmonary compliance. Patients breathing against these forces tend to take smaller, quicker breaths and tire faster. Finally, in the upper airway, the extra soft tissue narrows the diameter of the upper airway, increasing resistance.

These factors have to be accounted for in this patient population. Elevating the head and upper body into a semi- or high-Fowler's position allows these resistances to be minimized for proper oxygenation and ventilation, as well as easier breathing for the patient. Simply putting these patients in reverse Trendelenburg positioning accomplishes the same goals of reducing pressure on the abdomen and chest.

When an artificial airway is required in the setting of acute respiratory failure, careful planning is a necessity. While obesity in itself hasn't been shown to be an independent risk factor for encountering difficulty in securing the airway, the obese patient does offer a number of problems not usually seen in non-obese patients. Mallampati scores alone may not accurately predict difficulty of the airway. The extra soft tissue of the face, along with the larger tongue and neck, may limit the clinician's ability to visualize the vocal cords.

A plan of action involving multiple techniques and their progression is the recommended approach. An example would be to start with direct laryngoscopy, move on to fiberoptic laryngoscopy, then place a laryngeal mask airway (LMA), and finally perform an emergent crycothyrotomy if all other attempts fail. It is also important to have an experienced clinician make the airway attempt. The most qualified person is the clinician who performs airway management on a regular basis, can recognize and be prepared to manage problems, and knows when to ask for assistance.

When it comes to medications, the literature is somewhat vague on the use of drugs to assist with airway management. Some advocate for procedural sedation with short-acting sedatives that allow for spontaneous respiratory effort for an "awake" intubation attempt prior to administering a paralytic. While the paralytic could make laryngoscopy easier, if intubation

about the author...

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becomes difficult and the clinician cannot maintain a patent airway, options become very limited and in some cases emergent.[2]

Also of importance is the dosage calculation of any medication used. In the non-obese patient, there may not be a large difference between ideal, lean, and total body weights. Obese patients tend to have a very small reserve for maintaining oxygen saturation. Before intubating, pre-oxygenation using a high flow oxygen appliance and perhaps an airway adjunct (nasal or oral airway) is appropriate. Reverse Trendelenburg positioning allows for the above mentioned forces to be minimized while also allowing the clinician access to the airway. Direct laryngoscopy using a larger blade allows the clinician a better view by moving more of the excess soft tissue. Blind adjuncts such as an LMA or Combitube can be useful to allow for ventilation (but limit airway protection). Video using fiberoptics offers a superior view of the vocal cords in some patients.

Care should be taken when securing the endotracheal tube (ETT). With the extra soft tissue, the measurement of the ETT in the airway tends to be longer in this population. X-ray evaluation is important in all intubations, and obese patients are no exception. Clinicians should monitor the airway measurement and follow the radiography regularly. Surgical airways offer a definitive approach to an artificial airway; however, one study has shown obese patients have a higher early mortality associated with tracheotomy.[3]

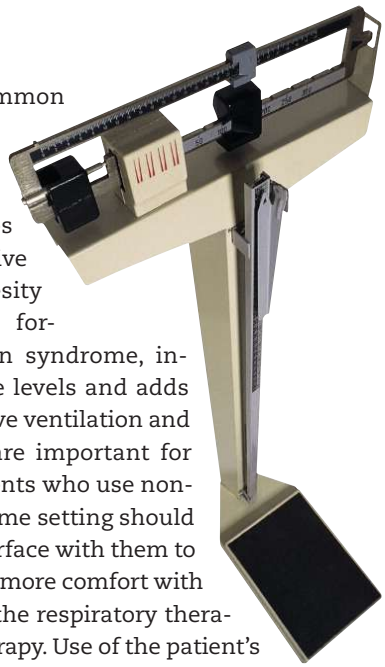
Breathing and ventilation

The goals of ventilation for an obese patient are the same as those for a normal weight patient. Avoid intubation if you can by using noninvasive ventilation. Intubation of obese patients can lead to an increase in mortality and longer hospital stay.[4] If intubation is necessary, quick weaning and liberation will give the patient a better chance for a good outcome.

Table 1: Classification of Obesity Based on BMI

Classification	BMI (kg/m^2)	Obesity Class
Underweight	<18.5	
Normal	18.5–24.9	
Overweight	25.0–29.9	
Obesity	30.0–34.9	I
Moderate obesity	35.0–39.9	II
Extreme obesity	>40.0	III

SOURCE: World Health Organization



Respiratory problems common in obese individuals must be considered as well. For example, it has been long established that obesity increases the likelihood of obstructive sleep apnea. In addition, obesity hyperventilation syndrome, formerly known as pickwickian syndrome, increases blood carbon dioxide levels and adds strain to the heart. Noninvasive ventilation and its proper implementation are important for both of these diagnoses. Patients who use noninvasive ventilation in the home setting should bring their mask or other interface with them to the hospital. This will provide more comfort with the interface while allowing the respiratory therapist to deliver an effective therapy. Use of the patient's own machine is not without risk. Clinicians should not only be able to see the settings but also adjust the settings as the patient requires. This may be more difficult to accomplish with the patient's home unit.

It is important to remember the positioning and resistances offered by the anatomy of these patients as well. Airway pressure for positive pressure ventilation, both invasive and noninvasive, will be increased to deliver an adequate tidal volume, as static compliance in this population is decreased primarily as an extra-pulmonary process stemming from excess chest wall tissue.

It is likewise important to note that the obese patient's lungs are the same size as those of a non-obese patient. Tidal volume based on 6–8 mL/kg of ideal body weight is imperative to protect these patients from ventilator-induced lung injuries. Volume-targeted modes will guarantee a tidal volume but come with the price of higher airway pressures. Pressure-targeted modes will regulate the pressure, but the tidal volume will vary with the patient's mechanics, including lung elastance, chest elastance, and airway resistance. Mode selection should result from a careful analysis of the risks and benefits of each mode available.

Sedation and its implementation in this population provides yet another challenge. The evidence is lacking on weight-based dosing of sedation and analgesics. Surgical pain in obese patients is better managed by epidural medication than opiates, as opiates tend to further depress respiration. Dosing based on *ideal* body weight is the consensus offered by pharmacists and anesthesiologists alike. Patients who spend less time on the ventilator have better overall outcomes when sedation and analgesics are carefully managed and weaned appropri-

ately. Obese patients are no exception. Early weaning is important. Daily sedation vacations and spontaneous breathing trials are recommended to assist in discontinuing mechanical support.

Often overlooked are the nutritional requirements. Obese patients still need caloric intake to provide energy for weaning from the ventilator. The total protein and albumin levels in the blood are good indicators of overall nutritional status. The normal value for albumin is 3.5–5.0 g/dL. For total protein, it is 6.0–8.0 g/dL. Overfeeding can lead to increased CO_2 production and delay weaning.

Meeting the challenges

In summary, there are many similarities between obese and normal sized ventilator patients, but obese patients do offer different challenges for the respiratory therapist in terms of airways, sedation, ventilation, and nutrition. Appropriate planning and implementation of positioning, avoidance of intubation, limiting of time on invasive positive pressure ventilation, proper dosing for sedation, and nutritional monitoring of long-term obese ventilator patients are keys to good outcomes in this patient population. ■

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Sleep Literature Review

Several recent studies look at key issues in sleep diagnostics and treatment.

Kids with chronic kidney disease at risk for sleep problems

Sleep disorders are known to affect adults with chronic kidney disease. But what about kids?

Researchers from Rainbow Babies and Children's Hospital/Case Western Reserve University set out to answer that question in a new study involving 159 school-aged children with chronic kidney disease, including those who were not on dialysis and who had not received a transplant, those who were on dialysis, and those with a functioning renal allograft. The children were assessed for excessive daytime sleepiness, sleep-disordered breathing, restless leg syndrome (RLS), and insufficient sleep.

Ninety-three of the patients, or 58.5%, had symptoms of a sleep disorder, and presence of a sleep disorder was significantly associated with a decrease in health-related quality of life independent of the child's kidney disease. The study was published ahead of print by *Pediatric Nephrology* on Oct. 2.

CPAP alternative found effective

Australian researchers publishing in the November issue of *Sleep* find hypoglossal nerve stimulation may be an option for obstructive sleep apnea (OSA) patients who are unable or unwilling to tolerate continuous positive airway pressure (CPAP).

The study was conducted among 21 patients with moderate to severe OSA. All underwent surgical implantation of a novel hypoglossal nerve stimulation (HGNS) system. The apnea-hypopnea index (AHI) was assessed via polysomnography at baseline and then again three and six months later. On average, patients used the HGNS system on 89% of nights and for 5.8 hours per night. The AHI dropped from an average of 43.1 at baseline to 12.1 at the six-month follow-up. Improvements were also seen in the Epworth Sleepiness Scale, Functional Outcomes of Sleep Questionnaire, Calgary Sleep Apnea Quality of Life Index, and the Beck Depression Inventory.

Two serious complications were noted: In one patient an infection required removal of the device, while in another a stimulation lead cuff dislodged, requiring replacement.

Perioperative management of OSA in the VA system

Veterans Affairs (VA) hospitals run the gamut when it comes to perioperative management and postoperative disposition of patients with known or suspected OSA, report University of Cincinnati investigators who surveyed 102 VA facilities across the country. Eighty percent of the facilities participated in the survey, with results showing:

- 53% of respondents used the American Society of Anesthesiologists' guidelines for preoperative screening for OSA; a variety of tools were used by the remainder.
- 26% of hospitals had a formal policy for postoperative disposition of known OSA patients; 19% had a formal policy addressing suspected cases.
- Among those with a formal postoperative care policy, 48% admitted patients to a monitored ward bed and 30% admitted them to a surgical ICU.
- In the 74% of facilities where no formal policy was noted, anesthesia and surgery worked together to dictate postoperative disposition of patients with known OSA 73% of the time.
- 58% of the facilities ranked OSA as the most important factor influencing postoperative disposition.
- 10% of respondents reported a major perioperative complication attributable to OSA in the past year.

"Future investigators may use these data to formalize institutional policies with regard to patients with OSA,

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1 Gentile. *Respir Care* 2011 **2** Berry et al. *J Clin Sleep Med* 2010

with potentially significant impacts on patient care and usage of financial resources," conclude the authors. The research was published ahead of print by *Otolaryngology-Head and Neck Surgery* on Oct. 31.

Sleep disorders common in primary insomnia patients

People who are diagnosed with primary insomnia may benefit from testing to determine whether they also have a sleep disorder like sleep apnea syndrome (SAS) or periodic limb movement (PLM) disorder. That's the key finding in a new study out of Germany that looked at 77 women and 16 men with a mean age of 55 who were diagnosed with primary insomnia. Polysomnography (PSG) was performed in all the patients to assess for sleep disorders.

According to the results, 32 of the patients had either SAS, PLM, or both. Twenty-one of those patients required treatment for their conditions. "Indications for a PSG should be handled less restrictively in the diagnostic workup of older insomnia patients since they have a higher risk of comorbid sleep disorders even in the absence of the clinical signs of SAS or PLM," write the investigators. The study was published ahead of print in *Sleep & Breathing* on Oct. 25.

Predicting CPAP compliance at the start of treatment

U.S. investigators find several factors are associated with poorer adherence to CPAP in the first week of treatment.

The study involved 91 patients with newly diagnosed OSA who were followed for one week after beginning CPAP. The mean daily CPAP use during the first week was 3.4 hours per night; but black patients had significantly lower usage, 2.7 hours per night versus 4.4 hours per night for non-blacks. Further analysis linked less intimacy with partners caused by CPAP and a higher residual AHI with a lower usage as well. Together these three factors accounted for 25.4% of the variance in the CPAP use seen in the group.

The authors believe CPAP compliance could be improved by addressing residual respiratory events and intimacy issues related to CPAP use. They also call for additional study on the role race may play in CPAP adherence. The study was published ahead of print by the *Journal of Sleep Research* on Oct. 11.

Oxygen vs. ASV in CHF patients with CSA-CSR

Adaptive servo ventilation (ASV) outperformed supplemental oxygen when it came to significantly reducing the AHI in seven congestive heart failure (CHF) patients with central sleep apnea with Cheyne-Stokes respiration (CSA-CSR), finds a randomized, crossover study conducted by investigators in Australia. However, the therapy was not accepted by the patients over the long term.

Other results were disappointing as well. For example, neither ASV nor oxygen changed the left ventricular ejection fraction in these patients. Plasma brain natriuretic peptides, urinary catecholamines, shuttle walk distance, and symptoms were unaffected as well. The study was published ahead of print by the *Internal Medicine Journal* on Oct. 27.

Sodium intake linked to sleep apnea in heart failure patients

Could sodium intake be playing a role in the pathogenesis of sleep apnea in heart failure patients? Yes, report Canadian researchers who looked at sodium intake in 54 patients, 31 of whom were also diagnosed with sleep apnea.

All the patients kept food recordings that allowed the researchers to determine their sodium intake. The patients underwent polysomnography as well. Results showed a higher mean sodium intake in the 31 patients diagnosed

with sleep apnea, and a significant correlation was seen between the AHI in these patients and the amount of sodium in their diets. Sodium intake, male sex, and serum creatinine levels were all found to be significant independent correlates of the AHI in a multivariate analysis.

The researchers published their findings in the November issue of the *Journal of the American College of Cardiology*.

RLS drugs could lead to impulse control disorders

Patients with RLS who are treated with even low doses of dopaminergic drugs may be at increased risk for impulse control disorders (ICDs), find Swiss investigators publishing ahead of print in *Parkinsonism & Related Disorders* on Oct. 24. Their study was conducted among 28 patients who were assessed via the Zurich Screening Questionnaire for ICD (ZICD) and other measures before and after being treated with transdermal rotigotine at a mean dose of 3.8 mg per day. None had an ICD prior to treatment.

Six of the male patients in the group, or 21%, developed symptoms of ICD, including binge eating, hypersexuality, compulsive shopping, and pathological gambling. Patients who did not develop symptoms still had higher scores on the ZICD following the therapy.

The authors conclude physicians should consider the possibility of ICD in every patient being treated with dopaminergic drugs.

Out-of-center testing devices: a literature review

Researchers from the Emory Sleep Center in Atlanta, GA, reviewed the literature on out-of-center testing devices for OSA to help guide clinicians on which devices are most appropriate for use outside of the sleep center. Since oximetry is considered essential for scoring AHI using polysomnography, devices that excluded oximetry were not included in the review.

According to the authors:

- The literature is currently inadequate to state with confidence that a thermistor alone without any effort sensor is adequate to diagnose OSA.
- If a thermal sensing device is used as the only measure of respiration, two effort belts are required as part of the montage, and piezoelectric belts are acceptable in this context.
- Nasal pressure can be an adequate measurement of respiration with no effort measure, with the caveat that this may be device specific.
- Nasal pressure may be used in combination with either two piezoelectric or respiratory inductance plethysmographic belts (but not one piezoelectric belt).
- There is insufficient evidence to state that both nasal pressure and a thermistor are required to adequately diagnose OSA.

The study appeared in the Oct. 15 edition of the *Journal of Clinical Sleep Medicine*.

Videoconferencing no roadblock to effective OSA care

Newly diagnosed OSA patients who are seen by their physicians in person or via videoconference fare about the same in terms of patient satisfaction and compliance with CPAP. That's the take-home message from University of Illinois researchers who conducted a patient satisfaction questionnaire in patients who consulted with their physicians via videoconference or in person. No significant differences were seen in either patient satisfaction scores or CPAP compliance between the groups.

The authors conclude, "Videoconferencing may improve access to patient care without reducing patient satisfaction or treatment adherence." The report appeared in the Oct. 17 edition of *Telemedicine Journal and E-Health*. ■

COPD and Asthma: An Update on Public Screening

by Steven B. Nelson, MS, RRT, FAARC

If you go looking for something, you are likely to find it — and as my mother is fond of reminding me, this is as true for troublemakers as it is for explorers. It may also be true for diseases. Does looking for COPD or asthma have an effect on how often we find it?

The concept behind screening for disease is to identify people in a community who have a disease but do not have signs or symptoms of it. Screening is generally accepted as a means to improve quality of life or prolong survival. Blood pressure screening commonly uncovers undiagnosed hypertension. Nurseries screen for PKU (phenylketonuria) and sickle cell. Glaucoma is screened for during regular eye exams.

Unfortunately, ethical questions often arise around screening for diseases. For example, in its standard for diagnosis of a genetic form of COPD known as alpha-1 antitrypsin deficiency, the American Thoracic Society discusses the psychosocial, ethical, and economic impact of screening at length.[1] Legal and workplace issues relating to discrimination against people who have particular diseases, or are even predisposed to disease, exist as well.

Clearly, screening should be used appropriately. It needs to effectively discriminate between people who probably have a disease and those who probably don't have a disease. Screening tests are quick and inexpensive, and are generally precursors to more accurate diagnostic methods that are more time-consuming, costly, or have higher risk. This staged approach is used in breast cancer screening, with mammography to determine risk, leading to invasive biopsies if necessary. Lung disease should be treated the same way.

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Understanding the statistics

To be effective, screening for a disease requires a knowledge of statistics. A grossly simplified example from nature would be screening for zebras. You need to know the prevalence, or prior probability, in the population. If you are surveying for quadrupeds in a polar region, you know zebras are scarce. Therefore, you have a very high chance that any quadruped you identify as a zebra will be a false positive. However, if you survey quadrupeds in the Sahara, the prior probability is higher; so there are fewer chances that identifying a quadruped as a zebra will be a false positive result.

If a screening test classifies all arctic quadrupeds as zebras and all bipeds as NOT zebras, the test will probably never be correct on polar-region quadrupeds but always correct on bipeds. Thus, it will have a very low positive predictive value (PPV), but a very high negative predictive value (NPV). The same classification system in the Sahara will have a much higher PPV, with the same NPV. PPV and NPV refer to the posterior probabilities and are used to calculate the likelihood of the finding in the population.

If we translate this to lung disorders, we find that when looking for COPD in a healthy, non-smoking young adult population where there is a low prevalence, screening will generally have a low PPV. This means the odds of having a false positive test are very high. Using a population of smokers over 40 will provide a much higher PPV due to the higher prior probability. The use of spirometry as an indiscriminate screening test has led to almost universal scorn because it has a high false positive rate in the general population.[2,3]

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COPD screening

The prevalence of COPD is rising. It has recently become the third leading cause of death in the United States but is still vastly under-diagnosed. National Heart, Lung, and Blood Institute (NHLBI) statistics show there are 12 million people with a diagnosis of COPD but estimate there are at least another 12 million who are undiagnosed.[4] With a correct diagnosis, patients are more likely to receive appropriate care at a point in the disease process where it is most beneficial.[5]

COPD has also changed in recent years from a predominantly male disease. In 2005, women accounted for 61% of COPD cases.[6] Progression of the disease can be slowed with early detection and intervention, primarily tobacco-dependence treatment.

Spirometry is a poor tool for COPD screening because it is prone to poor technique. Studies conducted in primary care settings show bad quality results in 40% or more of the spirometry tests that were reviewed.[7] Since poor quality tests almost always result in a false positive result, the effects can be harmful to people who are treated unnecessarily. Common treatment regimens include inhaled corticosteroids, which may or may not be responsible for increased incidences of pneumonia or worse.[8,9]

Recently, there was a change in focus on screening for COPD that places a greater emphasis on looking at risk factors. Two different surveys were developed that asked five similar questions.[10,11] These were administered to smokers over age 35. The surveys were able to achieve sensitivities over 80%, meaning if your score was high, you had a high probability of having airflow obstruction. This would reduce the number of people sent for spirometry. Unfortunately, the surveys have a low specificity, so about half of the people with airflow limitations are not detected.

The NHLBI and the COPD Foundation sponsored a conference in 2008 to see if a hierarchical approach could improve the detection of airflow limitation.[12] The method included a survey with simple yes/no answers about risk factors. Subjects with more than two risk factors performed a peak flow test. If the peak inspiratory flow (PEF) was below 70% of predicted, then they were sent for spirometry. During an 18-month period, 5,638 people were tested with this staged approach. The risk factor survey correctly identified 85% of the people with a low PEF. In the second step, a normal PEF had a NPV of 97% — subjects with a normal PEF generally had normal spirometry. Given the prevalence of significant airflow obstruction of 8.7% in this population, the study avoided unneeded spirometry in 5,033 of the subjects.

