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AARC Times

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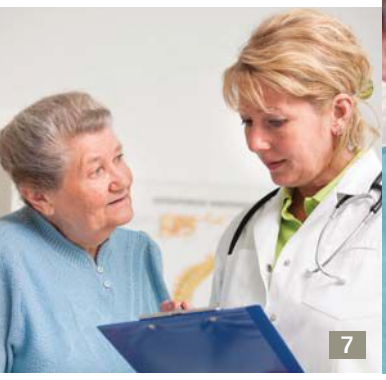

UNIVERSITY 37

Cover photo by Joe McNeil, Ford City, PA

AARC Strategic Plan

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

AARC Strategic Objectives

• Refine and expand the scope of practice for respiratory therapists in all care settings.
• Advance the knowledge base and educational preparation of respiratory therapists to ensure competent patient care and to foster patient safety initiatives.
• Support research and scientific inquiry to strengthen the scientific foundation and promote best practice for patient care.
• Establish professional standards and outcomes supported by scientific evidence.
• Advocate for federal and state health care policies that enhance patient care, patients' access to care and professional practice.
• Partner with governmental agencies, community organizations, third-party payers, professional societies and the public to promote healthy behaviors and prevent cardiopulmonary disease.
• Broaden consumer and health care providers' knowledge and understanding of the value of respiratory therapists in providing safe, competent and cost-effective care.

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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INDICATION

SURFAXIN® (lucinactant) Intratracheal Suspension is approved by the FDA for the prevention of respiratory distress syndrome (RDS) in premature infants at high risk for RDS.

IMPORTANT SAFETY INFORMATION

SURFAXIN (lucinactant) Intratracheal Suspension is intended for intratracheal use only. The administration of exogenous surfactants, including SURFAXIN, can rapidly affect oxygenation and lung compliance. SURFAXIN should be administered only by clinicians trained and experienced with intubation, ventilator management, and general care of premature infants in a highly supervised clinical setting. Infants receiving SURFAXIN should receive frequent clinical assessments so that oxygen and ventilatory support can be modified to respond to changes in respiratory status.

Most common adverse reactions associated with the use of SURFAXIN are endotracheal tube reflux, pallor, endotracheal tube obstruction, and need for dose interruption. During SURFAXIN administration, if bradycardia, oxygen desaturation, endotracheal tube reflux, or airway obstruction occurs, administration should be interrupted and the infant's clinical condition assessed and stabilized. Overall the incidence of administration-related adverse events did not appear to be associated with an increased incidence of serious complications or mortality relative to the comparator surfactants.

SURFAXIN is not indicated for use in acute respiratory distress syndrome (ARDS).

For more information about SURFAXIN, please visit **www.SURFAXIN.com** and see accompanying brief summary on the next page.

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Please see package insert for full prescribing information.

INDICATIONS AND USAGE

SURFAXIN® is indicated for the prevention of respiratory distress syndrome (RDS) in premature infants at high risk for RDS.

CONTRAINDICATIONS

None.

WARNINGS AND PRECAUTIONS

Acute Changes in Lung Compliance

Administration of exogenous surfactants, including SURFAXIN, can rapidly affect lung compliance and oxygenation. SURFAXIN should be administered only by clinicians trained and experienced in the resuscitation, intubation, stabilization, and ventilatory management of premature infants in a clinical setting with the capacity to care for critically ill neonates. Infants receiving SURFAXIN should receive frequent clinical assessments so that oxygen and ventilatory support can be modified to respond to changes in respiratory status.

Administration-Related Adverse Reactions

Frequently occurring adverse reactions related to the administration of SURFAXIN include bradycardia, oxygen desaturation, reflux of drug into the endotracheal tube (ETT), and airway/ETT obstruction.

Increased Serious Adverse Reactions in Adults with Acute Respiratory Distress Syndrome (ARDS)

Adults with ARDS who received lucinactant via segmental bronchoscopic lavage had an increased incidence of death, multi-organ failure, sepsis, anoxic encephalopathy, renal failure, hypoxia, pneumothorax, hypotension, and pulmonary embolism. SURFAXIN is not indicated for use in ARDS.

Clinical Trials Experience

The efficacy and safety of SURFAXIN for the prevention of RDS in premature infants was demonstrated in a single randomized, double-blind, multicenter, active-controlled, multi-dose study involving 1294 premature infants (Study 1). Infants weighed between 600 g and 1250 g at birth and were 32 weeks or less in gestational age. Infants were randomized to received 1 of 3 surfactants, SURFAXIN (N = 524), colfosceril palmitate (N = 506), or beractant (N = 258). Co-primary endpoints were the incidence of RDS (defined as having a chest x-ray consistent with RDS and an $FiO_2 \geq 0.30$) at 24 hours and RDS-related mortality at 14 days. The primary comparison of interest was between SURFAXIN and colfosceril palmitate with the intent of demonstrating superiority. Beractant served as an additional active comparator. Compared to colfosceril palmitate, SURFAXIN demonstrated a statistically significant improvement in both RDS at 24 hours and RDS-related mortality through Day 14. A second multicenter, double-blind, active-controlled study involving 252 premature infants was also conducted to support the safety of SURFAXIN (Study 2). Infants weighed between 600 g and 1250 g and were less than 29 weeks in gestational age. Infants received 1 of 2 surfactants, SURFAXIN (N = 119) or poractant alfa (N = 124).

The safety data described below reflect exposure to SURFAXIN administered intratracheally to infants at a dose of 5.8 mL per kg (up to 4 doses) in either 4 aliquots (Study 1) or 2 aliquots (Study 2) in 643 premature infants.

Comparator surfactants colfosceril palmitate and beractant were administered at the recommended doses (5.0 and 4.0 mL per kg, respectively) while the first dose of poractant alfa administered (2.2 mL per kg) was less than the recommended dose of 2.5 mL per kg. Any subsequent doses of poractant alfa were at the recommended 1.25 mL per kg dose.

Overall, the incidence of administration-related adverse reactions was higher in infants who received SURFAXIN compared to other surfactants (Table 1) and resulted in a greater proportion of infants treated with SURFAXIN who experienced administration-related oxygen desaturation and bradycardia. For Study 1, oxygen desaturation was reported in 17%, 9%, and 13% and bradycardia for 5%, 2%, and 3% of infants treated with SURFAXIN, colfosceril palmitate, and beractant, respectively. For Study 2, oxygen desaturation was reported in 8% and 2% and bradycardia in 3% and 2% of infants treated with SURFAXIN and poractant alfa, respectively. These adverse reactions did not appear to be associated with an increased incidence of serious complications or mortality relative to the comparator surfactants (Table 2).

Table 1. Administration-Related Adverse Reactions in SURFAXIN Controlled Clinical Studies[a]

	Study 1[b]			Study 2[c]	
	SURFAXIN (N = 524)	Colfosceril palmitate (N = 506)	Beractant (N = 258)	SURFAXIN (N = 119)	Poractant alfa (N = 124)
Total Doses Administered	994	1038	444	174	160
	Total Number of Events (Events per 100 Doses)				
ETT Reflux	183 (18)	161 (16)	67 (15)	47 (27)	31 (19)
Pallor	88 (9)	46 (4)	38 (9)	18 (10)	7 (4)
Dose Interruption	87 (9)	46 (4)	30 (7)	7 (4)	2 (1)
ETT Obstruction	55 (6)	21 (2)	19 (4)	27 (16)	1 (1)

[a] Table includes only infants who received study treatment.
[b] Study 1 doses were administered in 4 aliquots.
[c] Study 2 doses were administered in 2 aliquots.

Table 2. Common Serious Complications Associated with Prematurity and RDS in SURFAXIN Controlled Clinical Studies Through 36-Weeks Post-Conceptual Age (PCA)

	Study 1			Study 2	
	SURFAXIN (N = 527) %	Colfosceril palmitate (N = 509) %	Beractant (N = 258) %	SURFAXIN (N = 119) %	Poractant alfa (N = 124) %
Apnea	52	52	46	66	75
Intraventricular hemorrhage, all grades	52	57	54	39	38
-Grade 3/4	19	18	21	13	8
Periventricular leukomalacia	10	10	12	4	9
Acquired sepsis	44	44	44	45	52
Patent ductus arteriosus	37	35	37	43	44
Retinopathy of prematurity, all grades	27	26	25	32	31
-Grade 3/4	6	7	6	5	9
Necrotizing enterocolitis, all grades	17	17	19	13	15
-Grade 2/3	6	8	14	8	8
Pulmonary air leak through Day 7, all types	15	17	14	9	7
-Pulmonary interstitial emphysema	9	10	10	3	5
-Pneumothorax	3	4	2	4	1
Pulmonary hemorrhage	10	12	14	6	9

All-cause mortality through 36-weeks PCA was similar regardless of which exogenous surfactant was administered.

Adverse reactions reported in the controlled clinical studies through 36-weeks PCA occurring in at least 10% of infants were anemia, jaundice, metabolic acidosis, oxygen desaturation, hyperglycemia, pneumonia, hyponatremia, hypotension, respiratory acidosis, and bradycardia. These reactions occurred at rates similar to the comparator surfactants.

No assessments for immunogenicity to SURFAXIN were performed in these clinical studies.

Follow-up Evaluations

Twelve-month corrected-age follow-up of 1546 infants enrolled in the 2 controlled clinical studies demonstrated no significant differences in mortality or gross neurologic findings between infants treated with SURFAXIN and those treated with the comparator surfactants (colfosceril palmitate, beractant, or poractant alfa).

OVERDOSAGE

There have been no reports of overdose following the administration of SURFAXIN.

HOW SUPPLIED/STORAGE AND HANDLING

SURFAXIN (lucinactant) Intratracheal Suspension is supplied sterile in single-use, rubber-stoppered, clear glass vials containing 8.5 mL of white suspension (NDC 68628-500-31). One vial per carton.

Store SURFAXIN in a refrigerator at 2° to 8°C (36° to 46°F) and protect from light until ready for use. Do not freeze. Vials are for single use only. Discard any unused portion of SURFAXIN. Discard warmed vials of SURFAXIN if not used within 2 hours of warming.

To report SUSPECTED ADVERSE REACTIONS, contact Discovery Laboratories, Inc. at 1-877-SURFAXN (877-787-3296) or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

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Chronic Disease Manager

Enhancing Quality of Life for the Asthma Patient

by Tabatha Dragonberry, BSRT, RRT-NPS, AE-C

Health care in the United States is changing. We were a society that treated acute illness; but we are starting to focus on prevention of disease, with health care providers having more discussions about patient education, self-management, and how we can prevent admissions. These concepts are not new to respiratory therapists; we have been working toward these ideals since the mid-1990s with our asthma patients.[1] As a profession, we are ahead of the game and society is now catching up.

When properly treated, asthma is a manageable disease; but there are many Americans who find controlling asthma a challenge. For those with poorly controlled asthma, there are various financial and social implications. According to the Centers for Disease Control and Prevention, the cost of treating asthma has increased from $53 billion in 2002 to $56 billion in 2007,[2] with costs growing yearly. One must consider the financial implications, as well as the missed school and work days, for the uncontrolled asthma patient and their family. In 2008, adults missed an average of five days of work and children missed four days of school due to their asthma.[2] Asthmatic children, on average, have three more absences per year than their contemporaries, according to national statistics.[3] Asthma can have a direct impact on students' academic achievement. Students with asthma may be unable to concentrate due to disrupted sleep, which can affect their memory and participation in classroom activities. For students who have difficulty breathing, focusing on their education becomes secondary to their breathlessness.[3] People with asthma should not need to limit their activity; rather, they need to manage their disease so they can enjoy normal daily activities.

about the author...

Tabatha Dragonberry, BSRT, RRT-NPS, AE-C, is a staff therapist at Children's National Health Systems in Washington, DC.

Goal: self-management

As medical professionals, we must provide our patients with the tools to allow themselves to effectively self-manage their asthma symptoms. The intended goal is to reduce morbidity and increase their functionality, which will enhance their quality of life.[4] To successfully control asthma, patients need to understand their triggers and how to avoid them. They must grasp the use of controller medications and proper inhaler technique. The patient must have the ability to recognize their symptoms and know how to appropriately react to their dynamic disease process while an inpatient.[5] We are charged with educating our patients so that they can effectively self-manage their asthma. This education needs to be reinforced as outpatients as well. A multidisciplinary community-based asthma management program for low-income pediatric patients has shown a societal three-year cost savings of $215,100, allowing patients and families a better quality of life.[5]

Asthma care is a partnership between the patients and their health care team. Training integrates the concept of self-management. According to the National Heart, Lung, and Blood Institute's National Asthma Education and Prevention Program guidelines, self-management education should begin upon diagnosis and throughout follow-up. Reinforcement should occur routinely during all points of contact with a clinic, physician's office, or pharmacy.[4] By effectively emphasizing the key concepts of asthma, patients are more likely to understand their disease and know how to control the symptoms. Asthma patients should visit their primary care physician regularly to assess their asthma control and have a current asthma

action plan that explains their daily management and provides them information on recognizing and managing worsening symptoms.[6] Patients must be educated on the roles each medication plays in asthma management, how to use their medications properly, and how to recognize when they need to seek further assistance in disease management.

RTs in the outpatient arena

A key concept in effective outpatient asthma care is constructing an active partnership with your patients and their families. By effectively communicating, addressing concerns, and identifying barriers to treatment, the patient and the health care team can create realistic treatment goals.[6] Tailoring education to each patient versus a "cookie cutter" approach allows the health care provider the opportunity to understand the cultural and ethnocultural beliefs of their patients and provides the patients a feeling of understanding and respect.[6]

RTs are experts when it comes to pulmonary disease. They understand the pathophysiology, treatment, and long-term management in regards to lung impairment, especially asthma. It's only natural for RTs with the AE-C credential to be the logical choice to lead asthma education programs because of their expertise. Traditionally, RTs work within the walls of the hospital; but their expertise should be applied to the outpatient arena where RTs are grossly underutilized.[7] Respiratory therapy licenses in various states allow them to implement protocols and interventions, plus go beyond task-oriented duties.[8] By utilizing this knowledge outside of the RT's traditional role, we can become more involved in the ongoing management of asthma and other disease processes. An example of this is the AARC's Peak Performance USA, which respiratory therapy departments can apply and work with their local schools to enhance asthma education in their community. Management and treatment of asthma is where RTs shine because asthma is one of the most common disease processes we effectively treat and manage.

Asthma is a continually growing concern; but with proper outpatient education and effectively utilized resources, asthma can be managed. Effective self-management can alleviate social, financial, and educational implications of the disease. RTs can play a key role in the changing health care system as pulmonary disease managers because not only do they understand pulmonary disease but they also know how to effectively care for the patient and family as a whole. ■

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Ventilation for Life

Airway Management of the Trauma Victim

by J. Brady Scott, MSc, RRT-ACCS

You should talk to your patient. At least that was an assessment method found to be effective by clinicians taking care of wounded Americans and Iraqis during the 2004 Fallujah Offensive. A quick, but effective, evaluation of airway patency, respiratory effort, and mental status was imperative.[1] While not all trauma situations require such a quick triage system, the rapid assessment of airway status in any trauma patient is extremely important.

