An Official Publication of the American Association for Respiratory Care
October 2013, Vol. 37, Issue 10 www.aarc.org $11.50

AARC Times

AARC Honors a Legend with the Thomas L. Petty Memorial Lecture

Promoting Respiratory Patients' Safety When Flying

Providing Safe and Responsive Care

Significant gas leaks are common in newborns intubated with uncuffed tubes, and vary considerably over time with changing patient condition, sedation levels, muscle relaxation, patient position and wakefulness.[1]

By effectively managing gas leaks and automatically adjusting effective trigger sensitivity during both invasive and noninvasive ventilation, the Puritan Bennett™ 840 ventilator with Leak Compensation software can help clinicians provide the right ventilation, even when patient conditions are changing rapidly, supporting the clinicians' efforts to keep babies safe and comfortable.

For more information on Leak Compensation, visit
www.Covidien.com/Leak-Compensation10

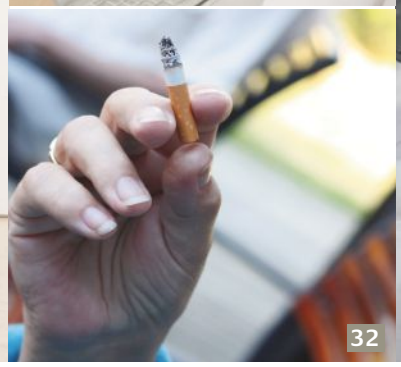
Visit AARC booth 201 in Anaheim

1. Finholt DA, Henry DB, Raphaely RC. Factors affecting leak around tracheal tubes in children. *Can Anaesth Soc J.* 1985;32(4):326-329.

COVIDIEN
positive results for life™

Table of Contents

October 2013
Volume 37, Issue 10



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.

Editor
Marsha Cathcart, BA

Managing Editor
Douglas Laher, MBA, RRT, FAARC

Assistant Editor
Karen Singleterry, BS

Contributors
Debbie Bunch, BA
Sheila Henegar

Art Director
Donna Knauf, BA

Graphic Designers
Jeanette Chawdhury, MBA
Lisa Dudley
Kelly Piotrowski

Consultant
Sherry Milligan, MBA, CAE

Director, Advertising Sales
Tim Goldsbury, BA, RRT
Goldsbury@aarc.org

Advertising Sales Consultant
Andrea Conté
andrea@aarc.org

Advertising Rates and Media Information
Contact: Goldsbury@aarc.org
Tim Goldsbury, 725 N. Highway A1A, Ste. C-106, Jupiter, FL 33477
Voice (561) 745-6793
Fax (561) 745-6795

Advertising Materials
Send production materials for AARC publications to Binkley@aarc.org or AARC
9425 N. MacArthur Blvd., Ste. 100
Irving TX 75063 c/o Beth Binkley
Voice (972) 243-2272
Fax (972) 484-2720

AARC Times and Respiratory Care — official publications of the AARC

Daedalus Enterprises, Inc.
9425 N. MacArthur Blvd., Ste. 100
Irving, TX 75063
(972) 243-2272
Fax (972) 484-2720

Director of Business Development
Dale L. Griffiths, BA

Publisher
Thomas J. Kallstrom, MBA, RRT, FAARC

BPA INTERNATIONAL

Printed in USA

Meet the AARC Staff

Sherry Milligan
Associate Executive Director
milligan@aarc.org

Timothy Myers
Associate Executive Director
myers@aarc.org

Cheryl West
Director of Government Affairs
west@aarc.org

Reagan Hickey
CRCE Coordinator
hickey@aarc.org

Sara Moore
Editorial Assistant
Respiratory Care
forgy@aarc.org

AirLife®. Bronchial hygiene. Oxygen therapy. Passive humidification. Medication delivery. Resuscitation. Active humidification. Suction. Trach. CareFusion.

Our portfolio is extensive. AirLife® products breathe life into your patients—whether they are ventilated or breathing on their own. Connecting clinicians with high-quality consumables, our products help address your cross-contamination concerns in today's healthcare environment. You can trust them to support your patients' next breath, so they can get the air they need.

Learn more at **carefusion.com/airtheyneed.**

AirLife®

CareFusion

Visit AARC booth 421 in Anaheim

Information Contacts:

AARC Membership or Other AARC Services: American Association for Respiratory Care • 9425 N. MacArthur Blvd., Ste. 100, Irving, TX 75063 • (972) 243-2272 • Fax (972) 484-2720 • www.aarc.org

Respiratory Therapist Credentialing & Registration: National Board for Respiratory Care • 18000 W. 105th St., Olathe, KS 66061-7543 • (913) 895-4900 • Fax (913) 895-4650 • www.nbrc. org

Accreditation of Education Programs: Commission on Accreditation for Respiratory Care • 1248 Harwood Rd., Bedford, TX 76021-4244 • (817) 283-2835 • Fax (817) 354-8519 • www.coarc.com

Grants, Scholarships, Community Projects: American Respiratory Care Foundation • 9425 N. MacArthur Blvd., Ste. 100, Irving, TX 75063 • (972) 243-2272 • Fax (972) 484-2720 • www.arcfoundation.org

AARC Times **(USPS 491-930)** (ISSN 0893-8520) is a monthly publication of Daedalus Enterprises, Inc., for the American Association for Respiratory Care.

Periodicals Postage: Paid at Irving, TX, and at additional mailing offices. POSTMASTER: Send form 3579 to *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706.

Change of Address: Six weeks' notice is required. AARC members should include their membership number when submitting an address change. Nonmember subscribers should provide old mailing label and new address. Send changes to *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706. Periodicals postage paid at Irving, TX.

Article and Feature Contribution: *AARC Times* welcomes AARC member contributions of feature articles and information for the regular departments. All materials should be submitted via email to Editor Marsha Cathcart at cathcart@aarc.org. Letters from members will be considered for publication if they relate to specific articles appearing in *AARC Times* within the last three months. Editorials may be published if they are of interest to the AARC membership. The editor reserves the right to edit letters and articles without changing their meaning in order to suit legal and space requirements.

Subscriptions: Individual subscriptions are available for $90 per year (12 issues) in the United States or Puerto Rico; $125 per year in all other countries. Airmail postage is an additional $94 per year. Member rates available at www.AARC.org. Single copies, current and back issues, if available, are $11.50. Write *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Daedalus Enterprises, Inc.

More than just iNO...

INOmax Total Care™

The trusted total service package that delivers

Inhaled NO wherever you need it, with bedside and transport drug delivery systems

Emergency deliveries most often within 4 to 6 hours and backup supplies when you need them

24/7 access to expert support and training

Reliability and performance with over 12 years of experience in critical care settings and more than 530,000 patients treated worldwide with INOMAX® (nitric oxide) for inhalation[1]

To learn more, contact your IKARIA representative or go to www.inomax.com

INOMAX® is a vasodilator, which, in conjunction with ventilatory support and other appropriate agents, is indicated for the treatment of term and near-term (>34 weeks) neonates with hypoxic respiratory failure associated with clinical or echocardiographic evidence of pulmonary hypertension, where it improves oxygenation and reduces the need for extracorporeal membrane oxygenation.

Utilize additional therapies to maximize oxygen delivery with validated ventilation systems.

Reference: 1. Data on file. Hampton, NJ: Ikaria, Inc; 2013.

www.inomax.com

INOMAX Important Safety Information

- INOMAX is contraindicated in the treatment of neonates known to be dependent on right-to-left shunting of blood
- Abrupt discontinuation of INOMAX may lead to increasing pulmonary artery pressure and worsening oxygenation even in neonates with no apparent response to nitric oxide for inhalation

Please see Brief Summary of Prescribing Information on adjacent page.

INOmax Total Care™
The TRUSTED 24/7 Service Package

Visit AARC booth 533 in Anaheim

INOmax (nitric oxide gas)
Brief Summary of Prescribing Information

INDICATIONS AND USAGE

Treatment of Hypoxic Respiratory Failure

INOmax® is a vasodilator, which, in conjunction with ventilatory support and other appropriate agents, is indicated for the treatment of term and near-term (>34 weeks) neonates with hypoxic respiratory failure associated with clinical or echocardiographic evidence of pulmonary hypertension, where it improves oxygenation and reduces the need for extracorporeal membrane oxygenation.

Utilize additional therapies to maximize oxygen delivery with validated ventilation systems. In patients with collapsed alveoli, additional therapies might include surfactant and high-frequency oscillatory ventilation.

The safety and effectiveness of INOmax have been established in a population receiving other therapies for hypoxic respiratory failure, including vasodilators, intravenous fluids, bicarbonate therapy, and mechanical ventilation. Different dose regimens for nitric oxide were used in the clinical studies.

Monitor for PaO_2, methemoglobin, and inspired NO_2 during INOmax administration.

CONTRAINDICATIONS

INOmax is contraindicated in the treatment of neonates known to be dependent on right-to-left shunting of blood.

WARNINGS AND PRECAUTIONS

Rebound Pulmonary Hypertension Syndrome following Abrupt Discontinuation

Wean from INOmax. Abrupt discontinuation of INOmax may lead to worsening oxygenation and increasing pulmonary artery pressure, i.e., Rebound Pulmonary Hypertension Syndrome. Signs and symptoms of Rebound Pulmonary Hypertension Syndrome include hypoxemia, systemic hypotension, bradycardia, and decreased cardiac output. If Rebound Pulmonary Hypertension occurs, reinstate INOmax therapy immediately.

Hypoxemia from Methemoglobinemia

Nitric oxide combines with hemoglobin to form methemoglobin, which does not transport oxygen. Methemoglobin levels increase with the dose of INOmax; it can take 8 hours or more before steady-state methemoglobin levels are attained. Monitor methemoglobin and adjust the dose of INOmax to optimize oxygenation.

If methemoglobin levels do not resolve with decrease in dose or discontinuation of INOmax, additional therapy may be warranted to treat methemoglobinemia.

Airway Injury from Nitrogen Dioxide

Nitrogen dioxide (NO_2) forms in gas mixtures containing NO and O_2. Nitrogen dioxide may cause airway inflammation and damage to lung tissues. If the concentration of NO_2 in the breathing circuit exceeds 0.5 ppm, decrease the dose of INOmax.

If there is an unexpected change in NO_2 concentration, when measured in the breathing circuit, then the delivery system should be assessed in accordance with the Nitric Oxide Delivery System O&M Manual troubleshooting section, and the NO_2 analyzer should be recalibrated. The dose of INOmax and/or FiO_2 should be adjusted as appropriate.

Heart Failure

Patients with left ventricular dysfunction treated with INOmax may experience pulmonary edema, increased pulmonary capillary wedge pressure, worsening of left ventricular dysfunction, systemic hypotension, bradycardia and cardiac arrest. Discontinue INOmax while providing symptomatic care.

ADVERSE REACTIONS

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. The adverse reaction information from the clinical studies does, however, provide a basis for identifying the adverse events that appear to be related to drug use and for approximating rates.

Controlled studies have included 325 patients on INOmax doses of 5 to 80 ppm and 251 patients on placebo. Total mortality in the pooled trials was 11% on placebo and 9% on INOmax, a result adequate to exclude INOmax mortality being more than 40% worse than placebo.

In both the NINOS and CINRGI studies, the duration of hospitalization was similar in INOmax and placebo-treated groups.

From all controlled studies, at least 6 months of follow-up is available for 278 patients who received INOmax and 212 patients who received placebo. Among these patients, there was no evidence of an adverse effect of treatment on the need for rehospitalization, special medical services, pulmonary disease, or neurological sequelae.

In the NINOS study, treatment groups were similar with respect to the incidence and severity of intracranial hemorrhage, Grade IV hemorrhage, periventricular leukomalacia, cerebral infarction, seizures requiring anticonvulsant therapy, pulmonary hemorrhage, or gastrointestinal hemorrhage.

In CINRGI, the only adverse reaction (>2% higher incidence on INOmax than on placebo) was hypotension (14% vs. 11%).

Based upon post-marketing experience, accidental exposure to nitric oxide for inhalation in hospital staff has been associated with chest discomfort, dizziness, dry throat, dyspnea, and headache.

OVERDOSAGE

Overdosage with INOmax will be manifest by elevations in methemoglobin and pulmonary toxicities associated with inspired NO_2. Elevated NO_2 may cause acute lung injury. Elevations in methemoglobin reduce the oxygen delivery capacity of the circulation. In clinical studies, NO_2 levels >3 ppm or methemoglobin levels >7% were treated by reducing the dose of, or discontinuing, INOmax.

Methemoglobinemia that does not resolve after reduction or discontinuation of therapy can be treated with intravenous vitamin C, intravenous methylene blue, or blood transfusion, based upon the clinical situation.

DRUG INTERACTIONS

No formal drug-interaction studies have been performed, and a clinically significant interaction with other medications used in the treatment of hypoxic respiratory failure cannot be excluded based on the available data. INOmax has been administered with dopamine, dobutamine, steroids, surfactant, and high-frequency ventilation. Although there are no study data to evaluate the possibility, nitric oxide donor compounds, including sodium nitroprusside and nitroglycerin, may have an additive effect with INOmax on the risk of developing methemoglobinemia. An association between prilocaine and an increased risk of methemoglobinemia, particularly in infants, has specifically been described in a literature case report. This risk is present whether the drugs are administered as oral, parenteral, or topical formulations.