A staged approach to finding cases of COPD provides for a better economic return. Paper questionnaires cost a few cents and can be administered by anyone. PEF requires an inexpensive device, easily found for under $100, and can be performed by people with minimal training in a primary care setting. Spirometers can cost $1,500 and up, and people with specialized training are required to perform the test well. Each of the first two steps reduces the number of people being sent to spirometry, as well as the associated cost. The estimated cost to find a single case of COPD using the staged approach was $63, while using spirometry alone cost $288.[13]

This staged approach certainly improves the efficiency and accuracy of finding COPD. However, the future of detection will likely change. In many patients, COPD is associated with a plethora of comorbidities. This leads us to question whether COPD is a disease that will only be defined by airflow limitation in the future, or whether there are other tests that will be used to provide a diagnosis in people who don't yet display signs of the condition.[14]

Asthma screening

Like COPD, asthma is also increasing in prevalence. It is estimated that over 34 million Americans will be told they have asthma during their lifetimes. Fortunately, there has been a downward trend in the number of hospital discharges and mortality due to asthma. In 2007, asthma had a direct economic impact on the United States of $50.1 billion.[15]

According to the Expert Panel Report 3 issued by NHLBI in 2007, asthma is a chronic inflammatory disorder of the airways. It includes airflow limitation and airway hyper-responsiveness. Its symptoms are variable and recurring, meaning that it is difficult to detect except during an event.[16]

Only after asthma events have been persistent and of sufficient severity are the airways remodeled, leading to detectable, permanent airflow obstruction. To add uncertainty to the diagnosis, the course of disease progression appears to vary more as a function of age than symptoms. Therefore, spirometry is, again, of limited utility as a screening tool. In fact, a recent study by Cowie et al has shown that neither symptoms nor history could predict or be predicted by spirometry.[17] Daily or greater short-acting beta-2 agonist use was the only variable they measured that was able to predict airflow limitation.

Since early disease intervention is critical to long-term outcomes in asthma, it is important to use symptoms to screen for asthma and eliminate other

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diagnoses. Unfortunately, there is currently no simple screening survey for asthma such as those for COPD. Until one is available, finding undiagnosed asthma will continue to require extensive history gathering relating to exacerbations, living conditions, obesity,[18] occupational exposure, cough, wheezing, and a host of other factors.[19]

Time for a change

Finding COPD and asthma early improves long-term outcomes. Screening people in populations at risk for these diseases provides a good method of determining who may need or benefit from more extensive follow-up testing. However, indiscriminate use of spirometry to screen for these diseases in the general population is fraught with problems, and the practice should be curtailed. It is costly in terms of equipment and staff. Errors almost always cause false positive findings and can lead to unneeded interventions.

The notion of screening needs to change from one of lining people up to blow into a spirometer to one of case-finding using the most appropriate tools available. ■

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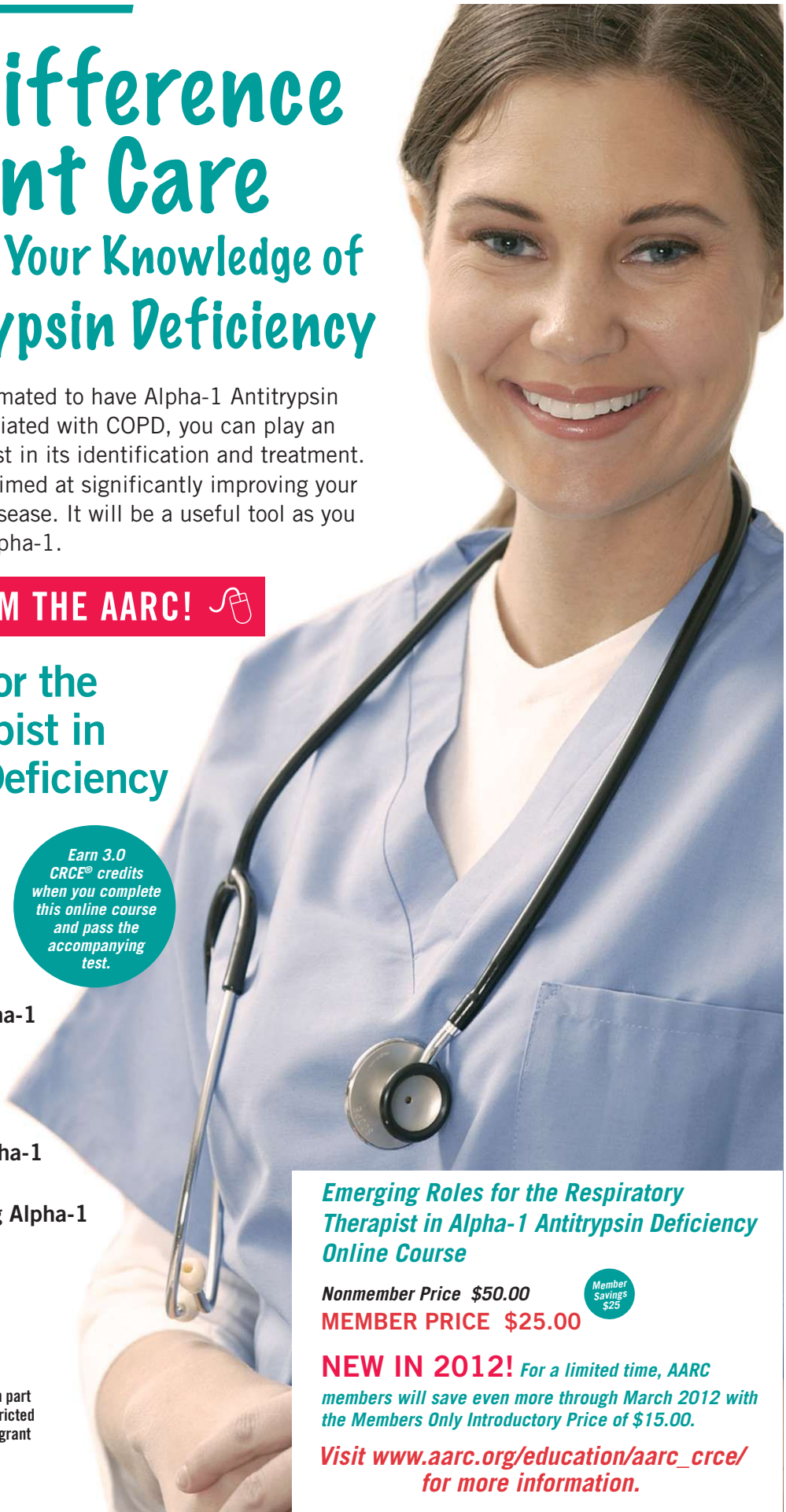

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What RTs Should Know about the Geriatric Patient

by Trina Limberg, BS, RRT, FAARC

Between 2010 and 2030 baby boomers will reach age 65.[1] According to the Administration on Aging, one in eight (or 12.9%) of the population is an older American. Many of the patients we treat will be diagnosed with chronic lung disease; and of those, many will have comorbid conditions such as diabetes, congestive heart failure, coronary artery disease, cancer, or obstructive sleep apnea. In 2009, Schneider et al said 50% of all Medicare fee for service (FFS) beneficiaries received care for one or more chronic conditions, with one-fourth having diabetes. Furthermore, Medicare FFS patients with chronic kidney disease and, secondly, COPD had the highest per capita inpatient stays.[2] Some type of disability such as vision, hearing, cognition, ambulation, and self-care was reported by 37% of older adults.[1] The cost of care exponentially rises with an increased number of chronic conditions.[2]

Elderly patients are likely to have multiple medications prescribed, which many will not take because they believe them to be of little or no benefit and expensive to refill. Plus patients with a greater number of chronic conditions often have more medications prescribed by physicians other than the primary care physician. Patients taking multiple medications may find prescription adherence difficult. Coordinating care becomes more complex with the presence of more chronic conditions and more providers.[3]

Many of our patients are short of breath, have poor mobility, and lack social support. We should expect symptom management and supporting mobility to be somewhat challenging. If we are to relieve suffering, we must appreciate that older adults may have burdens or limitations to following prescribed treatments that are aimed at managing symptoms and preventing progression of disease and disability.

about the author...

Trina Limberg, BS, RRT, FAARC, is the pulmonary rehabilitation program director at UCSD Medical Center in San Diego, CA.

The barriers

There are definite physiologic changes with normal aging that include: increased rigidity of the chest wall, decreased lean muscle mass and bone density, low BMI, or increased body fat.[4] Cognition and sensory abilities may change such as vision, hearing, and balance impairment. If dementia is present, involving primary caregivers becomes essential. An assessment of learning and physical abilities is needed to help simplify treatment goals.

Those who have social support such as a partner, a family member, or close friend will fare better than those who live alone. Nearly half of all women over the age of 75 live alone. Men over 65 are more likely to be married (72%) as opposed to 42% of women.[1] Having someone there to witness changes in condition, such as progressive shortness of breath, cough, or decreased physical activity is helpful in motivating an early medical consult. Limited transportation access may also add barriers to seeking early and regular treatment.

Mood disorders are common in the aged.[3] Depressive symptoms are common with moderate to severe COPD in as much as 45% of patients.[5] Anxiety and depression are often under recognized and under treated. Untreated mood disorders may make taking medications and performing self-care more difficult. Many patients report feelings of depression because they can no longer work or enjoy their families and the activities they value most.

Improving adherence

Respiratory therapists practicing in adult care will no doubt treat patients with COPD, which is now the third leading cause of death and is associated with

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increased mortality and morbidity.[6] Patients with more chronic conditions have higher health care utilization and cost more.[2,3] As the Centers for Medicare and Medicaid Services (CMS) moves to implement accountability of care and to deny payment for readmission within 30 days of discharge, all care providers of COPD patients will need to collaborate to improve care across the continuum and avoid hospital financial burdens.

We have an important opportunity to integrate coordinated care across all scopes of practice as patients transition from hospital to home. Clinicians need to be experts within their specialty, and they must also be knowledgeable about the next level of care the patient is likely to need. A COPD patient hospitalized for pneumonia or an exacerbation may incur a length of stay of only five days; however, the patient may have presented through the ER, possibly transferred to the ICU for bi-level positive airway pressure or mechanical ventilation, moved to a step-down area, and eventually be discharged with an order for home oxygen. Does the emergency medical record include a recommendation for pulmonary rehabilitation follow-up? Who interfaces with the durable equipment company? Is the RT ordering home oxygen, or is it the nursing case manager? These are just a few areas where improvements in transition of care can be considered. Are patients routinely called post discharge to assess the transition home? Has the importance of getting to the first post-hospitalization physician appointment been stressed? We need to do better in all of these areas.

Post discharge, new mothers are called within 24 hours by a nurse. Yet when aged adults are discharged following an acute exacerbation, they are not routinely contacted. These could very well be low-cost interventions to improve care in a complex health care system and to simplify access to the primary care physician or pulmonologist. Elderly patients with chronic lung disease need care advocates, and respiratory therapists are a natural fit.

Long-term oxygen therapy (LTOT) is especially difficult for patients to assimilate into everyday life. Understanding how to use the equipment and learning how long portable oxygen supplies will last can be anxiety provoking and frustrating for many. Often patients are discharged following an acute exacerbation with LTOT. It is important for clinicians to appreciate how life altering the hospitalization experience can be for patients, especially if home oxygen is needed. Patients often describe this event as a pivotal point in the progression of their disease. Time should be taken post assessment to explain the benefits and why the therapy is needed. Many LTOT patients say they were told they needed oxygen to "help them breathe better."

COPD patients have hyperinflation, displaced diaphragms, loss of lung elasticity, and poor breathing mechanics that will not be improved with oxygen therapy use alone. Treating hypoxemia may relieve dyspnea in some, but patients with ventilatory impairment will still have dyspnea. If patients have expectations to "breathe better" with oxygen and they don't, they may be less likely to see the benefit — leaving some to conclude that the therapy doesn't work. The perceived benefit of using oxygen therapy needs to outweigh the embarrassment of public use and the burden of navigating life with it. This is one example of how adherence might be improved.

RTs provide a lifeline

In summary, aged patients often have multiple health problems, see several providers, and take a lot of medication. Some have less support with activities of daily living and lack regular exercise. Patients with chronic respiratory disease may fear further loss of function and disability. Many may be tired of feeling sick and tired; some may say they feel frustrated and feel like giving up. Our care of these patients is nothing short of a lifeline for many. If we passionately advocate for our aged patients, actively listen to them, and improve their ability to understand their therapies, we can inspire them to make better choices and sustain some degree of personal freedom and independence. ■

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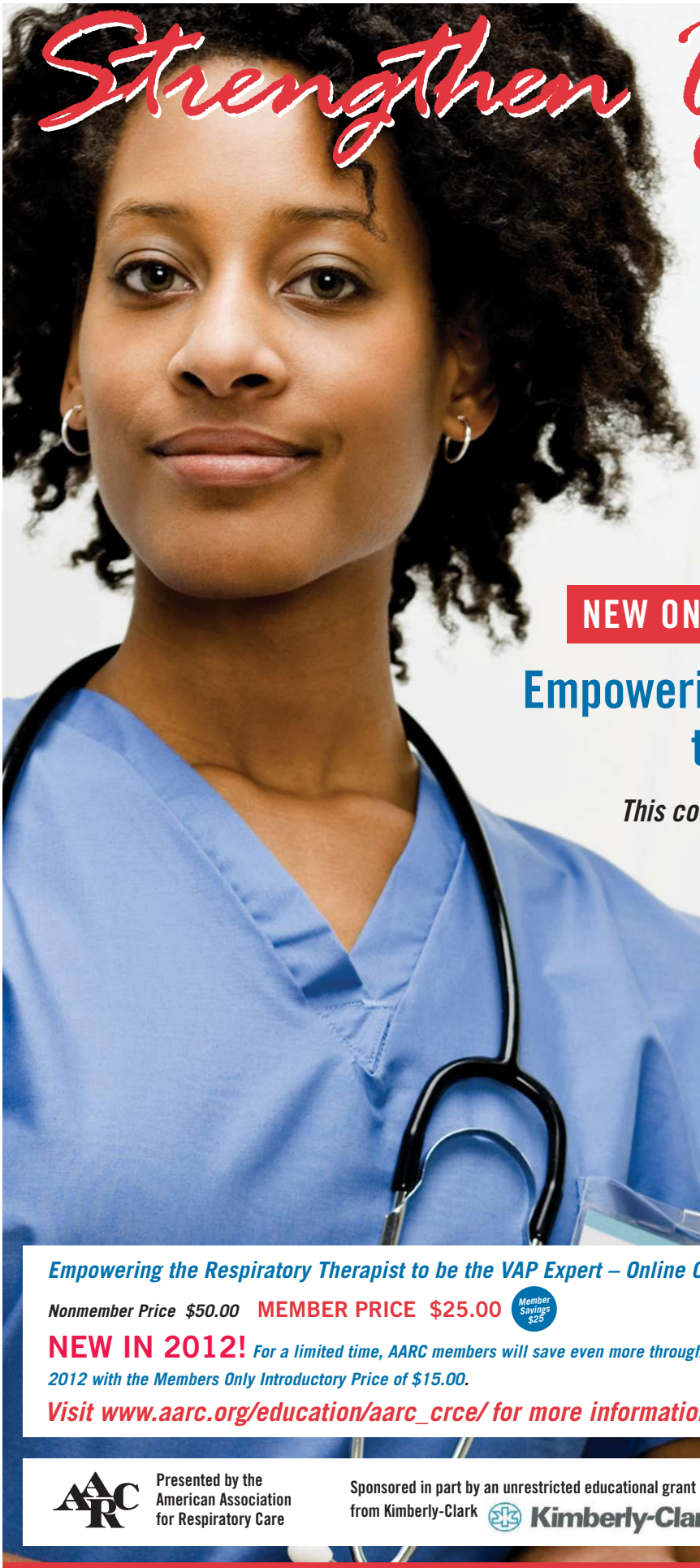

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The Sleep Side of Weight Loss: CPAP Therapy on *The Biggest Loser* Helped Me Shed the Pounds

by Ashley Johnston

How do you go from 374 pounds to 191 pounds in just four months? For me, sleep apnea treatment was a secret weapon that worked. When I was a contestant on Season Nine of ***The Biggest Loser***®, I had the opportunity to have a sleep test and receive treatment for sleep apnea. But my own personal journey with the sleep side of weight loss started many, many years ago when I was a six-year-old girl whose mother had to watch her sleep every night to make sure she kept breathing. My stomach would rise and fall, but there would be long periods of time when I stopped breathing at night.

The doctor had my mother sit up with a stopwatch and time me night after night to see how long those pauses in breathing lasted. He told her he would do something about the situation if I stopped breathing for one minute straight. My mom finally told him that was just ridiculous. Even a few seconds was too long for a child to go without taking a breath. She took me to another doctor, who immediately scheduled a surgery for me to have my adenoids and tonsils removed.

At the time, we felt like that helped. My growth had been stunted earlier in my childhood, but after the surgery, I started growing. Soon I was a chubby kid. Although I swam on the swim team, I didn't play other sports; and being from the South — we lived in Knoxville, TN — we didn't have the healthiest diet either. My mom would sometimes make us fried bologna bowls for breakfast, with cheese in the middle. My mother and father were overweight, as well. I came from an obese family.

My father developed melanoma skin cancer when I was 15 and passed away when I was 16. By that time, I was about a size 14–16. I looked overweight for my age, and that affected me in such a hard way. But I didn't know how to deal with the loss of my dad, so I turned to food. I was an emotional eater. I wanted that comfort, all those carbohydrates that make you kind of sleepy when you get full. I didn't realize it at the time, but I used that feeling of fullness to cope.

I also branched away from my family and became a party girl. I was trying to find anything I could to help fix the pain within me. I smoked for 11 years on top of everything else. I guess I thought I was invincible. I was eating fast food several times a day. I was staying out late at night with my friends, drinking and living a really dangerous lifestyle. Then I was eating more fast food at three in the morning and then going to sleep — or trying to. I wasn't sleeping well either. It was like a giant puzzle, and none of the pieces were fitting together.

Ultimately, I ended up weighing 374 pounds and wearing a size 26–28. I could not buckle the seatbelt in my car or sit behind a booth in a restaurant. I would be just sitting on the couch and people would ask me, "Are you OK?" I'd say, "Sure, I'm fine," and they'd say, "You're breathing really heavy."

I was also waking up in the middle of the night unable to catch my breath, and waking up in the mornings with really bad headaches. I didn't have health insurance at the time, but my mom went to the doctor and asked him if there was anything he could do for me. He ordered a sleep test, and the results showed I had severe sleep apnea. He gave me a donated CPAP machine, but I didn't receive any instruction on how to use it or any follow-up care. Basically, I went down, picked it up at the office, and they sent me on my way. I had to figure it out for myself.

about the author...

Photo by Bill Waldorf Photography

Ashley Johnston was a finalist on Season Nine of ***The Biggest Loser***. She lives in California and travels the country talking about sleep apnea and weight loss.

Unfortunately, the machine was like a dinosaur. It was so loud. I used it for a couple of nights, but it didn't work for me. Even though I knew I had severe sleep apnea and this machine could save my life, without any instruction or follow-up care, I still could not figure out how to use it properly and make it work in my life.

So, I ended up waking up night after night with the same problems and being tired in the mornings. I was managing an Aveda Spa at the time, and I would find myself falling asleep while I was giving facials. It was very difficult for me to stay awake during normal business hours. It all led to a really poor level of happiness with my life.

A good wake-up call for me came when I woke up one night and honestly had the worst sleep apnea attack I had ever had. I really thought I was having a heart attack. I woke up my mom and told her I thought I needed to go to the hospital. When I finally calmed down, I realized my weight was not just making it hard to fit into cute clothes at the mall or buckle my seatbelt — it was affecting my health. The weight was going to kill me if I didn't make a change.

I'd been watching ***The Biggest Loser*** since Season Three, and I had always wanted to have that moment of busting through that paper and getting my life back. So I looked it up online and got all the information about how to make an audition video. Then I approached my mom and told her I wanted her to do it with me.

After a lot of hard work, there we were, having a weigh-in in downtown Knoxville in front of a large crowd in a sports bra. That was day one. People asked, "How could you appear in a sports bra on national television?

The Biggest Loser host Alison Sweeney (left) strikes a pose with Season Nine Contestant Ashley Johnston.

Ashley and her mom, Sherry, called CPAP their "secret weapon" during the show for its ability to give them the good nights sleep they needed to exercise during the day.