The trauma airway

No two trauma airways are alike, as the list of injuries that could result in airway compromise is endless. The need for airway intervention may be immediate or delayed dependent on the severity of injury. Direct trauma to the airway, such as penetrating face and neck trauma or serious indirect traumas such as severe closed-head injury or exsanguination, may necessitate immediate airway management. Issues that are slower to evolve (e.g., impending airway compromise, need for surgical intervention, and/or mechanical ventilation) may also dictate airway management.

Matters that complicate the trauma airway include, but are not limited to, distortion of normal anatomy, bleeding, and cervical instability. Distorted airways resulting from physical alterations or edema may make recognition of airway structures and landmarks more difficult. Hemorrhage is often present when airways are distorted from penetrating trauma to the face or neck.[2] Bleeding can be directed from the anatomical structures of the airway or from surrounding tissues and vessels. Finally, all trauma patients should be assumed to have a cervical spinal injury. This assumption, however, may complicate the management of the trauma airway. The goal of airway management during a cervical spinal injury is to simply establish an effective airway without causing further neurologic injury.[3] Spinal immobilization can make visualization of the glottis more challenging.

about the author...

J. Brady Scott, MSc, RRT-ACCS, is an assistant professor in the respiratory care department at Rush University Medical Center in Chicago, IL.

Specialized equipment

Devices used to secure trauma airways are similar to those used in simple to difficult, non-trauma related airways. Standard airway equipment such as straight and curved laryngoscope blades, standard endotracheal tubes (several sizes), tools to assess tube placement (end-tidal carbon dioxide), and tube stabilization supplies should be readily available. Direct laryngoscopy remains a primary tool used to perform endotracheal intubation in trauma. Other methods used to visualize the vocal cords, such as video laryngoscopy, have theoretical potential but lack evidence demonstrating any real benefit when used on trauma patients. In fact, study results revealed no decrease in mortality, an increase in intubation time, and greater incidence of hypoxia when video laryngoscopy was used compared to direct laryngoscopy with a standard laryngoscope.[4]

Difficult airway management equipment should always be readily available when attempting to secure a trauma airway. Tools that may help when direct laryngoscopy fails include supraglottic devices, tube introducers, fiberoptic bronchoscopy, and surgical airway equipment. The selection of the device depends strongly on the situation and the skill set of the operator. For example, supraglottic devices such as laryngeal mask airways may not be optimal in the setting of severe hemorrhage or airway distortion. Fiberoptic

intubation for patients with cervical spine injury may be useful in preventing cervical movement but is technically challenging and may be time-consuming.[3] Surgical airways are also technically challenging and should be reserved for clinicians with advanced training.

Surgical access to the airway may be clinically indicated in some circumstances when the risk of not securing the airway is greater than the risks associated with the surgical procedure. Surgical cricothyroidotomy may be appropriate in cases involving severe maxillofacial fractures, airway hemorrhage, and facial deformity.[2] The decision to access the airway surgically would be made when there is an absolute need for a definitive airway. This may be due to structural abnormalities, as previously mentioned, or after multiple attempts at other methods to secure the airway have failed.

Airway management training

Each facility may approach trauma airway management training differently. It is reasonable to consider simulation as an effective tool to teach airway management skills.[5] Simulation can range from low-fidelity task trainers to high-fidelity patient simulators. Low-fidelity task trainers typically involve a body part, such as an intubation head, and are helpful in familiarizing the learner with the equipment and psychomotor skills needed to perform the airway procedure. High-fidelity simulators are computer-driven and include advanced features such as physiologic findings (e.g., heart rate, respiratory rate/pattern, blood pressure, and palpable pulses). Because of the increased level of realism, it is possible that trauma airway management training would be enhanced using this method. However, more research is needed to better understand the use of simulation-enhanced training in the management of trauma airways.

The role of the RT in trauma airway management

Respiratory therapists responsible for placing artificial airways in trauma victims will need advanced airway management training and skill refinement as dictated by their institutions. Those who provide assistance during intubation and airway management need to be able to anticipate the needs of the person placing the airway. Regardless of the primary role, all respiratory

therapists involved in the care of trauma patients should be able to:

- Recognize the potential for a difficult trauma airway
- Prepare the proper equipment and resources
- Understand the strategy and techniques used to secure the airway
- Know the steps taken in a "failed intubation" scenario
- Recognize esophageal intubation
- Properly stabilize a trauma airway to prevent inadvertent extubation/decannulation.

These skills could mitigate the negative outcomes associated with delayed or failed trauma airways such as brain injury, spinal cord injury, further neurologic damage and airway trauma, myocardial infarction, and death. Fortunately, these skills are well within the scope of practice for a respiratory therapist. As clinicians who are tasked with such great responsibility, we must be prepared for any situation. After all, the old adage is, Proper Preparation Prevents Poor Performance. ■

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Inhaled Treatment Options for Pulmonary Hypertension

by Kelly A. Bianchi, BS

Do you still use inhaled nitric oxide (INO) for patients diagnosed with acute respiratory distress syndrome (ARDS)? We know that the data does not support the use of INO to improve outcomes in mechanically ventilated patients with ARDS,[1] but we still use it as a rescue therapy because it temporarily improves oxygenation. Patients with diseases that cause pulmonary vasoconstriction, such as pulmonary hypertension and ARDS, benefit from using selective pulmonary vasodilators. Selective pulmonary vasodilators improve oxygenation by increasing blood flow to the better ventilated alveoli, which lowers shunting and improves the arterial partial pressure of oxygen (PaO_2).[2] They also improve oxygenation by relaxing vascular smooth muscle by activating guanylate cyclase and converting guanosine-5-triphosphate to cyclic guanosine monophosphate. INO is still widely used to improve oxygenation in vasoconstrictive diseases, but there are alternatives that may also be beneficial to these patients. Alternatives to nitric oxide include prostaglandins, phosphodiesterase inhibitors, and antagonists of endogenous pulmonary vasoconstrictors.

As a quick review for respiratory therapists who may not use inhaled nitric oxide on a regular basis, INO works by decreasing pulmonary arterial pressures by increasing blood flow to better ventilated alveoli. This lowers shunting and improves the arterial partial pressure of oxygen (PaO_2) that, in turn, decreases pulmonary arterial pressures.[2] It is an effective pulmonary vasodilator due to its pulmonary selectivity and limited systemic side effects at low doses.[3] Any INO that is absorbed from the lungs into the circulation is inactivated when it binds with hemoglobin.[2] Disadvantages of INO include possible toxicity, cost, and labor of use. INO may be toxic after oxidizing to nitrogen dioxide or nitric acid in the presence of oxygen or water, respectively, and is expensive in comparison to alternative options due to differences in reimbursement. It also requires a complex delivery system, while some alternatives can be delivered through a standard nebulizer.

about the author...

Kelly Bianchi, BS, is a student at Rush University in Chicago, IL. She anticipates receiving her Master of Science in Respiratory Care in June 2014.

Prostaglandins

A couple of the alternative medications that are being studied belong to a group called prostaglandins. RTs may know prostaglandins better by names like epoprostenol or iloprost. Prostaglandins, such as prostacyclin and iloprost, cause vascular smooth muscle relaxation, inhibit platelet aggregation, and prevent inflammation.[2] Prostaglandins may be useful in ARDS because they decrease intrapulmonary shunting and, thus, improve oxygenation. These compounds may also prevent pulmonary arterial hypertension (PAH), which is common with ARDS, by causing smooth muscle relaxation and vasodilation.[2]

Additionally, prostaglandins may decrease the inflammation that occurs with ARDS. Compared to INO, inhaled prostacyclin (PGI_2) produces a greater decrease in pulmonary vascular resistance (PVR).[4] Both INO and PGI_2 produce a similar increase in PaO_2, demonstrate selective pulmonary vasodilation,[4] and increase the PaO_2/F_IO_2 ratio.[2] Reported side effects of PGI_2 are minimal and include only one case of systemic hypotension, a case of possible bronchospasm, and a case of inhibition of platelet aggregation.[2] An advantage of using PGI_2 is that the cost is significantly less than INO.[2] On the other hand, a disadvantage of using inhaled PGI_2 is that an

Advantages and Disadvantages of Inhaled Treatment Options for Pulmonary Hypertension

	Advantages	Disadvantages
Inhaled nitric oxide	Data on dosing available Improves oxygenation Decreases pulmonary artery pressure Selective pulmonary vasodilator	Expensive Potential toxicity
Prostaglandins	Greater decrease in PVR Minimal side effects Inexpensive Greater improvements in O_2 saturation and hemodynamic values Longer lasting effects Selective pulmonary vasodilator	Lack of data on dosing
Phosphodiesterase inhibitors	Greater decrease in mean pulmonary artery pressure Enhances vasodilator effect when combined with iloprost or INO Prevents rebound hypoxemia or pulmonary hypertension after therapy is ended Selective pulmonary vasodilator	Lack of data on dosing
Endothelin antagonists	Minimal side effects Improved functional exercise capacity Selective pulmonary vasodilator	Lack of data on dosing Potentially teratogenic

appropriate dosing strategy has not been established. In general, health care providers start patients on a dose of 50 ng/kg/min and titrate down based on the patient's response.[2] The lack of data on PGI_2 dosing causes varying results with its clinical use. Based on these studies, PGI_2 may be a promising therapy for patients with PAH or ARDS.

Another type of prostaglandin that is a possible alternative to INO is iloprost. Iloprost is a derivative of PGI_2 but has a longer half-life.[5] Iloprost is a selective pulmonary vasodilator and produces a greater decrease in PVR when compared to INO.[5] Iloprost also produces significant improvements in hemodynamic values, such as cardiac output and stroke volume.[5] One study reported that iloprost produced greater improvements in hemodynamic values and oxygen saturation than INO at 10–28 ppm and that the effects lasted much longer than INO.[5] These findings provide support for more research on the use of prostaglandins as a rescue therapy for ARDS, especially if PAH is present.

Phosphodiesterase inhibitors

In addition to prostaglandins, phosphodiesterase inhibitors could be used as a therapy for pulmonary hypertension. Phosphodiesterase inhibitors, such as sildenafil, prevent the degradation of cyclic guanosine monophosphate in vascular smooth muscle cells, resulting in vasodilation. It has been reported that

oral sildenafil is as effective and selective a pulmonary vasodilator as INO.[6] Since oral sildenafil may be an effective pulmonary vasodilator, it could be beneficial for long-term treatment of PAH. It has been FDA approved for PAH in adults but not children less than 17 years of age. Sildenafil decreased PVR to a similar level as INO, but decreased the mean pulmonary artery pressure more than INO due to a higher increase in cardiac index.[6]

Sildenafil also improves ventilation/perfusion matching by decreasing perfusion of low ventilation/perfusion areas of the lungs, resulting in an increase in PaO_2. Suitable ventilation/perfusion matching is important for patients with PAH to promote efficient gas exchange in the lungs. Additionally, sildenafil may add to the vasodilator effect of iloprost or INO and produce an even greater vasodilator response than when sildenafil is used alone. Sildenafil can even prevent the rebound hypoxemia or pulmonary hypertension that can occur when INO therapy is ended.[7]

Endothelin antagonists

A different method of managing PAH is by using endothelin antagonists such as bosentan and ambrisentan. Endothelin (ET) is an endogenous vasoconstrictor that is found in higher abundance in patients with PAH.[2] It has been shown that ET levels are higher in patients with PAH and contribute to the progression of the disease.[8] Endothelin antagonists work to prevent the effect of ET by blocking the ET_A and/or ET_B receptors and, therefore, promoting vasodilation. The ET_A receptor causes vasoconstriction, while the ET_B receptor causes vasodilation by clearing endothelin-1 and releasing nitric oxide and prostacyclin.[8] An ET antagonist that selectively blocks the ET_A receptor of endothelin-1 would possibly provide the most benefit toward promoting vasodilation because it would preserve the vasodilator effect of the ET_B receptor.

Ambrisentan, a selective antagonist of the ET_A receptor, was studied to determine its ability to treat PAH, assess its safety, and compare it to similar ET antagonist drugs.[8] Its specificity allows the ET_B receptor to remain open and potentially promote vasodilation. The use of ambrisentan in patients with pulmonary hypertension causes vascular smooth muscle relaxation and vasodilation, as measured by monitoring the patient's PVR and mean arterial pressure. Additionally, functional exercise capacity in patients taking ambrisentan was measured to determine possible improvements in quality of life. These patients had an increase in their six-minute walk distance beginning in Week 4 and progressively increased the distance to a plateau at Week 12.

In a survey on quality of life, patients taking ambrisentan reported a significant improvement. These patients also had longer time to clinical worsening than patients taking the placebo. Some of the patients' hemodynamic variables, such as mean pulmonary arterial pressure, cardiac output, pulmonary vascular resistance, and right ventricular ejection fraction were reported to have improved significantly. There were no significant side effects in these patients; the reported side effects were peripheral edema, headache, and nasal congestion. All were mild to moderate in nature.[8]

A disadvantage to using this medication is its potential risk of teratogenicity.[9] On the other hand, the survival rates were significantly higher for patients taking ambrisentan than the placebo.[8] The optimal usage of ambrisentan has not been determined yet, but it appears to be a promising therapy for PAH.

Similarly, bosentan blocks endothelin-1 receptors that cause vasoconstriction, therefore resulting in vasodilation. Unlike ambrisentan, bosentan is a non-specific antagonist; it blocks both ET_A and ET_B receptors.[8] Since it is not specific to ET_A, bosentan could cause less vasodilation by blocking the vasodilating receptor ET_B. Bosentan has been shown to improve the six-minute walk distances of patients with pulmonary hypertension, and these patients' exercise capacity remained improved for more than 20 weeks.[9] In this study, patients taking bosentan also experienced hemodynamic improvements such as an increase in cardiac index and decreases in the pulmonary capillary wedge pressure, mean right atrial pressure, and PVR. Borg dyspnea scores in these patients were lower at week 12 than patients taking placebo, and these patients experienced a significant increase in time until clinical worsening compared to placebo.[9]

Overall, bosentan has a similar effect as ambrisentan even though it is not a selective endothelin receptor antagonist. There are currently no studies comparing ambrisentan and bosentan, but both show positive hemodynamic, exercise-capacity, and quality-of-life improvements for patients with PAH. The results of these studies on ambrisentan and bosentan suggest that either medication may be beneficial therapies for PAH patients.

Options for treating vasoconstrictive pulmonary diseases

There are numerous therapies for the treatment of diseases that cause significant pulmonary vasoconstriction. Inhaled nitric oxide is a selective

pulmonary vasodilator and decreases pulmonary arterial pressures. Inhaled prostacyclin produces a significant decrease in PVR, has few toxic side effects, and is relatively inexpensive. Phosphodiesterase inhibitors, such as sildenafil, have been shown to be effective at promoting vasodilation. Endothelin antagonists, such as bosentan and ambrisentan, have demonstrated significant positive effects on hemodynamic variables for the management of pulmonary arterial hypertension. Overall, these medications have the potential to be effective therapies for patients with vasoconstrictive pulmonary diseases such as ARDS and PAH. ■

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WVSRC Educates Legislators on Unintended Consequences of Proposed Bill

by Tracy Matthews, MBA, RRT

During the spring 2013 session of West Virginia's legislature, the West Virginia Society for Respiratory Care (WVSRC) became aware of a new bill that, if passed, could unintentionally jeopardize the quality of care for home-bound ventilator patients and negatively impact the West Virginia respiratory therapy profession. The bill, H.B. 2731, could allow unlicensed personnel (paid by the state) to perform certain health maintenance "tasks" to patients — particularly ventilator patients — in their home. Specifically listed in the bill as approved "tasks" that could be performed by unlicensed personnel were nebulizer treatments, oxygen administration, and ventilator and tracheostomy care.