 IMK111-01540 April 2013

Supportive Therapies for Treating Acute Respiratory Distress Syndrome

by J. Brady Scott, MS, RRT-ACCS, and Carl A. Kaplan, MD, FCCP

Acute respiratory distress syndrome (ARDS) was first described in 1967[1] and is a topic of ongoing research and discussion. Despite this, the preferred treatment strategy has yet to be discovered. Some practice advances have been made that may reduce the length of time on mechanical ventilation and time spent in the intensive care unit.[2,3] Significant decreases in mortality have been observed when lung-protective, low-tidal-volume strategies are utilized for mechanical ventilation.[2]

Current management of critically ill ARDS patients involves a multifaceted approach. Treatment strategies are largely supportive and designed to prevent further lung injury while treating the underlying cause. The purpose of this article is to review current strategies of fluid management, prone positioning, and the use of recruitment maneuvers and positive end-expiratory pressure (PEEP).

Fluid management

Fluid therapy is an integral part of patient care. Yet, it can have detrimental effects. Too much fluid results in pulmonary edema with its clinical manifestations of shortness of breath and hypoxemia. Clinicians must balance fluid volume to accomplish two goals:

- Maintain cardiac output/organ perfusion and overall oxygen delivery.
- Keep the lungs dry to enhance mechanical function and gas exchange.

A large, multicenter trial evaluating different fluid-management strategies suggested that a more conservative approach is beneficial in adult patients with ARDS.[3] The conservative group had significantly more days free from mechanical ventilation and shorter intensive care unit stays; however, there was no significant difference in 60-day mortality when compared to the liberal fluid management group.[3] A validated telephone-based assessment of neuropsychological function signaled that patients who were treated with the conservative fluid management approach may have long-term cognitive impairment. Further studies are needed to better understand this finding.[4]

about the author...

J. Brady Scott, MS, RRT-ACCS, is the clinical education coordinator, and Carl A. Kaplan, MD, FCCP, is the medical director of respiratory care services at Rush University Medical Center in Chicago, IL.

Prone positioning

Prone positioning has been a strategy in the treatment for hypoxic respiratory failure for over three decades. In prone positioning, ventilation/perfusion matching may improve, pleural-pressure gradients are more uniform, and compression of lung volume from the heart and abdomen is reduced.[5] Results from several studies have shown that prone positioning may improve oxygenation and reduce ventilator-induced lung injury. Physiologic improvements were seen but failed to show improved mortality until a recently published study by Guerin et al.[6]

Two meta-analyses showed significantly improved survival in patients with severe ARDS with prone positioning when compared to patients in the supine position.[7,8] A recent prospective, randomized controlled trial was conducted to evaluate the early use of prone positioning in patients with severe ARDS.[6] The prone group had a significantly lower incidence of mortality (16%) when compared to the supine group (32.8%; $p < 0.001$). At 90 days, mortality was also better in the prone group than in the supine group. Complications were similar in both groups.[6] These findings may be explained by the length of time patients remained in the prone position, lower tidal volume/plateau pressure strategies, and patient identification/inclusion criteria.[6]

The use of prone positioning can be technically challenging and is not without complications. Potential com-

plications include loss of tubes/drains/lines, cardiac arrhythmias, and facial/skin pressure ulceration. Therefore, clinicians should be cognizant of the potential for risks and complications. Prone positioning requires an interdisciplinary coordination of care.

Recruitment maneuvers

Recruitment maneuvers (RMs) are used to open collapsed lung units and improve oxygenation by the transient, intentional increase in transpulmonary pressure.[9] There are several methods of lung recruitment, such as the sustained inflation maneuver of 40 cm H_2O for a predetermined period of time (e.g., 40 seconds). Regardless of the method, the intent is to open collapsed alveoli early in the course of ARDS and maintain the recruitment with the use of appropriate PEEP levels after the recruitment maneuver is performed.

The most common complications associated with RMs are transient hypotension and/or oxygen desaturation during the procedure. Generally, the procedures can be performed without serious adverse events; however, caution should be taken when RMs are considered. While useful in improving oxygenation, the clinical data supporting RMs for improvements in clinical outcomes is limited.[10]

Positive end-expiratory pressure

Patients with ARDS require PEEP to help improve their oxygenation status.[1] Clinicians can choose from a number of strategies to select PEEP levels. All methods require the evaluation of respiratory mechanics, hemodynamic values, and assessment of oxygenation status. The choice of PEEP strategy may be best made when individualized for the patient.[11] Some evidence suggests that higher levels of PEEP should be used in ARDS patients and in those patients where alveolar recruitment can be verified.[11,12] More modest approaches with PEEP may be preferred in patients with acute lung injury (mild ARDS).[12] Currently, no ideal PEEP is known, and PEEP management remains controversial.

Other modalities

The above interventions can be done universally without requiring any invasive modalities and/or specialized equipment. Modalities such as high-frequency oscillatory ventilation, esophageal manometry, and some methods to deliver pulmonary vasodilators (such as inhaled nitric oxide), require unique set-up and expertise that may not be applicable to all critical care environments.[13-15] There is also significant cost associated with these modalities.

The role of the respiratory therapist

The respiratory therapist plays an integral role in the management of patients with ARDS. In-depth knowledge of all ARDS management strategies is imperative. The fluid management of a critically ill patient, monitoring, and proper interpretation of the fluid status is well within the scope of respiratory care practice. The decision to place a patient in the prone position should be well thought out and orchestrated, as this procedure affects interdisciplinary care. Recruitment maneuvers expand collapsed lung units. However, RMs can also be associated with potentially dangerous complications. Knowledge of these complications and the strategies that minimize their frequency enables the procedure to be performed more safely. Finally, as the search for the ideal PEEP strategy continues, the respiratory therapist should be aware of the different strategies available. ■

DISCLOSURE

J. Brady Scott is on the advisory board for Brovana® (Sunovion Pharmaceuticals Inc.) He also serves on the respiratory therapy clinical advisory board for Hollister Incorporated and on the key opinion leader board for Aerogen.

REFERENCES

1. Ashbaugh DG, Bigelow DB, Petty TL, Levine BE. Acute respiratory distress in adults. Lancet 1967; 2(7511):319-323.
2. Ventilation with lower tidal volumes as compared with traditional tidal volumes for acute lung injury and the acute respiratory distress syndrome. The Acute Respiratory Distress Syndrome Network. N Engl J Med 2000; 342(18):1301-1308.
3. National Heart, Lung, and Blood Institute Acute Respiratory Distress Syndrome (ARDS) Clinical Trials Network, Wiedemann HP, Wheeler AP, Bernard GR, et al. Comparison of two fluid-management strategies in acute lung injury. N Engl J Med 2006; 354(24):2564-2575.
4. Mikkelsen ME, Christie JD, Lanken PN, et al. The adult respiratory distress syndrome cognitive outcomes study: long-term neuropsychological function in survivors of acute lung injury. Am J Respir Crit Care Med 2012; 185(12):1307-1315.
5. Fessler HE, Talmor DS. Should prone positioning be routinely used for lung protection during mechanical ventilation? Respir Care 2010; 55(1):88-99.
6. Guerin C, Reignier J, Richard JC, et al. Prone positioning in severe acute respiratory distress syndrome. N Engl J Med 2013; 368(23):2159-2168.
7. Gattinoni L, Carlesso E, Taccone P, et al. Prone positioning improves survival in severe ARDS: a pathophysiologic review and individual patient meta-analysis. Minerva Anestesiol 2010; 76(6):448-454.
8. Sud S, Friedrich JO, Taccone P, et al. Prone ventilation reduces mortality in patients with acute respiratory failure and severe hypoxemia: systematic review and meta-analysis. Intensive Care Med 2010; 36(4):585-599.
9. Fan E, Villar J, Slutsky AS. Novel approaches to minimize ventilator-induced lung injury. BMC Med 2013; 11:85.
10. Fan E, Wilcox ME, Brower RG, et al. Recruitment maneuvers for acute lung injury: a systematic review. Am J Respir Crit Care Med 2008; 178(11):1156-1163.
11. Briel M, Meade M, Mercat A, et al. Higher vs lower positive end-expiratory pressure in patients with acute lung injury and acute respiratory distress syndrome: systematic review and meta-analysis. JAMA 2010; 303(9):865-873.
12. Hess DR. Approaches to conventional mechanical ventilation of the patient with acute respiratory distress syndrome. Respir Care 2011; 56(10):1555-1572.
13. Talmor D, Sarge T, Malhotra A, et al. Mechanical ventilation guided by esophageal pressure in acute lung injury. N Engl J Med 2008; 359(20):2095–2104.
14. Ferguson ND, Cook DJ, Guyatt GH, et al. High-frequency oscillation in early acute respiratory distress syndrome. N Engl J Med. 2013; 368(9):795-805.
15. Taylor RW, Zimmerman JL, Dellinger RP, et al. Inhaled nitric oxide in ARDS study group: Low-dose inhaled nitric oxide in patients with acute lung injury: a randomized controlled trial. JAMA 2004; 291(13):1603-1609.

A *new* confidence is in the air

Soon, we'll be taking Hollister innovation one step further.

Hollister introduced the first oral endotracheal tube fastener with an innovative sliding shuttle.

Thousands of hospitals across the globe have adopted the **AnchorFast** oral endotracheal tube fastener as the right choice for securing ET tubes.

Visit booth 249 to learn how we're helping you put patients first—with confidence.

AnchorFast
Oral Endotracheal Tube Fastener

Visit AARC booth 249 in Anaheim

Hollister

What Is Sarcoidosis?

by Daniel Culver, DO, FCCP

Sarcoidosis is a multisystem disorder that is caused by a persistent immune response to one or more environmental triggers. The *sine qua non* of sarcoidosis is the granuloma, a collection of activated histiocytes and lymphocytes that usually functions in the immune system to wall off and/or destroy particularly hardy micro-organisms or certain non-degradable substances. Although sarcoidosis is commonly described as an autoimmune disease, it is actually caused by an exogenous antigen(s). Besides an environmental exposure, risk for sarcoidosis is modulated by genetic factors and perhaps by prior host exposures. For example, smoking reduces the risk for sarcoidosis.[1]

In the United States, sarcoidosis is more prevalent in blacks than whites and appears to be diagnosed more often in the Southeast. The lifetime age-adjusted risk for sarcoidosis has been estimated to be approximately 0.85% in whites and 2.4% in blacks.[2] Sarcoidosis is most often diagnosed between the ages of 20–50, although females continue to develop the disease even at older ages and, in general, have a higher risk for the disease. In one-third to two-thirds of patients, sarcoidosis will spontaneously remit within five years of the diagnosis; but for the remainder, there may be substantial morbidity or mortality. In the United States as a whole, the mortality from sarcoidosis increased 51% in women and 30% in men from 1988 to 2007.[3]

about the author...

Daniel Culver, DO, FCCP, is a staff physician in the department of pulmonary, allergy, and critical care medicine at the Cleveland Clinic Main Campus in Cleveland, OH.

Pulmonary sarcoidosis

The lungs are affected in 90–95% of those with sarcoidosis. Any part of the respiratory system may be involved, including the upper airways, larynx, large airways, small airways, and lung parenchyma. As such, the effects of sarcoidosis are variable. The common physiologic abnormalities include restriction (30–80%), obstruction (30–50%), or a mixed pattern; but the baseline pulmonary function test (PFT) may be normal. A positive methacholine challenge test may be found in up to 21% of patients.[4] If cardiopulmonary exercise testing is performed, nearly 90% of patients with chronic sarcoidosis will exhibit impaired maximal oxygen uptake.[5]

Most patients with pulmonary sarcoidosis can be adequately managed with observation or inhaler therapy.[6] When the disease is progressive or there are moderate-to-severe symptoms, immunosuppressive therapy is usually initiated. Prednisone is still considered to be the first-line systemic therapy, but there is increasing recognition that corticosteroid therapy may lead to more toxicity than the perceived benefit from the patient's standpoint. Thus, one study found that quality of life was actually lower in those on corticosteroids than those treated without them, even after controlling for disease severity.[7]

Evaluation of dyspnea

Dyspnea is common, but the causes are numerous (as shown in Figure 1). It is crucial to consider which mechanism is responsible for dyspnea when formulating a treatment strategy. For example, obesity or myopathy leading to dyspnea may be a result of steroids. In one study, the use of a corticosteroid-based regimen led to a mean 25 lb. weight gain.[8] Muscle weakness, as assessed by quadriceps peak torque, hamstrings peak torque, peak inspiratory force, or hand grip, is prevalent.[9] The reductions of muscle strength correlate with lower six-minute walk distances, more dyspnea, and worse quality of life.[10] In addition, the dose of steroids is inversely correlated with the quadriceps peak torque, suggesting that subclinical steroid myopathy is a

Aeroneb® Solo
Nebulizer

We Love Lungs!

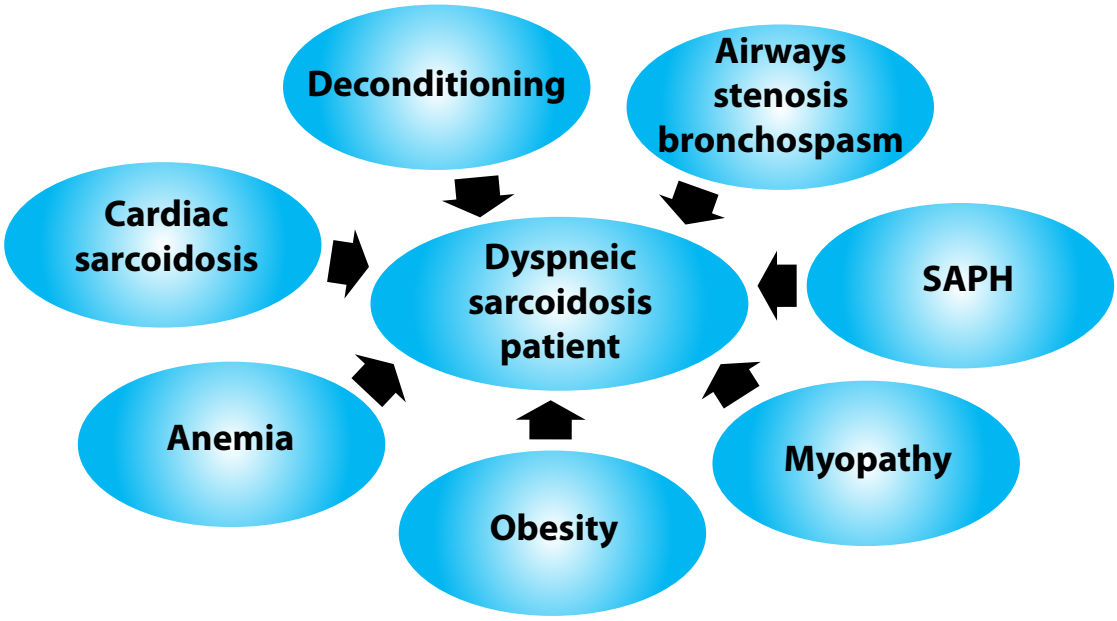
The Aeroneb® Solo is your trusted nebulizer for making your patients better.