Isn't that so embarrassing?" The answer is, yes, it was awful. But it was also freeing to finally say, "This is the issue, and this isn't going to happen again. I'm not going to be 374 pounds again. From this point on, my life will be different."

When we got to the Ranch, we got a real sleep test. Most of the contestants were found to have sleep apnea and, I, of course, still had severe sleep apnea. They brought out our brand new CPAP machines and my first thought was: "Well, OK, here we go again — I'm going to have to use this thing." But I was excited, too, because I knew it was time for me to start being responsible for my life, and that included my health. I still looked at it as a huge puzzle, and treating my sleep apnea was a huge piece of the puzzle. I knew I couldn't lose weight without using CPAP because I realized how they were both affecting my health.

The first night I put it on I slept pretty good. In the beginning I ripped it off a few times in my sleep. It took me a little while to get used to it. But even though the hours I wore it that first night were limited, the next morning I felt like a whole new person. Still 374 pounds — but it was the first good night's sleep I'd had in 28 years. I felt like I was ready to go to the gym right then. But what followed was a 26-mile ride on a stationary bike. Thank goodness I had the CPAP machine before that event.

As contestants on ***The Biggest Loser***, we have everything we need to maximize our weight loss. We have organic food and nutritionists, and, of course, our trainers. We also have regular follow-up care for our sleep apnea from respiratory therapists who come to the Ranch on a regular basis to see how we are doing and help us with any problems we might be having.

Eight-hour-a-day workouts were the norm at ***The Biggest Loser*** Ranch, according to Ashley, who spoke about sleep apnea at the 2011 AARC Congress.

One thing the RTs stressed was the need to be compliant with our CPAP every night, all night. My mother and I were always compliant. In fact, she always won the "CPAP monkey" — a little prize they gave out to the contestant who wore the CPAP the longest — because she was compliant and also because she went to bed a lot earlier than some of the rest of us, myself included.

However, there were many people in the house who were not compliant, and we started noticing how that was affecting the weigh-ins. We started figuring out, yes, we are all working out eight hours a day, we're burning 6,000 calories. We're counting every single calorie we put into our bodies. We are doing everything we possibly can. But some people were not using their CPAP and that appeared to be affecting them on the scale. So my mother and I started viewing CPAP as our secret weapon, and that redoubled our resolve to be compliant with the therapy.

Ashley and her mom learned healthy eating habits on the show.

Of course, I can't say that using CPAP is going to help with weight loss. We can't prove that. But from my personal experience, having the CPAP was a tool to help me lose the weight. I had more energy for those six-to-eight hour-a-day workouts. If I had been in the state I was in before I used the CPAP, working out that long would have been impossible.

There is so much that goes into weight loss. The exercise and nutrition are vital, and so is the mental side of it. That was certainly the case for me, because I had to understand all of the issues that got me to 374 pounds in the first place before I could make the changes I needed to make to lose 183 pounds by the end of the show and set the record for losing more weight than any other female contestant in ***The Biggest Loser*** history.

Using my CPAP every night played a big role, as well. I know many people who lose a lot of weight are cured of their sleep apnea and no longer need the machine. That's not the case for me. I think I'm just genetically made to require that assistance during sleep; and I've learned that when I do neglect to pack my CPAP when I travel, I feel the consequences. For me, CPAP is going to be a lifelong treatment.

I've made some huge changes in my life since my journey on ***The Biggest Loser*** began. I've run a marathon. I learned to surf. And I'm a more active, happy person. Treating my sleep apnea has been a big part of that journey, and it still is today. ■

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The Duty To Report

by Anthony L. DeWitt, JD, RRT, FAARC

Recently, a friend and fellow therapist asked when a health care worker has a duty to report child abuse and whether that duty can arise by virtue of merely being told that abuse has occurred. In the wake of the Penn State scandal, these are timely important questions. The answer starts with an examination of the state statute at issue. Since every state statute is worded differently, the answers for every state may vary. But if we examine the Missouri statute on this subject, it will provide some general guidance.

Reasonable cause to suspect

The Missouri statute lists a wide variety of persons mandated to report and includes "any other health care practitioner." So, a respiratory therapist would have a mandatory duty to report. The statute is very specific as to what the therapist must report:

"[if the reporter] has reasonable cause to suspect that a child has been or may be subjected to abuse or neglect or observes a child being subjected to conditions or circumstances which would reasonably result in abuse or neglect, that person shall immediately report or cause a report to be made…. As used in this section, the term 'abuse' is not limited to abuse inflicted by a person responsible for the child's care, custody and control as specified in section 210.110, but shall also include abuse inflicted by any other person."

The statute says that all a therapist needs to have is "reasonable cause to suspect"* that a child has been or may be subjected to abuse or neglect. The statute goes on to say that if a therapist observes the child in conditions or circumstances that would likely result in abuse or neglect, they must also report.

Most hospitals and health care organizations have a chain of command, and most have policies with regard to who must report suspected child abuse. Normally a hospital will engage professionals to evaluate a patient and determine if a report is necessary. Some statutes, like Missouri's, allow a person to discharge their duty to report by communicating their suspicions to the person in charge. While it may be reasonable to assume that communicating your concerns to the person or persons in charge fulfills your duty to report, the Penn State debacle makes it clear that the public has a different expectation of what must be done to protect children. In the Penn State case, a coach of national reputation lost his job and his Congressional Medal of Freedom because he followed the requirements of the university's chain of command, and those above him in that chain dropped the ball. For that reason, even where a physician or a superior makes a determination that abuse or neglect did not occur, it is still permissible, and sometimes even wise, to make a report.

Good faith report of child abuse

On Aug. 14, 2002, two-year-old Dominic James was life-flighted to a hospital in Springfield, MO, after being found unconscious, apneic, and posturing. In-flight paramedics called the hospital and reported bruising. The nurse saw the bruising. Once the child was discharged from the hospital, he was later found dead with "abusive head trauma." When authorities investi-

about the author…

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*Texas applies a similar standard "cause to believe"; White v. State, 50 S.W.3d 31, 48 (Tex. App. 2001). Minnesota mandates reporting when someone "knows or has reason to believe"; State v. Grover, 437 N.W.2d 60, 63 (Minn. 1989). Michigan and Wisconsin mandate reporting on "reasonable cause to suspect"; People v. Cavaiani, 172 Mich. App. 706, 432 N.W.2d 409, 413 (1988); State v. Hurd, 400 N.W.2d 42, 42-46 (Wis. App.1986). While state laws vary, the standard is very similar from state to state.

gated and found that no record of the prior bruising or potential abuse had been made, and no report had been made to state authorities, the nurse was indicted. She had admitted that she had been advised of the bruises on Dominic's back and that she had taken notes on what the paramedics told her. In addition, she admitted that she did not document the bruises in her medical report or call the child abuse hotline even though she was aware of the legal obligation to report abuse. Her explanation for failing to do so was that Dominic's foster mother said that the bruises were the result of his leaning back on a "booster seat."

Had paramedics made the report, as they were required to by statute, it is arguable that the child would have survived. Had a therapist seen and reported the bruising, again, the child might have survived. In situations of suspected child abuse, it is far better to have the situation investigated than to carry on your conscience the failure to have done so. Most statutes also provide immunity from civil liability for a good faith report of child abuse.

Reporting second-hand information, however, is another story. Reporting child abuse on the basis of what someone told you will create several problems. First, since you did not see the abuse or the effects of the abuse (bruises, etc.), you are without personal knowledge of what happened. If you make a report of child abuse on the basis of hearsay information, you might not be protected from civil liability. Moreover, if the information is false, you may run afoul of statutes that criminalize false reporting. In Missouri, an intentionally false report is a misdemeanor and can be a felony under some circumstances.

If the abuse can be substantiated without violating the child or parent's privacy rights (for example, by simply looking at the child), a therapist might develop enough information to make a report. But actively investigating or asking the child to disrobe creates even more problems.

Few statutes actually require the reporting of "circumstances which would reasonably result in abuse or neglect," like Missouri. But those that do can create gray areas that are difficult to apply. Suppose a therapist outside the hospital sees a seven-year-old child riding in the back of a pickup truck unbelted. Clearly this is a circumstance that could result in abuse or neglect. But the therapist is not coming to this information in his clinical role but in his role as an observer. Does she have a duty to report? The answer is not clear.

The best guidance for therapists is to report up the chain of command any suspicion of child abuse. If the chain of command does not make an appropriate report, the therapist is free to make that report on her own. As long as the report is made in good faith and on reasonable suspicion, in most cases there will be no civil liability for such a report. And perhaps more importantly, as a therapist, you might sleep better that night. ■

Stop! There Are Germs on That

by Sam P. Giordano, MBA, RRT, FAARC

Recently, a friend called my attention to a manuscript that was published in the November 2011 issue of the *American Journal of Infection Control*.[1] The article described a perspective cohort study by Dr. Kerri A. Thom et al entitled: "Environmental Contamination Because of Multidrug-resistant *Acinetobacter Baumannii* (MDR-AB) Surrounding Colonized or Infected Patients." As we continue to look for ways to help our patients — especially given the pressures to constrain and even reduce costs of care, especially in hospitals and even more so through critical care units — we need to be reminded from time to time that before we can help anybody, we've got to make sure we're not visiting more harm upon them.

The aforementioned study included 50 adult patients spread across four intensive care units (ICUs) that included cardiac surgery, surgical, medical, and trauma. All of the patients were considered to have either a recent history of MDR-AB (positive cultures within two months prior to study inclusion) or a remote history of MDR-AB (positive cultures more than two months before study inclusion). The usual environmental services' cleaning was utilized daily and targeted all patient furniture and spot cleaning of floors using a quaternary germicidal cleaner.

It is interesting to note that there were no formal institution-wide policies mandating daily cleaning of patient care related equipment like infusion pumps, supply carts, and ventilators. The equipment was cleaned, of course, after patient discharge on a routine basis. Without getting into the details (which I encourage you to learn by reading the full manuscript), I think it's important to know the general results. Of the 50 rooms included in the study, 48% were positive for growth of *A. baumannii* at one or more of the environmental sites. These included drawer handles of supply carts, floors, infusion pumps, and, oh yes, ventilator touch pads. Indeed, the ventilator touch pads actually were positive for growth 11.4% of the time, surpassing bed rails at 10.2%. Only supply cart handles (20%), floors (16%), and infusion pumps (14%) had a higher incidence of cultures. Quite sobering, isn't it?

We're doing a better job at hand washing, but it's apparent we need to ensure that the equipment we use at the patients' bedsides starts clean and stays clean. Do you have a procedure in place to ensure that is happening? The study makes an impressive case that avoidance of nosocomial infections is everybody's business, especially when it comes to these incredibly resilient bugs that have the ability to survive on surfaces for longer periods of time. But decontaminating ventilators that are in use is your responsibility for obvious reasons.

I hope that you'll review the policies and procedures you have in place relating to maintaining clean ventilators throughout the patient's stay. MDR-AB is on the rise and (without a team approach to assuring patient environments, including devices like ventilators) needs to be put on our radar screens. Otherwise, we undermine all the effort and resources we put into shortening the patients' time on ventilators, time in ICUs, and lengths of stay in hospitals. Remember, our value is not measured exclusively in terms of improving patient recovery but also in terms of avoiding negative events like nosocomial infections. ■

about the author...

Sam P. Giordano, MBA, RRT, FAARC, serves as AARC executive director. He can be reached at (972) 243-2272 or giordano@aarc.org.

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A Week in the Life of a Respiratory Care Licensure Board

by Floyd E. Boyer, BS, RRT, RCP

The North Carolina Respiratory Care Board (NCRCB) was established by an act of the North Carolina General Assembly and signed into law by the governor on Aug. 28, 2000. The law required all respiratory therapists to be licensed as respiratory care practitioners (RCPs) on or before Oct. 1, 2002.

The purpose of the law is as follows: *"The General Assembly finds that the practice of respiratory care in the State of North Carolina affects the public health, safety, and welfare and that the mandatory licensure of persons who engage in respiratory care is necessary to ensure a minimum standard of competency. It is the purpose and intent of this Article to protect the public from the unqualified practice of respiratory care and from unprofessional conduct by persons licensed pursuant to this Article."*

Individuals, including myself and Neil R. MacIntyre, MD, FAARC, quickly started the process to get the new Board up and running. In North Carolina most occupational licensing boards are independent boards that are under the jurisdiction of the Executive Branch. As an independent board we found ourselves with no startup funds but with individuals and companies willing to provide services until we were able to get the board set up. An independent board in North Carolina does not collect funds from the state and does not provide funds to the state treasury. Also, as an independent board, we are able to contract with private attorneys for legal representation, private certified public accountants for accounting, private management companies for office space, etc. The state also provides legal representation from the Office of the Attorney General.

Our first board meeting took place on July 5, 2001, at Duke University Medical Center. The Board's Rules Committee members met frequently after the initial meeting and authored permanent rules that were adopted by the Board and approved by the state's Rules Review Commission. Since that time, the Board has met quarterly.

The Board has undertaken many rulings since its inception, the most noteworthy being a declaratory ruling that established an "Advanced Practice RCP" with certain conditions and a declaratory ruling allowing RCPs to provide conscious sedation with certain conditions.

North Carolina law permits a state agency — or in this case the NCRCB — to issue declaratory rulings. Declaratory rulings are neither laws nor formal rules or regulations, but are interpretations of the laws. A declaratory ruling is binding on the agency and the person requesting it unless it is altered or set aside by the court. The NCRCB has statutory authority to issue declaratory rulings in response to individuals who request clarification of statutes or rules or those who are "aggrieved" or take issue with a board rule. Furthermore, the NCRCB may also issue a declaratory ruling on its own in order to resolve a conflict or inconsistency regarding an interpretation of the law or rule.

In North Carolina we have found that declaratory rulings provide flexibility to our Board to address scope of practice issues or other issues that arise with the evolution of the profession of respiratory care.

The rulings have allowed RCPs who met the competency requirements to perform many advanced procedures, which are especially valuable for flight therapists and therapists in larger medical centers.

The NCRCB has two full-time staff members, myself and an administrative assistant; one part-time investigator; and a contract health care attorney.

about the author...

Floyd E. Boyer, BS, RRT, RCP, is the executive director of the North Carolina Respiratory Care Board in Raleigh, NC.

A typical week

We currently have 4,450 active North Carolina RCP licensees. The NCRCB has an online renewal system, and approximately 75% of our RCPs renew online. During a normal weekend, our RCPs seem to have more time to renew their licenses, which makes Mondays a very busy time for the NCRCB.

We start the day at 8:30 a.m. by answering the numerous voice mails and then log in on the database to check for renewals, correct all typos or misspelled words the RCP has made to updates to their address and practice site, and then issue the renewal license cards. We make many trips to the mail box located in our building to send out mail during the day and to pick up our mail for processing.

The rest of the week's activities depend on the time period in the Board's quarterly cycle as the Board meets each quarter and the pace picks up as the Board's scheduled meeting time approaches.

The following is a list of responsibilities that the NCRCB typically performs over the course of the year. And many are performed during any given week.

- Give the Board chair regular updates on issues and concerns that arise between the times the Board meets.
- Complete all charges given staff at the previous Board meeting.
- Explain, very frequently, the difference between NCRCB licensure and National Board for Respiratory Care (NBRC) credentials.
- Give out the phone number for the NBRC.
- Maintain a database of expiration dates for NBRC credentials to enforce a new Board rule that RCPs must maintain their credentials in order to renew their RCP license.
- Mail letters to RCPs with expired NBRC credentials informing them that they cannot hold themselves out as being credentialed until such time as they re-credential and requiring them to submit evidence of re-credentialing.
- Review the continuing education (CE) for those RCPs who were audited. Place those who took non-approved CEs on CE probation. Mail those on CE probation a letter informing them of the probation and steps to become compliant. The RCPs who did not take the required hours or could not produce the documents are sanctioned in accordance with Board policy and fined.
- Review all applications and mail letters to applicants informing them of all missing forms needed to be issued a license. These letters include finger-

printing documents that must be completed before a license is issued. The NCRCB staff may issue a license to an individual after the completion and receipt of all required documents unless there is a prior disciplinary action or criminal background. The process averages 20 days for applicants without a prior disciplinary action or criminal background.

- Review results of criminal background checks. Those applicants with a prior disciplinary action or criminal background are scheduled for interview with the Board's Disciplinary Committee.
- Answer requests for verification letters to be mailed to other state licensing agencies.
- Answer phone calls on practice issues, such as: What can an unlicensed individual perform and the increasingly frequent question, who can set up CPAPs? Who can perform sleep studies? Can a RCP do _____(fill in the blank)?
- Meet with licensees who wish to discuss practice issues.
- Meet with the board counsel to discuss proposed declaratory rulings, changes to board rules, and position statements.
- Meet with the board treasurer to discuss budget, profit and loss statements, sign checks, audit payments to vendors.
- Send expiration notices each month to the RCPs whose license expired at the end of the month.
- Send out renewal notices 30 days prior to the RCP's expiration date.
- Maintain and update the NCRCB website.
- Receive complaints by mail, phone or email. Review to determine if the complaint is true, does it violate a board statute or rule? If yes, write subpoenas to be delivered by the board's investigator who will investigate the complaint and secure sworn statements.
- Write letters to invite alleged violators to the NCRCB's informal interview process.
- Meet with board counsel to discuss disciplinary issues.
- Write letters to complainants to keep them informed of the receipt of a complaint and any Board actions.
- Write consent orders for disciplinary actions the Board has approved and the licensee has accepted.
- Enter disciplinary information into the NBRC Discipline database and the NPDB-HIPDB (National Practitioner Data Bank – Healthcare Integrity and Protection Data Bank) database after consent orders are executed or revocation orders are issued.
- Maintain a database of RCPs on probation including determining compliance with all conditions that have been ordered by the Board.
- Prepare continuously for the next Informal Settlement Committee meeting and the next Board meeting.
- Plan meetings each quarter for the following committees: Practice, Investigation and Informal Settlement, Rules (as needed), and Education (as needed).

Available expertise

In summary, the NCRCB stays very busy with licensing, practice issues, and disciplinary actions. We do this with minimal staff, with the Board's first priority of protecting the public while serving our licensees, keeping fees as low as possible, and maintaining positive cash flow.

The NCRCB works closely with the state's respiratory care society (North Carolina Society for Respiratory Care), the North Carolina Respiratory Care Managers Group, and the North Carolina Association for Respiratory Care Educators to improve the practice of Respiratory Care in North Carolina.

I am available to other boards that may have questions about any of the NCRCB's processes. ■

Clinical Perspectives

Protecting Yourself and Your Patients During the Viral Season

by Jeffrey Davis, BS, RRT

If your hospital or other health care facility is like most, you're probably seeing an uptick in viral infections this winter due to seasonal influenza, human parainfluenza viruses (HPIV), and respiratory syncytial virus (RSV). As health care workers, we have a responsibility to provide the best care for our patients, and the viral season is a prime opportunity to review and evaluate our expectations and responsibilities.

Defining the usual suspects

The viruses noted above can lead to problems for our patients on several fronts. The four strains of HPIV cause common respiratory tract diseases in children. HPIV-1 and HPIV-2 cause laryngotracheal bronchitis (croup), with HPIV-1 the more common strain and HPIV-2 less commonly detected. HPIV-3 is a commonly detected virus in cases of bronchiolitis and viral pneumonia, whereas HPIV-4 is rarely detected. However, recent research suggests HPIV-4 is more common than previously thought and is the cause of more serious viral respiratory infections in children.[1]

RSV is a common viral infection in humans. The Centers for Disease Control and Prevention (CDC) estimates that almost all children will experience an RSV infection by their second birthday. RSV is most commonly associated with bronchiolitis and pneumonia in infants and young children; and its prevalence is noted during the fall, winter, and early spring months. At-risk children include infants born before 32 weeks gestation, other infants, and children younger than two years old with congenital heart disease or who have been treated for chronic lung disease. Infants born before 35 weeks gestation who have either congenital abnormalities of the airway or a neuromuscular disease that compromises handling of respiratory secretions are also at risk.[2]

Seasonal influenza is a contagious respiratory disease causing mild to severe illness based on individual risk factors. Those considered at high risk include children less than five years, adults greater than 65 years, and pregnant women. Other conditions, such as asthma, chronic lung disease, heart disease, and other chronic conditions, can put an individual at high risk for seasonal influenza as well.[3]

A patient safety issue

While there are currently no vaccines for HPIV or RSV, there is something we all can do to help prevent the transmission of influenza to our patients: Get a flu shot.