Why was this bill introduced in the first place? In West Virginia, there are no long-term facilities that will accept ventilator patients. So, if a ventilator patient is discharged from a hospital in our state, there are only two choices:

- Patients are sent back home, where the family or caregivers must be trained to care for them.
- Patients must leave West Virginia and go to an out-of-state facility that can care for ventilator patients.

Being sent out of state for care is a terrible option for the patient and the family — but there is little choice. Most families take their loved one back home. Because of this, some parents or caregivers become essentially home bound because there is no one else to care for their loved one. This can be a heavy burden, especially over a long period of time. The introduction of H.B. 2731 was a noble attempt to provide these caregivers with some relief and assistance. However, it was hastily written without any consultation with the WVSRC or the West Virginia Board of Respiratory Care — nor with other professionals such as nurses who also would be impacted by the bill.

The considerable effort made by the WVSRC over the last several years to improve communication between its board of directors, its RT members, and the West Virginia Board of Respiratory Care was about to reap its benefits. A few phone calls and emails later, plans were formulated to address and educate legislators about the unintended consequences that passing H.B. 2731 could have on ventilator-dependent patients.

about the author...

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Going to "the table"

Under direction of the WVSRC lobbyists, WVSRC members made their presence known at the state Capitol. Personal visits to House and Senate members, phone calls, emails, and attendance at committee meetings were essential to get respiratory therapists at the table and lead the discussion surrounding this bill. Members of the legislature got a "crash course" in respiratory care and a greater appreciation of the roles RTs play in patient safety. Legislators also learned of the potential patient safety issues that could result if non-licensed personnel were permitted to provide respiratory therapy services, especially ventilator and tracheostomy care.

The WVSRC wanted the respiratory care profession to be identified for working together as part of the solution to provide our patients and their caregivers with a safe environment and better quality of life. We did not want to be identified as a group just trying to "protect their turf." Working together with members of the legislature and patient advocacy groups, we negotiated a compromise and formed a committee to closely look at the health maintenance task issue. We were directed to submit our recommendations to the legislature by the end of 2013. The committee included representatives from the patient advocacy arena, nursing, a representative from the WVSRC, a representative of the West Virginia Board of Respiratory Care, and a physician with experience in

pulmonary medicine appointed by the West Virginia Board of Respiratory Care. All of these representatives had a stake in the provisions of the bill.

"You can't always get what you want" is very true, especially when it comes to politics. So, with H.B. 2731 compromises were in order all around. The committee recommendations submitted to the legislature included:

"The Office of Health Facility Licensure and Certification will coordinate and collaborate with the West Virginia Board of Respiratory Care to develop training and testing components for health maintenance tasks related to respiratory care, including but not limited to inhaled medications, tracheostomy care and ventilator care…."

and…

"The curriculum, training competency and testing components related to respiratory care must be approved by the West Virginia Respiratory Care Board…."

Essential elements of a unified message

The importance of open lines of communication between society members cannot be overstated. Updated email and phone lists, good working relationships among members in various geographical and business areas of the state, coordination of efforts with the state licensing board, and the work of our lobbyists were all essential in presenting a unified message to lawmakers on the potential impact of patient safety and respiratory therapy professionals. There is still a lot of work to do as we move forward to develop the curriculum, testing, and competencies; but because we were involved, respiratory therapists will be on the job performing that work. That's a good thing for our patients, their caregivers, and our profession. ■

— 2014 —

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EMR = ERR

by Anthony L. DeWitt, JD, RRT, FAARC

To err is human, to really screw things up, you need a computer!

– Unknown

Just as freedom carries with it the burden of responsibility, so too is there a tradeoff when talking about electronic medical records (EMRs). Although EMRs are certainly convenient and are generally secure, every system has vulnerabilities. Knowing what those vulnerabilities are and protecting against them is every therapist's ethical responsibility and a risk management essential.

The National Security Agency (NSA) was once such a super-secret entity that it was joked that NSA stood for No Such Agency. However, all the layers of the NSA's security were breached by one bad hire — a Mr. Edward Snowden — and with him came an unveiling of the operations of the only federal agency more secure than the CIA.

The lesson here is clear: If Edward Snowden could single-handedly strip away all the security from the most sensitive documents and programs of the most secret agency in the country, then no medical record program is really and truly secure. Knowing that and being alert to the ways these systems are compromised is important.

Clear policies needed

EMRs present two separate issues with regard to security. The first is the physical security of the equipment. If anyone can remove anything from the system with a flash drive, or can print and scan a document from inside the system, or for that matter, can take a photo of the screen with an iphone, then the EMR has the potential for a violation of the system's security. It is vital for every EMR user to understand that the physical security of the system is the responsibility of every person who uses it.

Policies need to be clear. Paper copies should be printed only where necessary and should state that they are not an official record. Only the "custodian of records" (normally a person in the medical records department) should be authorized to release records. Good EMR software maintains an audit trail that lets system administrators determine who had access, who used the access, and who printed copies of medical records. If unauthorized copies show up in the wrong places, it would be easy to determine who made those copies.

Obviously, the Health Insurance Portability and Accountability Act (HIPAA) is a major reason to be concerned about EMR security, but so is state common law. Most states have either statutes or case law that holds providers accountable if information from the medical record is released. This makes it imperative that physical security of the medical record is maintained at all times. A very public lawsuit about a breach of patient confidentiality could erode the public's confidence in your facility.

Social engineering

If the physical security of the records is one concern, it is the people with access to the system that create the most significant and most serious security problem. In "The Art of Deception," former hacker Kevin Mitnick recounts countless tales of supposedly foolproof security systems that were hacked not by brilliant computer work, but rather by "social engineering."

about the author...

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Social engineering is the art of getting people to give up information without revealing the real reason behind it. Of course, lawyers and law enforcement have another name for it: fraud. Mitnick describes what he calls the Social Engineering Cycle as follows:

1. Research — The hacker learns the computer programs and types of records at issue. Research may involve dumpster diving or reading trade journals.

2. Developing trust — The hacker uses insider information to gain a foothold at the institution, usually by exploiting an entry-level worker.

3. Exploiting the trust — The hacker either asks for help from the employee or, alternatively, creates a problem so that the employee asks him for help.

4. Repeating the cycle — The hacker continues to use employees and access to gather all the information he or she may need.

If that sounds like something that would never happen at a hospital, think again. Every time even a minor celebrity is admitted to the hospital, it creates an incentive for the tabloid media to release salacious details of what's wrong with the patient. If the patient is wealthy and the hospitalization is publicized, individuals looking to burglarize that person's property may seek confidential information in order to learn when to strike. Petty people may wish to publish details of a person's illness on Facebook to harass or humiliate them. The scope of people who may want to gain access to medical records is quite large and the reasons are as varied as the weather. Some of the common tricks employed by social engineers include posing as an employee, a vendor, lawyer or law firm employee, or someone offering free software that contains malicious code.

Beware of the cool apps

Most hospitals have policies that say that only the information technology department may add software to hospital computers, and most reasonably competent computer users know how to get around these kinds of policies. They also know enough not to ask for permission to do this because they know the answer will be "no." However, putting on a clever game or Facebook add-on may appear to do no harm until the malicious code it contains migrates to the medical records system and starts sending medical record information (or worse, billing information) to hackers in Instanbul.

Knowing what EMR vulnerabilities are and protecting against them is every therapist's ethical responsibility and a risk managment essential.

To be effective, EMR systems have to be networked. Anything that is networked poses a hacking risk. While it's the information technology department's job to protect the system against viruses, malware, and attacks from outside, it can't protect the system if a therapist compromises a linked computer from inside the hospital's firewall. Plus, as Mitnick points out in his book, the single greatest security risk in any organization is the telephone.

Mitnick reveals scores of tales of people calling businesses, asking for information, and getting it. Even innocuous-sounding information ("what's your cost center number") and internal telephone numbers ("what's the direct dial for the ICU family waiting room?") can be used by social engineers to convince the unseasoned that a subsequent telephone call is a legitimate request ("This is Don in the finance department, your cost center 736-7 is showing up with a huge overage on our computers, I need your terminal ID number.") Keep in mind that in any hospital there are telephones meant for staff use that can (and sometimes are) used by outsiders. Even if the hospital phone system has Caller-ID built in, a call from Gary in the billing department asking for confidential patient information should be viewed skeptically. Unless someone has a verified need to know (and the key word is verified), then information should not be shared.

In short, the electronic medical record is only as secure as the people using the system. While EMR information is usually protected by multiple backups and stored securely, no system is foolproof. Being aware of potential problems with EMRs and with the procedures for access could help prevent a compromise of patient information and a breach of your ethical duties. ■

Clinical Perspectives

Asthma Navigator: An Added Value RTs Can Provide

by Mary Hart, MSHCA, RRT, AE-C, FAARC

Health care is changing, and respiratory care is becoming more involved in the overall care of patients. While hospitals were once a place where people were treated and cared for while healing occurred, patient needs are different today, with the expectations of industry focusing more on prevention and the transition of the patient to home sooner. The Joint Commission discusses in detail how to approach some of the current gaps in care to prevent hospital readmissions.[1]

During these challenging times, respiratory therapists have an opportunity to prove their value to organizations. Many RTs already have expertise in disease management and can function as patient-centered case managers, patient coordinators, educators, and patient navigators who work with the patient from bedside to home on a continuum care model. The respiratory care department at the University of Colorado Hospital employed an RT as a case manager to "get the kinks out" of discharging patients in 2009, laying the groundwork for today's needs.[2] It may be a new role for most RTs but would be a perfect opportunity for the patient-care model to meet the needs of today's health care reform.

With patients leaving the hospital earlier, it is important that the transition of care is initiated by the health care team rather than just relying on the patient to follow through with written instructions. If you put yourself in the place of an asthma patient, many times you will see that at discharge several people come into the room and tell you what you should do when you leave the hospital, such as adhering to care instructions and following up with your primary care physician. You leave with directions that boggle your mind, including everyone trying to give you discharge instructions according to The Joint Commission standards.[1] Sometimes the instructions do not even make it home with you.

What can we do differently as clinicians to make this a successful transition? What can we do to manage patients at home and not have them readmitted to the hospital repeatedly with asthma exacerbations? What can we do to improve communication and offer patients a better understanding of asthma management that will give them a better quality of life? We must emphasize to them that while asthma cannot be cured, it can be managed.

about the author...

Mary Hart, MSHCA, RRT, AE-C, FAARC, is director of clinical education at UT Health Science Center San Antonio, San Antonio, TX, and chair of the AARC Geriatrics Roundtable and the Ad Hoc Committee on Geriatrics.

Enter the asthma navigator

One solution is to have an "asthma navigator" (an RRT who is a certified asthma educator) provide asthma training and self-management skills to hospitalized patients.

A few years ago, one patient in Dallas, TX, offered Baylor University Medical Center–Dallas (BUMC) an opportunity to make a difference in the lives of their asthma patients, especially those who were "high risk," by sponsoring a project that used a respiratory therapist in the asthma navigator role. This patient was newly diagnosed with asthma, found their own way to the outpatient asthma center for follow-up care, and received such good asthma management that they wanted to fund an asthma navigator program that would help other patients find their way to asthma control — by way of a respiratory therapist — creating a smooth transition of care. An RRT, who was also a certified asthma educator from the lung care center,

helped develop the program and began working with the discharge planning team (which included a care coordinator, social worker, RRT, nurse, and a physician) to change the process and hospital culture of the "revolving door" method of treatment for these chronic asthma patients.

The "navigator" idea came from the cancer navigator care model that ensures a smooth transition throughout the health care experience. One person ensures the patient and their family are informed and guided from place to place, and the navigator is available to assist the family in any of their needs. It has been very successful in assuring the patient receives the necessary care and in meeting the needs for patients, families, and hospitals.[3]

Role of an asthma navigator

An asthma navigator has a similar role to that of a case manager but has much more hands-on, ongoing patient follow-up. The goals and objectives for the asthma navigator program include:

- Identify high-risk patients with asthma and enroll them in the asthma management program.
- Implement the asthma navigator program within the hospital, outpatient center, and medical home.
- Improve asthma control to reduce asthma services used by this patient population.
- Improve the patient's/family's self-management skills.
- Connect the patient/family with resources needed.

The skill set required for the asthma navigator includes:

- Patient assessment (both physical and history)
- Diagnostic testing
- Allergy skin testing
- Patient and family education
- Teaching patient self-management skills
- Teaching medication management, including delivery devices
- Evaluating barriers to learning
- Assessing home, school, and work environment
- Evaluating barriers to care.

RT Navigators: Not Just for Asthma

Mary Hart's description of the asthma-navigator role adopted by Baylor University Medical Center in Dallas, TX, shows that the respiratory therapist is the right clinician to guide asthma patients through the myriad obstacles they have to overcome to reach successful asthma control.

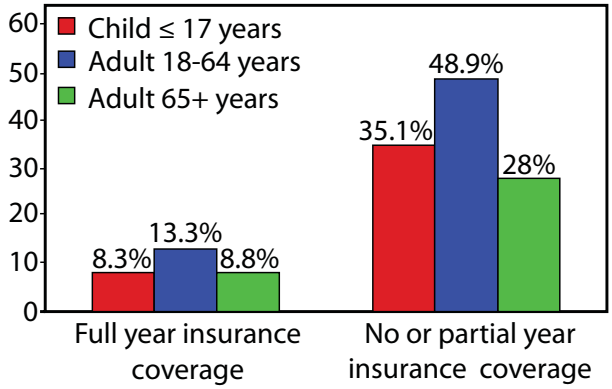
The navigator position, however, doesn't begin and end with asthma. Respiratory therapists are also well positioned to provide these services for a range of other chronic lung disease patients, including those suffering from COPD, emphysema, bronchitis, pulmonary hypertension, cystic fibrosis, and pulmonary fibrosis. With COPD slated to join heart attack, heart failure, and pneumonia on the list of conditions subject to penalties for excessive 30-day readmissions this October, many hospitals around the country are already using, or planning to use, RTs in this role for patients with COPD.

RRT case managers who work through the University of California Davis' ROAD Program, for example, essentially navigate the choppy health care waters for patients with COPD, ensuring they get the post-discharge care they need to remain healthy and out of the acute care hospital. At Crouse Hospital in Syracuse, NY, RTs in the Lung Partners program begin working with patients on admission and follow them throughout the hospital stay and beyond, addressing everything from patient education to home equipment needs to activities of daily living.

As the government expands its penalties for excessive 30-day readmissions to other conditions, programs are likely to spring up for additional diagnoses as well, and the AARC's Medicare Respiratory Therapist Access Act, pending in Congress as H.R. 2619, would ease the way for greater RT involvement by allowing certain qualified RTs to provide self-management education to chronic lung patients in the physician office setting.