We deliver more drug to the lungs than traditional MDI, Ultrasonic and Jet nebulizers. No added flow, no added pressure, no fuss. Find out why MDI, USN and Jet neb users are switching to the Aeroneb® Solo on www.aerogen.com

Aerogen | www.aerogen.com

Visit AARC booth 515-517 in Anaheim

Figure 1. Causes of Dyspneic Sarcoidosis



contributor to the problem.[10] The implications of these data are that more resistance training and less corticosteroids may be the best way to address dyspnea in many sarcoidosis patients.

Pulmonary hypertension and cardiac sarcoidosis

Pulmonary hypertension may be found in 5% of unselected patients seen in a general sarcoidosis clinic, but in up to 75% of those awaiting lung transplant. It may occur even when there is little evidence of radiographic involvement in the lung parenchyma. If only patients with dyspnea deemed to be out of proportion to the degree of pulmonary restriction are studied, approximately 50% will have pulmonary arterial hypertension.[11] The presence of sarcoidosis-associated pulmonary hypertension confers worse survival, even for patients with mild elevations of pulmonary artery pressures.[12]

The heart is involved in approximately one-quarter of patients, but only 20% of these develop clinically bothersome cardiac disease.[13] Cardiac sarcoidosis may lead to conduction delays, dysrhythmias, or sudden death; the most common cause of death from cardiac sarcoidosis currently, and the most common cause of dyspnea from it, is cardiomyopathy. The cardiomyopathy of sarcoidosis may be due to diastolic dysfunction from granulomatous infiltration of the myocardium, or it may be a result of loss of contractile capacity from widespread myocyte loss. When overt cardiac sarcoidosis is present, the likelihood of spontaneous remission for sarcoidosis is low.

Assessment of sarcoidosis

Evaluation of sarcoidosis patients should include consideration of potential causes for any given symptom, as previously mentioned. Baseline and follow-up PFTs are usually obtained and are most valuable when used to assess longitudinal trends. It is also useful to auscultate carefully for evidence of asymmetric airflow obstruction that may indicate large airways stenosis, a problem that can occur in 2–5% of patients. Flexible bronchoscopy may be indicated to evaluate and/or treat stenosis. On the other hand, rales or clubbing are distinctly unusual in sarcoidosis, and an alternate diagnosis should be sought if they are present.

Six-minute walking tests are often obtained as well, but their role is undefined at the current time. The distance walked correlates loosely with the St. George's Respiratory Questionnaire score, as well as with the Fatigue Assessment Scale.[14]

Cardiopulmonary exercise testing (CPET) is probably most valuable for parsing the underlying mechanism of dyspnea or exercise intolerance. However, a recent study also suggested that individuals with lower baseline CPET have worse five-year clinical outcomes.[5] It is possible that CPET may identify subtle gas exchange derangements that are markers of more substantial granulomatous inflammation, but whether earlier treatment of these individuals would improve long-term outcomes is unknown.

Team-based approach needed

Sarcoidosis is not the most common disease seen by respiratory therapists; but among the interstitial lung diseases, it is an important cause of morbidity. Although many cases may remit spontaneously, up to one-third of patients will have chronic disease. It is important to recognize that there are many potential causes for dyspnea, including parenchymal involvement, airways obstruction, pulmonary hypertension, cardiac sarcoidosis, myopathy, and deconditioning. Proper evaluation and therapy for sarcoidosis, therefore, requires a multimodal, team-based approach. ■

REFERENCES

1. Newman LS, Rose CS, Bresnitz EA, et al. A case control etiologic study of sarcoidosis: environmental and occupational risk factors. Am J Respir Crit Care Med 2004; 170(12):1324-1330.
2. Rybicki BA, Major M, Popovich J Jr, et al. Racial differences in sarcoidosis incidence: a 5-year study in a health maintenance organization. Am J Epidemiol 1997; 145(3):234-241.
3. Swigris JJ, Olson AL, Huie TJ, et al. Sarcoidosis-related mortality in the United States from 1988 to 2007. Am J Respir Crit Care Med; 183(11):1524-1530.
4. Shorr AF, Torrington KG, Hnatiuk OW. Endobronchial involvement and airway hyperreactivity in patients with sarcoidosis. Chest 2001; 120(3):881-886.
5. Lopes AJ, Menezes SL, Dias CM, et al. Cardiopulmonary exercise testing variables as predictors of long-term outcome in thoracic sarcoidosis. Braz J Med Biol Res 2012; 45(3):256-263.
6. Lazar CA, Culver DA. Treatment of sarcoidosis. Semin Respir Crit Care Med 2010; 31(4):501-518.
7. Cox CE, Donohue JF, Brown CD, et al. Health-related quality of life of persons with sarcoidosis. Chest 2004; 125(3):997-1004.
8. Baughman RP, Winget DB, Lower EE. Methotrexate is steroid sparing in acute sarcoidosis: results of a double blind, randomized trial. Sarcoidosis Vasc Diffuse Lung Dis 2000; 17(1):60-66.
9. Marcellis RG, Lenssen AF, Elfferich MD, et al. Exercise capacity, muscle strength and fatigue in sarcoidosis. Eur Respir J 2011; 38(3):628-634.
10. Spruit MA, Thomeer MJ, Gosselink R, et al. Skeletal muscle weakness in patients with sarcoidosis and its relationship with exercise intolerance and reduced health status. Thorax 2005; 60(1):32-38.
11. Baughman RP, Engel PJ, Meyer CA, et al. Pulmonary hypertension in sarcoidosis. Sarcoidosis Vasc Diffuse Lung Dis 2006; 23(2):108-116.
12. Baughman RP, Engel PJ, Taylor L, Lower EE. Survival in sarcoidosis-associated pulmonary hypertension: the importance of hemodynamic evaluation. Chest 2010; 138(5):1078-1085.
13. Kim JS, Judson MA, Donnino R, et al. Cardiac sarcoidosis. Am Heart J 2009; 157(1):9-21.
14. Baughman RP, Sparkman BK, Lower EE. Six-minute walk test and health status assessment in sarcoidosis. Chest 2007; 132(1):207-213.

First, Do the Right Thing

by Anthony L. DeWitt, JD, RRT, FAARC

Management means doing things right. Leadership means doing the right things.[1]

When I started in health care, one of the requirements for a hospital administrator was some kind of clinical background. Most administrators were either nurses, physicians, or people with some clinical experience of one type or another. Starting in the late 1980s, more and more applicants with master's of business administration (MBA) and master's of health administration (MHA) degrees began seizing management positions in the health care industry.

Many of these individuals lacked the moral compass of the health care providers they were assigned to supervise. They were schooled in business, not health care. They became fixated on generating revenue, and other hospital services were considered secondary. This spawned scandals like the Vencor, HCA, and Tenet cases where billions of dollars in fraudulent Medicare payments were recovered. It also produced layoffs and reductions in staff as hospitals were pushed to operate "leaner."

Lest the educational system gets the wrong idea, there is nothing wrong with either an MHA or an MBA. These degrees demonstrate an exceptional commitment to learning the basics of business and what makes business work. Like it or not, hospitals and health care organizations are businesses and must be run as businesses. But they are not factories, retail stores, or malls; they are businesses whose primary function is to provide for community health. As non-profits (usually), they exist first to serve their community and second to provide a good standard of living for their employees. A hospital that can't keep the lights on is of no value to either the community or its employees. Good financial managers are a must.

about the author...

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

When a clinician earns an MBA or an MHA, he or she does not unlearn all the things that made them a clinician. That is why some of the best-run hospitals feature people with a strong clinical background in positions of management. The desire to help patients and the ethical requirements to "do no harm" are values that are rarely unlearned just because someone acquires some financial or business learning. This is the rule, but there are some notable exceptions.

Just because someone is a clinician does not mean that they are immune to the seductive power of money. Doctors — the ultimate gatekeepers of medical necessity — are sometimes corrupted in their attempts to make profits. Thus unfolds the sad story of Sacred Heart Hospital in Chicago.[2]

Sacred Heart?

With a name like "Sacred Heart" it would be natural to assume that the hospital was run by a religious order, but that was simply another part of the scheme allegedly organized and orchestrated by Edward Novak, the owner of the for-profit hospital. Novak and the hospital's chief financial officer Roy Payawal are alleged to have developed a scheme where physicians were paid money to refer patients to Sacred Heart and that after those patients were admitted, some were drugged for the purpose of performing unnecessary tracheotomies. From the FBI affidavit attached to the criminal complaint comes this (see note below*):

*__NOTE:__ A complaint is an allegation only. No individual has been convicted of any crime. The named individuals are innocent until proved guilty in a court of law. *AARC Times* does not assume that the facts of this affidavit are true and urges readers to keep an open mind.

In interviews with investigating agents, Administrator A stated that members of the Sacred Heart nursing staff, including the ICU clinical case manager and the hospital's director of nursing, have raised concerns that Physician D performs a high number of unnecessary intubations, and purposefully and unnecessarily prolongs them by directing the heavy sedation of his patients. While a patient is under such sedation, she is unable to breathe without the assistance of a ventilator, and is likely to fail diagnostic breathing tests administered to determine whether the patient can breathe on her own. According to individuals with whom Administrator A has consulted, these unnecessary, prolonged intubations have caused complications that have resulted in tracheotomies being performed on patients by Sacred Heart surgeons that may not have been necessary.

Administrator A advised that during a lunch with Novak and Payawal in December 2012, Novak and Payawal explained that tracheotomy cases provide substantial insurance reimbursement income for the hospital. On March 1, 2013, during a meeting in Administrator A's office that Administrator A consensually recorded, Novak stated that tracheotomies are Sacred Heart's "biggest money maker" and that the hospital can make "$160,000 for a tracheotomy if the patient stays 27 days." On March 7, 2013, during a meeting at Sacred Heart that Administrator A consensually recorded, the ICU case manager told Administrator A that she often must "stretch" the length of hospital stay for a tracheotomy patient to 28 days to maximize Medicare reimbursements "to make Novak happy."

What the complaint alleges, *if it is true*, is that doctors and hospital administrators performed tracheotomies for profit. The allegation that one of the culprits was a pulmonologist should be deeply troubling to respiratory therapists everywhere.

Corporate compliance programs

In this country, the person who stands up and blows the whistle on an unlawful practice is often demonized for their efforts to see justice done. In this case, hospital employees worked with the FBI and made secret tape recordings that suggest that the hospital was engaging in this course of conduct solely for the purpose of maximizing revenue. If these allegations are true, then those responsible are likely to face long federal prison sentences and the loss of all their professional licenses. And, true to form, the whistleblowers are now out of a job. The hospital was closed following the announcement of the arrests and charges because patients understandably did not want to go there.

Every therapist has a duty to their hospital to try to reduce waste and to do things that generate more revenue than expense. Every loyal hospital employee has an obligation to carry out the lawful directives of the administration and the physicians who are guiding patient care. But no hospital employee has a duty to break the law in furtherance of a revenue or profit goal. This is why good hospitals have corporate compliance programs.

A corporate compliance officer (CCO) is an individual who reports both to the chief executive officer (CEO) and to the board of directors (and to no one else) and whose job it is to stay on the lookout for schemes and programs that are aimed at unlawful objectives. The CCO owes her loyalty to the organization — not to the individuals who run the organization — and as such, she is required to act on any credible reports of fraud or violations of law by getting this information to the CEO and to the board of directors as soon as possible.

If your hospital does not have a CCO and you have been asked to do something unlawful or unethical, good legal advice early cannot only keep you out of trouble with the authorities, it can help you avoid career-ending mistakes. ■

If your hospital does not have a CCO and you have been asked to do something unlawful or unethical, good legal advice early cannot only keep you out of trouble with the authorities, it can help you avoid career-ending mistakes.

REFERENCES

1. Drucker PF. Essential Drucker: management, the individual and society. Philadelphia PA: Elsevier Science & Technology Books; 2000.
2. U.S. Department of Justice website. Criminal complaint by Federal Bureau of Investigation. Available at: www.justice.gov/usao/iln/pr/chicago/2013/pr0416_01a.pdf *Accessed Aug. 15, 2013*

Preventing Falls of the Elderly Patient

by Karen L. Gregory, DNP, RRT, FAARC

Falls and associated injuries are a critical problem among the elderly, causing increased morbidity, mortality, and health care cost.[1] Falls tend to occur when physical limitations compromise ability, resulting in injuries including hip fractures, head, and soft tissue injury. Epidemiological studies reveal 50% of people aged 75+ years will sustain a fall at least once a year.[2] Falls among the elderly cost the U.S. health care system over $30 billion annually.[3]

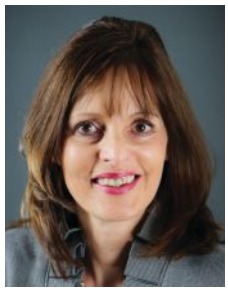
Risk factors of falls

Risk factors for falls increase progressively with advancing age and are due to various interactions between an individual with a propensity to fall and acute mediating risk factors.[4] Major risk factors for falls include older age, female gender, history of a previous fall, lower extremity weakness, balance and gait dysfunction, certain chronic illnesses, and psychotropic drug use.[5]

Age-related chronic conditions associated with falls

Risk factors for falls increase with the number of comorbid diseases. Circulatory disease, COPD, depression, and arthritis are each associated with an increased risk of 32%.[6] Postural hypotension is common among the elderly, which predisposes them to gait problems and falls. Obstructive sleep apnea was reported to be a reversible culprit in elderly patients with daytime sleepiness and falling-asleep-related injurious falls.[7] Patients with neurological disorders, including post-stroke patients and decreased sensory awareness, are at high risk for falls.

about the author...