During past influenza seasons, an estimated range of 3,000–49,000 deaths have occurred annually as a result of the influenza virus. This estimation covers the 30-year period preceding 2007. Accuracy of these numbers is sketchy because states are not required to report seasonal influenza deaths in adults over 18 years to the CDC. However, the data is still meaningful as the CDC considers the scientific model used to collect this information sound.[4] Based on these numbers and the high mortality, the CDC recommends annual vaccination of health care workers.

Maximization of influenza vaccination for health care professionals is an important part of any comprehensive infection control program. Yet through the 2009–2010 influenza season, and estimated by the CDC for the 2010–2011 season, health care professional vaccination rates have stalled at 61–63%. Health care employers who provide vaccination to employees free of

about the author...

Jeffrey Davis, BS, RRT, is director of respiratory therapy at the UCLA Ronald Reagan Medical Center in Los Angeles, CA.

charge and offer convenience to recipient employees report vaccination rates slightly higher than the average at nearly 68%.[5]

To improve on these rates, and in an attempt to ensure safe and effective coverage of influenza vaccination, health care organizations have begun mandating vaccination of health care workers. Adjusting policy to make it a condition of hire to receive annual vaccination is an aggressive strategy, but early results demonstrate an impressive 98% vaccination rate of employees in these facilities.[5] If health care facilities are to provide the best care and safest environment for their patients, mandatory vaccination of health care workers may be the next direction for the health care community.

Indeed, the CDC reports that many experts now view health care worker vaccination as a patient safety issue. Volunteer vaccination programs have limited growth in vaccination rates, and mandatory vaccination is gaining support. In July 2010, the International Society of Infectious Disease asked the CDC to recommend mandatory vaccination of health care workers by their employers. Also in July 2010, the Washington State Hospital Association board unanimously approved a policy that hospitals require their employees to either receive an annual influenza vaccination or wear a surgical mask at all times in patient care areas during the seasonal influenza period. Hospitals that have implemented similar programs have shown vast improvements in employee vaccination rates.[6]

A case in point

Las Palmas Del Sol HealthCare System in El Paso, TX, has implemented such a program. With more than 650 beds in the hospital system, Las Palmas Medical Center and Del Sol Medical Center employ more than 2,000 people. In 2008, the health system implemented a policy requiring employee vaccination with Tdap (tetanus, diphtheria, pertussis), MMR (measles, mumps, rubella), varicella (chickenpox), and the seasonal influenza vaccine. Employees may opt out only for medical reasons with physician documentation or religious reasons verified by a recognized community religious leader. Vaccination rates have improved to 99%, and in four years the hospital system has not had one nosocomial transmission of any of these diseases.

Todd Chambers, RN, director of employee health and infection control at Las Palmas Medical Center, argues the case for mandatory vaccination of health care workers. "It's about patient safety, not employee 'choice,'" he said. "Employees volunteer to go into health care, and as such are required to abide by hospital policy. Patients don't have a choice but to come to us for medical care. If we consider 'do no harm,' employees should be vaccinated against preventable disease. We can argue until we are blue in the face whether the influenza vaccine is effective. That argument is immaterial. Even at 50% effectiveness (on bad years), that prevention rate prevents the spread of influenza 50% of the time."

Chambers added that beginning in July 2012, Texas Senate Bill 7 will require *all* direct health care providers to participate in their hospital's vaccination program. This will include physicians and other independent practitioners practicing in health care facilities.

The Joint Commission has recently updated Standard IC.02.04.01, "Influenza Vaccination for Licensed Independent Practitioners and Staff for CAH, HAP, and LTC Accreditation Programs," as well. In this standard, facilities must have a program in place for staff vaccination to achieve an incremental goal of 90% participation by the year 2020. This standard becomes effective July 1, 2012. A detailed slide show from The Joint Commission is available at http://influenza.s3.amazonaws.com/start.html.

Ensuring a safe environment

As health care professionals, respiratory therapists work at the forefront of patient care and are at high risk of transmitting nosocomial infection, both to and from their patients. We must ensure a safe environment. In addition to educating our patients and their families about the importance of following infection-control measures and getting their annual influenza vaccinations, that includes following hospital or health care facility policies regarding infection control.

Good hand-washing techniques and proper infection-control isolation precautions followed every time, all the time, should be the standard of care from which we all start. Personal health hygiene, such as covering when coughing and sneezing, and staying home when sick or with fever, is necessary to assure we are providing the safest care for our patients. Finally, annual vaccination from seasonal influenza should be the standard for all health care providers unless personal health or religious reasons prohibit. ■

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The member chosen as the Photo-of-the-Year winner will see his or her photograph on the **COVER** of the February 2013 issue of ***AARC Times***!

WHAT KINDS OF PHOTOS ARE WE LOOKING FOR?

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

JUST FOLLOW THESE SIMPLE RULES:

- Provide a signed release for any patients or co-workers pictured in your photos. Members can sign in to access the form at **www.aarc.org/members_area/aarc_times/photo_contest/index.asp** or it can be faxed to you by calling Karen Singleterry at (972) 406-4661. Photos cannot be published without signed releases.
- Send a brief background story with the photo.
- Photos will not be returned and become the property of the AARC.
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- You must obtain permission from those photographed to enter the contest.

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

NO	YES

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

➡ **Most digital cameras give you a choice of settings for images**. Photos taken at lower settings take up less room on your memory card but may not be useable for a high-quality magazine cover. Set your camera for the highest megapixels (10 MP or higher) and save it as JPEG.

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

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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 Association for Respiratory Care (AARC). Since 1990, health professionals from more than 50 countries have shared experiences, knowledge and developed lasting friendships through this exceptional program.

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Learn more and apply at: **www.aarc.org/resources/international_fellows/**

APPLICATIONS ACCEPTED JANUARY 1—JUNE 1

American Association for Respiratory Care
International Fellowship Program

AARC

Remembering a Full, Vibrant Life

2011 AARC Photo of the Year honors a family matriarch

by Debbie Bunch

This month's cover photo is bittersweet for our 2011 Photo-of-the-Year Contest winner, Kerry McNiven, MS, RRT. Her mother-in-law, Julia L. McNiven, who is pictured with "Eli," a shih-poo belonging to one of her children, passed away not long after the picture was snapped at a family gathering on Cape Cod.

"The photo was taken in June of 2011," says McNiven, director of clinical education at Manchester Community College in Manchester, CT. "The family clan — cousins, siblings, grandchildren, spouses — were there for a memorial service to honor my father-in-law, Richard McNiven, who died in November of 2010." She and her whole family see the image as a terrific way to remember a woman who inspired them all, not only with the rich and full life she led until idiopathic pulmonary fibrosis (IPF) claimed it last fall, but also with the determination and grace she exhibited in the face of her disease.

A renaissance woman

"Julia can be described as a renaissance woman, always open to new ideas and challenges," says McNiven. "Whether it was painting or gardening, hooking rugs or learning photography, cooking, or traveling or teaching, she appreciated the opportunity to not only learn something new but to learn it well." The daughter of renowned mystery writer, John Dickson Carr, she also played piano and guitar and liked to sing. She was athletic too, enjoying skiing, golf, tennis, and hiking. "She was the pole around which everyone gathered and which family revolved," says her daughter-in-law. "She had a way of always making you feel that you were the most special person."

McNiven says IPF entered Julia's life in July of 2005. Just the weekend before she went into the hospital, she had been dancing at a wedding. But she knew she wasn't feeling up to par. The diagnosis was tough to hear, but she didn't let it get her down; and in fact she responded so well to prednisone that a year later she was able to be weaned from her oxygen. Unfortunately, IPF rebounded, and she was soon back on oxygen, prednisone, and other IPF medications.

Kerry McNiven

"Her health declined so rapidly that she was placed on hospice," says McNiven. But she still wasn't ready to give in — the indomitable spirit her family knew so well kicked into overdrive, and nine months later she had once again improved to the point where she was removed from hospice. "She was now able to take walks again, go grocery shopping, or go to the library," explains McNiven. Of course, as respiratory therapists well know, IPF is a tough opponent; and slowly but surely it took over again. In the last year of her life Julia became increasingly weak, unable to even walk down the driveway to get the mail or newspaper, and trips to her beloved library proved exhausting.

A second set of ears

Given her background as a respiratory therapist, McNiven took the lead in the family when it came to shepherding Julia through the maze of health care required to treat her condition. "As an RT, I was Julia's advocate and

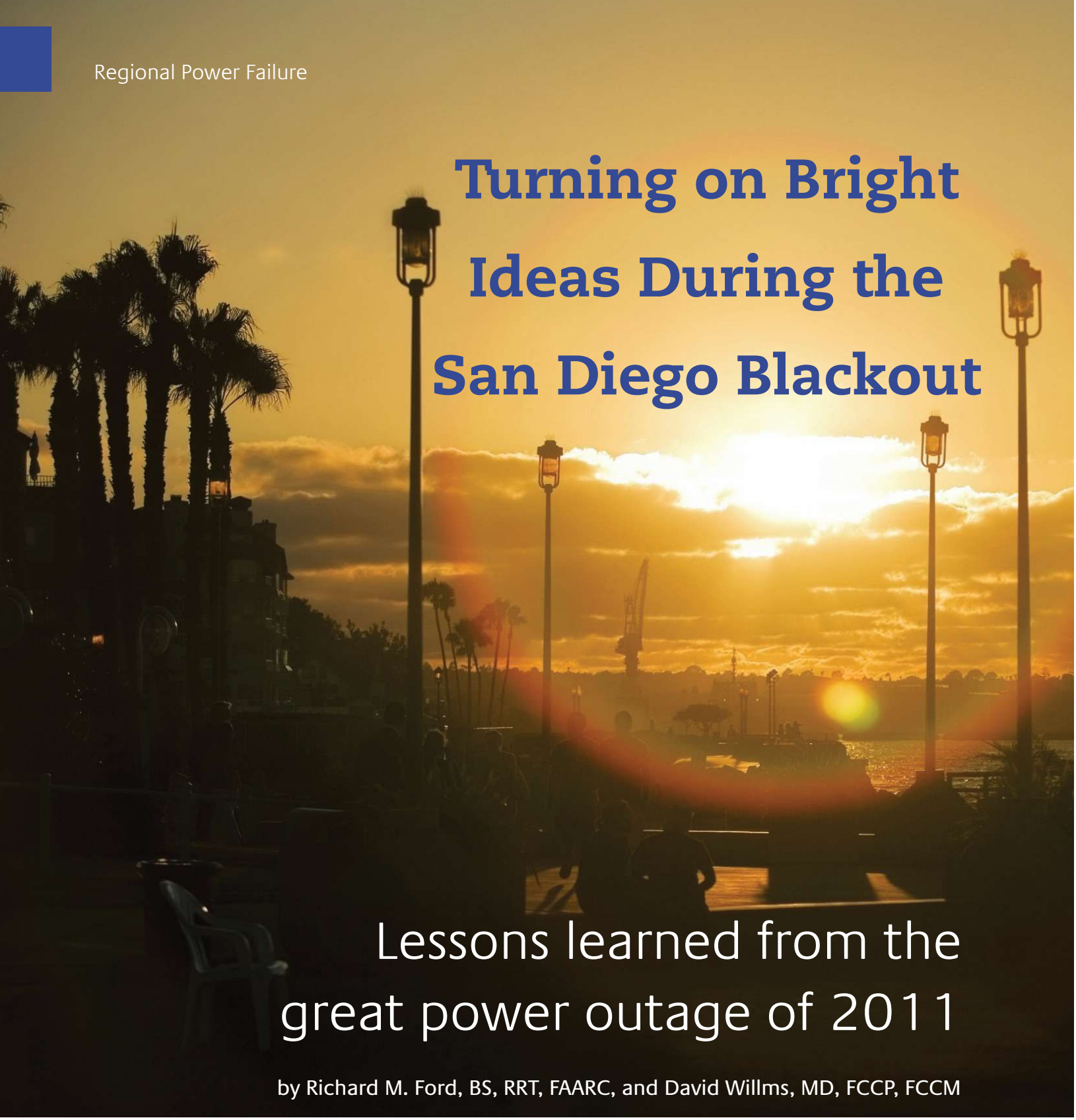
(continued on page 63)

2012 Photo Contest Tips from Our 2011 Winner

Our 2011 Photo-of-the-Year Contest winner, Kerry McNiven, MS, RRT, has some great suggestions that can help you take an award-winning photo for our 2012 contest:

- Read the contest directions before you get started, and be particularly cognizant of the fact that the photo must be vertical rather than horizontal (i.e., it should be taller than it is wide).
- Also be sure to use a camera that will take high-resolution photos. Most newer digital cameras will take photos of this quality when set at the highest resolution setting.
- Look at the background before you take the shot. Is there a tree limb coming out of someone's head or will the lighting block part of the shot? Consider every element of the photo before clicking the shutter.
- Put yourself in the best position to get the shot, even if that means getting down on the floor or up on a chair.
- Make the picture tell a story. A picture that conveys some emotion is always preferable to one that doesn't.
- More is not always better. Don't clutter your photo with unnecessary components.
- Digital "film" is cheap, so take lots and lots of shots. The time-consuming part is looking through all your photos on your computer. Trash the ones that are not flattering and choose your entry from the three-to-five best shots.
- Cropping can sometimes be a miracle worker when it comes to taking an average photo and making it special.

The 2012 contest is underway now, so get your cameras out and start snapping photos of your colleagues and patients in action today! ■



Turning on Bright Ideas During the San Diego Blackout

Lessons learned from the great power outage of 2011

by Richard M. Ford, BS, RRT, FAARC, and David Willms, MD, FCCP, FCCM

When the lights went out in San Diego last September, respiratory care departments made sure their patients remained safe and sound.

"We hope ideas continue to be
generated and shared so we can
be even better prepared for the next challenges."

On Sept. 8, 2011, a sudden massive power outage in Southern California resulted in loss of electrical power to approximately 5 million people from Mexico to southern Orange County, including all of San Diego County. All residences, businesses, and public facilities were affected to a variable degree, the impact depending on whether or not the facility had functioning backup electrical generators.

Power was restored to most areas 12–16 hours later. Following the event, on Sept. 30, 2011, respiratory therapy department managers from multiple hospitals in San Diego County came together for a debriefing session, with particular focus on departmental function, mechanical ventilation, and medical gas delivery. Managers described their experiences, shared lessons learned, and talked about how we could assist each other within our San Diego respiratory care department community.

Through this format, we were able to identify a number of common problems that affected respiratory departments in particular, and hospitals in general. In addition, several suggestions were made for strategies to improve each facility's capacity to effectively respond to future disasters and protect patients receiving critical life support dependent upon electrical power. All attendees recognized the likelihood that the Sept. 8 power outage could represent a glimpse into the problems we may encounter in a much more extensive or prolonged regional catastrophe.

Problems and solutions

Managers from 13 area hospitals contributed to the debriefing, representing a wide range of the medical services provided in San Diego County, including general acute care, pediatrics, neonatal, maternity, trauma, and long-term ventilator care. Participants came from single-facility acute care hospitals, multi-hospital health care organizations, and a long-term acute care hospital. The number of patients receiving mechanical ventilation in these hospitals at the time of the power loss ranged from two to more than 30.

The following are some of the problems identified during our debriefing session and how managers and their hospitals coped with them.

Power generator failure: Although backup electrical generator capacity was in place at all the local hospitals and had been tested on a regular basis, the extreme and sudden power demand posed by the complete failure of the electrical power grid caused some hospital generators to experience excessive power demand, leading to generator shut-down and failure. In these cases, the usual "red plug" power outlets provided no power for a period of time, causing connected devices to shift to battery power if available.

Where this situation occurred, hospitals faced the potential for failure of invasive and noninvasive mechanical ventilators. All hospitals reported a primary ICU ventilator fleet that contained onboard batteries, with a variable expected duration of function. Noninvasive ventilation (NIV) was more problematic in those facilities with generator failure, as the most commonly used NIV ventilator in most hospitals in San Diego lacked an onboard battery. In some cases, battery-powered critical care ventilators could be adapted for patients requiring continuous NIV. Concerns were also raised about generators powered by gas or diesel fuel of limited supply, given the prolonged nature of the blackout. Our plan for replacement fuel sources became more of a concern with traffic gridlock and the inability to pump gas from stations, which virtually all depend on electrically driven pumps.

Loss of medical air: In several cases, the medical air supply was lost, as the compressor serving the storage tank lost electrical power and tank reservoir pressure dropped as gas was consumed. The drop in medical air pressure resulted in alarm conditions for low air inlet pressure and high inspired oxygen detection, as delivered gas came solely from the oxygen input. Facilities reporting loss of medical air adjusted the set FiO_2 to 1.0 for the duration to reduce the alarm conditions created. While adult ICUs did not see an FiO_2 of 1.0 as a significant issue for a short period of time, this was not the case in the neonatal intensive care units (NICUs). The one NICU represented in our debriefing session reported having a system in place to quickly isolate and back-fill the wall air outlets with medical air from a bank of cylinders stored for that purpose, avoiding the situation in which ventilators and other systems would

deliver high fractions of inspired oxygen to neonates.

■ **Location of equipment and elevator non-function:** In most cases, only limited or no hospital elevator function was noted in the hospitals. As a result, some staff and visitors were trapped in elevators; and it was difficult to transport heavy equipment between floors, especially mechanical ventilators. At several of the hospitals, the primary storage area for ventilators was on a different floor than the ICUs or other high-acuity areas (ED, post-anesthesia care unit) where ventilation might be needed. In hospitals where elevators were operational under emergency power but generators failed, staff were unable to efficiently move ventilators in storage to the ICUs. This created challenges to providing equipment for new ventilator patients or accommodating the need to replace a ventilator in the event it lost battery power. Likewise, access to some of the hospitals' emergency supplies was impeded by lack of elevator function or lighting.

■ **Vacuum loss:** Similar to medical air, in some cases hospitals lost wall vacuum function during the electrical outage, necessitating the use of portable manual suction devices.

■ **Oxygen backup supply:** In at least one case, a hospital was unable to obtain additional oxygen cylinders from a local gas supplier, as the supplier's trucks were unable to obtain drivers or fuel for their delivery trucks.

■ **Communication breakdown:** Although most hospital landline telephones continued to work during the power outage, cellular service was spotty and intermittent. Voice, Internet, and text messaging were severely impeded in most of the hospitals reporting. This resulted in difficulty in contacting and instructing off-campus staff with regards to staffing needs and preparation, as well as staying informed on the local situation and expectations for recovery of electrical power. Most paging systems were down. Hospitals with staff carrying Sprint/Nextel radios had effective intra-hospital communication. The situation was compounded by reports of massive traffic jams on many area streets and freeways. In at least one case, a department relied on a hand-cranked radio to receive outside status reports on the disaster situation.

San Diego area (see red box) during the blackout.

■ **Lighting:** In almost all cases, varying degrees of darkness resulted from the lack of electrical power. In those hospitals where generator failure occurred, many hospital areas were pitch-dark. In others, only "essential" lighting was powered by backup generators, leading to problems with providing care, using toilets, and other functions in cases where flashlights or lanterns were not readily available. Facilities reported cooperation from selected local stores (Food4Less, Wal-Mart, and Home Depot); while closed to the general public, the managers of these stores recognized the need to assist hospital facilities and provided escorted access to acquire flashlights, batteries, and food supplies as needed.

"Not one single adverse patient outcome due to the power outage was reported in the San Diego media or directly from any of the managers participating in our debriefing session."

■ **Heat:** Air conditioning was lost in many areas of most hospitals. In addition to staff and patient discomfort, this caused significant concern in various departments over possible overheating and potential for malfunction of servers, blood gas machines, laboratory analyzers, and other sensitive electronic equipment. One facility reported that the overheating of lab equipment resulted in

a fire, which was quickly extinguished. In several instances ice and coolers were brought in to provide cooling measures for equipment or patients.

■ **Food:** Several facilities reported that lack of available food for patients and staff became a problem. Hospitals with insufficient stored/prepared food were unable to adequately meet the needs of patients and even staff, many of whom worked prolonged shifts due to the crisis. Most local grocery stores and restaurants shut down, so sending out for food was unsuccessful in most cases.

■ **Hygiene:** Sinks with electronic motion-activated faucets would not dispense water once electricity was lost. Only manual faucet sinks could be used for hand washing.