It all translates to one thing for RTs: opportunity. RTs have the opportunity to expand their disease management services beyond the four walls of the hospital and, most importantly, the opportunity to improve quality of life for their patients. ■

Percentage with Cost Barriers, by Age and Insurance Coverage Status, Among Persons with Active Asthma, Asthma Call-back Survey, 20 Areas, 2006–2010



SOURCE: Centers for Disease Control and Prevention's Asthma Call-back Survey 2006–2010; 20 areas with five years of adult and child data. Estimates represent five-year averages (child = aged ≤17 years, adult = aged 18–64 years) Available at www.cdc.gov/asthma/asthma_stats/insurance_coverage.htm.

The asthma navigator must know the National Heart, Lung, and Blood Institute's "Guidelines for the Diagnosis and Management of Asthma"[4] and be able to work within protocols and decision trees. The asthma navigator must be able to communicate effectively with patients of all ages and different cultures, physicians, and other health care providers. Having the necessary critical-thinking skills to determine the plan of care for each individual patient and for problem solving is paramount.

The asthma navigator model used at BUMC was implemented with the asthma navigator seeing patients who were identified as high risk, had multiple hospitalizations and emergency room visits, or were unable to control their asthma.[5] The asthma navigator met with the patients as soon as possible during their hospital stay to bond with the patient and begin asthma education immediately. It was also a good time to get the patient to sign a contract stating they would return for their asthma center follow-up care visit. Having that initial visit while in the hospital with the asthma navigator made it easier for both the patient and clinician to identify concerns and barriers and to make the first follow-up appointment.

Patients also received an asthma toolkit to take home that included a peak flow meter, a valved holding chamber to be used with a metered-dose inhaler, and an asthma action plan that described in detail what actions the patient was to take based upon peak flow readings and asthma symptoms. These inpatient meetings gave the asthma navigator a little more time to help the patient master self-management asthma skills. Patients left the hospital with "the new mindset" and were now responsible for their asthma management and could take ownership through self-management. The asthma navigator called the patient a few days after their discharge to confirm the follow-up visit that week and to discuss issues the patient might be having that would prevent them from following their plan of care.[5,6]

Barriers to health care that people deal with on a daily basis are more than most people can imagine. In a study by the Centers for Disease Control and Prevention, it was discovered that few asthma patients have medical insurance coverage (see figure).[7] Therefore, socioeconomic standing can have a huge impact on the ability to access clinics and afford the right medications. That is where the social worker comes in as a very important player on the team in the continuum of care. The team approach is very beneficial for improving patient outcomes for overall asthma care, but having the asthma navigator constantly evaluate the situation and determine the next steps is what makes the program successful. BUMC saw improvement in care and a decrease in hospital readmissions soon after the asthma navigator model was implemented.[5]

Asthma navigators 2014 and beyond

Many hospitals and clinics have been using an asthma educator model for years, which is an integral part of the expanded asthma navigator role. The asthma educator's certification exam by the National Asthma Educator Certification Board (NAECB) identifies clinicians who have the ability to assess and evaluate, provide patient and family education, and make decisions on the best asthma management for each individual patient.[8] For those interested in becoming a certified asthma educator, the NAECB and the AARC provide an exam preparation course.[9]

Although this article is primarily about the "navigator" for asthma patients, a similar program designed for a "Chronic Disease Patient Navigator" that may include pulmonary patients with COPD, cystic fibrosis, and other lung disorders can easily be implemented with

respiratory therapists taking the lead role in the management and transition of the care model. Now is the time to prove our value and offer services that will provide positive outcomes for both the patient and the health care facility. ■

EDITOR'S NOTE

This article was adapted from presentations at the 2013 Summer Forum and AARC Congress 2013.

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The **Home Care Patient** of the **Future** and the **RT's Role in Their Care**

by Kimberly S. Wiles, BS, RRT, CPFT

If we had the ability to look into a crystal ball, what would the future of home care look like and what role will the respiratory therapist play? We do know health care is rapidly evolving into a performance-based model. The health care team is being held accountable to provide quality care in an arena of decreasing reimbursement. In many instances, patients are being sent home in a less-than-stable state, requiring more intensive care in the home as well as highly sophisticated treatment modalities. Patients and/or caregivers are becoming more involved in their care and have the ability to take charge and evaluate their options. The Internet provides them with a vast amount of information that can be utilized to promote self care and independence.

Demographics will change — and so, too, will the role of the home care therapist

General goals of home care for individuals with respiratory disorders are to increase survival, decrease morbidity, improve function/quality of life, support independence, encourage self-management with positive health behaviors, and promote optimal development of children with lung disease.[1] With health care reform, a specific goal is to decrease hospital readmission rates. The traditional model of admitting patients to an acute care hospital setting is clearly losing support due to the high costs of care. According to a study by Dalal, et al, where they looked at 37,089 COPD patients' direct costs of care, the adjusted mean for a standard admission to an acute care facility was $9,745 and $33,440 for an ICU stay.[2] In 2009, direct costs of COPD care were an estimated $29.5 billion. Hospital care was projected to account for nearly half of all direct costs of COPD.[3] Many health care treatments and diagnostics that were once offered only in a hospital or a physician's office can now be safely, effectively, and efficiently provided in patients' homes by skilled clinicians. Home health care is generally less expensive, more convenient, and as effective as care provided in a hospital or skilled nursing facility.[4]

In 2011, 12.7 million U.S. adults were estimated to have COPD.[5] However, close to 24 million U.S. adults have evidence of impaired lung function, indicating an under-diagnosis of COPD.[6] As more individuals are diagnosed with chronic respiratory diseases, it is imperative for the health care system to utilize the most cost-effective means to deliver quality health care to those patients. With that said, how does the role of the home care RT factor into this equation?

Photos by Joe McNeil

The future

"The past is not the future."

— Stephen F. Jencks, MD, MPH

The traditional model of health care is a reactive versus proactive approach to chronic disease states (i.e., COPD). Proactive diagnosis and ongoing multifaceted COPD management can significantly improve a patient's health-related quality of life, reduce exacerbations, and alleviate the financial burden of chronic diseases.[7] The home care RT is in a prime position to make a significant impact in various ways, particularly in chronic disease management. There is an increasing shortage of physicians and nurses, which will lead to an increased need for other providers to participate in managing pulmonary diseases.[8] The RT will begin to navigate a course into the post-acute care setting in a much greater role than ever before.

Durable medical equipment (DME) companies utilize RTs to provide equipment instruction and education in the home. Many quality companies use the RT as a value-added service to provide additional quality care to the patient. Moving into the future, companies are redefining themselves due to the increased burden of declining reimbursement and the changes in regulatory requirements. That does not mean that the quality DME company will abandon the value an RT brings to the patient. In order to be successful, the company needs to deploy the respiratory therapy services to the higher acuity-level patients. The RT has always been considered part of the "rental of the equipment" and the expert on home respiratory equipment. They are utilized in many capacities as it relates to the instruction on the equipment being provided. In the future, the RT's role must shift focus from equipment management to patient management to support multiple providers in the home.

Shifting focus

As hospitals align with post-acute care providers to be part of the continuum of care in the transition of the respiratory patient, it is essential that the home care RT transition from "equipment expert" to a "patient manager" or "physician extender." By utilizing the unique skill sets that the RT possesses, the physician can rely on the RT to provide valuable input into the treatment regimen and problem identification. The RT must utilize the unique competencies they possess to not only educate on equipment but also how it relates to treating the disease state. They will also need to recognize risk factors and address those with the patient's physician and care team. There are many obstacles to overcome in the home. Prior to the patient being hospitalized, there might not have been any issues; but once they return home, there may be new obstacles to care. Unless you go into the home

environment, these problems may never be recognized or addressed. This allows for the creation of an effective plan of care to be developed and implemented.

This is where hospitals need innovative DME companies, disease management services, or home health agencies that utilize RTs to provide quality care to the pulmonary patient. The RT's specialized training in pulmonary disease management, along with clinical practice, makes the RT the most qualified health care professional to manage the respiratory patient. Utilizing RTs will ensure the most advantageous transition while driving quality patient care. Models are being discussed and implemented in many parts of the country where the acute care therapist follows the patient into the home. Crouse Hospital in Syracuse, NY, created a program called Lung Partners that utilizes the RT's expertise on the various facets of COPD disease management starting within the hospital and following them into the home. This gives a new value to the provision of respiratory home care by leveraging the acute care resources.

Transitioning roles

As health care continues to evolve into the home, home health agencies will find it a benefit to employ respiratory therapists to help manage the pulmonary patient. Since the advent of the prospective payment

system (PPS) in home health care, the payment received for an episode of care has been based upon a predetermined base payment. The PPS encourages agencies to continually review and improve outcomes by utilizing the most appropriate resources. In 2014, the Medicare Payment Advisory Commission (MedPAC) recommended to Congress that a program be established to incentivize home health agencies to reduce avoidable hospital readmissions from home health care. This would also align the incentives of home health agencies with those of hospitals. Utilizing RTs under the bundled payment is a means of improving readmission outcomes for the agency and positioning them as a home health agency providing quality respiratory-focused care.

Opportunities lead to new roles

As telemedicine finds its way into mainstream medical practice, this will play an important role in how we manage patients in the home. A potential application of telemedicine is the early detection of COPD exacerbations. There are many avenues where the respiratory therapist, in conjunction with the physician, could be used to establish baselines and create plans of care around deviations from the baseline. Once passed, H.R. 2619 (Medicare Respiratory Therapist Access Act) will give the RT the recognition by payers as a valuable resource that can be utilized in the care of pulmonary patients within the physician's office. Telemedicine would allow the RT to provide care to the patient in the home from the physician's office. The RT's role now becomes that of an expert on monitoring and treating by exception. This enables the physician to focus on many patients by relying on the expertise of the RT to communicate problems or changes in the patient's status. The goal is to streamline care and reduce costs associated with home visits.

Pulmonary rehabilitation is a service that is limited due to reimbursement reductions, which has forced many centers to close. Utilizing RTs to provide pulmonary rehabilitation in the home, either through home visits or telemedicine, gives the home care therapist the opportunity to provide baseline spirometry and staging according to the GOLD guidelines,[9] recommend care to the physician, and provide education and exercise plans to be completed by the patient at home.

Sleep medicine is another area for opportunity for the home care RT. Screening, diagnosis, testing, education, and compliance monitoring is an area that is growing rapidly. Early identification and the advent of home sleep testing have sparked growth in the diagnosis of sleep disorders. Sleep disorders may be linked to multiple comorbidities; and without adequate assessment of the patient and compliance monitoring and coaching by an RT, they may fail treatment, which could potentially result in a hospital admission. The RT's role becomes a health coach by utilizing tools that will allow them to impact the success of treatment and ultimately aid in the decrease of hospital admissions.

Diversification is the key to the future

The future of the home care RT is one of diversification. In order to provide respiratory care to the respiratory patient in the home, the home care RT must think outside the box. They can no longer just be the "expert" in home medical equipment. The role of the RT must take on the challenge of providing acute care outcomes in the post-acute care environment. They must be versed in all respiratory disease states, risk factors, and comorbidities; possess critical thinking skills; and be able to effectively identify problems, assess, educate, treat, recommend, and communicate. These are all contributing factors in providing a valuable service to pulmonary patients. The optimum post-acute care setting based on cost and patient preference is the patient's home. The health care community must strive to transition patients into their homes and promote self care at a cost savings to the payer while providing quality care. ■

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Sleep Waves

The Future of Outpatient Sleep Testing: Is the Future Now?

by Jessica Schweller, MS, RRT, CNP

In clinical sleep practices all over the country, changes have been occurring. Previously, a patient would be referred to a sleep specialist for evaluation of their sleep complaints; and if sleep apnea was suspected, the patient would spend the night in the sleep lab for a diagnostic evaluation. If the patient's test was positive for sleep apnea, a second night was then ordered and the patient came into the lab for a formal positive airway pressure (PAP) study.

Now, insurance companies have driven this norm out of the arena and have been instrumental in the change to home portable sleep testing. Several sleep labs have gone out of business due to the requirements. Outside portable home-testing companies are now contracting with some insurance carriers to be the preferred testing modality. These home sleep-testing companies may be local to the patients, but many are not and mail the testing materials directly to the patient. Confusion, lack of direct patient education, and patient mistakes have led to incomplete or no data for the study. Testing then must be repeated, and frustration between the clinician and patient may ensue. Many of these devices are auto-scored and do not allow for manipulation of the raw data by the original ordering physician once completed. A board-certified sleep physician is responsible for interpreting the study; however, many times these physicians are accessing the studies remotely and are not local to the ordering providers. It may be difficult for the ordering provider to discuss the results with the sleep physician.

In an outpatient pulmonary or sleep clinic, a patient can be set up directly with a home portable sleep test (HST). Respiratory therapists and sleep technicians are now employed in the outpatient clinical setting versus the sleep lab in hopes of capturing this population who require home testing. Setups can be completed during the day, allowing the therapist or technician to educate the patient directly on how to apply the equipment at bedtime and allowing the patient to return demonstrate that they understand how to use the equipment properly. This approach reduces the number of incorrect tests that are received. These therapists and technicians are trained in the setup and scoring of the HST. Many of the devices do autoscore respiratory events; but with a technician available, manual scoring is still a strong possibility, depending on the facility. A sleep physician or technician may be on call during the night so that if the patient has questions about the device, they can ask from home.

More providers are getting involved with HST as well. Direct referrals from primary care providers, cardiologists, otolaryngologists, and dentists have increased the number of HSTs being performed. Some of these providers are even employing therapists and technicians in their office settings to perform and score the testing while having a direct connection to a sleep physician for finalizing the study.

Projecting the future

The convenience of home testing has been a strong component for the increase in HST. Some patients report that sleeping in their own bed with minimal wires connected to them is more favorable than sleeping in a foreign environment with 30 or more leads attached. As patients hear that testing has become "easier," they are more likely to go for evaluation than before. This may increase the number of patients diagnosed with sleep apnea and raise awareness of the disease.

about the author...

Jessica Schweller, MS, RRT, CNP, is a sleep nurse practitioner in the Lung and Sleep Center at The Ohio State University in Columbus, OH.

As health care reform continues, we may see the use of HST increasing further. HST is cheaper than an in-lab study, and many providers avoid PAP titration studies by ordering an auto-adjusting PAP device after the home study. This will reduce the cost to both the insurance carrier and the patient. As deductibles and out-of-pocket expenses are increasing for consumers, a quality home study is a more favorable option for patients these days. The HomePAP study showed a reduction in cost by about 25% between the two arms of the study, in favor of the home testing.[1]

As more and more outpatient clinics begin utilizing home sleep testing, more sleep labs may suffer. The ideal situation is to have a sleep lab that is able to perform both in-lab and home testing to ensure that you capture both patient populations. Patients will still have a need to go to the sleep lab, as portable testing is not recommended for everyone. HST is indicated for patients who have a high pretest probability of having sleep apnea. If central sleep apnea is suspected, an in-lab study should be completed. Patients who have comorbid conditions, such as heart failure, COPD, or neuromuscular disease, should also go to the lab.[2] If narcolepsy or parasomnias are suspected, an in-lab study is also recommended. If a patient has a high pre-test probability and the home testing was negative or inconclusive, an in-lab polysomnography (PSG) is recommended.[2]

Home testing is also used to assess the efficacy of PAP therapy or an oral appliance. Patients will undergo a home portable test while wearing their PAP device to see if the pressure is appropriate or if residual events seen on a download are accurate. While titrating oral appliances, the patient may undergo a home portable sleep study to assess the efficacy of the device. Bariatric patients also are seeing home portable testing being completed after weight-loss surgery to assess the severity of their apnea at that time. As more and more patients opt for non-traditional (non-PAP) forms of treatment for obstructive sleep apnea, home testing may play a strong role in evaluation of these therapies, thus increasing the need and utilization of testing.