Karen L. Gregory, DNP, RRT, FAARC, holds a doctor of nursing practice at the Oklahoma Allergy and Asthma Clinic in Oklahoma City, OK. She is also an assistant professor at Georgetown University School of Nursing and Health Studies in Washington, DC.

Intrinsic and extrinsic risk factors

Intrinsic risk factors are age-related physical and mental changes that decrease functional reserve. Extrinsic risk factors are either environmental or activities that are associated with a high risk of falling. An important extrinsic factor associated with falls is medication. Central nervous system active agents and class IA antiarrhythmic medications have been shown to have the strongest link to an increased risk of falling.[8,9] Impaired vision, glare intolerance, poor depth perception, poor peripheral vision, presbyopia, pain, or foot deformity can affect the ability to balance effectively, increasing the risk for falls.

Environmental hazards include poor lighting, irregular or slick floor surfaces, lack of appropriate safety equipment in the bathroom, and unsafe stairs or stairways. Incorrect size, type, or use of assistive devices poses a significant risk for falls. Common intrinsic and extrinsic fall risk factors are listed in Table 1.

Fall risk assessment

Although the best predictor of a fall is obtained from the presenting history and abnormalities of the gait or balance, using a valid and reliable instrument may help guide clinical management of the elderly patient at risk.[10] Fall risk assessment should be integrated into the history and physical examination of all geriatric patients. Patients who report a single fall, gait and balance deficits, or other high-risk behaviors should be evaluated using a standardized multifactorial fall-risk assessment. The Morse Fall Scale is a fall-risk assessment tool that predicts the probability of a fall.[11] The total score identifies risk factors and predicts future falls.

All oximeters are not the same

Get an *advantage* with the Onyx® Vantage

95% owner satisfaction* is something we are proud of.

Nonin Medical invented finger pulse oximeters, and we continue to be the most trusted brand of finger oximeters on the market.

Let us earn your trust.

The Onyx Vantage Advantage:

- Provides fast, accurate readings you can trust
- Limits false readings and give you true readings
- Allows for time savings as Nonin's oximeters can be used on the widest range of patients – including patients with low perfusion and dark skin tones

NONIN®
Leaders in *Nonin*vasive Medical Monitoring

onyxvantage.com

*Owner satisfaction based on Nonin proprietary research December 2012.

Limited-time offer exclusively from Tri-anim

Tri-anim®

800-TRI-ANIM (874-2646)
www.tri-anim.com

Trade up to the most trusted brand of finger pulse oximeters! Save when you trade your current finger pulse oximeters for the Onyx Vantage 9590 pulse oximeter. The more you trade, the more you save! Hurry, this offer expires December 31, 2013.

Call your Tri-anim sales representative today!

Visit AARC booth 404-406 in Anaheim

Preventing falls in the hospital

Elderly hospitalized patients are at increased risk of falling due to acute illness, potential side effects of medications, and unfamiliar surroundings. Assessment of functional status and mobility, along with implementing interventions, can decrease incidents of falls. Hospital rooms need to be equipped with adequate lighting. The use of bed and personal alarms can alert health care professionals of a potential risk for a patient fall.

The Joint Commission has declared reducing the risk of patient harm resulting from falls as one of their National Patient Safety Goals and encourages hospitals to assess communication issues and environmental modifications needed to help prevent falls.[12] Implementing educational programs for all health care professionals is imperative and must include understanding fall assessment, high-risk patients, and appropriate interventions to prevent falls.

Preventing falls in the mechanically ventilated patient

Preventing falls when ambulating the mechanically ventilated patient in the intensive care unit can be a significant challenge. Literature shows that after seven days of mechanical ventilation, 25–33% of patients experience clinical weakness and fatigue,[13] making it imperative to begin ambulation early.

Hemodynamic stability, level of pain, and cognitive status must be assessed before ambulation. Endotracheal suctioning before ambulation can help meet physiological needs for increased oxygen requirements. During ambulation, the respiratory therapist must hyperinflate the manual resuscitator to help meet the respiratory demands of the patient. Hyperventilating with two or three breaths periodically may be physiologically therapeutic. Walking at a pace comfortable for the patient and providing frequent rests will also help prevent fatigue and decrease the risk for falls.

Preventing falls at home

Reducing clutter is one of the most important interventions in the home to prevent falls. Adequate lighting throughout the home, secure stairway banisters, and an easily accessible alarm system that attaches to the patient and activates if the patient leaves the chair, are additional fall-reduction interventions. Flooring throughout the home should not have a slick surface. Rugs and carpeted edges must be secured with nonskid tape. Nonstick mats or appliqués should be installed in the bathtub. Grab bars, a sturdy padded bath seat, along with a hand-held shower nozzle for bathing while sitting down promote safety from falls. Avoid use of extension cords in the home of the elderly. Inadequate footwear and poorly fitted shoes can also increase the risk of falling.

Outdoor safety is often overlooked, placing the elderly at risk for falls. Sidewalks and driveways should be clear of debris, cracks, and abrupt edges. Walk areas need to be clear during adverse weather conditions. Handrails must be installed on steps and stairways.

Assistive mobility devices

Ambulatory assistive devices can help achieve independence and a sense of security that will promote safe mobility. Assistive mobility devices encompass a diverse group of interventions designed to enable people with physical limitations to participate in a broad range of activities.[14] Walking canes are often the first walking aid to consider. Walkers promote additional balance and many have a seat to allow the patient to take rest periods during ambulation.

Wheelchairs and scooters are generally recommended for patients who have significant mobility and

Table 1. Common Intrinsic and Extrinsic Fall Risk Factors

Intrinsic	Extrinsic
Previous falls	Certain medications
Gait and balance problems	Lack of stair handrails
Muscle weakness	Lack of bathroom guardrails
Poor vision	Improper use of assistive devices
Previous falls	Slippery or uneven surfaces
Chronic medical conditions: diabetes, stroke, Parkinson's, dementia, arthritis	Dim lighting or glare
Fear of falling	Slippery or uneven surfaces

HUDSON RCI®
BREATHING, MADE EASIER®

MANAGING HUMIDIFICATION, ONE PATIENT AT A TIME

The ConchaTherm® Neptune® Heated Humidifier allows clinicians to meet the unique humidification needs of every patient, while the new ISO-GARD Circuit Technology helps clinicians avoid the risks associated with breaking the circuit to manage condensate.[1-2]

Featuring adjustable temperature and gradient control, the Neptune supports AARC clinical practice guidelines[3] for humidification during invasive and noninvasive mechanical ventilation.

Now available with the **new ISO-Gard® Circuit Technology**, allowing circuit condensation control while maintaining a closed system.

Learn more at **activehumidification.com**

Visit AARC booth 801 in Anaheim

1. Coffin, SE, et al. Strategies to prevent ventilator-associated pneumonia in acute care hospitals. Infection Control and Hospital Epidemiology 2008;29 (Supplement 1): 31-40.
2. AARC Evidence-based clinical practice guidelines: care of the ventilator circuit and its relation to ventilator-associated pneumonia. Respiratory Care 2003;48(9):869-879.
3. Restrepo RD, Walsh BK. AARC CPG: Humidification during invasive and noninvasive mechanical ventilation. Respiratory Care 2012;57(5): 782-788.

Teleflex®
TELEFLEX MEDICAL PO Box 12600 Research Triangle Park, NC 27709
Toll Free: 866.246.6990 Phone: 919.544.8000 Intl: 919.433.8088
TELEFLEX.COM

balance impairment. Wheelchairs can be customized to meet the patient's needs for mobility. When the need for a mobility device is determined, the patient should be referred to physical/occupational therapists who are well trained in determining the appropriate assistive device, measurements, and education for its safe use.

Best practice

In 2010, the American Geriatrics Society (AGS) and the British Geriatrics Society (BGS) issued fall prevention guidelines, which have been endorsed by the American Medical Association, American Physical Therapy Association, and the American Occupational Therapy Association.[15] Primary fall screening and interventions help prevent falls among the elderly. Multifactorial fall risk assessments need to be conducted for the elderly who have gait and balance problems or have had a fall that results from unsteadiness or difficulty walking. Best practice in fall prevention includes implementing standard fall-prevention strategies, identifying fall risk, and performing fall assessments on all elderly patients. Implementing targeted patient strategies that are routinely reviewed may demonstrate improved clinical outcomes.

Family members or caregivers must be compassionate, encouraging, supportive, and have open communication, especially through difficult times.

Role of the family or caregiver

Many family members or caregivers of the elderly are unaware of aspects or behaviors that increase the risk of falling and what actions need to be implemented to reduce falls. The family or caregiver must learn and identify individual risks and methods of prevention, including exercises that improve mobility, strength, and balance. The medication regimen must be frequently reviewed to identify side effects or drug interactions that may contribute to falls. The family or caregiver must ensure home safety assessment and modifications are conducted by appropriate health care professionals to identify and eliminate home hazards. Changes in strength, balance, weakness, or unstable findings also need to be reported to the health care provider. Most importantly, family members or caregivers must be compassionate, encouraging, supportive, and have open communication, especially through difficult times.

Role of the respiratory therapist

The most effective approach to fall prevention includes an interdisciplinary team engaging in a multifactorial fall prevention program. The literature shows that effective fall prevention interventions require interdisciplinary effort for best practice.[16] RTs are experts in respiratory health and disease, and play a vital role in patient assessment and management across the continuum of care. Building patient strength and endurance and equipping patients with skills to improve quality of life is a critical role of respiratory care practitioners. RTs' role at the bedside must include a fall risk assessment of all geriatric patients and promotion of fall prevention exercises and education.

Pulmonary rehabilitation plays a vital role in managing patients at risk for falls. An exercise prescription must be constructed after the fall risk assessment. Clinical RTs must reinforce training by pulmonary rehabilitation specialists and physical therapists to improve

strength and endurance, such as muscle strengthening and other exercises at the bedside.

Respiratory therapists must be at the forefront when composing strategies for patient safety in the hospital, outpatient setting, and the home. RTs should be aware of and report any acute change in cognitive function. Assessing patients considered being at higher risk for falling and recommending referral should be performed at each patient encounter. RTs can play a vital role in improving mobility, with a major focus on controlled breathing exercises and energy conservation. Implementing breathing retraining for the patient improves strength, range of motion, and endurance to help the patient with lung disease acquire greater stability. Patients prescribed supplemental oxygen therapy must be instructed in appropriate methods of ambulating with portable oxygen tanks or carriers. RTs have a major role in reducing patient distress and anxiety produced by respiratory complications, functional decline, and immobility, which can significantly decrease the risk of falls.

Intervention steps needed for patients

Falls create a significant impact on the health and quality of life in the elderly person and their families. The economic burden of fall-related injuries emphasizes the need for effective interventions. Targeting high-risk patients to prevent falls is imperative. Multifactorial risk assessments followed by targeted intervention for identified risk factors is the most effective strategy for fall prevention. Implementing effective interventions to prevent falls will improve clinical outcomes, promote autonomy and independence, and improve quality of life in the elderly patient. ■

REFERENCES

1. Soriano TA, DeCherrie LV, Thomas DC. Falls in the community-dwelling older adult: a review for primary-care providers. Clin Interv Aging 2007; 2(4):545-553.
2. Rubenstein LZ. Falls in older people: epidemiology, risk factors and strategies for prevention. Age Ageing 2006; 35(Suppl 2):ii37-ii41.
3. Centers for Disease Control and Prevention website. Home & recreational safety: costs of falls among older adults. Available at: www.cdc.gov/homeandrecreationalsafety/falls/fallcost.html *Accessed June 24, 2013*
4. Berry SD, Miller RR. Falls: epidemiology, pathophysiology, and relationship to fracture. Curr Osteoporos Rep 2008; 6(4):149-154.
5. Aschkenasy MT, Rothenhaus TC. Trauma and falls in the elderly. Emerg Med Clin North Am 2006; 24(2):413-432.
6. Lawlor DA, Patel R, Ebrahim S. Association between falls in elderly women and chronic diseases and drug use: cross sectional study. BMJ 2003; 327(7417):712-717.
7. Onen F, Higgins S, Onen SH. Falling-asleep-related injured falls in the elderly. J Am Med Dir Assoc 2009; 10(3):207-210.
8. Freeland KN, Thompson AN, Zhao Y, et al. Medication use and associated risk of falling in a geriatric outpatient population. Ann Pharmacother 2012; 46(9):1188-1192.
9. Woolcott JC, Richardson KJ, Wiens MO, et al. Meta-analysis of the impact of 9 medication classes on falls in elderly persons. Arch Intern Med 2009; 169(21):1952-1960.
10. Ganz DA, Bao Y, Shekelle PG, Rubenstein LZ. Will my patient fall? JAMA 2007; 297(1):77-86.
11. Agency for Healthcare Research and Quality website. Tool 3H: Morse fall scale for identifying fall risk factors: preventing falls in hospitals: a toolkit for improving quality of care. Available at: www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallpxtoolkit/fallpxtk-tool3h.html *Accessed Aug. 15, 2013*
12. The Joint Commission. Good practices in preventing patient falls: a collection of case studies. Oakbrook Terrace IL: Joint Commission Resources; 2007.
13. De Jonghe B, Bastuji-Garin S, Durand MC, et al. Respiratory weakness is associated with limb weakness and delayed weaning in critical illness. Crit Care Med 2007; 35(9):2007-2015.
14. Hoenig H, Ganesh SP, Taylor DH Jr, et al. Lower extremity physical performance and use of compensatory strategies for mobility. J Am Geriatr Soc 2006; 54(2):262-269.
15. The American Geriatrics Society (AGS) website. Guidelines summary of the updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons. Available at: www.americangeriatrics.org/files/documents/health_care_pros/JAGS.Falls.Guidelines.pdf *Accessed June 24, 2013*
16. Coussement J, De Paepe L, Schwendimann R, et al. Interventions for preventing falls in acute- and chronic-care hospitals: a systematic review and meta-analysis. J Am Geriatr Soc 2008; 56(1):29-36.