■ **Information systems:** Limited access to patient data was seen in some hospitals where a component of the system or network was dependent on power and an emergent power source was either unavailable or failed. Facilities reported the readiness to use backup paper systems and print out batch reports and patient data in anticipation data may not be available online if a critical component of the network failed. Department-based "fat clients" — in which the charting application resides on a battery-powered point-of-care charting device — ensured no respiratory care data was lost in hospitals with these types of systems. In most cases, the electronic medical records (EMRs) remained functional.

■ **Medication access with Pyxis® off-line:** Electronic control of drug inventory in most hospitals lies with the Pyxis medication dispensing system. With power off, medication access was initially limited. Where feasible, pharmacists were able to manually open Pyxis and allow drug dispensing without the usual electronic controls.

■ **Home care patients with ventilators, concentrators:** Local media communicated an erroneous message, saying that the use of oxygen cylinders at home during the power outage might cause a fire. Consequently, many patients came to the ED for help. Those with only oxygen concentrators at home, or nebulizers in regular use, also came to the ED for assistance. In many instances, staff accommodated these patients by using nasal cannula wall oxygen or portable generators to power or charge their equipment. Hospitals also provided access to power and a bed for patients on home care ventilation without formally admitting these patients in order to prevent shut down of home systems as batteries were depleted.

Preparing for the future

The members of our debriefing group came up with a number of measures they believe could help other hospitals prepare for a situation similar to the one we faced on Sept. 8:

- ☐ In anticipation of ventilator shutdown as battery power ceases, place standby ventilators with fresh batteries in ICU areas.
- ☐ In cases where "hot swappable" batteries can be used for ventilator power, move batteries to each bedside.
- ☐ Triage available staff to be at the bedside of ventilated patients and prepared to begin immediate manual ventilation using resuscitation bags if ventilator batteries fail. This is a top priority.
- ☐ Staff should not assume emergency generators will continue to run and have contingencies in place to support ventilation without any internal power. Alternately, they should have plans to move patients to a facility with equipment and/or systems that can provide support.
- ☐ When medical air becomes unavailable, adult ventilators can be switched to FiO_2 1.0 to avoid continuous alarm situations, although an FiO_2 of 1.0 will be delivered by most ventilators regardless of FiO_2 setting. This precaution is particularly important in the newborn areas.
- ☐ In the NICU, staff should back flush compressed air from cylinders into the air system to avoid the need for delivery of high FiO_2 to babies.
- ☐ When Internet access is still available, the use of Google's mass-texting function can allow communication to many staff at one time.
- ☐ Consider placing some or all reserve ventilators on the same floors as the ICU and ED to avoid the need for elevator transport.
- ☐ Use pneumatic-driven ventilators as backup for usual ICU ventilators if batteries fail; it may be necessary to increase available supply.
- ☐ Consider storing sufficient ice and coolers to apply near heat-sensitive equipment.
- ☐ Prepare disaster bags, stocked with lanterns, lights, gloves, and other emergency items needed in a power failure; adequate numbers of flashlights or battery-powered lanterns should be distributed throughout the hospital for ready access.
- ☐ Have battery or hand-crank radios on hand to get outside information.
- ☐ Consider distributing a list of landline numbers specific to respiratory departments to area hospitals in case the sharing of equipment is needed.
- ☐ Provide simplified paper forms for charting in the event of EMR outage.
- ☐ Keep available a sufficient manual suction device supply.
- ☐ Consider stocking multiple portable generators.

A Cascading Event

What caused the power to go out in San Diego and surrounding areas last September? According to news reports, the outage was triggered when an Arizona Public Service worker who was replacing some equipment near Yuma accidentally knocked out a high-voltage transmission line that feeds power to San Diego Gas & Electric. While officials do not believe that incident alone caused the problem, it did lead to a cascading event that resulted in the complete shutdown of the San Onofre Nuclear Generating Station and other conventional power plants in San Diego County. The Federal Energy Regulatory Commission and the North American Electric Reliability Corporation are investigating the event, as is the California Public Utilities Commission. Reports are expected out soon. ■

about the authors...

Richard Ford, BS, RRT, FAARC, (top) is director of respiratory services at the University of California San Diego Medical Center in San Diego, CA. David Willms, MD, FCCP, FCCM, is medical director of critical care at Sharp Memorial Hospital, also in San Diego.

No adverse events happened

Not one single adverse patient outcome due to the power outage was reported in the San Diego media or directly from any of the managers participating in our debriefing session. Most department managers had been on site at the start of the event, with the ability to manage resources, respond to the situation at hand, and ensure patient safety was maintained. Department managers and their staff were familiar with the technology, resources, and capabilities needed to make decisions that prioritized the support of critical systems.

It is noteworthy that while collaboration with the incident command center at their facilities was important, both managers and staff at these facilities were somewhat "on their own" to assess problems and make the urgent critical decisions to support ongoing patient care.

We hope ideas continue to be generated and shared so we can be even better prepared when we face the next challenges. ■

American Respiratory Care Foundation

Every year the American Respiratory Care Foundation (ARCF) joins with sponsors from the health industry to award up to $29,008 to respiratory therapists and physicians through its education recognition, fellowships, grants and awards programs.

Award Programs

For more information, or to apply for one of these awards, contact the ARCF Executive Office, 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706, (972) 243-2272, fax (972) 484-2720, email arcf@aarc.org.

ACCESS ARCF ONLINE AT WWW.ARCFOUNDATION.ORG

Grants, Awards, and Fellowships

Community Grants
Community grants are made from funds raised through the annual Ventilator 5K events. These support a wide variety of community events to raise awareness of lung diseases, educate the public and assist patients.

Undergraduate Student Awards
The ARCF has several award programs available to students currently enrolled in accredited respiratory care education programs.

Postgraduate Student Awards
Two award programs are available to respiratory therapists who hold a Baccalaureate degree and seek an advanced degree.

Research Fellowships/Abstract Awards
Fellowships are awarded to researchers having quality abstracts accepted for presentation at the AARC International Respiratory Convention & Exhibition.

Achievement Awards
The ARCF presents these prestigious awards to professionals in recognition of their dedication and commitment to respiratory care.

Literary Awards
All papers submitted in the science journal Respiratory Care are automatically considered for these awards.

Research Grants
Research funds are available to qualified investigators in the field of respiratory care.

Other Funding Sources
These are sources that we are aware of that also offer funds and grants to researchers and students.

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RT Students Making a Awareness Activities

RT Student Club Plans Events To Promote Lung Disease Prevention

Editor's Note: Respiratory therapists often plan and hold respiratory awareness events in their communities to educate the public. What's less common is that some RT students are taking the initiative to drive these important community awareness events. This article shows what some students are doing in different parts of the country and how they're making a difference in the public they serve.

by Brandi Muilenburg

I am a respiratory therapy student at Tacoma Community College in Tacoma, WA, where the respiratory care students do a lot to remain active in the respiratory community. Our respiratory therapy program has initiated a respiratory care club run by the students, and we are in charge of planning and participating in community events to raise public awareness about lung disease.

A few months ago, several of our club members constructed a curriculum and presented it to a group of teen camp staff members this summer in Vashon Island, WA. The curriculum consisted of signs and symptoms of asthma in children as well as ways of treating it. Camp staff learned about the use of inhalers, nebulizers, spacers, and peak flow meters. They also had hands-on time with equipment to help them understand the proper use of each device.

During one exercise, we provided camp staff with small coffee straws and instructed them to breathe through a straw to simulate how a child feels when having an asthma attack. They were very shocked at how hard it was to breathe through the straws for any length of time. Our respiratory club members answered all the camp staff questions and were invited back to provide educational sessions for kids in the camp.

The respiratory club also planned and presented the Tacoma Community College Inaugural Respiratory Care Conference last September, as well as participated in a mass casualty exercise with the medical team at McChord Air Force Base, where RT students learned about military protocols and spent time in the respiratory lab learning about air lifts. We also participated in several local community activities in recent months.

It's important for respiratory therapists to interact with the community and share their knowledge about lung disease prevention. The respiratory students here plan to continue our activities to raise our skill level in various areas of the profession and share what we know about lung health with the public. ■

Difference in Lung in their Communities

RT Students Educate Local Children on the Dangers of Smoking

Snapshots of our lecture on "Smoking Education" for classes at Benjamin Franklin Middle School in Virginia

by Lori Ghiringhelli

I am a senior respiratory therapy student at Jefferson College of Health Sciences in Roanoke, VA. Patient education and lung disease awareness are passions of mine. I recently had the pleasure of presenting an hour-long lecture on "Smoking Education" to four separate classes at Benjamin Franklin Middle School in Franklin County, VA.

I gave the presentation in place of the 8th grade students' normal health class. They saw a PowerPoint presentation about the bad effects of smoking on health and participated in hands-on activities that demonstrated the feeling of having a lung disorder.

The show stopper for teachers as well as students was the hands-on experience with two sets of pigs' lungs. One set of lungs was a normal, healthy pink set that was inflated to demonstrate how healthy lungs function. The second set of lungs was black, showing disease and a cancerous tumor; this set of lungs was also inflated and demonstrated difficulty breathing, how dangerous smoking is to the lungs, and the irreversible damage it causes. I encouraged the students to touch the lungs and ask as many questions as they wanted, and they sure did!

The students completed a short questionnaire prior to the lecture so we could obtain a baseline of their knowledge about the effects of smoking. They received the same questionnaire after the lecture. Out of 120 students who participated, we had a 99.9% improvement of understanding in the material they learned. The lecture successfully delivered an important message about tobacco abuse: "Be Smart, Don't Start!"

Respiratory therapy students can easily perform smoking awareness classes like this in their areas of the country. It's an important way RTs can spread the word about the dangers of smoking and give back to their community. ■

If you are a respiratory therapy student and AARC member who has been organizing these kinds of community activities, contact the AARC and tell us your story so we can continue the conversation about RT student participation in the profession and the community. Contact us at Cathcart@aarc.org and place "Student Community Awareness Activities" in the subject line. Then briefly describe your respiratory student activities. Don't forget to send us some high-resolution photos of your events!

Marketplace

Featuring information on products and equipment from manufacturers

New Platform for Sleep Software

Sleepware G3 from Philips Respironics represents a new platform for what was formerly Sleepware software. The platform offers many benefits for sleep lab owners and technicians, including enhanced functionality, workflow, and performance efficiencies suited to the needs of individual sleep labs. Managers can assign and monitor technologist and physician progress from initial patient referral to interpretation of the sleep study. Also, the User Login management feature allows laboratory managers more control over access to the program and patient data.
www.philips.com

High-flow Therapy Device

Flowrest®, a high-flow therapy device from Vapotherm that was developed specifically for home care and other low acuity environments, is indicated to deliver heated, humidified breathing gases via nasal cannula at flow rates from 15–35 L/m. The Flowrest provides patients with a new option for respiratory assistance that overcomes the well-documented issues associated with mask therapies, including problems with patient compliance and comfort. Via the patented technology, the device empowers the simple and comfortable nasal cannula to provide higher levels of respiratory support.
www.vtherm.com

Portable Ventilator

CareFusion's ReVel™ ventilator is a new high-performance, portable device designed for pediatric to adult patients who require breathing support during transport. A complementary addition to CareFusion's Alternate Care portfolio, the ReVel manages most critical, intubated, and noninvasively ventilated patients from the initial point of emergency, during transport, and through the hospital. At just 9.5 pounds, it is much lighter than the typical 20+ pound system and mounts easily in ground and air emergency vehicles. www.carefusion.com/revel

Blood Gas Analyzer

Nova Biomedical's blood gas critical care analyzer, the pHOx Ultra, features the broadest test menu in one analyzer, with 20 user selectable tests including pH, PCO_2, PO_2, sO_2%, Hct, Hb, Na+, K+, iCa, iMg, Cl-, Glucose, BUN, Creatinine, Lactate, CO-oximetry, and tBil. pHOx Ultra's large, high-resolution color touch screen offers fast and easy operation with exceptional readability. Onboard, automated True QC saves time and labor versus manual QC and assures optimum analyzer performance. The onboard Data Manager's networking and interface capabilities save thousands of dollars compared to the purchase of a separate data manager.
www.novabiomedical.com

Human Patient Simulator

Designed to simulate life-threatening situations, Gaumard Scientific's HAL S3201 allows instructors to change HAL's condition using a wireless tablet PC that operates up to 300 meters away. HAL S3201 provides lifelike feedback using real medical devices, including ventilators and 12-lead ECG monitors. Students can change lung compliance and airway resistance during scenarios so they can see humanlike respiratory waveforms on a real ventilator. HAL holds PEEP, triggers the ventilator, and exhales real and measurable CO_2. Students can choose from the thousands of cardiac rhythms or can create their own with the rhythm editor.
www.gaumard.com

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

Industry Watch

Dräger receives FDA clearance for emergency transport ventilator

Dräger has received FDA 510(k) clearance for its Oxylog 3000 plus emergency transport ventilator. The device allows critically ill or injured patients to be ventilated in emergency situations and/or during air ambulance or intrahospital transport. The device includes an option for integrated capnography, which can help clinicians recognize proper airway placement and monitor a patient's change in metabolism in confined spaces such as the air ambulance.

Invacare to assist providers with competitive bidding

Invacare Corporation has launched an action plan called "Act Now! Ask Me How" to help prepare providers for national competitive bidding (NCB). The campaign includes 18 actions providers can take to get their businesses ready for the future. "We've applied our real-life experience and the lessons learned from the first NCB round into the creation of an action plan for survival," Invacare Chair Mal Mixon was quoted as saying. "Providers need to act now to position themselves for success."

DeVilbiss data encryption technology integrated into Umbian software

Umbian Inc. has integrated DeVilbiss Healthcare LLC's IntelliPAP® with SmartCode® therapy data encryption technology into its U-Sleep software. "Our SmartCode technology, combined with the U-Sleep CPAP compliance monitoring solution, provides a powerful, convenient, and error-free method of monitoring CPAP therapy and compliance," says Craig Haba, vice president of marketing at DeVilbiss Healthcare.

GSK investigational drug looks promising

Data from a GlaxoSmithKline Phase IIB study of GSK573719, a long-acting muscarinic antagonist (LAMA), were presented at CHEST 2011 last October. GSK573719 is the LAMA component in LAMA/LABA (GSK573719/Vilanterol), an investigational product being developed by GSK under the LABA collaboration between GSK and Theravance. The 14-day crossover study, conducted with COPD patients, evaluated lung function following multiple dosages of GSK573719 monotherapy. Results showed once-daily dosing provided clinically significant and sustained improvement in lung function over 24 hours, with similar efficacy to twice-daily dosing.

FDA approves BI's new propellant-free inhaler

Boehringer Ingelheim Pharmaceuticals Inc. has received FDA approval for Combivent Respimat, a new, propellant-free inhaler that uses a slow-moving mist to deliver the same active ingredients of Combivent Inhalation Aerosol in a metered-dose inhaler (Combivent MDI). In a 12-week, randomized, double-blind, placebo and active-controlled clinical trial, Combivent Respimat was shown to be clinically comparable to Combivent MDI in terms of FEV_1. Treatment was administered to COPD patients four times a day. Combivent Respimat is expected to be available for patients in mid-2012.

Kimberly-Clark Health Care named Company of the Year

Kimberly-Clark Health Care was named Company of the Year, Medical Device Category, in the *PM360* Trailblazer Awards competition. Established in 2009 by leading trade publication *PM360*, the Trailblazer Awards are given to outstanding companies, marketers, and brand managers representing top talent and brands. Company of the Year judging criteria included innovation in marketing and advertising, talent development, and social responsibility. Kimberly-Clark Health Care was recognized for its industry leadership.

Covidien enters into agreement with Aircraft Medical

Covidien has signed an exclusive agreement with Aircraft Medical to market and distribute the proprietary McGrath® MAC video laryngoscope in the United States, United Kingdom, Japan, Latin

America, Australia, and New Zealand. "Our partnership with Aircraft Medical demonstrates our commitment to deliver clinical value and improve patient outcomes in fast-growing critical-care markets throughout the world," says James E. Willett, vice president and general manager, Respiratory Solutions, Covidien. "Covidien revolutionized intubation with the innovative TaperGuard™ endotracheal tube, which has been shown to improve patient safety by reducing the risk of microaspiration in intubated patients. By offering the McGrath® MAC video laryngoscope to our customers, Covidien can provide critical care practitioners with a complete intubation solution to meet their patients' varying needs."

Agennix AG publishes Phase II study on cancer drug

Last fall the *Journal of Clinical Oncology* published data from a Phase II randomized, double-blind, placebo-controlled clinical trial evaluating Agennix AG's oral immunotherapy, talactoferrin, in patients with previously treated non-small cell lung cancer. Conducted in patients for whom one or more prior lines of anticancer therapy had failed, the study achieved its primary endpoint of improvement in overall survival. Talactoferrin also appeared to improve survival across a broad range of patient subsets, including those with squamous and non-squamous histologies. The results served as the basis for the ongoing talactoferrin Phase III Fortis-M trial, which is being conducted in patients whose disease has progressed following two or more prior treatment regimens.

Acton Pharmaceuticals study: drug did not suppress growth

According to Acton Pharmaceuticals Inc., inhaled flunisolide HFA did not suppress growth or bone maturation at the highest approved dose for children with mild persistent asthma in a Phase IIIB clinical trial published in the October *Annals of Allergy, Asthma & Immunology*. The double-blind, placebo-controlled study involved 218 prepubescent children with mild persistent asthma. After a two-week run-in period, subjects were randomized to two puffs of flunisolide HFA twice daily (85 μg/puff) or placebo for 52 weeks. Height was assessed by stadiometry at each visit, and growth velocity (cm/52 weeks) was estimated by the slope of the linear regression of height over time. No statistically significant difference was seen between flunisolide HFA versus placebo in linear growth or bone maturation.

Hamilton Medical teams up with HealthTrust Purchasing Group

Hamilton Medical Inc. has signed a multiyear agreement with HealthTrust Purchasing Group LP to make its transport ventilation systems available to HealthTrust's hospitals nationwide. "Hamilton Medical is honored to be partnering with HealthTrust and its member hospitals," Hamilton Medical President Robert Hamilton was quoted as saying. "We look forward to helping these top-notch hospitals in their mission to improve patient outcomes and reduce medical costs." The HealthTrust Agreement provides a diverse ventilator system and advanced ventilation technology portfolio through Oct. 31, 2015.

Associations tackle patient infections in new campaign

The Association for the Healthcare Environment and the Association for Professionals in Infection Control and Epidemiology have teamed up in a new educational campaign called "Clean Spaces, Healthy Patients." The initiative (www.apic.org/cleanspaces) is designed to help infection prevention and environmental service professionals combat health care-associated infections.

MicroDose begins trial of RSV medication

The first human subject has been dosed in a Phase I clinical trial of MDT-637, MicroDose Therapeutx Inc.'s inhalable small molecule antiviral fusion inhibitor for the treatment of respiratory syncytial virus. The Phase I trial follows the reactivation of the U.S. Investigational New Drug for MDT-637 as reformulated for delivery using MicroDose's proprietary dry-powder nebulizer. The single-ascending dose, randomized, placebo-controlled trial is studying the safety, tolerability, and pharmacokinetics of MDT-637 in 48 healthy adult subjects. MDT-637 is a fusion inhibitor that has been shown to block RSV infection in preclinical testing.

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

RC Currents

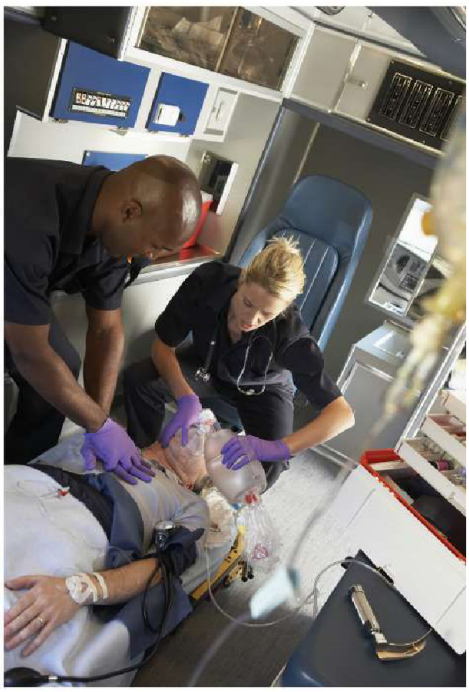
IN THE NEWS

National Disaster Medical System Looked for RT Recruits at AARC Congress 2011

The National Disaster Medical System (NDMS) had a booth in the AARC Exhibit Hall during Congress 2011 that educated attendees about offering their expertise to help during disasters. *AARC Times* talked with the NDMS booth staff at the meeting.