Accuracy of results

False-negative results are a common problem with HST. If sleep apnea is highly suspected and the home test is negative, an in-lab PSG test is recommended. In a study by Whittle, et al, 56% of the patients studied with a home portable unit still had to undergo a formal PSG to diagnose them with sleep apnea.[3] The home portable study was shown to be effective in expediting treatment and improving cost. In the HomePAP study, the home portable testing was considered to be equal to the in-lab study in comparison to diagnosis.[1]

Role of the RT in home sleep testing

As home testing is becoming more popular, the demand for clinicians and technicians will increase. Respiratory therapists who wish to work in sleep but prefer daytime work potentially are great candidates for these positions. More clinics are implementing home sleep testing and need qualified therapists to do the set-ups and scoring. The opportunities for therapists to work in outpatient sleep testing have grown with the demand of HST and will only continue to expand. RTs with an active interest in sleep should contact local sleep labs, centers, and clinics to find out what opportunities are available or even propose clinical help to the sleep lab or clinic. They also can find out what type of training is required to begin working in these roles as certification may be required. Some sleep centers also offer on-the-job training to prepare the therapist for certification examinations and a future as a sleep technician. ■

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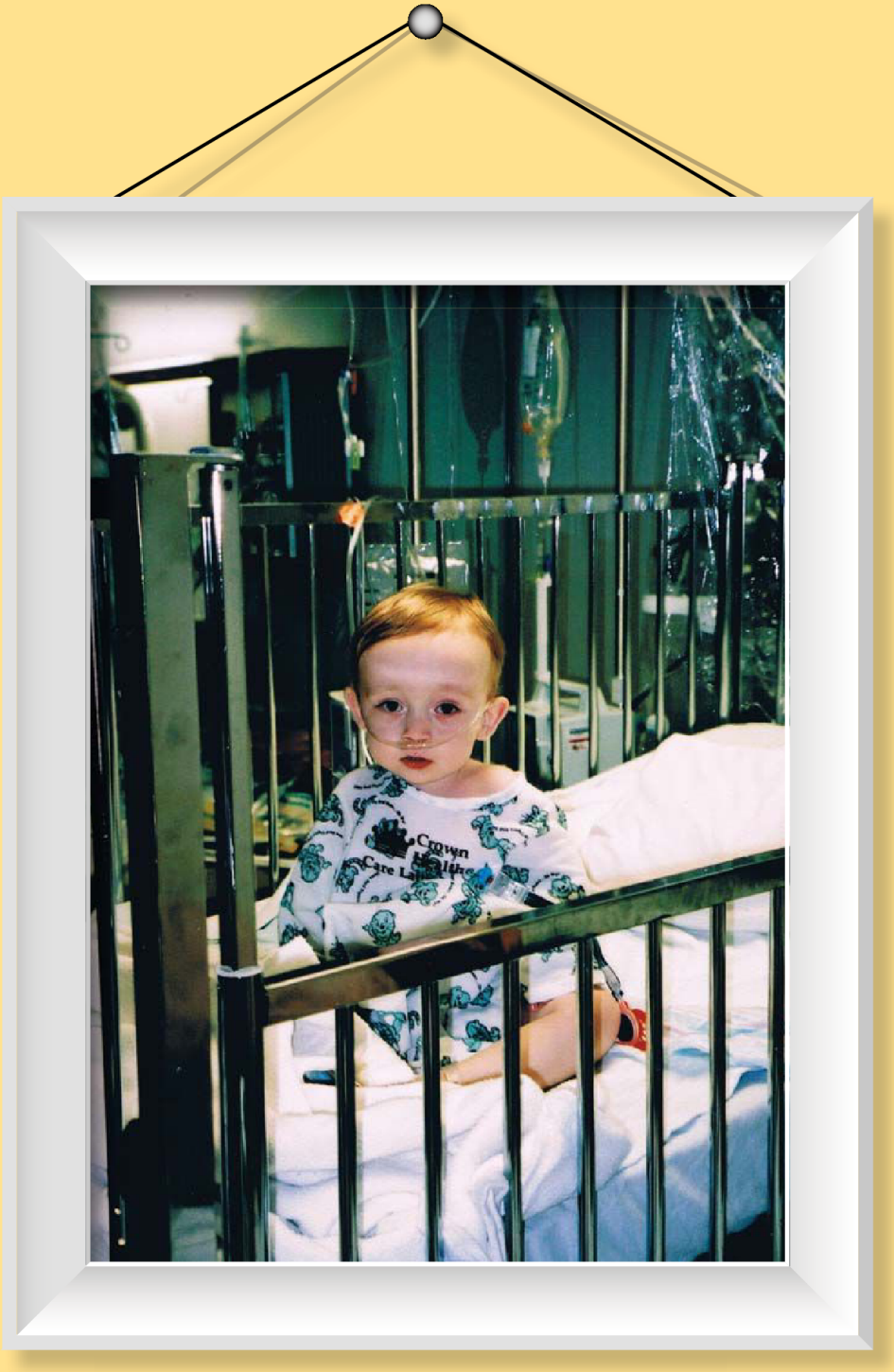
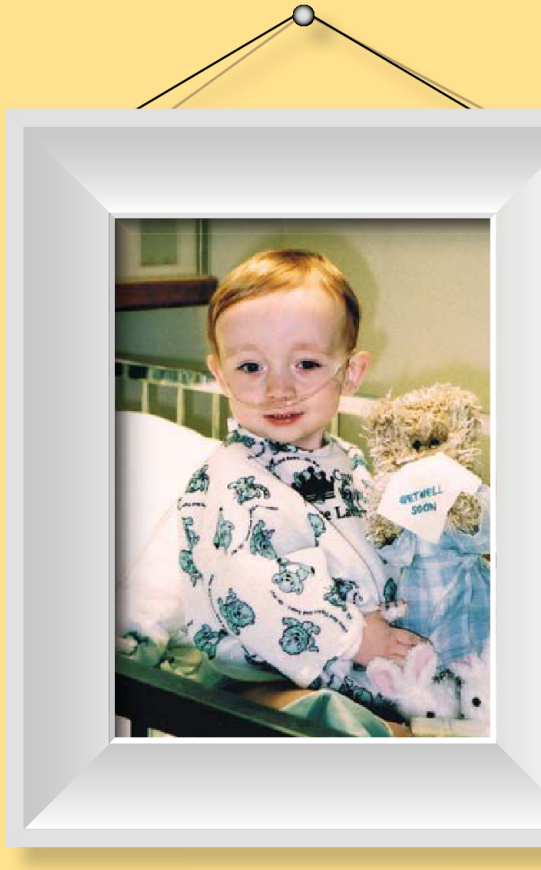
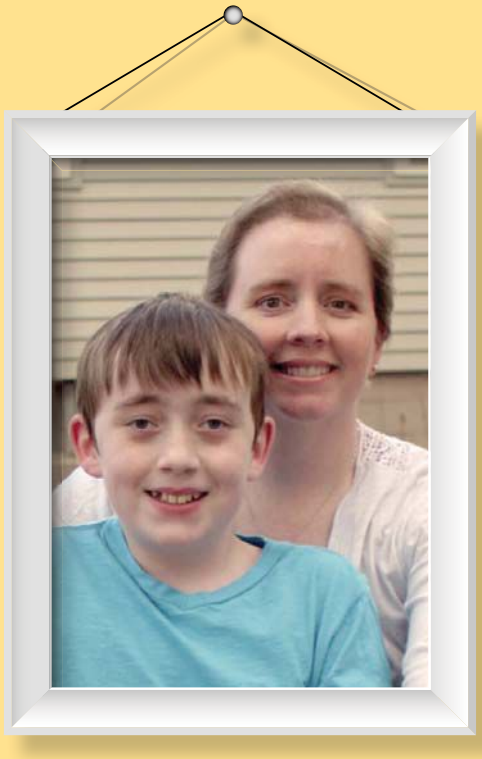


Seth Guffey was born 13 years ago; but even before he came into the world, his mom knew she and her son would be facing the kind of challenges most new moms and babies could never even imagine.



Seeking an Answer *for* Seth



by Debbie Bunch

"Seth has CCAM, which stands for congenital cystic adenomatoid malformation," explains Kristi Guffey, RRT-ACCS, a staff therapist at Alegent Creighton Health Midlands Hospital in Omaha, NE, and one of our finalists in last year's AARC Photo Contest. "It is a benign mass of abnormal lung tissue that is usually located on one lobe of the lung."

Seth's abnormal tissue involved the left lower lobe and was filled with fluid. While still in his mother's womb, physicians had to perform several procedures to place stents in the lobe to drain the fluid because the cysts were getting so large they pushed his heart to the other side of his chest and prohibited his right lung from expanding.

"These cysts were also compressing his esophagus, and it kept him from being able to swallow. This caused him to retain fluid, and he developed a condition called hydrops," continues Guffey. Doctors told her only 50% of fetuses afflicted with hydrops survived to term and of those born alive, only 50% lived more than a month or so.

Seth underwent surgery to remove his left lower lung on the day he was born and went on to spend three weeks on a ventilator and five weeks in the neonatal ICU. At one week of age, he had heart surgery for a PDA (patent ductus arteriosus) ligation as well.

Seth defied the odds; and despite undergoing a host of additional surgeries and procedures over the years, his mom says he's a pretty normal 13-year-old. He loves sports, even though his health condition precludes him from playing them; and his favorite football team is the Pittsburgh Steelers.

"He also enjoys watching WWE wrestling and can tell you all of the names of the wrestlers and the story lines behind them," says Guffey. "They came through Omaha recently, and I was able to take him. It was awesome to watch his face light up when he found out we were on the main floor, fourth row! You could hear the 'smacks' and he was in heaven!"

Her next goal, she says, is to find a way to get him to a Steelers' game.

Kristi Guffey says the respiratory therapists who helped care for her son during his many hospital stays inspired her to become a therapist. "I always watched in awe at how the respiratory therapists just came in and worked their magic," she says. "Not that the nurses weren't terrific, but it was the RT who made a huge impact on me."

Interestingly, it was only after Seth started kindergarten and she began researching health care majors that she realized those people who impressed her were part of a separate profession called "respiratory care" and not just some kind of specially trained nurses. "I saw a link to a respiratory therapy program, and at that moment a light bulb went off and I knew what I wanted to do!" says Guffey. "I went back to school full time, and I have never looked back."

She says her passion to excel in the profession comes directly from her son. "He is the reason I push myself to be the best I can be."

When Guffey entered her son's photo in the AARC Photo Contest, Seth was on the transplant list but doing well enough that a transplant was not being considered at the time. Since then, he's been diagnosed with bronchiolitis obliterans; and despite mega doses of steroids, his pulmonary functions have not improved. At press time she was working with Seth's physicians in Omaha to get him to specialists in Colorado and Texas and was hoping someone would be able to offer an innovative treatment for her son.

"It's an ongoing learning process, and I hope that anyone who reads Seth's story and has any input, ideas, etc., will contact me and help us get the best care possible," she says. "With all of the RTs across this country, I know they can work their magic and hopefully someone can shed a little light on this and send us in the right direction."

Kristi Guffey's photo of her son Seth as a toddler was a finalist in our 2013 Photo Contest. To enter this year's contest, go to www.aarc.org/members_area/aarc_times/photo_contest/index.asp. ■

Introducing the AARC University

One-stop shop for CRCE

If you've ever taken an online course offered by the AARC, you know the Association puts together excellent quality content for respiratory therapists. However, navigating the logistics required to sign up, take the class, take the test, and get the certificate could leave some members a little flummoxed.

No more. Thanks to a new continuing education platform we've dubbed the "AARC University," everything you need to find and take courses is all in one place. AARC Associate Executive Director-Education Shawna Strickland, PhD, RRT-NPS, FAARC, fills us in on the details in this Q&A.

Q: In a nutshell, what is the AARC University?

A: The AARC University is a platform to make earning your continuing education credits for your state license or continuing competency program requirements easier. Now that technology has improved, we have evolved from custom websites to software platforms that allow us to do more in one place. We've always had amazing content, but the technology now allows for the repository of our courses in a uniform fashion that makes everything more easily accessible. You can do everything you need to do for your educational course from this site.

Q: Why did the AARC decide to establish this new platform?

A: We wanted to address some of the member concerns we've had over the years, such as "I don't know where to find my test," "I don't know where to find the course," "How do I find the materials," "Are they going to mail me something" — that kind of thing. So that's how this really started. We said, you know, we really need one place, a one-stop shop, to make the process of acquiring continuing education units easier for our members.

Q: So, the motivation came from members themselves?

A: Right. They wanted something that was easy to access; and they wanted to ensure that if they needed, for instance, an asthma course, they could easily find out what we have available on asthma. Our AARC U allows you to go in and say, "I only need to see courses on sleep medicine," and it will show you everything we have there. Or somebody else might say, "You know what, I don't really need a special content area. I just want to cruise around and see what's available and what looks interesting." So you could look at all of the courses if you wanted to.

Q: What else does the site offer?

A: In addition to searching for courses, you can purchase right from the AARC University — you don't have to go to the AARC Store. You can purchase multiple courses at once if you want to, and they immediately show up in your "classroom." You go to your classroom, you access the content, you watch the video. Then after the video is over, you take the test; and after you take the test, you access your certificate. It's that simple.

Q: So really, it is just an umbrella platform for all the online continuing education the AARC offers now or will offer in the future?

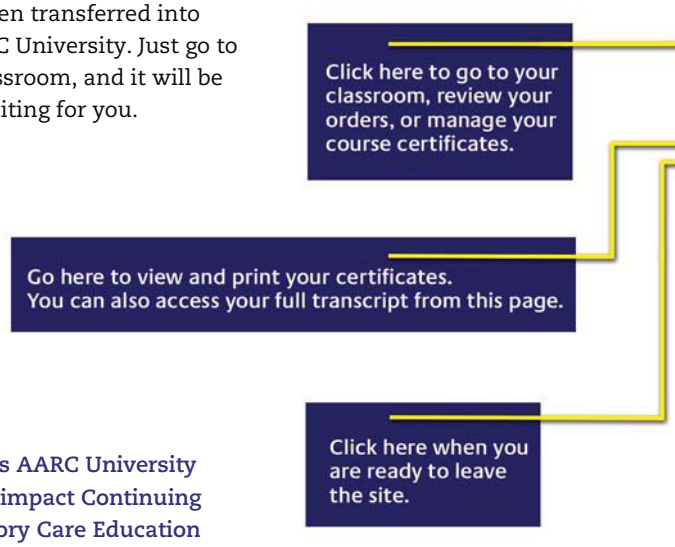
A: Exactly. It allows for easier searching of courses. It's very, very convenient — and it provides everything on the same basic platform so you know what to expect when you go take a course. Our content has always been excellent; and as the times have evolved, now we have the capability to provide that amazing content in a way that's just easier to access.