Respiratory Care Week 2013: Let's Get Out There and Show the Public What an RT Is and Make a Difference

by Thomas J. Kallstrom, MBA, RRT, FAARC

At the end of this month during the week of October 20th, we will be celebrating our 31st Respiratory Care Week. What a great way to proclaim to the world that respiratory therapists make a significant difference in our health care system and, more importantly, in the care of our patients.

President Ronald Reagan officially proclaimed the very first Respiratory Care Week on Nov. 10, 1982, a year and a half after a failed assassination attempt landed him in the hospital to recover from the near-fatal attack.[1] During this time, a medical team that cared for him, which included respiratory therapists, likely made an impression on the President. President Reagan's 1982 proclamation is proudly displayed at the AARC's Executive Offices in Irving, TX. I invite you to stop for a visit to see it if you are ever in the area. Since 1982, the AARC has declared that the last full week in October will be designated Respiratory Care Week.

Respiratory Care Week

Respiratory Care Week presents a great opportunity for practicing RTs to get out into the community and educate the healthy public about pulmonary health as well as to expose our profession to potential future respiratory therapists. What better time to do an educational event at your hospital? Perhaps a more broad public-awareness campaign could be done by participating in DRIVE4COPD events in a public area such as a mall. The DRIVE4COPD campaign is a partnership effort with the COPD Foundation, AARC, and NASCAR, and is a great way to reach out to those with COPD who have not been diagnosed. The screener used for DRIVE4COPD is five simple questions that can alert patients to their potential risk of having COPD. In past years, RTs have set up booths at their state capitols where they have encouraged visitors, staff, and elected officials to take the simple screener — or up to and including spirometry. This has been an effective way to reach those who make the laws that relate to the practice and reimbursement of medical care.

The DRIVE4COPD campaign encourages RTs and RT students to partner with local businesses in an attempt to be not only a source of information about pulmonary disease but also a liaison over the long term, with an annual education/screening event reaching both their current and future employees. Partnering with local businesses is important because over 70% of those with COPD are still in the workplace, and half of them have not even been diagnosed. To learn more about this Adopt-A-Company program, go to www.aarc.org/drive4copd/.

about the author...

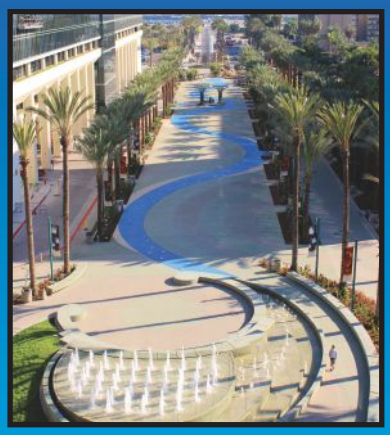
Thomas J. Kallstrom, MBA, RRT, FAARC, is executive director and chief executive officer of the AARC.

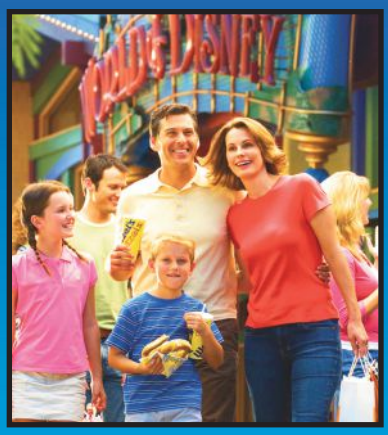
Peak Performance USA

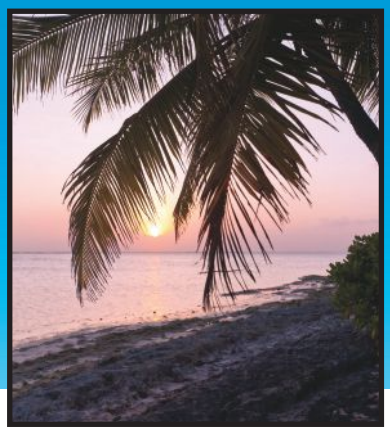
If your volunteer interests lie with younger individuals, I encourage you to look into Peak Performance USA. This is a program where RTs can work with elementary students. Many of our members who have children in this age group have found that this is a great way to make a difference in their child's school. The program is accessible online at www.peakperformanceusa.info/.

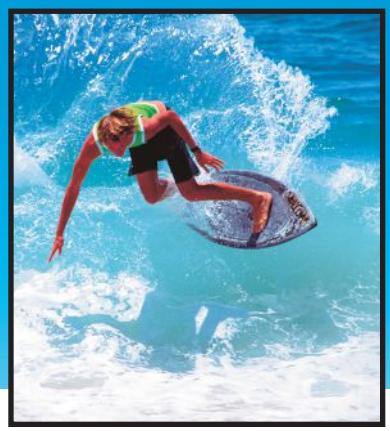
By placing an RT as a liaison to an elementary school, it is hoped that we will impact the 13+ million school days that are missed annually in the United States.

The 59th International Respiratory Convention & Exhibition









CONGRESS 2013

Anaheim Convention Center
Anaheim, CA

Saturday through Tuesday,
November 16-19, 2013

Sunny, southern California and the premier conference in the field of respiratory care – a perfect combination.

Why should you be there? It is an unparalleled opportunity for you to add value to your organization.

- Over 200 sessions* dedicated exclusively to respiratory care
- 3 days face-to-face with all exhibitors in the respiratory care industry
- Direct access to original research projects and their authors
- Networking with respiratory therapists, exhibitors and leaders in the field

Congress sessions* are always timely and this year will include topics such as:

- Healthcare Reform and the Affordable Care Act
- Non-Invasive Ventilation
- Disease Management
- Lung Protection Strategies
- Hospital to Home
- Pro/Con & Clinical Controversies

And 4 Pre-Congress Sessions on Friday, November 15, 2013 – more than ever before!

- Patient Safety and the Respiratory Therapist
- Tobacco Intervention and Cessation Aids
- Respiratory Care and the Trauma Patient
- Preparing for a Pandemic: The Strategic National Stockpile of Mechanical Ventilators

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

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

* CRCE credits apply to most sessions.

AMERICAN ASSOCIATION FOR RESPIRATORY CARE
AARC
CORPORATE PARTNER

CareFusion

Masimo

COVIDIEN

monaghan

PHILIPS
RESPIRONICS

Dräger

imagination at work

MAQUET
GETINGE GROUP

Tri-anim

Teleflex

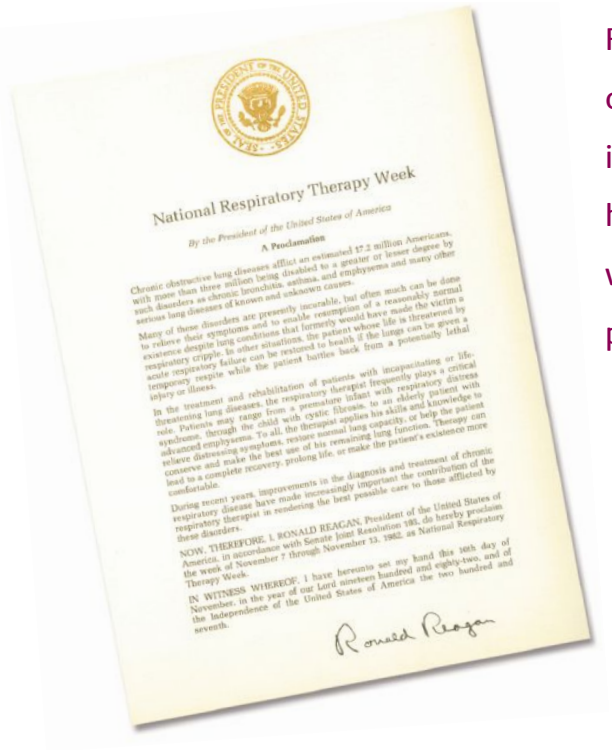
Boehringer Ingelheim

Forest Laboratories, Inc.

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

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

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



National Respiratory Therapy Week

By the President of the United States of America

A Proclamation

Chronic obstructive lung diseases afflict an estimated 17.2 million Americans, with more than three million being disabled to a greater or lesser degree by such disorders as chronic bronchitis, asthma, and emphysema and many other serious lung diseases of known and unknown causes.

Many of these disorders are presently incurable, but often much can be done to relieve their symptoms and to enable resumption of a reasonably normal existence despite lung conditions that formerly would have made the victim a respiratory cripple. In other situations, the patient whose life is threatened by acute respiratory failure can be restored to health if the lungs can be given a temporary respite while the patient battles back from a potentially lethal injury or illness.

In the treatment and rehabilitation of patients with incapacitating or life-threatening lung diseases, the respiratory therapist frequently plays a critical role. Patients may range from a premature infant with respiratory distress syndrome, through the child with cystic fibrosis, to an elderly patient with advanced emphysema. To all, the therapist applies his skills and knowledge to relieve distressing symptoms, restore normal lung capacity, or help the patient conserve and make the best use of his remaining lung function. Therapy can lead to a complete recovery, prolong life, or make the patient's existence more comfortable.

During recent years, improvements in the diagnosis and treatment of chronic respiratory disease have made increasingly important the contribution of the respiratory therapist in rendering the best possible care to those afflicted by these disorders.

NOW, THEREFORE, I, RONALD REAGAN, President of the United States of America, in accordance with Senate Joint Resolution 181, do hereby proclaim the week of November 7 through November 13, 1982, as National Respiratory Therapy Week.

IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of November, in the year of our Lord nineteen hundred and eighty-two, and of the Independence of the United States of America the two hundred and seventh.

Ronald Reagan

Respiratory Care Week presents a great opportunity for practicing RTs to get out into the community and educate the healthy public about pulmonary health as well as to expose our profession to potential future respiratory therapists.

The PPUSA goals include:

- Increase awareness of asthma as a significant health problem.
- Increase awareness of signs and symptoms.
- Improve the knowledge, attitudes, and skills of school staff about detection, treatment, and control of asthma.
- Promote a supportive learning environment for students with asthma.
- Reduce school absences due to asthma.
- Help schools understand that they can provide the necessary support in the event of an emergency.
- Help the student maintain a healthy lifestyle.

As we look at asthma, it is important to note that elementary school teachers do not get respiratory training in school and, thus, are likely to have poor general knowledge about asthma and a decreased likelihood to recognize an exacerbation or know proper steps to take.[2] It is now even more important that RTs be available to elementary schools as asthma experts as we see shrinking city budgets and school-based nurses less likely to be stationed in elementary schools on a full-time basis.

Volunteers needed

As we look at volunteerism, according to the Bureau of Labor Statistics, in 2012 about 26% of the population were volunteers and most were over the age of 35.[3] Of course, all practicing professionals need to be part of the volunteer movement. Many respiratory care programs mandate that their students participate in what is called service learning. In this capacity, the student is likely to become more engaged in academic subjects that relate to the real world while allowing them to gain a better understanding of themselves and the world around them.[4] The hope is that the student will go on to enhance their professional profile once they enter the job market.

Even outside of Respiratory Care Week, there are other good dates to schedule a public health event in the coming months. Some include:

- Nov. 20, 2013 — World COPD Day
- Nov. 21, 2013 — Great American Smokeout Day
- May 6, 2014 — World Asthma Day

I encourage you to make a difference not only at the bedside but also with the healthy public who may be uninformed about our profession. It doesn't need to be on a special day commemorating a specific disease — but, rather, anytime is a good time. Also remember that the AARC is ready to help its members with materials for Peak Performance USA and DRIVE4COPD. Just contact me at kallstrom@aarc.org; it's as simple as that. ■

REFERENCES

1. The American Presidency Project website. Proclamation 4997 – National Respiratory Therapy Week. Available at: www.presidency.ucsb.edu/ws/?pid=41974 *Accessed Aug. 9, 2013*
2. Sapien RE, Fullerton-Gleason L, Allen N. Teaching school teachers to recognize respiratory distress in asthmatic children. J Asthma 2004; 41(7):739-743.
3. Bureau of Labor Statistics website. Volunteering in the United States — 2012. Available at: www.bls.gov/news.release/volun.nr0.htm *Accessed Aug. 9, 2013*
4. National Service-Learning Clearinghouse website. Fact sheets: standards and indicators for effective service-learning practice. Available at: www.servicelearning.org/instant_info/fact_sheets/k-12_facts/standards *Accessed Aug. 9, 2013*

Legislation in the States... It Can Impact You

by Cheryl West, MHA

If you pay attention to current events, however you have it delivered to you (TV, newspapers, Internet), there's always extensive coverage on what Congress and (to a lesser extent) the various federal agencies are doing and how their actions can impact the nation as a whole.