***AARC Times*: We understand the National Disaster Medical System (NDMS) is actively recruiting RTs at the AARC Congress to serve on response teams through the Department of Health and Human Services (HHS). You've said quite a few people have signed up — how many?**

We have 124 people who have displayed an interest here at the AARC Congress. The interested individuals will be referred to the administrative officer of the Disaster Medical Assistance Team (DMAT) in their area. We are excited to see so much interest in becoming a DMAT employee. Individuals who become NDMS employees are considered federal employees used intermittently. NDMS employees are compensated when they are deployed or at approved trainings. Compensation includes salaries at their hired GS level, travel, per diem, and lodging. During deployments, individuals are covered under the Federal Tort Claims Act, USERRA, and Workers' Compensation (based on their federal government hiring and time employed as an NDMS employee).



NDMS response teams are on a rotation basis throughout the year for call up. Usually each month there are approximately 12 teams on call. Rotation schedules are released throughout a year ahead so that team employees can plan ahead. At times, some responses call for extra resources, so it is not unusual to see requests for specific medical disciplines to assist off of the normal call month.

***AARC Times*: What are some of the specialty teams that you're trying to recruit respiratory therapists for and why?**

As we looked at increased capabilities during responses, we recognized that there were critical care skill sets not fully developed in our response teams. One such important discipline is the respiratory therapist. We recognize the importance of this role in our deployments, especially if we are called on a mass casualty event. NDMS also has a new response asset called the Mobile Acute Care (MAC). This need arose when we looked at past responses such as patients being transferred via air. As our patients are increasingly more critical, we know that transporting these patients becomes a challenge. The MAC team will provide critical care skill support at the flight line before patients transfer.

We also recognize that if an event that occurred would need massive respiratory support, we would have a challenge. The skill set that the respiratory therapist has is so special and can only enhance our nation's capability during a response. Belonging to a DMAT is very rewarding.

Currently, we have about 80 respiratory therapists who have applied online for DMAT teams since *AARC Times* published the cover story on DMATS in October 2011.

***AARC Times*: Have you been working with the AARC to identify RTs who would be willing to serve in this capacity?**

We greatly appreciate the AARC for the invitation to speak to the respiratory therapists and hopefully recruit many to NDMS. The people coming by the booth are enthusiastic about the program and are very willing to sign up. You have a lot of heroes here.

To learn more, log on to: www.phe.gov/preparedness/pages/default.aspx. ■

EPA Seeking Asthma Award Applications

The Environmental Protection Agency (EPA) has opened up the application process for its 2012 National Environmental Leadership Award in Asthma Management. The award is given every year to recognize asthma management programs for their leadership in asthma management, delivery of comprehensive asthma services, and achievement of remarkable quality-of-life improvements for people with asthma. Twenty-one programs have received the honor over the seven years of the program's operation.

The application process is open to health plans, health care providers, and communities who are working to:

- Address environmental triggers as part of a comprehensive asthma program
- Foster high-performing collaborations and partnerships
- Improve the daily lives of people with asthma by promoting healthy homes, schools, and workplaces.

If you're involved in an asthma program that includes an environmental component, go to the award webpage (www.asthmaawards.info) to learn more about this national award program, watch a great video of the 2010 awards ceremony, and apply for the 2012 award. The application deadline is Feb. 21, 2012. ■

Respiratory Care Education Annual Call for Papers

The AARC will publish Volume 21 of the *Respiratory Care Education Annual* in the summer of 2012. 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."

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 in the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals," 5th edition (1997). These may be found at www.rcjournal.com/guidelines_for_authors/preparing_the_manuscript.cfm. Abstracts should not exceed 250 words. 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 Bill Dubbs at dubbs@aarc.org. Deadline is Feb. 29, 2012. ■

Enter the 2012 AARC Photo Contest

AARC Times is looking for creative members to enter our AARC Photo Contest. Winners will receive a free one-year membership renewal and have their photo entered into our Photo-of-the-Year Contest with the chance of it being chosen to appear on the February 2013 cover. For instructions and guidelines, select the *AARC Times* icon on www.AARC.org and click on the "Photo-of-the-Year Contest" link. Deadline is Oct. 1, 2012. ■

Military Minute: Joseph Buhain, MBA, RRT, NREMTB

Joseph Buhain, MBA, RRT, NREMTB

AARC Times: Which branch of the service are you in, and how long have you served?
Joseph Buhain: I'm currently a lieutenant (junior grade) in the U.S. Navy. However, I served for 17 years in the Army and National Guard. I left the Army as an E-7 or sergeant first class only to take the commission of the United States Navy. Both areas have served me well.

AARC Times: Where have you served?
Buhain: I served in Iraq and Afghanistan and the Gulf War. Other areas of non-combat service include Norway, Germany, and Haiti. I have served with many active units such as the 2-124 Inf, 407th Special Operations, 452nd CSH, and 13 Coscom.

AARC Times: What was your most interesting or heartwarming experience related to your military service?
Buhain: Meeting people of different cultures when going overseas, and seeing different medical procedures and advanced medical techniques. I recall one experience in the Army. Working with special operations is a unique experience. I was tasked to go on a mission in the desert where a small community of Afghan tan communities was in need of some support. Special operations flew in with a medical crew in the morning. Within one hour of touchdown, a small medical team was dispatched and treatment was underway. Treating kids with dysentery, malaria, and tuberculosis was a unique hands-on experience. This is where I understood that developing the first respiratory school or some awareness was important for this country. After this event, I started such a school with the help of my PRT crew. Knowing that you are making a difference as a respiratory therapist while serving your country is a great feeling.

AARC Times: How has your military service enhanced your career as a respiratory therapist?
Buhain: Saving lives on the battlefield is something I will never ever forget. Although there were those who did not make it, there were many who were saved by respiratory therapists. There are some things you read about and never really get to do. There are some things that people talk about that are never really done. There are some things people pay to watch on TV, enjoying the excitement and thrill. I got to experience them all! The military gives a person that opportunity.

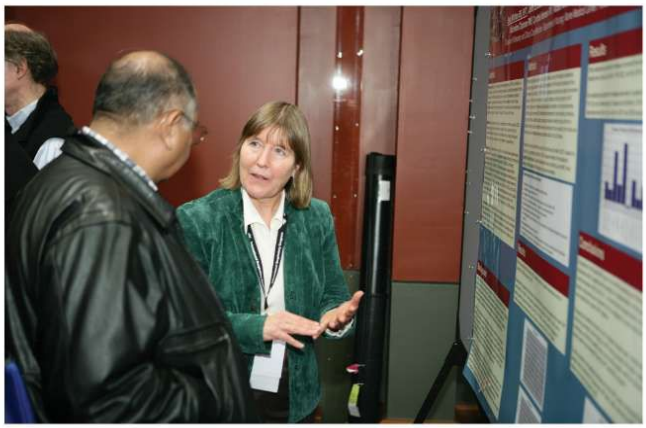
AARC Times: Where do you work today?
Buhain: I'm a naval medical recruiter in Minneapolis, MN, and program director for respiratory therapy and simulation studies at Saint Paul College. I am an adjunct for Concordia University in their cardiopulmonary sciences program as well, and I also volunteer for Heroes on Horseback, the Courage Center, Beyond the Yellow Ribbon, Wounded Warriors, Camp Asthma, Autism Awareness, and Beyond the Yellow Ribbon South of the River.

My work in the military equals much of the volunteer work I have done. Most military people learn the concept of paying it forward.

If you're an AARC member on active duty with the U.S. military, or a veteran of service, go online to www.aarc.org/go/mm/ to participate in our "Military Minute" Q&A. ■

Education Section Calling for Abstracts for Santa Fe, NM, Summer Meetings

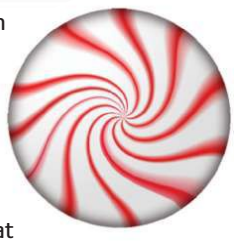
The 2012 AARC Summer Forum, scheduled for July 13–15 in Santa Fe, NM, offers an excellent opportunity for participants to share their scholarly activities with education colleagues through a research abstract. The submission deadline is March 15, 2012. For more information, log on to www.aarc.org/resources/summer_forum/index.asp. To request a mentor, volunteer as a mentor, or for questions about the education research abstracts, contact: MDeSilva@massasoit.mass.edu, (508) 922-2996. ■



Request for Open Forum Abstracts at AARC Congress 2012

The AARC invites you to submit abstracts for the Open Forum at AARC Congress 2012. Considered by many to be the premier event at the AARC Congress, the Open Forum is your opportunity to gain national and international recognition for your research in cardiorespiratory care by submitting an original abstract for presentation at the Congress and having it published in Respiratory Care. The deadline to submit abstracts for the Open Forum is June 1 at http://aarc2012.abstractcentral.com/. ■

▶ Strange But True…



Chew on This: Kids who either chewed gum or ate mints sweetened with the artificial sweetener xylitol in a recent study had 25% fewer ear infections than kids who didn't — and a syrup made with the sweetener reduced infections by 30% in kids too young for gum or mints. Researchers from the University of California at Santa Barbara believe the sweetener's antibacterial effects may be responsible.

Robbing Peter: The James Graham Brown Cancer Center in Kentucky is trying to help people quit smoking by having them switch from cigarettes to smokeless tobacco. The effort is being supported in part by funds from members of the tobacco industry.

E-Nose: Indian investigators hope to have an "electronic nose" that can pick up biomarkers of tuberculosis on a person's breath ready by the fall of 2013. The device will work much like the breathalyzer used now to identify drunk drivers.

Double Trouble: Investigators at the U.S. Naval Health Research Center in San Diego have confirmed two cases of dual influenza infection in a Cambodian boy and his teacher. The discovery is one of only a handful around the world confirming more than one flu infection in the same person at the same time.

Fountain of Youth? Tweaking a gene in the intestinal stem cells of fruit flies extended their lifespan by as much as 50% in a new study published online in *Cell Metabolism*. The gene is similar to one in mammals responsible for regulating the number of mitochondria, cellular "power plants" implicated in delaying aging in the presence of a restricted calorie diet.

Nipping It in the Bud: A new study out of Children's Hospital of Philadelphia finds an adult diabetes drug can help protect newborn rats at risk for developing the condition in later life from getting the disease. The drug increases expression of a gene necessary for the proper functioning of the beta cells that produce insulin in the pancreas of mammals, including humans. ■

Vitamin D Deficiency Doesn't Predict AECOPD

Studies have linked low vitamin D levels with higher rates of respiratory infections in adults and more frequent asthma exacerbations in children. But the vitamin doesn't appear to affect acute exacerbations of COPD (AECOPD) in patients with severe disease.

That's the take-home message from Minneapolis Veterans Affairs Medical Center researchers publishing ahead of print in the *American Journal of Respiratory and Critical Care Medicine* last fall. They looked at data on vitamin D levels and AECOPD in 973 patients taking part in a randomized controlled trial of the effects of azithromycin on the frequency of AECOPD. Results showed no difference in time to first exacerbation or overall exacerbation rates among patients with and without vitamin D deficiency.

"Contrary to what we expected, baseline vitamin D levels were not related to the risk of subsequent AECOPDs in this large group of COPD patients at high risk of AECOPD," study author Ken M. Kunisaki, MD, was quoted as saying. "Vitamin D supplementation is unlikely to have an effect on AECOPD risk in these patients." ■

RT Student Members: Send Us Your Stories and Editorials

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

Have you volunteered at a summer asthma camp or helped organize the DRIVE4COPD program in your state? Have you advocated for respiratory therapy in your state capital or on Capitol Hill? Maybe you and your RC student friends have collaborated to build a house with Habitat for Humanity. Perhaps you witnessed a lifesaving event outside the hospital setting or experienced something that took your breath away. Whatever the story, we would like to see it.

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

Smokers Want To Quit But Need More Help

A recent report from the Centers for Disease Control and Prevention (CDC) suggests most Americans who smoke really do want to kick the habit. Publishing in the *Morbidity and Mortality Weekly Report* last November, the authors noted 68.8% of American adults who smoke say they want to quit and 52.4% of them have tried to do so over the past year.

Health professionals, however, are still falling short when it comes to advising their smoking patients to quit. According to the report, a little less than half of smokers who said they saw a health professional in the last year remembered receiving advice on quitting. Not enough people are using counseling and/or medications to help them quit either — just 31.7% reported taking advantage of these treatments.

The latter finding is unfortunate, as counseling and medications can significantly increase the chances of successful quitting. "Smokers who try to quit can double or triple their chances by getting counseling, medicine, or both," notes CDC Director Thomas R. Frieden, MD, MPH. ■

Contribute to Writer's Corner

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

Cystic Fibrosis Drug VX-770 Shows Promise

A new drug being studied by researchers at Seattle Children's Hospital has proved effective in treating cystic fibrosis (CF) patients who carry the G551D gene mutation. The oral medication, known as VX-770, targets the defective protein produced by the mutation.

The Phase III study was conducted among 161 CF patients age 12 and older who received the active drug or a placebo. Treatment resulted in a 17% relative improvement in lung function that was sustained over 48 weeks. Respiratory distress symptoms decreased as well, and patients taking the active drug gained seven pounds on average and also saw an improvement in sweat chloride levels.

Approximately 4% of CF patients carry the G551D mutation. The study was published in the Nov. 2 edition of *The New England Journal of Medicine*. ■

Chimney Stoves Could Cut Severe Childhood Pneumonia Rates

Connecting a chimney to a wood cooking stove can significantly reduce the rate of severe childhood pneumonia, report U.S. researchers who compared pneumonia rates among kids living in homes with and without the modified stoves in 534 households in Guatemala.

Overall, 265 children were from homes where the chimney stoves were installed. Another 253 children were from homes without the modified stoves. Carbon monoxide exposure levels were reduced by 50% on average in the homes equipped with chimneys. Trained field workers visited the homes every week for two years to record the children's health status.

While no significant difference was seen in the total number of childhood pneumonia cases, severe pneumonia cases were reduced by 30% in children under the age of 18 months who lived in homes with the chimney stoves, a finding the researchers say would likely result in reduced childhood mortality over the long run. "We found as large a benefit for severe pneumonia as more well-known public health interventions, such as vaccinations and nutrition supplements," Kirk Smith, PhD, lead researcher and a professor of global environmental health at the University of California, Berkeley, was quoted as saying. "Future investments into viable, large-scale stove and fuel interventions to reduce child exposure to household air pollution are certainly worth making."

The study was funded by the National Institute of Environmental Health Sciences and published in the Nov. 10 edition of *The Lancet*. ■

Varenicline Risks Outweigh Benefits

U.S. researchers publishing online in the Nov. 2 edition of *PLoS One* find the risks associated with the stop-smoking drug varenicline far outweigh any benefits.

The investigators arrived at that conclusion after analyzing 3,249 case reports on self-injurious behavior or depression linked to varenicline, bupropion, and nicotine replacement products noted in the U.S. Food and Drug Administration's (FDA) Adverse Event Reporting System between 1998 and September 2010. Even though varenicline was only on the market during four of those years, 90% of the cases were linked to the drug. That compared to 7% linked to bupropion and 3% linked to nicotine replacement products.

A recent review by the FDA showed no difference in psychiatric hospitalizations between varenicline and nicotine replacement patches, but these researchers believe that data is flawed because hospitalization studies do not capture catastrophic events such as suicide, depression, aggression, and assaults, which often do not result in a hospitalization. They believe their findings more accurately define the risks associated with the drug.

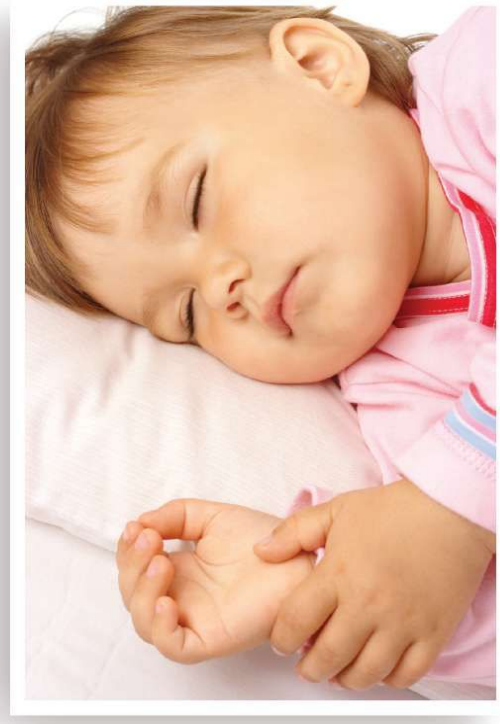
The study was a joint effort by investigators from Wake Forest Baptist Medical Center, the Institute for Safe Medication Practices, Harvard Medical School, and Johns Hopkins University School of Medicine. ■

Kids' Sleep-disordered Breathing Linked to Weight and Cognitive Abilities

A new study out of the University of Chicago suggests sleep-disordered breathing (SDB) in children has a mediating effect on both weight and cognitive processing. The study was conducted among 351 elementary school-aged children who underwent neurocognitive testing following an overnight polysomnogram. Data were analyzed by Structural Equation Modeling, a statistical technique for testing and estimating causal relations between variables of interest.

SDB was found to increase both adverse cognitive and weight outcomes. "Along with campaigns targeting childhood obesity, screening for SDB in overweight children and children with learning difficulties may be justified based on our results," study author Karen Spruyt, PhD, was quoted as saying.

The research was published online ahead of print by the *American Journal of Respiratory and Critical Care Medicine* in November. ■

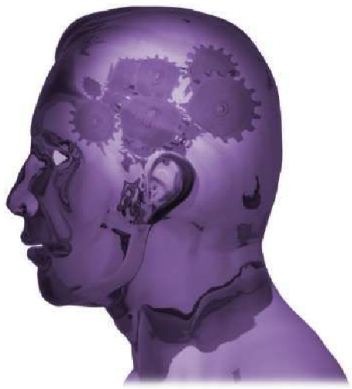


Insurance Status Affects Care for Children with Intermittent Asthma

Children with intermittent asthma were more likely to be diagnosed with the condition and receive a prescription for an inhaled medication than children without health insurance in a study published in *Health Services Research* last fall. However, kids with persistent asthma were equally as likely to be diagnosed and treated.

"Health insurance may lead to diagnosis for children with milder symptoms of asthma, who otherwise may not be diagnosed because they don't present to emergency departments and doctor offices for asthma flares as often as children with more severe symptoms," said study author Tumaini Coker, MD, assistant professor at the University of California at Los Angeles' Mattel Children's Hospital. He and his team believe providing insurance to more kids could increase the number of children with intermittent asthma who are treated for the condition. ■

Brain Stimulation May Halt Smokers' Cravings



Researchers have developed numerous strategies and treatments aimed at helping people kick the habit. Now investigators from Duke University Medical Center add another to the list: transcranial magnetic stimulation.

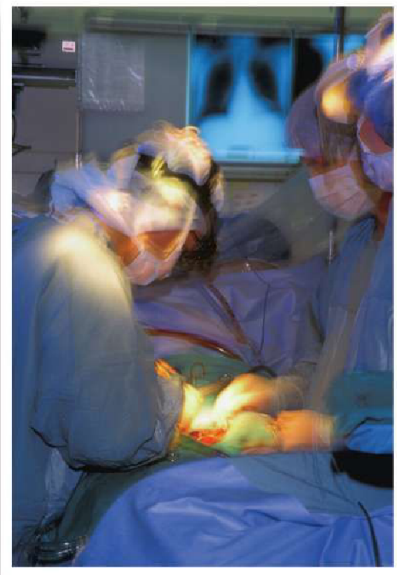
The noninvasive treatment is designed to stimulate areas of the brain that are activated during cravings. Low-frequency stimulation did not reduce cravings in smokers who viewed nonsmoking cues, but high-frequency stimulation did.

The authors believe more study is warranted to see if this technique could play a role in helping more people quit smoking. The study was published in *Biological Psychiatry* last October. ■

Organ Transplants Raise Risk of Cancer

Patients who undergo an organ transplant are at higher risk of developing cancer, according to research from the National Cancer Institute. Their recent study looked at 28,664 organ transplants performed in the United States in 2010, including 16,899 kidney, 6,291 liver, 2,333 heart, and 1,770 lung transplants. They found a two-fold increased risk of cancer among transplant recipients, with the most common cancers being non-Hodgkin lymphoma (14.1% of all cancers in transplant recipients), lung cancer (12.6%), liver cancer (8.7%), and kidney cancer (7.1%).