Q: Is there anything that won't be housed on this site?

A: AARC University is for the online, on-demand courses offered by the AARC. So, by definition, the live webcasts will not be included. People will still need to visit Webcast Central (www.AARC.org/education/webcast_central) to sign up and participate in these classes. Right now all of the online, on-demand courses we have are on the site, with the exception of the Leadership Institute (which will migrate over this summer) and Exam Prep and Ethics (which will make their way to the site by January of next year). Those three programs are a bit complex, and we want to make sure we get it right before we move them over.

Q: What if you signed up for a course before AARC U went live but have yet to take it? What happens to that course?

A: If you registered for a class and have not yet finished it, it's been transferred into the AARC University. Just go to your classroom, and it will be there waiting for you.



Q: How is AARC University going to impact Continuing Respiratory Care Education contact hours that people have already earned for previous courses?

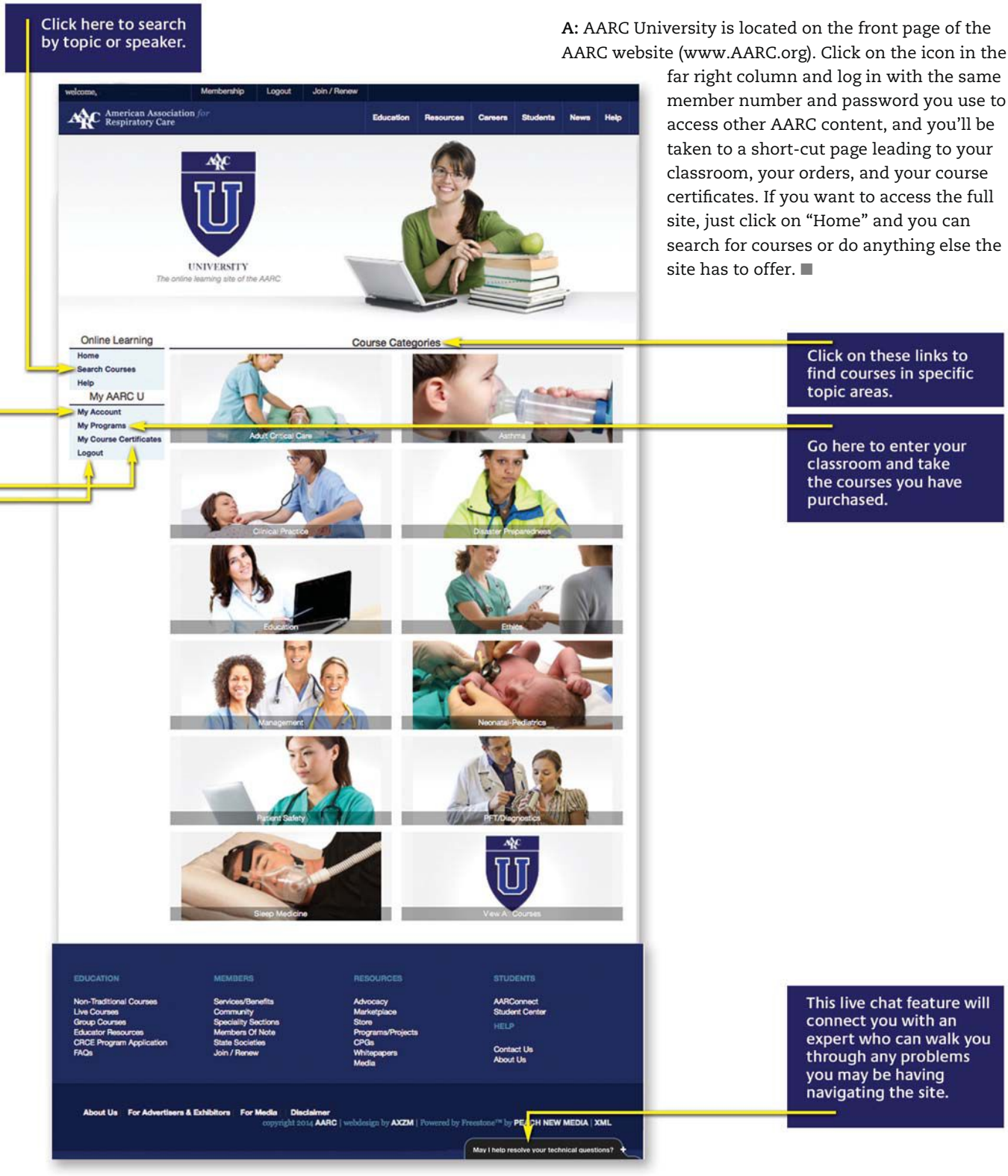
A: If you've already taken a course through us, you won't see it in the AARC University. Rest assured, however, that we've archived all of your certificates and you can access them through the transcript page. The credits earned through AARC University immediately transfer over to the transcript, so it's all shown on the transcript like it's always been.

Q: So the transcript itself has not changed?

A: Correct. The AARC transcript was updated in 2013, and it showcases all of the information our members need to renew their state licenses and National Board for Respiratory Care credentials.

Q: How can members access the site?

A: AARC University is located on the front page of the AARC website (www.AARC.org). Click on the icon in the far right column and log in with the same member number and password you use to access other AARC content, and you'll be taken to a short-cut page leading to your classroom, your orders, and your course certificates. If you want to access the full site, just click on "Home" and you can search for courses or do anything else the site has to offer. ■



Bye-Bye Buyer's Guide, Hello "Respiratory Care Marketplace"

Whiz-bang technology replaces paper and ink for 21st century RTs

by Debbie Bunch

Even if you really enjoyed thumbing through the printed version of the Buyer's Guide in the July issue of ***AARC Times***, we think you'll find our new online-only "Respiratory Care Marketplace" to be a far superior way to search or peruse the products and services available in the profession.

If you've been an *AARC Times* reader for more than a year or two, you probably did a bit of a double-take when you saw the cover of this month's issue. Where is that annual Buyer's Guide that has been a staple since 1983?

Well, a brief refresher: Late last summer the Association launched a new website called "Respiratory Care Marketplace" to take the place of both the printed "AARC Buyer's Guide for Respiratory Care" and its online version it had published for a number of years. With that new site dawned a new era in the Association's mission to make sure its members have access to the products and services they need to equip their departments — and yes, by "new era" we mean we've taken the whole operation online-only.

Real-time access

"While the traditional Buyer's Guide that was printed in the July issue of *AARC Times* was always a respected and critical resource, it was only truly 'up to date' in the month in which it was published," explains AARC Associate Executive Director Brands Management Timothy R. Myers, MBA, RRT-NPS, FAARC. "The online Marketplace is constantly being updated by vendors, which means it allows for real-time access to current and new respiratory care products."

With all the changes occurring in health care today, that's a big advantage for AARC members — particularly those in management roles who often make the greatest use of the guide. "If you're a manager charged with making a purchasing decision, you want to know what's available today, not what was available two or six or 10 months ago," continues Myers. "Our new Marketplace site delivers that functionality."

This site is more functional in other ways, too. By partnering with a company called MultiView, the AARC has

greatly streamlined operation of the site. "MultiView provides all the resources and maintenance of the system and its software," explains Myers. "That, in turn, has freed up our own staff to concentrate on other services important to AARC members."

MultiView also reaches out to vendors on the AARC's behalf to offer a variety of digital advertising placements on the site, ensuring the site pays its own way and doesn't impact membership dues needed for critical membership services like professional development and continuing education.

User friendly and interactive

Myers says the Marketplace site is much more user friendly, too. "Compared to the old online Buyer's Guide, we've decreased the number of product categories and taken a more clinical approach to the nomenclature used for the various categories," he says. "We can showcase individual companies through our 'Featured Companies' page and the latest technology in the 'Product Showcase' area; and again, thanks to our partnership with MultiView, companies can show off their latest products and services through digital advertising."

Marketplace is also designed to be interactive for users. Last fall developers introduced a new feature called "Ratings and Reviews" wherein users of the site can rate and review the companies they have utilized in the past. "The new ratings and reviews function on Marketplace mirrors similar functions you see on many other product-oriented websites like Amazon.com," says Myers. "They are just great ways to learn what people really think about what's being offered."

The ratings are displayed in a "star" format, with more stars equaling a higher rating. That makes it easy to sort through vendors when considering a purchase. Reviews give end users the opportunity to explain what they liked or didn't like about a company in more detail, information that could certainly benefit anyone who is thinking about making a purchase from that vendor.

The AARC held a contest last spring to encourage people to rate and review companies they had done business with, increasing the number of ratings and reviews on the site. "As more and more people take advantage of this functionality, we believe we'll have an extremely robust set of recommendations respiratory therapists can use when making purchasing decisions," says Myers. "That delivers added value, because we all know there's no better group of people out there to recommend — or not — RC vendors than respiratory therapists."

Premier online guide

By taking advantage of the latest "whiz-bang" technology in Internet marketing, "Respiratory Care Marketplace" is quickly becoming the premier online guide to respiratory care products and services. So if you haven't tested out the site yet — or might be missing the old paper-and-ink version that had been printed in the July issue of *AARC Times* — we invite you to go online to www.respiratorycaremarketplace.com and see how things are being done here in the 21st century. We think you'll agree: When it comes to the vast array of products and services available in the respiratory care profession, online-only just makes good sense. ■

Industry Update

Featuring information on products and equipment from manufacturers

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

Heated Humidifier

The Neptune® Heated Humidifier with ConchaSmart™ Technology from Teleflex Incorporated is designed to help clinicians customize patient humidification. The innovative ConchaSmart™ Column allows respiratory therapists to choose from a wide range of humidification therapies using one universal device, helping to promote clinician workflow efficiencies. www.teleflex.com

Subglottic Suctioning ETT

Kimberly-Clark's KimVent* MICROCUFF* Subglottic Suctioning Endotracheal Tube (ETT) features an ergonomic subglottic suction valve and integrated rinse port, enabling controlled rinsing and suctioning of the lumen in a single cycle without the need to open the suction circuit. The advanced cylindrical shape of the polyurethane cuff provides a superior tracheal seal, preventing leakage up to 93%. www.kchealthcare.com

Free Training Tools

Vortran Medical is offering free training tools to help clinicians stay current on their training requirements for the VAR® (Vortran Automatic Resuscitator). VAR provides hands-free ventilator support via a mask or endotracheal tube using a continuous gas flow source. The device can be operated on a compressor, oxygen, or compressed air. To access the free VAR Training Video and VAR Competency Packet, call (800) 434-4034 or visit the company website (www.vortran.com).

Full Face Mask

Featuring a forehead pad with SoftTouch Wrap, InnoMed Technologies Inc.'s new full face mask, the Aspen, is compact, quiet, lightweight, and affordable. Features include a built-in chin flap that gently supports the chin, headgear with a crown strap for extra comfort and support, 5 adjustment points on the headgear, an extremely quiet exhalation port design, a resilient yet stable forehead pad highlighted by a SoftTouch Wrap, and 3 cushion sizes that fit the single mask shell. www.innomedinc.com

Gel Pillows Mask

Philips Respironics has introduced the industry's first gel pillows mask. Light and airy, Nuance features an all-fabric frame and headgear that enhances patient comfort and causes fewer red marks. The gel-padded frame holds the mask in place during sleep, reduces the need for re-adjustment, and provides a high-performance look. The gel technology also reduces nostril irritation compared to leading pillow masks and, for providers, the new gel pillows conform to different size nostrils for ease in fitting and replacement parts. www.philips.com

Worklist Generator

MediLinks WTS from Mediware Information Systems Inc. is designed to automate workload distribution and facilitate relative value units (RVUs) to reduce costs. Launched at AARC Congress 2013 in Anaheim, the solution utilizes the RVU-based staffing system to reduce salary costs and ensure each shift has optimal staff levels. WTS also allows therapists to view and update all patient orders from a single screen and see real-time statistics on current and future shift requirements based on "AARC Uniform Reporting Manual" time allocations. www.mediware.com/respiratory

Industry Watch

BI supports Canadian COPD hospital-to-home program

With support from Boehringer Ingelheim (Canada) Ltd., the Canadian Foundation for Healthcare Improvement has launched a pan-Canadian collaborative focused on improving care for patients with advanced COPD. The collaborative will assist health care organizations to adapt and implement an innovative approach to COPD developed at Capital Health, Nova Scotia. The hospital-to-home program provides patients and their families with self-management education, psychosocial and spiritual care support, and advance care planning. Six months after enrollment in the program, ER visits, hospitalizations, and lengths of stay fell by more than 60%. The program was developed by Respirologist Dr. Graeme Rocker, Respiratory Therapist Joanne Michaud-Young, and Spiritual Care Practitioner Dr. Cathy Simpson.

B&B receives FDA approval for new device

According to B&B Medical Technologies, the company's Bubbler Water Seal CPAP Valve has been approved by the FDA. The device was designed after B&B saw an increased demand for FDA-approved bubble CPAP devices in the neonatal ICU. "With the pressure on hospitals to improve clinical efficiencies while controlling costs, bubble CPAP is a proven modality that has outcomes consistent with other infant CPAP devices that cost much more," says B&B President and CEO Mike Wilkes.

Montefiore receives NIDA grant

Montefiore Medical Center has received a $3.7 million grant from the National Institute on Drug Abuse to develop an anti-smoking program for HIV-infected smokers. The five-year grant supports the study of Positively Smoke Free (PSF), an intensive group cessation program designed specifically for smokers who have HIV. The PSF program uses cognitive behavioral therapy and includes eight 90-minute sessions for groups of six to eight people. In a pilot study of 145 patients, 19.2% quit smoking vs. 9.7% in a control group.

Studying an influenza surveillance tool

Working in partnership with Micronics Inc., Tim Rose, PhD, co-director of the Center for Global Infectious Disease Research at Seattle Children's Research Institute, has been awarded a $5.3 million five-year grant from the National Institute of Allergy and Infectious Diseases to develop a highly accurate and easy-to-use point-of-care diagnostic tool and global surveillance system to identify and track current and new strains of flu faster and more cost effectively than current technologies. The partnership integrates Dr. Rose's novel Consensus-Degenerate Hybrid Oligonucleotide Primer (CODEHOP) detection methodology with Micronics' PanNAT system, a proprietary molecular diagnostic system. The CODEHOP technology provides a highly sensitive method to detect low levels of virus while preserving the ability to detect unknown and mutated members of a virus family.

Breathe Technologies gets additional FDA clearance

Breathe Technologies Inc. has been granted a fifth FDA 510(k) clearance for its Non-Invasive Open Ventilation (NIOV) System, allowing its use with a compressed air supply for non-oxygen-dependent patients. Previous FDA clearances cover the use of the system with compressed oxygen for home and institutional use and include invasive and noninvasive patient circuits. "With five distinct FDA clearances, we have demonstrated that Breathe Technologies' NIOV System has broad applications to help patients with respiratory insufficiency diseases become more mobile and independent," Breathe Technologies President and CEO Larry Mastrovich says. "Our newest clearance allows many patients with neuromuscular disorders to have access to our technology as well."