At the AARC we also devote space to national developments that can impact the profession nationwide. We sometimes do not spend as much time highlighting developments at the state level — assuming, for example, that the RTs in Oregon will not be terribly invested in the changes going on in Alabama.

But taken over time, if the same respiratory care issues are becoming issues in state after state, cumulatively this could very well foreshadow the future nationwide direction for the respiratory therapy profession.

As AARC's director of government affairs, one of my responsibilities is to monitor the legislation introduced and passed in each state. The types of legislation introduced and passed is far ranging, everything from legislation that prohibits smoking in a variety of places, bills that would require hospitals to perform a pulse oximetry test on newborns, licensure of other disciplines, or changes to the scope of practice of other licensed professions that could become problematic to the respiratory profession. Certainly the majority of legislation that is introduced is not actually passed. Yet even those bills that "die" and never move much further into the legislative process still can provide an inkling as to what some legislator has determined is important and worthy of having legislation written.

I send the "bills of interest" from these legislative searches to the list serves of your state society president, the AARC House of Delegates, and your Political Advocacy Contact Team (PACT) representatives. My role is to be another set of eyes for your own state society's government or legislative affairs committee and assist them with their own mission to monitor legislation (or regulations) that can either be a challenge or an opportunity for the profession.

about the author...

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

Scope of practice changes for other disciplines

Over the past two years, there has been an increase in the number of legislative bills that legally expand the clinical services and the sites of care that other health care personnel may provide. A number of these disciplines are not required to hold a license or be regulated by the state. This expansion is occurring whether or not these individuals have had formal training or have documented competency in the new areas of clinical procedures they are now permitted to provide. And the devil is always in the details. As an example, take medical assistants in Washington State. A law was passed in Washington State in 2011 that expands the scope of practice for the medical assistant — a discipline that requires state certification including proof of a credential. So far so good, but here's where the "detail" part comes in.

One of the new services that may be legally provided by medical assistants is "respiratory testing." However, the law didn't say exactly what types of respiratory testing would be permitted to be performed by medical assistants. Is it a pulse oximetry test or a bronchial provocation test with potentially fatal consequences? Both are "respiratory testing"; and unless the regulations specify what testing will be permitted, the law as written currently permits the medical assistant to do any and all respiratory testing. The Respiratory Care Society of

Washington is working diligently with the rule writing agency to narrow down the tests that would be permitted. I want to be perfectly clear: Medical assistants are performing invaluable services to patients in clinical settings. However, the issue is, does the training and competency documentation support the expanded scope of practice? I use this rather extreme example to make this point. A state can change the respiratory therapy licensure law to include in the RTs' legal scope of practice "perform brain surgery." While this change would legally permit an RT to perform brain surgery, respiratory therapy education and competency obviously does not support that. But legally, RTs could.

It is critical that before the legislature moves forward in expanding the scope of practice for any discipline or profession that the education/training and testing for competency of that discipline or profession be documented.

Repealing licensure for professions

Here is a more direct concern for the respiratory care profession: State governments are seriously contemplating the need to keep and require professional licensure, at least for certain professions. By state governments, I mean the state administration headed by a governor. Thus far, the de-licensing movement starts with a commission or review committee generally appointed by the governor to review the merits of continuing licensure for disciplines and professions in the state. Recommendations to repeal or revise licensure for any number of professions are presented to the governor. The governor then recommends to the legislature that certain professions be de-licensed. The final authority to do so rests with the legislature. The legislature created licensure, and it must enact legislation to repeal it.

Respiratory therapy licensure most recently has been in the bull's-eye of the de-licensing movement in two states so far: Indiana and Michigan. For both states, the justification for recommending respiratory therapy de-licensure was that the NBRC credentials would be sufficient to assure competency and patient safety. The NBRC made it crystal clear in its comments to both state administrations that it does not do background checks, it does not have investigation or subpoena authority, and it has no legal means to enforce any actions against RTs. Both state respiratory societies mounted a full and intense response to the threat to de-license the profession. In Indiana, it worked. The committee with the power to recommend licensure continuation agreed that respiratory therapy licensure was necessary for the health and safety of the public. In Michigan, the outcome is still unclear. After the initial report recommended 18 Michigan professions should be de-licensed, including RTs, all went quiet for six months (prior to the 2012 elections). Now, however, the elections are over and the legislators are free to revisit the de-licensing issue — and the Michigan Society for Respiratory Care is once again geared up to mount a fierce response.

This trend of expanding scopes of practice for para-professionals and the de-licensing mood of state governments may result from a combination of factors: a shortage of licensed health professionals, the de-regulation spirit taken on by many states, the well-intentioned but perhaps short-sighted attempt to create an expanded job market, or the desire on the part of state governments to reduce budgets by utilizing less costly personnel.

Why is this happening?

The answer is hard to pin down. However, this trend of expanding scopes of practice for para-professionals and the de-licensing mood of state governments may result from a combination of factors: a shortage of licensed health professionals, the de-regulation spirit taken on by many states, the well-intentioned but perhaps short-sighted attempt to create an expanded job market, or the desire on the part of state governments to reduce budgets by utilizing less costly personnel.

Whatever the reasons, this trend needs to be closely monitored and met with clearly stated facts, clinical evidence, and a unequivocal response from RTs in the state. Your state respiratory society is the first and best line of defense to advocate for the profession and ultimately the pulmonary patient. When your society calls on you to contact your legislator, whatever the issue, it isn't done lightly. And we hope you will respond. Legislators are keenly tuned in to their constituents; and what you say, especially if it is in a collective statewide voice of RTs, will make a difference. ■

Opportunities for RTs To Diagnose Sleep Apnea in the Hospital

by Karla Smith, BS, RRT, RPSGT

Patients come into the hospital seeking relief from pain and illness. Upon discharge, they expect to leave the institution feeling better, with their health issues resolved. As a health care provider, it is our responsibility to ensure that each patient's expectations are met.

What does this have to do with sleep apnea? Think about this: There are an estimated 18 million Americans who have sleep apnea. That means approximately one in 15 Americans or 6.62% of the American population have sleep apnea. Even more disturbing is that one in 50 Americans have undiagnosed sleep apnea, which is 2–4% of the American population — or 500,000 people.[1] These undiagnosed Americans are the concern for those of us in health care.

According to the National Commission on Sleep Disorders Research, 38,000 deaths occur annually that are related to cardiovascular problems connected in some way to sleep apnea.[1] As a profession, we see the vast majority of these at-risk patients. These are the patients with congestive heart failure, stroke, hypertension, atrial fibrillation, or the obese patient newly diagnosed with diabetes. All of these patients have comorbidities of untreated sleep apnea.

As health care providers for this high-risk population, it makes complete sense that we screen each one of these patients to help diagnose sleep apnea.

about the author...

Karla Smith, BS, RRT, RPSGT, is the sleep center coordinator at St. Alexius Medical Center in Bismarck, ND.

Assessment tools

There are multiple screening tools for sleep apnea. The Epworth Sleepiness Scale, the Berlin Questionnaire, and the STOP-BANG model are just a few. Studies have been done regarding which tool is the most sensitive to predict sleep apnea. The STOP-BANG was shown to have a higher sensitivity to predicting moderate-to-severe (87%) and severe (70.4%) sleep apnea. This tool is easy to use and offers more objective data than the Epworth Sleepiness Scale and is a great tool to predict which patients are at risk for obstructive sleep apnea.[2]

Every respiratory therapist can ask their patients the STOP-BANG questions available on the JAMA Otolaryngology – Head & Neck Surgery website at http://archotol.jamanetwork.com/article.aspx?articleid=496835. The information from the STOP-BANG and the patient's other clinical data can be used to determine if a particular patient should be scheduled for a polysomnogram to assess the severity of their sleep apnea.

Hospital admission assessment

Each patient admitted to the hospital should be evaluated regarding their risk for sleep apnea or positive diagnosis of sleep apnea. RTs should address this by ensuring that some type of question(s) is asked of the patient by nurses regarding the patient's history of sleep apnea or their sleep apnea risk factors.

To determine if a patient has a positive sleep apnea history, the patient could be asked: "Have you ever had a sleep study?" or "Are you currently wearing continuous positive airway pressure (CPAP) to treat sleep apnea?" During the admission process, risk for sleep apnea could also be determined by asking if the patient snores. An affirmative answer would begin a process whereby the respiratory therapist would be prompted to begin the sleep apnea screening process where the RT completes a screening tool like the STOP-BANG model. The results of the screening could prompt a consult with a sleep specialist or, in urgent cases, an overnight sleep study or even CPAP during hospitalization.

ResMed

VPAP™ COPD

NONINVASIVE VENTILATION

Is the cost of COPD readmissions becoming a problem?

Improve outcomes with the first NIV device FDA-cleared specifically to treat COPD.[1]

Research shows that post-discharge NIV therapy for COPD patients can reduce admissions and minimize hospital costs, reduce recurrence of acute hypercapnic respiratory failure following an initial event by up to two-thirds in the first 30 days, and provide patients with significant quality of life benefits.[2-5] Wouldn't you like to offer your patients a better chance at a brighter future?

VPAP™ COPD with H5i™ humidifier and ClimateLine^{MAX}™ Oxy

Learn more and request a free guide at ResMed.com/COPDNIV.

Visit AARC booth 439 in Anaheim

Respiratory Care Solutions

Making quality of care easy

1 The VPAP COPD is indicated to provide noninvasive ventilation for patients weighing more than 30 lbs (13 kg) with respiratory insufficiency such as that associated with hypercapnic chronic obstructive pulmonary disease (COPD) or obstructive sleep apnea (OSA). 2 Tuggey et al. *Thorax* 2003 3 Cheung et al. *Int J Tubercul Lung Dis* 2010 4 Tsolaki et al. *Respir Med* 2008 5 Duiverman et al. *Thorax* 2008

A screening is a great opportunity to educate the patient and family regarding sleep apnea and the consequences of not treating the disorder.

Surgical patients

One group of patients that should not be forgotten is the surgical patient. A patient at risk for sleep apnea who is undiagnosed and is being given opioids can be at the highest risk. There are many cases where a post-surgical patient has been found unresponsive on the nursing floor because their sleep apnea was not addressed or their risk of sleep apnea was not assessed.

All surgical patients should also be screened either by the nursing staff during the pre-operative education session or respiratory therapy upon admission before their procedure is performed to determine whether or not they need to be observed more closely during the post-operative period.

If a patient is found to be at risk pre-operatively, there should be multiple steps taken to ensure their safety post-operatively. Due to sedation given during surgery and the pain medications given after surgery, these patients should be monitored closely with continuous oximetry and end-tidal carbon dioxide (CO_2) monitoring to assure respiration and ventilation is satisfactory.[3] If patients demonstrate increased CO_2 and decreased saturation measured via pulse oximetry (SpO_2) in the postanesthesia care unit, these patients should be started on auto-CPAP to ensure the airway is protected.[3,4] Once on the nursing floor, these patients can be monitored with continuous oximetry while the auto-CPAP is in use.

Since RTs are involved in all aspects of care of this type of post-surgical patient, it makes sense that they be the health care providers who see to it that these patients get follow-up care regarding their sleep apnea diagnosis. The RT can assure that the patient is scheduled for a consult with a sleep specialist to verify the diagnosis of sleep apnea and begin treatment.

It is important for us to remember that — with the upcoming decreases in reimbursement and the fines that hospitals will need to pay for readmitted patients — we are motivated to screen all hospital patients to ensure that those who are undiagnosed or untreated be treated. If we treat the sleep apnea, we can hopefully control the comorbidities, thus decreasing hospital admission. ■

REFERENCES

1. Sleep Disorders Guide website. Sleep apnea statistics. Available at: www.sleepdisordersguide.com/sleepapnea/sleep-apnea-statistics.html *Accessed June 30, 2013*
2. Chung F, Yegneswaran B, Liao P, et al. STOP questionnaire: a tool to screen patients for obstructive sleep apnea. Anesthesiology 2008; 108(5):812-821.
3. Gross JB, Bachenberg KL, Benumof JL, et al. Practice guidelines for the perioperative management of patients with obstructive sleep apnea: a report by the American Society of Anesthesiologists Task Force on Perioperative Management of patients with obstructive sleep apnea. Anesthesiology 2006; 104(5):1081-1093.
4. Diffee PD, Beach MM, Cuellar NG. Caring for the patient with obstructive sleep apnea: implications for health care providers in postanesthesia care. J Perianesth Nurs 2012; 27(5):329-340.

Join . . . Renew . . . Win!

The 2013 AARC Membership Growth Campaign!

We want to create a more successful association for you:
More continuing education opportunities . . . more resource tools . . .
more career building assistance . . .more patient advocacy.

And just by renewing your membership or joining as a new member,
you'll be eligible to win an iPad or Kindle Fire.

In each three-month cycle, now through Oct. 31, 2013, we will award a prize to a random renewing member and new member at the Active Member level.

Feb.1 – Apr. 30, 2013

May 1 – July 31, 2013

Aug.1 – Oct. 31, 2013

Renewing Active Members

Pay during the defined period and you could win an iPad

New Active Members

Join during the defined period and you could win a Kindle Fire

Membership includes a subscription to *AARC Times* magazine and/or Respiratory Care journal at $11.50 each.
International rates higher.