The lung cancer risk was highest in patients who had undergone lung transplants, but the cancer was most often found in the non-transplanted lung. The study was published in the Nov. 2 edition of *JAMA*. ■



National Health Observances

- **National Sleep Awareness Week:** March 5–11; National Sleep Foundation; (703) 243-1697; www.sleepfoundation.org
- **World Tuberculosis Day:** March 24; World Health Organization; www.stoptb.org/events/world_tb_day

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

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

Study: Statins May Worsen Asthma

A small study presented at the American College of Allergy, Asthma, and Immunology meeting last fall finds cholesterol-lowering drugs such as statins may worsen asthma.

The research compared asthma symptoms among 20 patients who had just begun treatment with statins with 20 other patients who were not taking the drugs. All of the patients were nonsmokers and had been diagnosed with asthma at least five years before the beginning of the study.

While lung function declined in both groups over the year-long investigation, the rate of decline was greater in the statin patients than in the patients not on statins, 35% versus about 14%. Patients on statins also reported using their rescue inhalers 72% more often than they did before going on statins. Patients not on statins reported a 9% increase in rescue inhaler use. Nighttime awakening due to asthma symptoms and worse daytime symptoms were also more common among statin users.

The study was conducted by Safa M. Nsouli, MD, director of the Danville Asthma and Allergy Clinic in Danville, CA. The study is yet to be published, and more research is needed to confirm the results. ■

New Members

Welcome to the AARC

U.S. Members

A

Byrum, Tim, Section, Al*
Headley, Derek, Montgomery, Al
Hydrick, David, Northport, Al*

Ashmore, Pamela, Rogers, Ar*
Henderson, Morgan, Jonesboro, Ar
Hillis, Bertha, Hector, Ar*
Shirley, Patricia, Jonesboro, Ar*
Young, Dana, Austin, Ar*

Bevans, Morgana, Phoenix, Az
Bracy, Jodi, Phoenix, Az
Budd, Randy, Mesa, Az
Burleson, Tim, Mesa, Az
Canez, Brittany, Glendale, Az
Castricone, Valerie, Glendale, Az
Collins, Chad, Glendale, Az
Collins, William, Phoenix, Az
Cuellar, Carolina, Avondale, Az*
Drebes, Heather, Phoenix, Az*
Garcia, Priscilla, Avondale, Az
Giles, Austin, Tolleson, Az
Kapella, Lutete, Peoria, Az
Lopez, Andria, Phoenix, Az
McNair, Christopher, Laveen, Az
Moore, Ardella, Phoenix, Az
Neary, Barbara, Phoenix, Az*
Ramirez, Tabatha, Phoenix, Az
Richards, Kimberly, Scottsdale, Az*
Rivera, Juan, Surprise, Az
Romero, Edna, Phoenix, Az
Savoy, Jill, Scottsdale, Az*
Schude, Jeff, Goodyear, Az
Simon, Cheryon, Laveen, Az*
Stuart, Justine, Phoenix, Az
Velasco, Rafael, Chino Valley, Az

C

Aguilar, Francisco, Chino Hills, Ca*
Aragon, Veronica, Arcadia, Ca
Baluyut, Jennifer Ann, Walnut Creek, Ca*
Bastillo, Leah, Reseda, Ca*
Bertolero, Arthur, Danville, Ca
Bishop, Thomas, Oak View, Ca*
Brewster, Brad, Turlock, Ca*
Brodie, Chris, Grass Valley, Ca*
Bui, Kerry, Anaheim, Ca*
Calderon, Vanessa, Riverbank, Ca*
Cate, Rebecca, Chula Vista, Ca*
Cobb, Richie, Hollister, Ca
Cortes, Josue, Redlands, Ca*
Cuadra, Jesse, Sun Valley, Ca*
Diaz, Erika, Merced, Ca*
Do, Thuc, Redlands, Ca*
Esparza, Margarita, Bakersfield, Ca*
Febre, Aprille Dawn, Loma Linda, Ca
Garcia, Paulina, Los Angeles, Ca
Gaston, Randy, Apple Valley, Ca*
George, Shirley, Bakersfield, Ca*
Grande, Nancy, Pasadena, Ca
Gurman, Greg, Roseville, Ca*
Haile, Berhane, Fontana, Ca*
Hill, Erie, N Hollywood, Ca*
Hizon, Paula, San Bernardino, Ca*
Ketzel, Kevin, San Diego, Ca*
Kong-Buenaventura, Chau, Oceanside, Ca
Lannon, George, El Cajon, Ca*
Lephart, Christopher, Chico, Ca*
Lortie, Linda, Livermore, Ca
Madrigal, Anna, Anaheim, Ca
Madrigal, Lorena, Ceres, Ca
Makitrin, Aimee, Roseville, Ca
Matson, Bradley, Valley Center, Ca*
Mendoza, Elisa, Torrance, Ca*
Merenda Thoma, Theresa, Rosemead, Ca
Nawabi, Erage, Tracy, Ca
Nguyen, Jay, Milpitas, Ca
Operacz, Joseph, Dove Canyon, Ca*
Pace, Susan, Fair Oaks, Ca
Parsons, Ernest, Oceanside, Ca*
Petrovski, Mike, San Francisco, Ca
Phan, Michael, Elk Grove, Ca
Pompa, Oswaldo, Calexico, Ca
Ramos, Manuel, Norwalk, Ca
Rubalcava, Gerardo, Ventura, Ca
Santiago, Cristian, El Monte, Ca
Schrader, William, Westchester, Ca*
Soto, Romulo, South Pasadena, Ca*
Stenzler, Alex, Garden Grove, Ca
Stewart, Kara, Newport Beach, Ca
Tamburine, Eugene, Bakersfield, Ca*
Thompson, Adam, Los Gatos, Ca
Timbang, Allan Dale, Union City, Ca*
Tinker, Michael, Pasadena, Ca
Tsai, Tammy, San Diego, Ca
Urtuzuastigui, Frank, Chula Vista, Ca*
Vasquez, Vanessa, Bakersfield, Ca*
Weber, Karina, San Diego, Ca
Williams, Theresa, Victorville, Ca*
Wilson, Robert, Travis Afb, Ca*
Yamani, James, Orange, Ca
Zikria, Abdullah, Reseda, Ca
Zuniga, Josselyn, South Gate, Ca

Chandler-Edgemon, Sherry, Grand Junction, Co*
Davis, Cassandra, Lafayette, Co
Hielema, Justin, Westminster, Co
Siegwarth, Dorene, Brighton, Co*
Thompson, Courtney, Denver, Co
Walter, Justin, Littleton, Co*

Fondella, Steve, North Haven, Ct
Jovovich, Joanne, Milford, Ct*
Peyton, Tracey, Hartford, Ct*
Tiik Barclay, Ulla, Danielson, Ct*

F

Asefaw, Kibrab, Miami, Fl*
Beagle, Dewey, Jacksonville, Fl*
Dede, Edner, Orlando, Fl*
Devirgilio, Julie, Sebastian, Fl*
Diaz, Ivette, Orlando, Fl*
Fernandez, Stephan, St Augustine, Fl*
Fuller, Allison, Deltona, Fl*
Gauldin, Stephanie, Saint Petersburg, Fl
Geathers, Rodger, Plant City, Fl*
Gehringer, Krysta, Clermont, Fl*
Hughes, Randy, Ponce Inlet, Fl*
Jankowski, Marianne, Boca Raton, Fl*
Lyons, Scott, Sarasota, Fl*
Marx, Kim, MacClenny, Fl*
Mitchell, Natalie, Orange Park, Fl*
Mitchell, Ronald, Valrico, Fl*
Paradis, Kelly, Largo, Fl*
Park, Brenda, Port Charlotte, Fl*
Rial, Robert, Sarasota, Fl*
Rivera, Maria, Kissimmee, Fl*
Stokes, Christina, Placida, Fl*
Watts, Tammy, Palm Bay, Fl
Weaver, Rebecca, Rockledge, Fl
Willa, Monica, Tampa, Fl*

G

Abebe, Behyiwot, Lawrenceville, Ga*
Ahmed, Mutiatu, Warner Robins, Ga
Alayed, Najla, Atlanta, Ga
Bailey, Mary Beth, Carrollton, Ga*
Bickley, Beverly, Jeffersonville, Ga
Braddy, Natasha, Dublin, Ga
Chance, Mary Katherine, Swainsboro, Ga
Collins, William, Albany, Ga
Crawford, Lawanda, Covington, Ga*
Cummings, Jeff, Athens, Ga*
Douglass, Brian, Watkinsville, Ga*
Fortney, Ken, Clayton, Ga
Gaines, Corey, Columbus, Ga*
Giddens, Cameron, Dudley, Ga
Green, Damika, Bonaire, Ga
Grubb, Carl, Duluth, Ga
Harris, Tina, Covington, Ga*
Helferich, Laurence, Austell, Ga*
Henry, Kenya, Cordele, Ga*
Ivey, Dwayne, Dublin, Ga
Jenkins, Christy, Eastman, Ga
Kaser, Herman, Rome, Ga*
Leeds, Julia, Bonaire, Ga
Mann, Patricia, Conyers, Ga*
Moore, Tomekia, Macon, Ga
Raffield, Richard, Dublin, Ga
Saxon, April, Savannah, Ga*
Shephard, June, Conyers, Ga*
Taylor, John, Rhine, Ga
Walker, David, Hephzibah, Ga*

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H

Mosher, Darrel, Hilo, Hi*

I

Lee, Kevin, West Des Moines, Ia

Keegan, Rob, Viola, Id
Latthamone, Nong, Boise, Id*
Pollard, Melinda, Boise, Id*

Alfozan, Bashair, Chicago, Il
Bayro, Thomas, Bloomingdale, Il*
Billingsley, Joseph, Oak Park, Il*
Chappuis, Ron, Cary, Il
Depaola, Gina, Effingham, Il
Gold-Read, Tita, Mount Prospect, Il*
Johnson, Alette, Huntley, Il*
Landers, Virginia, Yorkville, Il*
Makhdom, Esraa, Chicago, Il*
Meksraityte, Edita, Lyons, Il
Mueller, Dale, Peoria, Il
Patton, Sean, Chicago, Il
Riordan, Sarah, Morris, Il
Sutter, Suzanne, Park Ridge, Il*
Torres, Lindsey, Chicago, Il

Anderson, Diana, Indianapolis, In*
Babb, Joyce, Decatur, In
Bailey, Dawn, Muncie, In*
Bennett, Cheryl, Anderson, In
Bradbury, Nicole, Brazil, In
Bradley, Dalena, Kokomo, In*
Branscomb, Justin, Ft Wayne, In
Carey, Drew, Warren, In
Chatterjee, Hirendra, West Lafayette, In*
Chriswell, Corey, Carmel, In*
Davis, Jody, Noblesville, In*
Duncan, Joan, Indianapolis, In*
Harmon, Cheryl, Silver Lake, In*
Heap, Michael, Indianapolis, In*
Jenkins, Audra, Washington, In*
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Keltz, Heather, Terre Haute, In
Key, Tiffany, Terre Haute, In*
Kovach, Michelle, Batesville, In
Marlow, Pattie, Syracuse, In
Miles, Anita, Warsaw, In
Miller, Kathy, Elwood, In*
Mills, Christina, Carlisle, In
Okeefe, Chris, Batesville, In
Pauley, Stacey, Mooresville, In*
Peters, Magen, Terre Haute, In
Pettigrew, Ashley, Anderson, In
Phegley, Meghan, Carlisle, In
Porter, Shane, Dugger, In
Robbins, Nathan, Huntington, In
Rowles, Sherry, Portland, In*
Schombert, Holly, Knightstown, In
Scott, Christopher, Indianapolis, In
Tucker, Leslie, Indianapolis, In*

K

Barnett, Tina, Parsons, Ks
Bomstad, Michael, Overland Park, Ks
Carlson, Taylor, Derby, Ks
Carrell, Jennifer, Parsons, Ks
Chin, Monty, Wichita, Ks
Dailey, Brittany, Parsons, Ks
Dudley, Kelsi, Parsons, Ks
Erwin-Barnett, Hailey, Parsons, Ks
Figueroa, Jessica, Maize, Ks
Ford, Jamie, Parsons, Ks
Ford, Kraig, Wichita, Ks
Garcia De Rutiaga, Alma Rosa, Wichita, Ks
Grier, Garrett, Wichita, Ks
Griffiths, Doug, Parsons, Ks
Hamilton, Amanda, Parsons, Ks
Harper, Ross, Parsons, Ks
Hayes, Kelly, Topeka, Ks*
Hoppock, Jenna, Wichita, Ks
Houchin, Jerry, Gypsum, Ks*
House, Crystal, Wichita, Ks
Jimenez, Javier, Wichita, Ks
Johnson, Anne, Bel Aire, Ks
McLaughlin, James, Parsons, Ks
Miller, Rhonda, Parsons, Ks
Mlagan, Jennifer, Wichita, Ks
Mogren, Susan, Lenexa, Ks
Mukwindidza, Kennedy, Wichita, Ks
Nguyen, Phuong, Wichita, Ks
Reali, Nina, Wichita, Ks
Smalley, Aaron, Viola, Ks
Smith, Paula, Parsons, Ks
Spoon, Gary, Parsons, Ks
Vanwinkle, Tiffany, Parsons, Ks
Vasey, Zac, Wichita, Ks
Vaughters, Che, Towanda, Ks
Whitson, Lauren, Parsons, Ks

Brown, Jessica, Ashland, Ky*
Cronin, Kari, Louisville, Ky*
Fowler, Nathan, Meally, Ky*
Gannon, Raymond, Versailles, Ky*
Griffith, Stephanie, Campton, Ky*
Howard, Aimee, Louisville, Ky*
McComis, Jennifer, Ashland, Ky*
Morrison, Rebecca, Versailles, Ky*
Nelson, Lashanna, Louisville, Ky*
Papineau, Lori, Clay, Ky*
Parker, Jana, Murray, Ky*
Parsley, Jesse, Ashland, Ky*
Robinson, Vicki, Harrodsburg, Ky*
Rutherford, Mark, Ashland, Ky*
Skeens, Melissa, Paintsville, Ky*
Wilson, Greg, Louisville, Ky*
Wyatt, Gregory, Richmond, Ky*

L

Ammmerman, Stephanie, Bossier City, La*
Coolidge, Brittany, Marrero, La*
Hendrix, James, Bossier City, La
Murray, Lester, Slidell, La*
Patel, Vijeta, Greenwood, La
Simoneaux, John, Lake Charles, La*
St Amant, Mary, Cade, La*
Taylor, Labridgitta, Shreveport, La*
Trahan Gibson, Carla, Madisonville, La*

M

Demarco, Meghan, Pittsfield, Ma*
Hughes, Nilda, Boston, Ma
Hughes, Patricia, West Chesterfield, Ma*
Manning, Cheryl, Avon, Ma*
Martin, Kenneth, Somerville, Ma*
May, Theresa, Duxbury, Ma*
Perry, Gary, Plymouth, Ma*

Achi, Yapi, Gaithersburg, Md*
Bertand, Kristi, Ocean City, Md*
Kemp, Jens, Glen Burnie, Md
Powell, Joshua, Andrews Air Force Base, Md*
Seifort, Karen, Cumberland, Md*
Shin, Paul, Silver Spring, Md
Sullivan, Wayne, Beltsville, Md*
Tanchel, Andrew, Columbia, Md
Velazquez, Jennifer, Westminster, Md*

Cyr, Wendy, Sanford, Me*

Aulds, Lindsey, Freeland, Mi*
Brancheau, Steve, Novi, Mi
Circosta, Diane, Kalamazoo, Mi*
Elsigian, Mke, Novi, Mi
Haight, Heidi, Macomb, Mi*
Kassab, Yvonne, Rochester Hills, Mi*
Kershaw, Hannah, Parma, Mi*
Robertson, Kaitlin, Allendale, Mi*
Santiago, Katrina, Somerset Center, Mi*
Vazales, Brad, Petoskey, Mi

Deutschman, Guy, Richfield, Mn*
Farah, Abdulahi, Minneapolis, Mn
Gillespie, Melissa, Saint Paul, Mn
Grodnick, Kimberly, Brooklyn Park, Mn*
Henderson, Willie, Prior Lake, Mn
Jama, Yasin, Burnsville, Mn
Jensen, Thomas, Brooklyn Park, Mn
Juneski, Michelle, Cottage Grove, Mn
Oknick, Andrea, Moorhead, Mn*
Prince, Steve, Rochester, Mn
Useldinger, Deanna, East Grand Forks, Mn*
Welch, Patrick, White Bear Lake, Mn

Bammarito, Kenn, Grain Valley, Mo*
Mack, Carla, Florissant, Mo
Parks, Jeremy, Saint Louis, Mo*
Sisemore, Ashley, Saint Joseph, Mo*
Tobin, Teresa, Kansas City, Mo*
Turner, Amy, Bowling Green, Mo*
Williamson, Lynn, Saint Joseph, Mo*

Glatt, Stephanie, Olive Branch, Ms*
Hanes, Samuel, Moss Point, Ms*
Kizziah Houston, Kimberly, Senatobia, Ms*
Lesure, Lashonda, Olive Branch, Ms*

Hennes, Katherine, Missoula, Mt*

N

Boyd, Josh, Durham, NC
Gautier, Christine, Sanford, NC*
Joyner, Tasha, Charlotte, NC*
Parramore, James, Lawsonville, NC*
Scott, Holly, Research Triangle Park, NC

Littlejohn, Shanna, Grafton, ND*

Crawford, Marilin, Lincoln, Ne*
Rainforth, Nick, Lincoln, Ne*

Fowler, Ernest, Manchester, NH*
Roulo, Valerie, Newmarket, NH*
Sanborn, Stacie, Brookline, NH*
Weld, Joanne, North Conway, NH*

Berrio, Brian, Atlantic City, NJ
Bradley, Jarrell, Columbus, NJ
Brody, Jason, Pompton Lakes, NJ*
Calma, Christopher, Belleville, NJ*
Casabona, Vivian, Mahwah, NJ*
Charbonier, Angelo, Camden, NJ*
Clemmons, Florelle, Sicklerville, NJ
Coletto, Tracie, Parsippany, NJ
D'elia, Stephanie, Mount Royal, NJ
Esteban, Randy, Plainsboro, NJ*
Gilliam, Deirdre, Ewing, NJ
Jackson, Brian, Highland Lakes, NJ*
Mahler, Stephen, Westfield, NJ*
McCloskey, Brighid, Pennsauken, NJ
Reed, Ronald, Marmora, NJ

Rentas, Miguel, Williamstown, NJ
Scales, Joseph, Williamstown, NJ
Toennesen, Karen, Parsippany, NJ
Torres, Corleda, Bridgeton, NJ

Mohoric-Lopez, Shaune, Albuquerque, NM*
Tamulewicz, Stanley, Rio Rancho, NM*

Wright, Dale, Reno, Nv*

Coleman, Nyree, Watervliet, NY*
Darko, Atu, New York, NY
Dennison, Shana, Troy, NY*
Doolittle, Monique, Albany, NY*
Faxon, Timothy, Old Chatham, NY*
Frudko, Natalia, 707 East Main Street, NY*
Fuller, Roy, Rome, NY*
Garcia, Andres, Ridgewood, NY*
Herrick, Philip, Austerlitz, NY*
Hohn, Tanya, Rensselaer, NY*
Josma, Theresa, Uniondale, NY*
Keelin, Amy, Copenhagen, NY*
Kuriakose, Joji, Manhaset Hills, NY*
Mendoza, Glenn, Floral Park, NY*
Morris, Courtney, Tonawanda, NY*
Navarro, Jose, Centereach, NY*
Persaud, Nadine, Queens Village, NY*
Rogers, Amanda, Cohoes, NY*
Stevenson, Holly, Selkirk, NY*
Szmalc, Linda, Liverpool, NY*
Walker, Harris, Queen Village, NY*