UVa receives NIH grant to improve viability of donor lungs

The University of Virginia (UVa) School of

Medicine has received a $3.3 million grant from the NIH aimed at dramatically increasing the number of lungs that can be used for transplant. The study will focus on a drug developed at UVa to rehabilitate lungs that are currently deemed unusable. The drug will be used in conjunction with ex-vivo lung perfusion. The combined approach could allow doctors to harvest, repair, and use lungs from donors whose hearts are not beating, such as those who have suffered cardiac arrest. It could also significantly increase the time window in which transplants are possible after lungs have been removed from the body, theoretically allowing a patient in Miami to receive a lung from a deceased donor in Seattle.

DeVilbiss granted patent for CPAP data reporting technology

DeVilbiss Healthcare has been awarded a U.S. patent for its SmartCode® Remote Therapy Monitoring system. The technology allows CPAP summary therapy and device usage data to be compressed into onboard, encrypted codes that are displayed on the company's IntelliPAP display panel. "We are pleased to have been awarded a U.S. patent, which recognizes the novelty and usefulness of our SmartCode technology," notes Allan Jones, director of research and development. "The SmartCode feature is a simple, accurate, and reliable way to communicate usage and therapy data. We are delighted to be able to exclusively offer this feature to our customers and users with every IntelliPAP device."

Aseptika awarded NHS England contract for wearable monitor

Aseptika Limited has been awarded a Small Business Research Initiative for Healthcare Development contract funded by NHS England to develop a "third-generation" wearable monitor to alert patients with lung disease of impending respiratory failure. Using the company's "Always Connected" infrastructure, the new technology will result in the production of a new generation of connected medical monitors that look like the latest consumer products.

Series B financing to further development of Alios BioPharma's respiratory portfolio

Alios BioPharma Inc. has completed a $41 million Series B financing that will enable the company to support continued clinical development of Alios' respiratory portfolio, including AL-8176, an anti-RSV nucleoside analog now in Phase 2 clinical development, and multiple late-stage preclinical development programs targeting influenza and rhinovirus. Alios successfully completed Phase 1 testing of AL-8176 in healthy volunteers in 2013 and is currently conducting two clinical studies in RSV-infected individuals.

Essex Industries names new senior VP

Evan Waldman has been promoted to senior vice president of business development for Essex Industries. In his new position, he will lead the cross-functional teams of sales, engineering, and marketing to support the company's growth strategies and plans. Waldman joined Essex in 2004 as a sales and marketing associate and has served as operations manager for the manufacturing division, director of commercial sales, and most recently, director of strategy.

OxySure receives CE Mark for portable emergency oxygen device

OxySure Systems Inc. has received CE Mark approval for its OxySure Model 615 portable emergency oxygen device, a critical step toward launching the product in the 30 countries belonging to the European Economic Area. The device enables lay persons to administer medical oxygen easily and quickly in any medical emergency while waiting for paramedics or first responders to arrive on the scene. "We are excited to introduce our innovative, lifesaving product to the European market," OxySure CEO Julian T. Ross was quoted as saying.

iBio reports two U.S. patents targeting flu

iBio Inc. is reporting the allowance of two U.S. patents for monoclonal antibodies targeting influenza. "The antibodies covered by these patents are designed to block critical functions of the influenza virus necessary for infection or replication," says Wayne P. Fitzmaurice, PhD, iBio's vice president of intellectual property. The first newly allowed patent application includes claims for a monoclonal antibody against the influenza neuraminidase protein. The second includes claims to an isolated monoclonal antibody or antigen-binding fragment that binds hemagglutinin (the viral protein that binds to susceptible cells as the first step in virus entry and infection) and where the antibody has a specified composition of matter.

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

New AARC Position Statement on Electronic Cigarettes

The AARC Board of Directors approved a new position statement titled "Electronic Cigarette" at its spring Board meeting in April. This position statement is available on the AARC's Web page www.aarc.org/resources/position_statements/statement_index.asp. It states:

"In line with its mission as a patient advocate and in order to ensure patient safety, The American Association for Respiratory Care (AARC) opposes the use of the electronic cigarette (e-cigarette). Even though the concept of using the e-cigarettes for smoking cessation is attractive, they have not been fully studied and the use among middle school children is increasing year after year. There is no evidence as to the amount of nicotine or other potentially harmful chemicals being inhaled during use or if there are any benefits associated with using these products." ■

Correction

We would like to correct an error made in the June print edition of *AARC Times*. Several words were inadvertently omitted on page 33 in the General Counsel column titled "Arbitration, Let's Play Arbitration!" by Anthony L. DeWitt, JD, RRT, FAARC. The italicized words below highlight the missing passage:

More and more employers are asking employees to sign arbitration agreements as a part of the hiring process. In essence, they're asking employees to give up their right to go to court in exchange for being hired by the firm. In some cases, this can be a good thing because arbitrators are often as fair as judges, and the streamlined procedure keeps down legal fees. However, it can also be problematic if the arbitration procedure is itself flawed. ■

Dräger Supports Literary Award, Leadership Institute

The American Respiratory Care Foundation (ARCF) will be presenting a new award at this year's AARC International Respiratory Convention & Exhibition in Las Vegas, NV, Dec. 9–12. Established through a $50,000 endowment bestowed on the ARCF by Dräger, the Dräger Literary Award will encourage research by respiratory therapists.

The award joins two existing literary awards also presented annually at the AARC Congress (the Dr. Allen DeVilbiss Literary Award and the IKARIA Literary Award) and will recognize the best paper focused on mechanical ventilation published in Respiratory Care. "Innovation and new clinical practice in mechanical ventilation require research and evidence-based outcomes," says AARC member Edwin L. Coombs, MA, RRT-NPS, FAARC, director of marketing-intensive care at Draeger Medical, Inc. "Establishing an annual award for the best paper that examines mechanical ventilation encourages both new and veteran RTs to continue scholarly work both on the bench and at the bedside."

The endowment for the literary award comes on the heels of the company's unrestricted grant to support the development of the AARC's new Leadership Institute, an online educational program offering tracks in management, education, and research. "We are very pleased to receive such generous support from Dräger, a forward-thinking company that understands the requirements for new and currently practicing RTs to thrive in the health care arena today," says ARCF Foundation Chair Michael Amato, MBA. ■

CoARC Policy 13 Announcement

On Jan. 15 of this year, the Commission on Accreditation for Respiratory Care (CoARC) and the National Board for Respiratory Care (NBRC) released a joint statement regarding the discontinuation of CoARC's Policy 13.

Policy 13 was created to allow accredited baccalaureate-degree programs the ability to grant special certificates of completion, thus allowing students to apply for the CRT and/or RRT practitioner credentialing exams after completion of science, general academic, and respiratory care coursework commensurate with the requirements for an associate's degree in their state/region.

Subsequent to this announcement, the AARC received a number of letters of concern about this decision and its potential effect on students from these programs. These concerns were communicated to CoARC and the NBRC. As such, and in an effort not to penalize students currently matriculated in programs that hold the Special Certificate eligibility, the CoARC and NBRC have announced that while Policy 13 will still terminate on Dec. 31, 2014, the NBRC voted to recognize the Special Certificate for qualifying students currently enrolled in CoARC authorized programs until Dec. 31, 2015.

You can view the joint CoARC, NBRC, and AARC announcement at www.aarc.org/headlines/14/05/policy_13/announcement.pdf/. ■

HERE COME THE RENEGADES!

Maybe you're on a Sputum Bowl team that didn't win at your state competition. Maybe you've never been on a team before but would like to give it a try. Either way, you know you won't be competing in this year's Nationals in Las Vegas, right? Hold on a minute — turns out, yes you can! Thanks to a new category being dubbed "Renegade Teams," anyone who assembles a Sputum Bowl team of AARC members from a single state can apply to bring their team to Las Vegas. So if your team didn't win top honors at your state competition this year, or if you just want to dive into the competition headfirst at AARC Congress 2014, fill out our Renegade Team application form (https://adobeformscentral.com/?f=J6SNVlxGMlmE0IjDbmciAw), send it in by Aug. 29, and we'll see you in December! For more information on the Sputum Bowl, including our Rules Notebook and Frequently Asked Questions, visit our Sputum Bowl page (https://www.aarc.org/members_area/sputum_bowl/index.asp). As you'll see, the 2014 event promises to deliver the high adrenalin rush you've come to expect from this annual competition. Our "Ask an Expert" and "Call Your Posse" lifelines will return in Las Vegas, and we have a number of surprises on tap as well. ■

"New Members" Column Now Online

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

AARC Leaders Attend Meetings

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

Frank Salvatore, AARC President-Elect

- Speaking on Respiratory Therapy at the Crossroads for the Ohio Society for Respiratory Care's 36th annual conference in Columbus, OH.

Thomas J. Kallstrom, AARC Executive Director/CEO

- Speaking at the XII International Respiratory Therapy Congress of the Mexican Association for Respiratory Therapy in Mexico City, Mexico.

Strange But True...

Good dog! An 80-year-old man in California who had rescued a German shepherd named Max had the favor returned last March when the dog sensed carbon monoxide in the home and drug him out of bed by the arm. When the man called 911 to report dog bites, firefighters who responded to the scene found the man unsteady on his feet and also noticed a strong smell of natural gas. They pulled out their carbon monoxide testing equipment and found a reading of 75 parts per million. The firefighters say they usually don protective breathing gear at 25 ppm.

Two-part transplant: Physicians in Belgium have found a way to expand the surgical possibilities for patients with difficult-to-repair airway defects. By first implanting donor tissue in a patient's arm where it can grow blood vessels, they have significantly boosted the success rate for transplanted tracheas. — *New England Journal of Medicine*

Frozen out: The April snowstorm that hit Chicago did more than put a damper on spring activities. It froze the collection receptacle of the pollen-catching machine used to formulate the Gottlieb Allergy Count, leaving Midwesterners without an official report for the first time in the history of the count.

A better use for tobacco: Researchers from Arizona State University are using tobacco plants to manufacture monoclonal antibodies that can be used to treat West Nile virus. In a mouse model, the treatment protected against a lethal dose challenge of the virus even as late as four days after the initial infection.

Twitter tells the tale: Planning for an influx of flu patients may one day depend on Twitter. According to Johns Hopkins investigators who studied flu-related tweets in New York City during the 2012–2013 flu season, Twitter data can be used to predict the spread of the flu on the local level. — *PLoS ONE* ■

ENTER THE 2014 AARC PHOTO CONTEST

AARC Times is looking for creative AARC members to enter our annual AARC Photo Contest. Finalists 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 and featured on the cover of *AARC Times*. For information on how to enter, select the *AARC Times* icon on www.AARC.org and click on the "Photo-of-the-Year Contest" link. Deadline to submit photos is **Nov. 14, 2014.** ■

UTHSCSA students enjoy building homes for families in need.

Texas RT Students Promote Healthy Homes, One at a Time

For patients with asthma and other chronic respiratory diseases, a healthy home environment can mean the difference between a well-controlled condition and one requiring frequent visits to the emergency department. In choosing volunteer activities to meet community service requirements in their program, respiratory therapy students at the University of Texas Health Science Center at San Antonio (UTHSCSA) could think of no better choice than an organization dedicated to building safe, healthy homes for people in need.

"Habitat for Humanity is a well-known and established organization that parallels our goals as health professionals to build a healthy community," explains Amber Marquette, a junior in the baccalaureate degree program. "While we educate our patients on respiratory health, Habitat for Humanity establishes a healthy community by implementing decent housing while strengthening community relationships."

Marquette and her classmates don their work clothes and head out to a Habitat building site about twice a month. "I have volunteered there before and really enjoyed my time spent there," says fellow UTHSCSA junior Araceli Sanchez. "It was a good feeling helping out families in need of assistance."

Chinazo Orgazi, another junior in the program, says she also loves building homes for families who otherwise would be unable to afford them and enjoys the camaraderie that develops between the students on hand when they roll up their sleeves and get their hands dirty. "About 12 students participated each time we went there," she says. "We all performed tasks like painting, cleaning, fixing doors, nailing boards, and so on."

Marquette says students not only get to build a home for someone who needs one, they also get the chance to meet the family members, who generally work right alongside the volunteers. "It is not often that you volunteer and get to meet the people you are helping," she says. "Many are trying to build better lives for their families and themselves and are very grateful for the staff and volunteers who help them build a home they thought they could never have."

Sanchez echoes those sentiments. "I especially like when the families themselves thank you and tell you how much you mean to them."

The students also take advantage of the opportunity to inquire about the health needs of family members and to offer their developing expertise to those who have respiratory concerns. "On the side we educate the family on triggers found in the home if they have asthmatic children or family members with respiratory problems," says Marquette.

Orgazi says the Habitat for Humanity experience is one she and her fellow students will always cherish. "To know that some people's quality of life has been improved because of the bold step we took makes these volunteer works worth doing any time, any day." ■

Pulmonary Hypertension Death Rates on the Rise

A new study out of the Centers for Disease Control and Prevention finds deaths from pulmonary hypertension (PH) have increased over the past decade, rising by 2.5% per year for women and 0.9% per year for men. Other findings include:

- Death rates in those aged 85 and older increased more than 65% between 2001–2010.
- Approximately four in 10 deaths occurred among patients under 75 years old.
- Hospitalization rates for women increased 52%, while those of men increased 33%. Women typically had a higher rate of connective tissue disease.
- Women accounted for 61% of all PH hospitalizations in 2001–2002 and 63% in 2009–2010.
- Congestive heart failure was the most commonly reported principal diagnosis at discharge, followed by other heart diseases (including PH) and chronic and unspecified bronchitis.
- Over the past decade, death rates for black patients were approximately 40% higher than those for white patients.

The study was based on death rates from the National Vital Statistics System, along with 2001–2010 data from the National Hospital Discharge Survey. The researchers published their findings in a recent online issue of CHEST. ■

Respiratory Care, the Breath of Life Respiratory Care Week 2014

RC Week, celebrated Oct. 19–25, is that special time of year when you and your respiratory care colleagues are honored for your contributions. This year's theme, "Respiratory Care, the Breath of Life," reflects what you do every day — give the breath of life to your patients.

Use this week to share your enthusiasm in your chosen profession by planning events for recognition, fun, and awareness with your RC team, your patients, your community, local students, and more. As the official sponsor for Respiratory Care Week, the AARC provides a great website at www.AARC.org/rcweek. Make it your favorite online destination for event ideas, planning tips, photo sharing, and more. ■

Thumbs Up…

Thumbs up to Brooke Ellison, PhD, MPP, for being selected as a 2014 Young Global Leader by the World Economic Forum. Despite an accident at age 11 that left her paralyzed from the neck down and ventilator dependent, Dr. Ellison is an assistant professor in the department of health care policy and management and associate director of the Center for Community Engagement and Leadership Development at Stony Brook University. She has focused on stem cell research from the legislative, ethical, and social standpoints. Dr. Ellison was the keynote speaker at the AARC International Respiratory Convention & Exhibition in 2004. ■

Transitions

Wadie Williams, Jr., MS, RRT, CerAT, MEMS(B), has been promoted to the rank of Major in the Texas State Guard (TXSG) and has also been appointed to the position of Executive Officer within the Galveston Medical Response Group, a part of the Texas Medical Brigade within the TXSG. In his new position he'll be second in command, responsible for ensuring the unit is mission ready. Williams is the manager of respiratory care at Houston Methodist Hospital in Houston, TX.