See details at: www.aarc.org/campaign

American Association for Respiratory Care • (972) 243-2272 • info@aarc.org

Teaching Elderly Patients To Quit Smoking

by Donna D. Gardner, MSHP, RRT-NPS, FAARC

Smoking among the elderly is a critical geriatric health issue, yet it is considered one of the most preventable causes of death and disease in older adults.[1–3] Unfortunately, the baby boomer generation started smoking when smoking was socially acceptable, which increased use after World War II.[2,4]

Older smokers are sometimes more likely than younger smokers to attempt quitting. However, older patients are not always offered strategies for tobacco cessation due to myths and barriers. Geriatric patients have smoked longer, are strongly addicted to nicotine, and often have made unsuccessful attempts to quit. Some may have doubts about attempting to quit, may believe smoking is irreversible and thus is pointless to try to stop, and may feel it has become an integral part of their lifestyle.[5,6]

Therefore, respiratory therapists can use "teachable moments" to stress the benefits of smoking cessation regardless of age or presence of disease when meeting these older smokers in the clinic, emergency room, or hospital. The RT should link the association between illness and smoking behavior and stress the importance of successful cessation. While older adults are more likely to underestimate smoking risks, those who do connect the smoking behavior with the illness are more likely to quit.[7] There are a number of tangible benefits of quitting regardless of age for men and women.[8] Health risks associated with smoking diminish considerably in proportion to the period of time smoke free and, in some cases, may return to the level of non-smokers.[8]

It is important that these older smokers understand that smoking cessation can improve their overall quality of life and that there are significant health benefits associated with gained years of life. Men who quit at age 65 years gained 1.4–2.0 years of life, and women gained 2.7–3.7 years.[9] There are, overall, lower mortality rates seen in those over 70, and older smokers who have stopped smoking experience less cognitive decline and brain atrophy.[10]

Older smokers need treatment that is specifically tailored to them because of the unique age-related characteristics such as decline in cognitive and physical function, not to mention the multiple comorbidities that are treated by medication that further complicates the tobacco-cessation process.[11,12] It is important to recognize that interventions include a plan of action and determination to execute the plan. This requires a high level of cognitive input, and many aging patients have impaired cognitive ability that negatively impacts the tobacco-cessation plan. Therefore, it is important to screen them for mild-to-moderate cognitive impairment.[12]

about the author...

Donna D. Gardner, MSHP, RRT-NPS, FAARC, is chair of the department of respiratory care and is the Steven Lloyd Barshop Endowed Chair at the University of Texas Health Science Center at San Antonio.

Interventions

Determining the Depth of Nicotine Addiction and Willingness to Change — In order to assist geriatric patients with tobacco cessation, RTs must learn the history of the patient's tobacco use and depth of nicotine addiction. There are a number of scales: The Fagerström Tolerance Questionnaire and the six-item revised version is the Fagerström Test for Nicotine Dependence (FTND). More recent scales are the Heaviness of Smoking Index, the Cigarette Dependence Scale, and the Nicotine Dependence Syndrome Scale. The most commonly used is the FTND's Evaluate Severity of Dependence Scale.[13–14] The higher the score, the lower the

chance of long-term abstinence without strong interventions. The FTND is found on the Nicotine Freedom System website at http://nicotinefreedom.com/articles/fagerstrom/.

It is important to meet patients where they are in regards to tobacco cessation, and understanding behavior changes in adults may assist RTs with geriatric tobacco-cessation strategies. A helpful tool to use is the transtheoretical model of change, which has five stages: pre-contemplation, contemplation, preparation, action, and maintenance. This model is a foundation for promoting behavior change.[15,16] Respiratory therapists must realize that elderly patients are more likely to reside in the pre-contemplation or contemplation stages. When patients are ready to quit smoking, focused counseling and offering support and encouragement are especially effective.[11]

The 5 A's Approach — The 5A's approach for tobacco cessation includes:[11]

- Ask the patient about tobacco use.
- Advise the patient to quit.
- Assess the willingness to make a quit attempt.
- Assist the patient with the quit attempt.
- Arrange for follow up.

It is essential to implement all five components. Respiratory therapists should consistently identify and document tobacco use at every visit. It should be considered the "sixth" vital sign.[11] ICD-9 diagnostic codes are available to add tobacco use disorder and tobacco use disorder in remission to the patient's problem list.[11]

Pharmacotherapy

The U.S. Clinical Practice Guideline identifies nicotine replacement therapy (NRT), bupropion SR, and varenicline as the first-line agents effective for tobacco cessation; and these are approved by the U.S. Food & Drug Administration (FDA) for this use.[11] Nicotine replacement therapy reduces the severity of nicotine withdrawal symptoms by replacing the nicotine from cigarettes and doubles the odds of long-term abstinence. There are five forms of NRT on the market: gum, lozenge, inhaler, nasal spray, and patch. Each form of NRT is equally effective, and therefore, patient preference and use help determine the best choice for the patient. Patients identified as highly nicotine dependent may have longer abstinence rates with the NRT inhaler than the other forms of NRT, while low nicotine dependent users may be more successful using the NRT patch.[17] Recommendations, administration, instructions, and duration of treatment can be found in the article by West (see reference 17).

Two of the medications that are *not* NRT include bupropion SR and varenicline. Bupropion SR is effective in treating withdrawal symptoms associated with nicotine dependence and doubles long-term abstinence rates. Varenicline is a non-nicotine medication and acetylcholine nicotine receptor partial agonist and should be initiated prior to an established quit date. Both medications are well tolerated in the elderly, but there are concerns with medication metabolism. A combi-

The 2010 Report of the Surgeon General States…

1. There is no safe level of exposure to tobacco smoke. Any exposure — even an occasional cigarette or exposure to secondhand smoke — is harmful.
2. Damage from tobacco smoke is immediate. Tobacco smoke contains more than 7,000 chemicals and compounds.
3. Smoking longer means more damage. Both risk and the severity of many diseases caused by smoking are directly related to how long the smoker has smoked and the number of cigarettes smoked per day.
4. Cigarettes are designed for addiction. The design and contents of tobacco products make them more attractive and addictive. Nicotine addiction keeps people smoking.

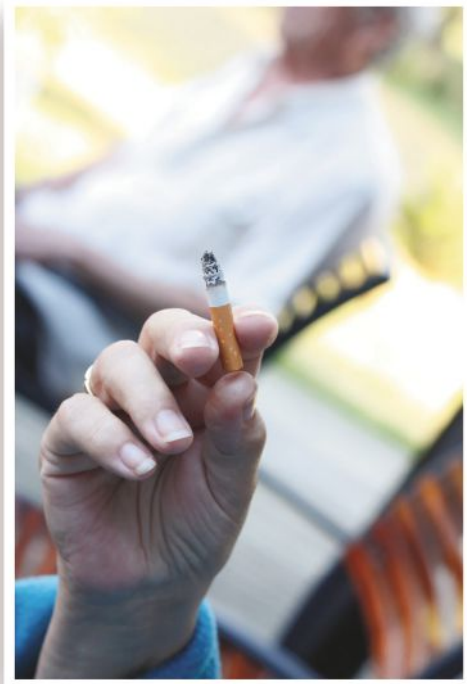
SOURCE: U.S. Department of Health & Human Services website. A report of the surgeon general: how tobacco smoke causes disease: the biology and behavioral basis for smoking-attributable disease, 2010. Available at: www.surgeongeneral.gov/library/reports/tobaccosmoke/index.html *Accessed Jan. 7, 2013*

nation of medications may result in higher abstinence rates and greater suppression of tobacco withdrawal symptoms. A combination that is *not* recommended is varenicline with NRT because of the nicotine antagonist properties of varenicline.[11] There are a few combinations of medications that may increase abstinence rates and include taking the NRT patch and lozenge together or the NRT patch and inhaler together. However, the FDA approves only the NRT patch and bupropion SR combination for tobacco cessation.[11]

Some patients are interested in decreasing the number of cigarettes used, which is an alternative. Others are now interested in the electronic cigarette, or e-cigarette. This is a battery-powered device that "vaporizes" a nicotine solution. It is marketed as an alternative to tobacco products. This is not a legitimate cessation aid, and the FDA has raised concerns over the device.[18] However, the ideal plan includes patient preferences, previous cessation attempts, and current medical condition, side effects, and cost.

More research needed

Respiratory therapists face a challenge when trying to assist elderly patients with tobacco cessation. However, it is important to ask all patients about their smoking status when obtaining the vital signs and medical history. If the patient is a smoker, determine their nicotine dependence using the Fagerström nicotine dependence test and willingness to change. Offer the patient strategies to quit smoking, including NRT or other prescription medications. Unfortunately, research is lacking on the older adult and tobacco-cessation strategies, outcomes, withdrawal severity, tobacco abstinence, and treatment. Further studies need to be done to determine the motivations of older smokers to quit and to evaluate functional decline and life changes that influence smoking cessation. ■



REFERENCES

1. World Health Organization website. Tobacco free initiative (TFI). Available at: www.who.int/tobacco/mpower/en/ *Accessed Aug. 12, 2012*
2. U.S. Census Bureau website. Vincent GK, Velkoff VA. The next four decades: the older population in the United States: 2010–2050. Available at: www.census.gov/prod/2010pubs/p25-1138.pdf *Accessed Sept. 1, 2012*
3. Ossip-Klein DJ, Pearson TA, McIntosh S, Orleans CT. Smoking is a geriatric health issue. Nicotine Tob Res 1999; 1(4):229–300.
4. Johns Hopkins Medicine website. Elhassan A, Chow RD. Smoking cessation in the elderly. Available at: www.sbggpr.org.br/artigos/Como%20orientar%20o%20cessar%20no%20tabagismo%20do%20idoso.pdf *Accessed Aug. 30, 2012*
5. Cataldo JK. Clinical implications of smoking and aging: breaking through the barriers. J Gerontol Nurs 2007; 33(8):37–41.
6. Kerr S, Watson H, Tolson D. et. al. Smoking after age 65 years: a qualitative exploration of older current and former smokers' views on smoking, stopping smoking and smoking cessation resources and services. Health Soc Care Community 2006; 14:572-582.
7. Clark MA, Rakowski W, Kviz FJ, Hogan JW. Age and stage of readiness for smoking cessation. J Gerontol B Psychol Sci Soc Sci 1997; 52(4):S212–S221.
8. U.S. Department of Health and Human Services. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Office on Smoking and Health: Rockville; DHHS Publication No. (CDC) 89-8411, 1989.
9. Burns DM. Cigarette smoking among the elderly: disease consequences and the benefits of cessation. Am J Health Promot 2000; 14(6):357–361.
10. Brega AG, Grigsby J, Kooken R, et al. The impact of executive cognitive functioning on rates of smoking cessation in the San Luis Valley Health and Aging Study. Age Ageing 2008; 37(5):521–525.
11. U.S. Department of Health and Human Services. Fiore M, Jaen C, Backer T, et al. Treating tobacco use and dependence: 2008 update — clinical practice guideline. U.S. Department of Health and Human Services: Rockville MD; 2008.
12. Hall SM, Humfleet GL, Gorecki JA, et. al. Older versus younger treatment-seeking smokers: differences in smoking behavior, drug and alcohol use, and psychosocial and physical functioning. Nicotine Tob Res. 2008; 10(3):463-470.
13. Courvoisier DS, Etter J. Comparing the predictive validity of five cigarette dependence questionnaires. Drug and Alchol Dependence 2010; 107:128-13314.
14. RX for Change website. Fagerström test for nicotine dependence (adults). Available at: http://rxforchange.ucsf.edu/file_downloads/A3%20TOB%20DEP%20QA.pdf *Accessed Sept. 1, 2012*
15. Whitson HE, Heflin MT, Burchett BM. Patterns and predictors of smoking cessation in an elderly cohort. J Am Geriatr Soc 2006; 54(3):466–471.
16. Prochaska JO, DiClemente CC, Velicer WF, Rossi JS. Standardized, individualized, interactive, and personalized self-help programs for smoking cessation. Health Psychol 1993; 12(5):399–405.
17. West R, Hajek P, Nilsson F, et al. Individual differences in preferences for and responses to four nicotine replacement products. Psychopharmacology (Berl) 2001; 153(2):225–230.
18. Yamin CK, Bitton A, Bates DW. E-cigarettes: a rapidly growing internet phenomenon. Ann Intern Med 2010; 153:607-609.

THE TRI-ANIM ADVANTAGE

With over 30 years of experience, Tri-anim has developed a deep commitment to medical providers and healthcare excellence. We are inspired by our customers and the services they provide. We support hospitals and other advanced patient-care facilities by providing the innovative products needed to drive high quality of care and positive patient outcomes.

FLEXICARE BRITEPRO SOLO

BritePro Solo is a single-use, fiber-optic laryngoscope system that conveniently packages a disposable handle, lightsource and blade within a single, sterile pack. With an advanced LED light and a quality metal blade, Solo provides the benefits of reusable laryngoscopes in a disposable system.

- Minimizes risk of cross-contamination
- Provides excellent tissue visualization
- Helps reduce preparation time and storage space
- Eliminates cost and time associated with reprocessing blades
- Provides clinicians with an ergonomic, soft grip handle and range of blade sizes to meet patient needs
- Pre-assembled laryngoscope offers convenient solution for crash carts

For more information, contact your dedicated Account Manager or call 800.874.2646.

Visit AARC booth 238 in Anaheim

Tri-anim® 800.874.2646 I www.tri-anim.com

Clinical Perspectives

Taking Care of Patients with Felony Criminal Backgrounds

by Lea C. Brandt, OTD, MA, ORT/L

The relationship between rights and duties is an ethical issue that arises frequently in clinical practice secondary to an increasingly pluralistic society. The rights of the person who presents for treatment should be met with a trained practitioner's duty to provide care that benefits that individual. When confronted with conflicts of "conscience and moral quandaries, parsing rights, duties and ethical obligations are challenging for both providers and patients."[1] The following questions are raised:

- Do circumstances exist whereby respiratory therapists can ethically refrain from providing services?
- How should respiratory therapists address taking care of patients with felony criminal backgrounds?