O

Bruwer, Lauren, Lakewood, Oh
Busek, Matt, Minerva, Oh
Cabassa, Daniel, Lagrange, Oh*
Cleland, Crystal, Saint Marys, Oh*
Conger, Alecia, Streetsboro, Oh
Cooper, Winston, Columbus, Oh*
Davison, Jeff, Washington C H, Oh*
Green, Lacy, Lima, Oh*
Griffith, Mindy, Elida, Oh*
Hoffman, Justin, Streetsboro, Oh
Ice, Timothy, North Ridgeville, Oh
Kaszer, Laura, North Ridgeville, Oh
Macalonan, Suzanne, Bedford, Oh*
Painter, Judy, Lima, Oh*
Reisinger, Tonya, Loveland, Oh*
Schneeberger, Mary, Mentor, Oh
Scott, Paulette, Akron, Oh
Shellabarger, Tanya, Spencerville, Oh*
Siebenaler, Georgia, Perrysburg, Oh*
Smith, Kimberly, Chardon, Oh*
Sprague, William, Warren, Oh*
Spray, Terri, Mount Vernon, Oh
Stewart, Michele, Lima, Oh*
Trogdlon, Codi, Saint Marys, Oh*
Whitlatch, Jessica, Canal Winchester, Oh*

Kubitscheck, Rusty, Edmond, Ok*
Matthiessen, Janice, Ponca City, Ok*
Smith, Kaylie, Del City, Ok*

Angelina, Newton, Salem, Or
Bailey, Julie, Sherwood, Or
Barratt, Tyler, Portland, Or
Callison, Gail, Bend, Or
Comer, Eric, Portland, Or
Cory, Charles, Toledo, Or*
Dejongh, Elizabeth, Portland, Or*
Fibia, Ursu, Happy Valley, Or
Fischer, Lori, Astoria, Or*
Jackson, Chad, White City, Or*
Johns, Keith, Portland, Or
Kirkland, Stacy, Beaverton, Or
Ledford, Rhonda, Gresham, Or
Mark, Triolo, Portland, Or
Miller, Jamie, Portland, Or
Stoicescu, Timotei, Milwaukie, Or

P

Addai-Kwateng, Kwabena, Philadelphia, Pa
Bain, William, Philadelphia, Pa
Balance, Jovan, Philadelphia, Pa
Billa, Cezarina, Philadelphia, Pa
Branison, Joanna, Philadelphia, Pa
Breidinger, Jennifer, Allentown, Pa
Burkhardt, Brian, Dallas, Pa
Ceaser, Dimple, Philadelphia, Pa
Coles, Bryan, Monroeville, Pa
Daniels, Sharnay, Philadelphia, Pa
Destefano, Mark, Collegeville, Pa
Donaldson, Jamie, Monroeville, Pa*
Doumbia, Salimata, Philadelphia, Pa
Griffin, Jamaal, Philadelphia, Pa
Hanson, Ricky, Lansdowne, Pa
Holt, Timothy, Philadelphia, Pa
Howard, Dawn, Wilkes Barre, Pa
Jenkins, Barbara, Bethlehem, Pa*
Jimenez, Richar, Norristown, Pa
Joseph, Louisda, Philadelphia, Pa
Kolangayil, Aleyamma, Philadelphia, Pa
Kravchenko, Yekaterina, Philadelphia, Pa
Lamb, Jamie, Philadelphia, Pa
Laros, Lori, Northampton, Pa*
Lodin, Karen, Cranberry Township, Pa*
Lui, Steven, Philadelphia, Pa
Mark, Dennis, Philadelphia, Pa
McNeal, Lauren, Philadelphia, Pa
Mills, Neferti, Philadelphia, Pa
Minick, Lauren, Warminster, Pa
Mounelasy, Anonxay, Philadelphia, Pa
Munksgard, Mary Kristine, Warren, Pa*
Newberger, Julia, Glen Rock, Pa*
Nguyen, John, Philadelphia, Pa
Oberholtzer, Beth, Philadelphia, Pa*
Peposhi, Natasha, Philadelphia, Pa
Phillips, Tiffany, Philadelphia, Pa
Plasencia, Glenny, Philadelphia, Pa
Pryzbylkowski, Emily, Philadelphia, Pa
Shakir-Hall, Shareefah, Philadelphia, Pa
Smith, Adam, Philadelphia, Pa
Snyder, Chrissy, Philadelphia, Pa
Valle, Millicent, Philadelphia, Pa
Varghese, Vinson, Philadelphia, Pa*
Walsh, Bridget, Philadelphia, Pa
Walton, Michele, Philadelphia, Pa*
Young, Craig, Philadelphia, Pa

R

Gianola, Peter, Providence, RI*

S

Holton, Gabrielle, Sumter, SC*
Letellier, Ryan, Summerville, SC*
Lydick, Randy, Central, SC*
Moore, Carissa, Columbia, SC*
Newman, Rhonda, North Augusta, SC*
Schumacher, Paul, Sumter, SC*
Tate, Amanda, Spartanburg, SC*

Gillespie, Richard, Sioux Falls, SD*
Naze, Debra, Hot Springs, SD*

T

Anderson, Patricia, New Tazewell, Tn*
Barnes, Candy, East Ridge, Tn*
Browing, Stephen, Knoxville, Tn*
Clemmons, Lesley, Sevierville, Tn*
Crabtree, Ter'rez, Portland, Tn
Ellison, Kristyn, Cookeville, Tn
Ewing, Shetisha, Antioch, Tn*
Gibson, Kelly, Goodlettsville, Tn*
Gray, Candace, Nashville, Tn*
Hamilton, Cindy, Sevierville, Tn*
Huffines, William, Cookeville, Tn*
Jackson, Tammy, Portland, Tn*
Leborne, Christi, Madison, Tn*
Loftin, Tonya, Cookeville, Tn*
Petty, Yolanda, Mascot, Tn*
Preston, Yashica, Nashville, Tn*
Renner, Michelle, Jellico, Tn*
Rich, Jonathon, Cookeville, Tn
Shagfer, Cindy, Lebanon, Tn*
Smith, Andrew, Franklin, Tn
Smith, Dorian, Antioch, Tn
Smith, James, Knoxville, Tn*
Smith, Melinda, Hendersonville, Tn*
Smith, Nikoel, Chattanooga, Tn*
Sparks, Debra, Jonesborough, Tn*
Stiles, Charles, Mount Juliet, Tn*
Vaughn, Martin, Ashland City, Tn*
Walker, Kenneth, Cordova, Tn*

Akeroyd, Karen, Lubbock, Tx*
Bailey, Cassandra, Houston, Tx
Bayless, James, San Antonio, Tx*
Benton, Meranda, McKinney, Tx*
Brown, Jamie, Little Elm, Tx*
Cantrell, Gramelda, Lewisville, Tx*
Castaneda, Karen, El Paso, Tx*
Castillo, Robert, Weslaco, Tx*
Childers, Karah, San Marcos, Tx
De Leon, Alan, Edinburg, Tx*
Easterling, Jeanne', San Antonio, Tx*
Goisovich, Lorie, Lubbock, Tx
Gutierrez, Sam, Amarillo, Tx*
Harris, Anita, Odessa, Tx*
Jackson, Valerie, Dallas, Tx*
Lopez, Eliseo, Brownsville, Tx*
Philyaw, Andrea, League City, Tx*
Ramadhar, Riaz, Dickinson, Tx*
Reese, Kathryn, Pearland, Tx
Richardson, Crystal, Arlington, Tx*
Scarlett, Katie, Irving, Tx
Schmoyer, Jeana, San Marcos, Tx
Solorio, Octavio, Laredo, Tx
Trump, Donald, Irving, Tx
Velasquez, Lelia, Houston, Tx*
Volkert, Peggy, Katy, Tx*

U

Bentley, Teresa, Taylorsville, Ut
Figueroa, Jennie, Lehi, Ut*
Frederickson, Hyde, Salt Lake City, Ut
Taosoga, Tupu, South Jordan, Ut*
Willis, Bradley, Hooper, Ut
Zimmer, Will, Murray, Ut*

V

Alix, Paget-Brown, Keswick, Va
Cosby, Melvin, Springfield, Va*
Culbertson, Mac, Richlands, Va
Dennis, Matthew, Winchester, Va*
Dugbazah, Zah, Woodbridge, Va*

Hinton, Lorenzo, Chesapeake, Va*
Hudson, Krystal, Randolph, Va*
Land, Shelly, Staunton, Va*
Langley, Angela, Jonesville, Va*
Leroy, Tiffany, Alexandria, Va*
Mamuyac, Rufino Tomas, Alexandria, Va*
Manly, Craig, Norfolk, Va
Ohane, Jean-Philippe, Woodbridge, Va*
Young, Barry, Ruckersville, Va*

Dear, Katie, Quechee, Vt*

W

Abuan, Tammy, Seattle, Wa
Arterburn, Jessica, Battle Ground, Wa
Hardy, Debbie, Gig Harbor, Wa
Hathaway, Dawn, Longview, Wa
Isianov, Julia, Tacoma, Wa
Mendoza, Richard, Vancouver, Wa
Moran, Kelly, Tacoma, Wa
Nersesyan, Snezhana, Auburn, Wa*
Ramos, Ed, Renton, Wa*
Ramsay, Shannan, Nine Mile Falls, Wa*
Shindle, Karla, Buckley, Wa*
Steijn, Alice, Walla Walla, Wa
Tang, Nong, Lynnwood, Wa*
Torgerson, Vicki, Tacoma, Wa*
Warnock, James, Spokane, Wa*
Yeager, Melissa, Seattle, Wa

Collins, Amelia, Deerfield, Wi
Laus, Deanna, Bloomer, Wi
Lokken, David, Black River Falls, Wi
McCord, Nicholas, Madison, Wi*
McDonald, Kyle, Osseo, Wi
Neville, Ashley, Eau Claire, Wi
Olivares, Andy, Milwaukee, Wi*
Pliska, Theresa, Junction City, Wi*
Roznik, Mary, Brookfield, Wi*
Scheidler, Rachel, Cadott, Wi

Bushman, Cynthia, Delbarton, WV*
Counts, Sonjia, Scarbro, WV*
Harrison, Heather, Grafton, WV
Justiss, Robert, Morgantown, WV*
Maynard, Rhonda, Williamson, WV*
Short, Charles, Upperglade, WV*

Lopez, Daniel, Cheyenne, Wy*

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Whitney, Melissa, FPO, AE*

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Alanizi, Hijab, Alkhobar, Saudi Arabia
Alheblah, Mashael, Kuwait, Kuwait
Alyami, Marja, Alhasa, Saudi Arabia
Beaulieu, Melissa, Ste Therese, Qc, Canada
Bhuiyan, Shahanaz, Montreal, Qc, Canada
Bigg, Susanne, Belleville, On, Canada
Boisjoly, Emmanuelle, St Constant, Qc, Canada
Bojmehrani, Azadeh, Quèbec, Qc, Canada
Cawker, Bryan, London, On, Canada
Chambers, Ken, Winnipeg, Mb, Canada
Chee, Cheryll, Singapore, Singapore
Chu, Shih Hung, Riyadh, Saudi Arabia
Delgado, Briseida, Bella Vista, Panama
Demas, Shauna, Red Deer, Ab, Canada
Dona, Monica, Verona, Italy
Dy, Ligaya, Pasig City, Philippines
Engelbreth, Dan, London, On, Canada
Fiorenza, Frank, London, On, Canada
Flores Garcia, Leobardo, Mexico City, Mexico
Fong, Nancy, Montreal, Qc, Canada
Hahn, Tracy, Milton, On, Canada
Healy, Joseph, Munich, Germany
Kersnik, Mary, Etobicoke, On, Canada
Kristovic, Darko, Zagreb, Croatia
Lill, Hille, Tartu, Estonia
Lima, Thamires Marques De, São Paulo, Brazil
Lundin, Sven-Erik, Karlstad, Sweden
Mansson, Johan, Horby, Sweden
Marran, Sirje, Tallinn, Estonia
Mazela, Jan, Poznan, Poland
Noel, Lyne, Saint-Hubert, Qc, Canada
Oliveira, Jorge, Sao Paulo Sp, Brazil
Ozturk, Can, Ankara, Turkey
Pineda Castro, Jorge, Aquadulce, Panama
Privitera, Emilia, Milan, Italy
Rahimi, Mohsen, Montreal(Lasalle), Qc, Canada
Ramirez, Marianne, Mexico City, Mexico
Saito, Takefumi, Ibaraki, Japan
Shaheen, Malak, Cairo, Egypt
Shilla, Eribaweimon, Karnataka, India
Silva Junior, Manoel Keller, Salvador Bahia, Brazil
Theoret, Francois, Hawkesbury, On, Canada
Trewartha, Jerry, London, On, Canada
Velier, Caroline, Gentilly, France
Wang, Jack, Xian, China
Wang, Yanling, Beijing, China
Yetkin, Ozkan, Istanbul, Turkey

Classifieds

ADVERTISING SECTION

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.

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Recruitment Display Advertisements

For Recruitment Display Ad Rates, go to http://www.aarc.org/marketplace/media_kit/recruitment_12.pdf, or contact Tim Goldsbury and Associates, Alhambra Plaza, 725 N. Highway A1A, Suite C-106, Jupiter, FL 33477, (561) 745-6793, Fax (561) 745-6795

Remembering

(continued from page 37)

medical proxy," she says. "I negotiated the health care system for her; I was able to interpret the 'doctor speak.'" Being there to serve as a second set of ears during doctors' appointments became especially important as the hypoxia associated with IPF began to wreak havoc on Julia's short-term memory.

When Julia wanted to travel, McNiven helped arrange for her oxygen as well, making sure her mother-in-law would have everything she needed while away from home. That helped not only Julia but the rest of the family, too. "I think my sisters-in-law knew that I would take good care of their mom and that allowed them to be more relaxed and less frightened."

Despite fighting for her independence, Julia weathered it all with good humor. "She never wanted to complain," says McNiven. "She didn't want to burden anyone or to have them worry about her."

"Cover girl" at 78

McNiven says she had the *AARC Times* Photo Contest in mind when she pulled out her camera during the family get-together in Cape Cod last summer, but that was only part of her motivation for taking a series of shots of her mother-in-law. "Julia looked really happy and much healthier than she had in a while. I knew our time with her was limited, and I really wanted to remember her as happy and with the *joie de vivre* that was her usual mode of operation."

Julia knew McNiven was planning to enter the picture in the contest, and McNiven says she's sure she'd be most pleased to know the photo won, even though she probably would have waved off all the attention she'd have gotten for becoming a "cover girl" at age 78. McNiven says, "I know that she would be very proud of me for winning the contest, yet she would have preferred that I win with someone else's picture and not hers." ■

Calendar of Events

AARC & State Society Programs

April 17–19
Great Falls, MT
Montana State Respiratory Conference
Contact Bill Carmichael at
williamcarmichael@benefis.org
or (406) 455-5239

May 30 – June 1
Oak Brook Terrace, IL
Illinois Society for Respiratory Care's
44th Conference and Exposition
Contact www.isrc.org or Kelli DeBerry at
deberryk@Alexian.net or (847) 981-3581

July 13–15
Santa Fe, NM
AARC Summer Meetings
Contact AARC, (972) 243-2272,
www.aarc.org/education/meetings

October 21–27
Respiratory Care Week
Contact AARC, (972) 243-2272,
www.aarc.org

October 24
Lung Health Day
Contact AARC, (972) 243-2272,
www.aarc.org

November 10–13
New Orleans, LA
AARC Congress 2012
Contact AARC, (972) 243-2272,
www.aarc.org/education/meetings

Submissions for the next available issue are due Feb. 17.

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

Advertiser Index

To advertise, contact: Tim Goldsbury, Advertising Sales, Alhambra Plaza, 725 N. Highway A1A, Suite C -106, Jupiter, FL 33477, (561) 745-6793, Fax (561) 745-6795, goldsbury@aarc.org. Or contact Beth Binkley, Advertising Assistant, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706, (972) 243-2272, Fax (972) 484-2720, binkley@aarc.org

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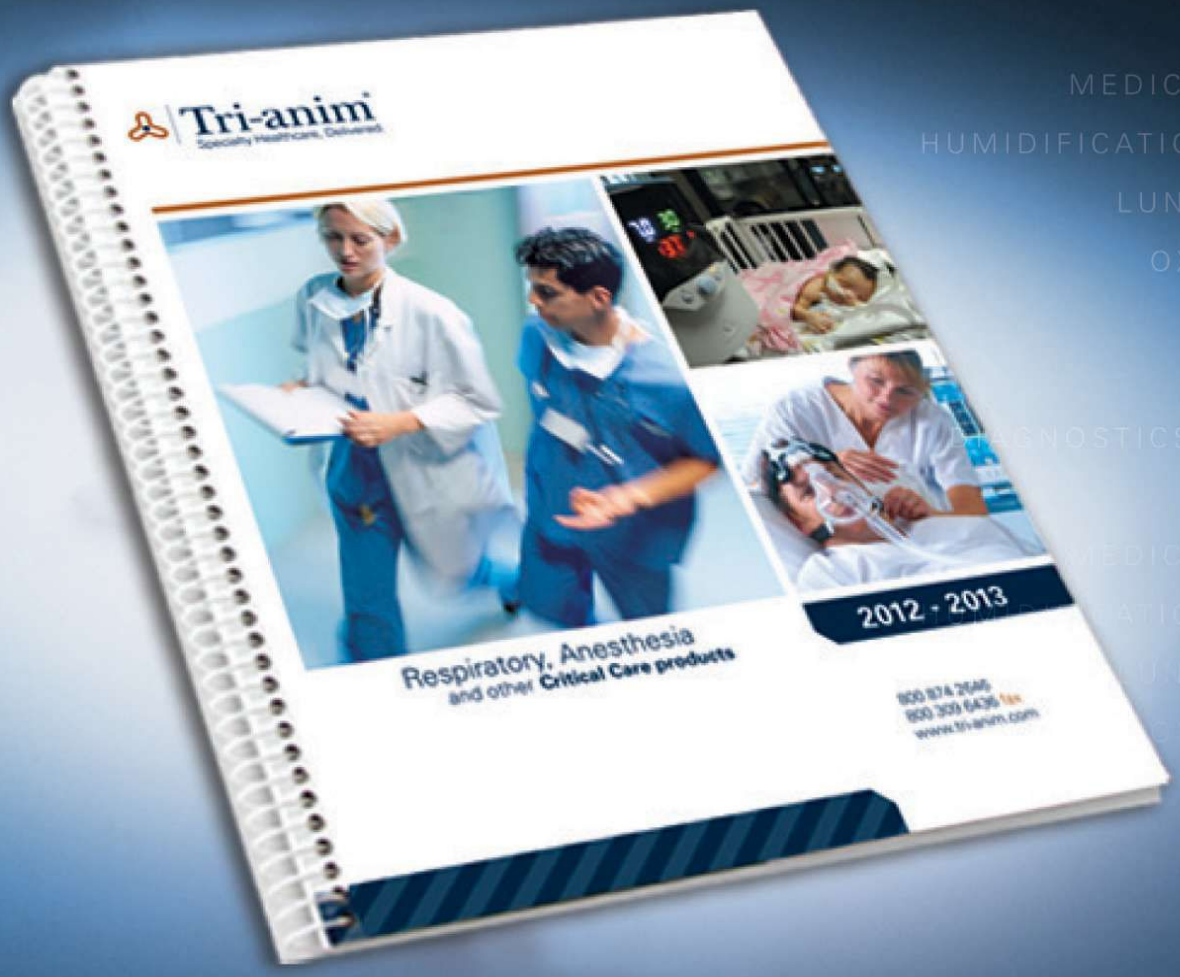

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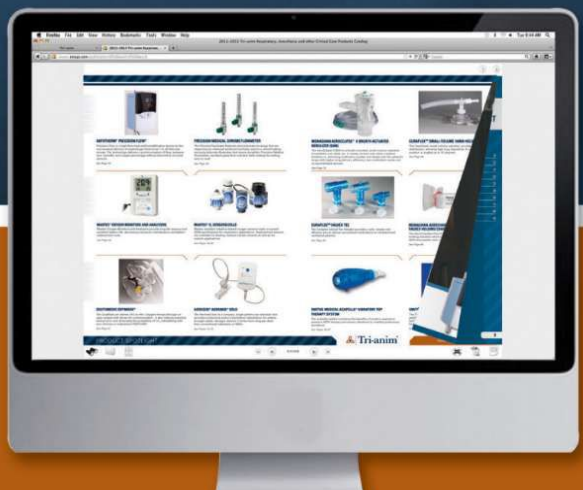

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