You can submit news about AARC members by going to www.AARC.org/transitions. ■

By the Numbers…

According to a recent Statistical Brief from the Agency for Healthcare Research and Quality, the average cost of an asthma-related hospital stay between 2000–2010 remained stable for children at about $3,600, but increased from $5,200 to $6,600 for adults. ■

Read the Rest of the Story at www.AARC.org

- **Prizes awarded in Marketplace drawing** — www.aarc.org/headlines/14/04/marketplace_drawing.cfm
- **AARC activates disaster fund for tornado victims** — www.aarc.org/headlines/14/04/disaster_fund.cfm
- **Sneak a peek at AARC Congress 2014** — www.aarc.org/headlines/14/05/congress.cfm
- **AARC connects with kids at science festival** — www.aarc.org/headlines/14/05/science_festival/index.cfm
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As Seen on AARConnect

As an AARC member, have you looked at what your colleagues are blogging about on AARConnect, the Association's social media site? You might find an interesting tidbit you can use in your area of respiratory care or maybe answer a question someone has asked. Here is an example of a discussion we found on AARConnect while preparing this edition of the magazine.

I thought I would share a situation that occurred yesterday. I was called to our CV lab because the anesthesiologist noted that the fraction of inspired oxygen (FiO_2) had dropped on their anesthesia machine from 1.00 to 0.21 when connected to the wall oxygen outlet. We checked the wall outlets (two in the room); the first read 21% and the other read 66% and while being analyzed fell to 21%. We then checked the adjoining suites and found that initially the FiO_2 was 1.0 but again fell to 0.21. Of course we were stumped. All other areas of the hospital were not reporting any issues. The individual zone valve for each suite showed normal operating pressure. Eventually the "air" was flushed out, and the FiO_2 returned to 1.0 and they finished their patient case.

The same thing occurred midway through a second case about an hour later. With the help of the plant operations staff, we discovered our problem. In an adjoining hallway, neonatal resuscitation program classes were being held in a former patient room. They had been using an old "retired equipment" blender for teaching purposes. Once the blender was disconnected, then the FiO_2 was quickly restored. The blender was defective and allowed the medical air to enter the oxygen lines. We noted that the medical air pressure was slightly higher than the oxygen pressure so… all RTs know what happens then.

Obviously, the blender was removed from service. I had not even considered that a defective oxygen blender would allow the gas to flow from one line to another. Evidently the check valve to prevent this from occurring had deteriorated and was not functional.

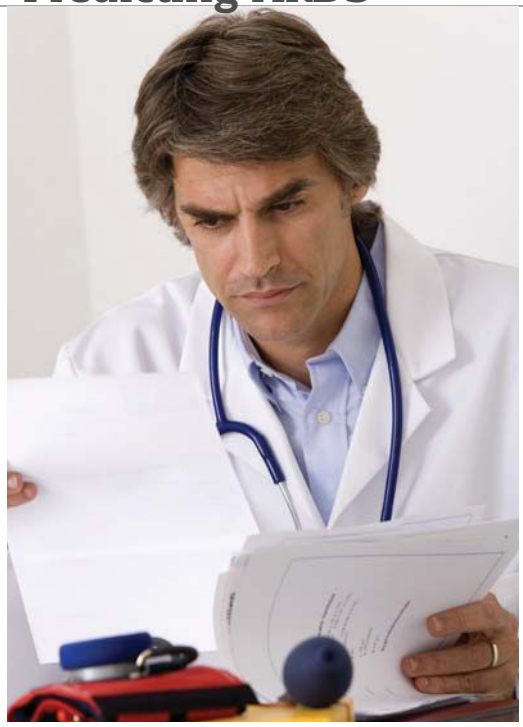
I'm wondering if anyone has ever experienced a similar situation?

Debbie Fox, MBA, RRT-NPS, FAARC

AARConnection…

maximizing your membership

Predicting ARDS



Identifying surgical patients who are most likely to experience acute respiratory distress syndrome (ARDS) could help physicians know which patients would most benefit from preventive methods such as the conservative use of blood products, restricting the volume of fluids administered, and employing different methods to ventilate the lungs during surgery. A multicenter trial led by investigators from the Mayo Clinic may provide a prediction model that will get the job done.

The study involved a secondary analysis of data on 1,562 patients who were considered at risk for ARDS prior to surgery. Of those, 117 (or 7.5%) actually developed ARDS. Based on these findings, the researchers revised an existing tool used for ARDS prediction in patients undergoing elective surgery.

Results showed these nine factors are independent predictors of the syndrome: sepsis; high-risk aortic vascular surgery; high-risk cardiac surgery; emergency surgery; cirrhosis; admission to the hospital unit from a location other than home, such as a nursing home or another hospital; increased respiratory rate; and two measurements that indicate hypoxemia.

Future research may focus on the specific role that anesthetic care plays in the development of ARDS and whether aspects of care in the operating room should be modified in patients considered at high risk of developing the syndrome. The research appeared in a recent issue of *Anesthesiology*. ■

HOW AGING AFFECTS FIBROSIS

Researchers from the University of Alabama at Birmingham are helping to explain why fibrotic diseases such as pulmonary fibrosis are more common in older people and worsen with age. In a study published in the April 9 edition of *Science Translational Medicine*, they found older mice were significantly less able to resolve the scar tissue characteristic of these diseases.

The investigators attributed the finding to the fact that cells called myofibroblasts, which are recruited to facilitate healing, become resistant to programmed cell death, or apoptosis, over time and thus persist within injured tissue. In older mice, resistance to apoptosis is the result of a deficiency in activating the antioxidant response transcription factor known as nuclear factor-like 2 (Nrf2). An imbalance between the oxidant-generating enzyme NADPH oxidase-4 (NOX4), which promotes the formation of myofibroblasts, and Nrf2 was observed in the animal model, as well as in human idiopathic pulmonary fibrosis fibroblasts and lung tissue.

"This research is exciting in that we now understand how age affects fibrosis, and we now have two targets to reduce or control fibrosis," study author Victor J. Thannickal, MD, was quoted as saying. "We can look for ways to better activate or to boost Nrf2, or we can look for ways to inhibit NOX4 directly." ■

There's an App for That

A nonprofit organization called PulsePoint has developed a smartphone app aimed at improving access to cardiopulmonary resuscitation (CPR) and automatic electronic defibrillators (AEDs) for the general public. People who have been trained to deliver CPR can download the app and register to be paged when there is a need for CPR in a public setting near them. The electronic map included in the app is also linked to the county's 911 system and calls paramedics to the scene at the same time as it pages the volunteers. The app guides volunteers to the nearest AED as well.

The app is currently being deployed in multiple communities around the country, with more to come. Find it in the Apple App Store or in Android Apps on Google Play. ■

AN EFFECTIVE THERAPY AGAINST FLU?

A drug that inhibits a molecule called prostaglandin E2 (PgE2) increased survival rates in mice infected with a lethal dose of the H1N1 flu virus in a new study conducted by investigators from McGill University and published in *Immunity*.

The research grew out of the knowledge that aspirin, ibuprofen, and other non-steroidal anti-inflammatory drugs commonly used to manage flu-like symptoms lower the production of five major prostanoids (immune molecules that contribute to pain and fever). To investigate molecular pathways that could be targeted by new interventions, the team genetically engineered mice to lack one member of the prostanoid family, PgE2. These mice showed remarkably enhanced immunity to flu infection, with the majority surviving a lethal dose of the H1N1 flu virus. Even more importantly, other mice treated with a compound that inhibits PgE2 showed enhanced antiviral immunity as well and experienced better survival rates following a lethal dose than untreated mice.

"Our findings suggest that different prostaglandins have different roles in antiviral immunity and that specific inhibition of PgE2 will be an effective therapy against influenza viral infection by boosting immune responses," study author Maziar Divangahi was quoted as saying. ■

Calendar of Events

AARC & State Society Programs

July 13–14
Marco Island, Florida
AARC Adult Critical Care Specialist Course
Contact AARC, (972) 243-2272, www.aarc.org/education/meetings/accs_14/

July 14
Marco Island, Florida
AARC Pre-Summer Forum Programs: NBRC Item Writing Workshop, CoARC Meet the Commission, AARC Pre-Course: How Viable Is Your Respiratory Care Program? Assessing Quality and Sustainability of RC Education
Contact AARC, (972) 243-2272, www.aarc.org/education/meetings

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July 15–17 (Tuesday–Thursday)
Marco Island, Florida
AARC Summer Forum
Contact AARC, (972) 243-2272, www.aarc.org/education/meetings

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July 24–26
Savannah, Georgia
Georgia Society for Respiratory Care's Summer CE Meeting
Contact: Megan Haight, megan@gasrc.org, www.gasrc.org

July 29
Bedford Heights, Ohio
Ohio Society for Respiratory Care's State Meeting
Contact: jgh578@aol.com

September 16
Rapid City, South Dakota
South Dakota State Respiratory Conference
Contact: Sandy Brown, (605) 328-2436

September 19
Fredericksburg, Virginia
Virginia Society of Respiratory Care's Neonatal/Pediatric Conference
Contact: vsrcneopeds@icloud.com

October 1
Hot Springs, Arkansas
43rd Annual Arkansas Society for Respiratory Care State Meeting
Contact: John Lindsey, (501) 620-3281

December 9–12 (Tuesday–Friday)
Las Vegas, Nevada
AARC Congress 2014
Contact AARC, (972) 243-2272, www.aarc.org/education/meetings

Submissions for the next available issue are due July 19.

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

Classifieds

ADVERTISING SECTION

Tennessee

Full-time Tenure Track

Tennessee State University is currently accepting applications for a FT tenure-track (12-month) position in the Cardio-Respiratory Care program, starting in August 2014. Requirements: Master's degree in RC or related field; RRT and Tennessee license. Minimum 4 years' experience (2 years for CoARC-accredited program.) EE/OA employer. Apply at http://jobs.tnstate.edu

For Sale/For Rent

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Classified Word Advertisements

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

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

We reserve the right to make editorial changes for reasons of clarity and consistency. Every effort is taken to avoid mistakes, but *AARC Times* cannot be responsible for clerical or printing errors. **Deadline for Ad Placement/Cancellation** Deadline for ad placement and written cancellations for the next available issue is July 17. Blind ads available. **For Recruitment Advertising Information, Contact Classified Advertisement** Andrea Conté • Alhambra Plaza • 725 N. Highway A1A, Suite C-106 • Jupiter, FL 33477 • (561) 745-6793 • Fax (561) 745-6795 • AARCAD@aol.com

Recruitment Display Advertisements

For Recruitment Display Ad Rates, go to www.aarc.org/marketplace/media_kit/recruitment_2014.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

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VIDANT™
Medical Center

Life Support and Trauma Instructor

A private healthcare Canadian consulting firm, with a subsidiary office in Kuwait, is searching for an eligible candidate for the position of a Life Support and Trauma Instructor in a 1000 bed General Hospital.

Job Type: Full Time, One Year Contract
Location: Kuwait
Job Summary:
We are in the process of opening an American Heart Association (AHA) training center in addition to teaching healthcare professionals in a hospital setting. We are looking to hire instructors that can teach one or more disciplines from the American Heart Association (AHA) Advanced Life Support training programs for healthcare professionals.

The Life Support and Trauma Instructor would have the following responsibilities:

- Conduct life support classes to healthcare professionals whose English is a second language
- Use effective debriefing techniques
- Assist as coordinator at the current training site and in future site
- Give life support lectures to larger audiences

Requirements:

- EMT-Paramedic, RN, Respiratory Therapist or Physician Assistant degree required with either a BLS, ACLS, PALS, PEARS, NRP instructor certification
- Licensed to teach BLS, ACLS, PALS, PEARS, NRP, and/or ATCN
- 2+ years of teaching experience and hi-fidelity simulation is preferred
- 2+ years of experience teaching advanced programs (ACLS/PALS/NRP) is preferred
- Strong communication skills
- Works well with the inter-professional team
- Demonstrates strong leadership
- Ability to work inter-dependently with a multi-cultural team
- Must be fluent in English (written and oral)
- Bachelor Degree (preferred)
- At least 5 years of clinical experience preferred

Qualified applicants are requested to e-mail their resume with an accompanying cover letter highlighting how they meet the above requirements to **GCChealthcare@gmail.com**

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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Consultant Workshop DAY 1

Where To Go and How To Get There

Jenny Killian Leadership Consultant, HealthLinx Columbus OH

The Career Focus: *Where to Go and How to Get There* presentation is pertinent to those who are satisfied in their present position and looking to excel, looking for growth within their current organization, or interested in a job change to a new organization. Offers ideas on how to determine what career path to pursue, then will discuss ways to position oneself to achieve these career goals. The final section will be dedicated to "real world" tips and ideas on how to navigate the job search, resume, and interviewing processes most effectively.

Where To Go and How To Get There - Workshop

Jenny Killian Leadership Consultant
Colleen Deep Senior Account Executive, Healthlinx
Garry W Kauffman MPA FACHE RRT FAARC

This highly interactive workshop is designed to apply the principles and tactics communicated at the associated lecture. Learn what you can do to maximize your value as an RT leader, what you need to do to advance to the C-Suite in your health care organization, and if interested, what critical elements of your experience and accomplishments are considered mandatory by executive recruiters working with senior leadership in another organization.

Consultant Workshop DAY 2

Health Care Consultants: How to Prepare, How to Work Collaboratively, and How to Demonstrate the Value of You and Your Department

Hannah Shipton MEd MHA, Chicago IL
Ginger Martin RN BSN MSN CNOR ANP, Chicago IL

Even prior to the dire economic conditions of today's health care environment, external consultants have been employed by hospital boards and executive leadership to help them understand current operations and make improvements. Improvement efforts tend to focus on cost reduction, utilization of human capital, quality improvement, and customer satisfaction. The Huron consultants will lead us through the process, explain key focus areas, reveal how they interact with executives, and help you prepare for a successful consulting engagement. The lecture will be followed by an interactive workshop designed to provide the RT leader with the knowledge, tools, and competencies to increase your visibility and value in the eyes of your executive team.

Health Care Consultants: Workshop

Hannah Shipton MEd MHA
Garry W Kauffman MPA FACHE RRT FAARC
Ginger Martin RN BSN MSN CNOR ANP

The interactive workshop is designed to provide the RT leader with the knowledge, tools, and competencies to not only preserve your position and your department, but to increase your value to your organization.

View the entire Management Track Schedule: http://tinyurl.com/sf-schedule

To Register Visit: http://tinyurl.com/sf-meeting-2014

AARC Summer Forum is an educational meeting of the American Association for Respiratory Care.

Questions? Call Customer Service: 972-243-2272

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