Navigating ethical conflict

Many respiratory therapists have experienced working with difficult patients who are either uncooperative, appear to lack motivation, or are in some way repugnant. This may be manifested by harsh and inappropriate behavior exhibited by the patient during treatment sessions or may be related to the patient's actions and lifestyle choices that are either illegal or viewed as immoral by the treating respiratory therapist. Some argue that there are situations where the practitioner's moral duty or personal values will outweigh the patient's right to receive services. However, in a diverse society, ideas of right and wrong vary as much as the individuals themselves. It is increasingly difficult to identify what constitutes an ethical right of conscience in health care and the limits of decisions based on conscience.[2] Even though it can be argued that providers have a right to refrain from administering services in scenarios where the practitioner has a personal moral conflict with a patient, there is no consensus regarding where the line can be drawn with regard to a provider's rights versus responsibilities. Therefore, the practitioner must be prudent and diligent when ensuring that care is provided "without discrimination on any basis, with respect for the rights and dignity of all individuals."[3]

Respiratory therapists must acknowledge the dignity of patients regardless of their unpleasant nature or condition. Within the boundaries of the provider-patient relationship, the continuation of care is essential to upholding the ethical principles of patient autonomy and beneficence. Beneficence is an obligation or action that promotes good. In clinical ethics, beneficence is often linked to the ethical obligation of practitioners to provide interventions that are consistent with the standard of care. Conversely, respect for an individual's autonomy, or the right to make one's own decisions (self-determination), has historically been a primary principle in medical ethics. Respect for the client's autonomy requires the practitioner to acknowledge the client's "right to hold views, to make choices, and to take actions based on personal values and beliefs."[4] The overriding question is, how far does this right extend? Although patient autonomy plays a significant role in the ethical delineation of services, according to Fleming: "a successful and ethically grounded [provider]-patient relationship presumes respect for autonomy, bolstered by good communication and shared decision-making that requires careful balancing of the values and beliefs of both participants."[5] In

about the author...

Lea C. Brandt, OTD, MA, OTR/L, is the associate director of the University of Missouri Center for Health Ethics in Columbia, MO.

COMPLETE YOUR BS DEGREE ONLINE, AND BREATHE EASY.

Earn your BS in Health Science Studies

As a respiratory care professional, it's hard to find time for career enhancement. That's why Quinnipiac's School of Health Sciences recently launched an online Bachelor of Science in Health Science Studies program, designed specifically to help those with Associate's degrees to complete their degrees and move forward. The degree, completed entirely online, can help prepare you for a promotion, further graduate work, or even a move to a different field – without having to take time off from your busy schedule.

QUINNIPIAC UNIVERSITY *Online*®

For course descriptions and more information, visit www.quinnipiac.edu/online/aarc or call 1-855-466-2903

other words, patients have choices about personal behaviors and, regardless of personal choice, are entitled to receive the benefit of services and care.

From the headlines

In the case of treating patients with felony backgrounds, there can be extreme conflicts of conscience that would lead practitioners toward prematurely severing the patient-provider relationship. While there may be situations when it would be ethically grounded to end the patient-provider relationship, the decision to do so should not be taken lightly and should only be considered after careful analysis and discourse with the patient. This leads one to consider emergent situations where the patient may be suspected of heinous crimes. What is the ethically supported course of action when confronted with such an extreme conflict of conscience?

Most recently, an emergency situation confronted health care providers at Beth Israel Hospital when Tamerlan Tsarnaev (the Boston Marathon bombing suspect) was transported there after sustaining injuries during his apprehension. As reported by Kowalczyk in the *Boston Globe*, "Dr. Richard Wolfe, chairman of emergency medicine, said [health care providers] treated Tsarnaev like any other patient. 'You have to put their interest first during that period. It doesn't matter if it's a perpetrator or the president.... You work equally hard to save everyone.'"[6] While one may have a moral repugnance for the acts committed by Tsarnaev, there is an ethical duty for practitioners, including respiratory therapists, to treat patients equally in emergent situations without bias related to moral judgment.

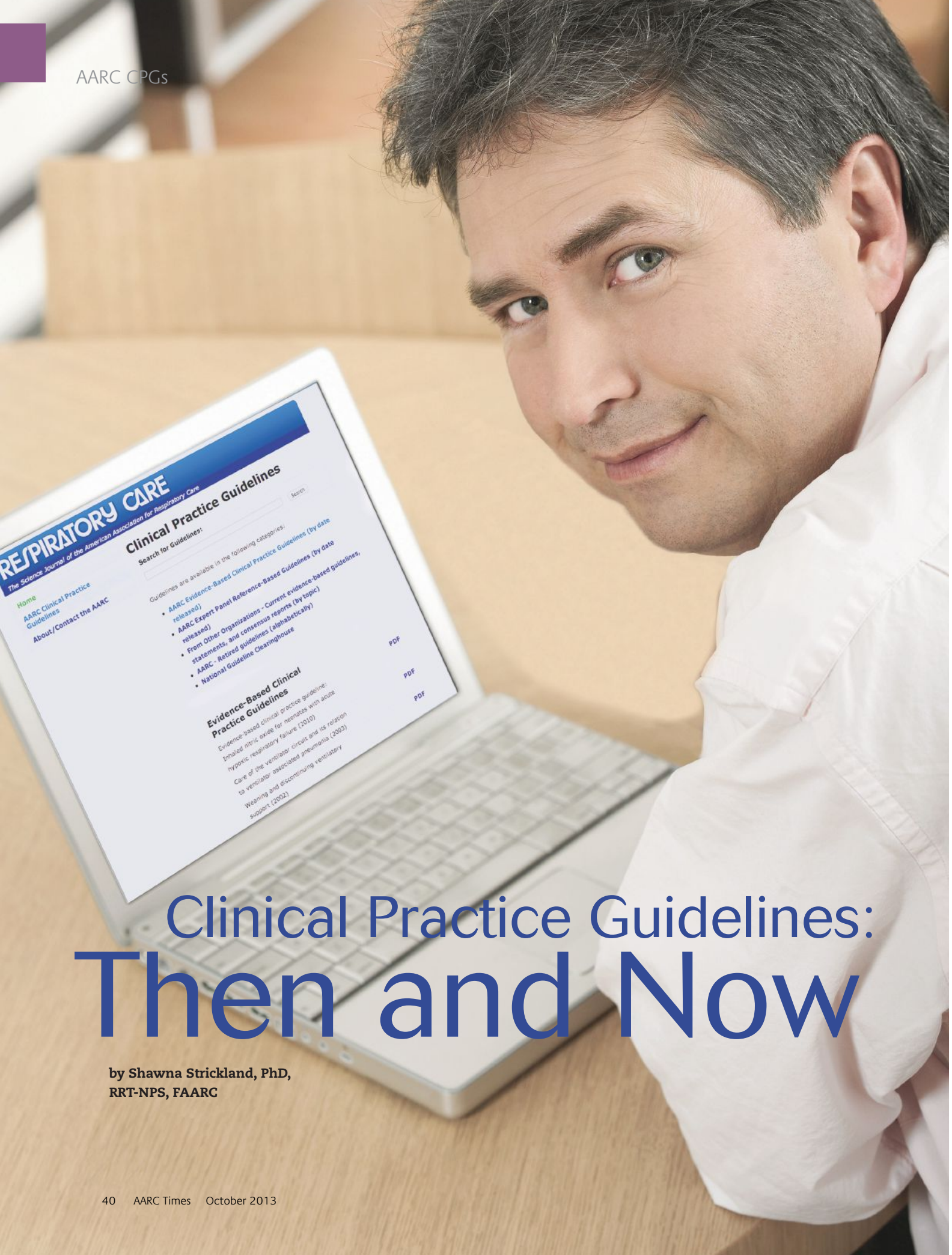
Professional responsibility

While there continues to remain discord regarding when practitioners may ethically refrain from treating patients based on conflicts of conscience, emergent situations require medical professionals to act out of beneficence, regardless of the patient's moral presentation. In order to respond ethically to conflicts in practice, respiratory therapists need to gather relevant information, which requires weighing and balancing of the facts. In emergent situations, there is no time to effectively and prudently exercise this type of analysis. In these situations it is ethically required to act in the best interest of the patient and respond in a manner consistent with sound clinical practice. Respiratory therapists engaging in behavior that does not support objectivity results in a decline of trust in the profession and its professionals, which is in opposition to the profession's Statement of Ethics and Professional Conduct and directly violates the ethical principle of beneficence.[3]

The actions on the part of a practitioner must take into account beneficence as well as acknowledge the autonomy of the patient. The recipient of respiratory therapy services has rights, and the provider has duties that affect the therapeutic relationship as well as the trust required for effective treatment of future patients. While there are limits to patient rights, when the rights versus responsibilities of the provider are in question, careful and prudent deliberation regarding the justifiable course of action is ethically required. "Practitioners must be grounded by not only a moral conscience to do what is right, but also by the courage to proceed and ensure the best interests of the patient."[7] This requires respiratory therapists to apply a framework of ethical decision-making; and when situations arise that are emergent, the practitioner must act based on the clinical needs of the patient. ■

REFERENCES

1. Bhattacharya D. Conflicts of conscience in health care. J Leg Med 2009; 30:289-298.
2. Stein R. A medical crisis of conscience: faith drives some to refuse patients medication or care. Washington Post 2006 July 16:A1, A6.
3. American Association for Respiratory Care website. AARC statement of ethics and professional conduct, July 2009. Available at: www.aarc.org/resources/position_statements/ethics.html *Accessed July 27, 2013*
4. Beauchamp TL, Childress JF. Principles of biomedical ethics, 5th ed. New York: Oxford University Press; 2001.
5. Fleming DA. Futility: revisiting a concept of shared moral judgment. HEC Forum 2005; 17(4):260-275.
6. The Boston Globe website. Kowalczyk L. Beth Israel medical staff tried to revive suspect. Available at: www.bostonglobe.com/lifestyle/health-wellness/2013/04/19/beth-israel-deaconess-medical-staff-tried-revive-suspect-killed-shoot-out/EklhnOS3cRiFmrWSBcje5O/story.html *Accessed July 27, 2013*
7. Brandt LC, Homenko DF. The American Occupational Therapy Association, Advisory Opinion for the Ethics Commission: balancing patient rights and practitioner values. Available at: www.aota.org/~/media/Corporate/Files/Practice/Ethics/Advisory/Balancing%20Patient%20Rights%20Advisory%20Opinion.ashx *Accessed July 27, 2013*



Clinical Practice Guidelines: Then and Now

by Shawna Strickland, PhD, RRT-NPS, FAARC

Although there is a substantial amount of information available to help direct patient care today, the volume of information and variability of research rigor can be confusing and time-consuming.

Shawna Strickland, PhD, RRT-NPS, FAARC, is the AARC's associate executive director of education.

Clinical practice guidelines (CPGs) are "statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options."[1] Critically evaluated and synthesized evidence is fundamental to our practice as respiratory therapists. The CPG has been vital to the development of protocols and policies as well as directing care within a certain context of the clinical situation.

Background

Private medicine versus public health was a major issue in the 1900s. Until the 1970s, physicians were assumed to be "competent enough" to determine appropriate medical actions. Earlier forms of guidelines were grounded in traditional forms of authority: experts who, collectively, decided upon best practices in that domain. When evidence-based medicine (EBM) landed in the 1990s, it demanded that the evaluation be made on distinctions among levels of evidence.[2]

Though the movement toward guidelines began in the late 1800s, the time after World War II was a boom for medicine. The field saw a major increase in research and clinical practice guidelines after World War II. The total amount of research spending in U.S. medical schools increased 50-fold between the time period immediately after World War II and 1993. The consequences of the research expansion included an increased amount of literature for consideration for patient care, and certain areas of research had enough research to warrant the development of guidelines.[2] CPGs allow for standardization of care as well as provide insight to utilization review.

Reference-based versus evidence-based

Early CPGs were largely reference-based. They used literature as a reference, but the references were typically used to reinforce or support personal biases of the committees preparing them. In contrast, evidence-based CPGs combine the best evidence with patient values and individual clinical expertise in an attempt to remove personal biases. Evidence-based medicine integrates evidence, expertise, and patient values,[3] and it helps the clinician, in consultation with the patient, to decide upon the treatment option that best suits the patient's unique situation.

The total amount of knowledge in today's world is far greater and often more reliable than the clinical experience of a single respiratory therapist, physician, or even a group of experts. Practitioners no longer need to read through masses of journals in order to take advantage of this knowledge.

A valid CPG is vital for quality patient care. Criteria for valid CPGs include recommendations that are based on a comprehensive review of the literature and the systematic review of the literature linked to each recommendation. The recommendations include all appropriate patient groups, and the strength of the recommendations is graded. The rigor of this examination is key in producing evidence-based CPGs.

It is also important to understand the threats to the quality of the CPG. Variability in the quality of the individual studies, lack of transparency in study methodology, lack of involvement of pertinent stakeholders, unmanaged conflicts of interest, and failure to use rigorous methodologies in developing the CPG can result in information that is not useful to the clinician at the bedside.

The AARC CPGs

The AARC published its first CPG in 1991. The postural drainage therapy CPG was followed in 1992 with pulse oximetry and sampling for arterial blood gas analysis. Largely reference-based with expert consensus,[4] the AARC developed these early CPGs in response to the respiratory therapy community's desperate need for guidelines pertinent to the scope of practice of the respiratory therapist. These consensus statements have been exceptionally helpful over the last 22 years as our profession has continued to grow and as respiratory therapists have contributed to patient care in an ever-increasing fashion. In 2003, the AARC transitioned to evidence-based CPGs.

The AARC's CPG website has recently been under construction. In 2012–2013, the AARC partnered with the Evidence-Based Practice Center at Vanderbilt University to develop the first evidence-based guideline from systematic reviews. Our evidence-based guideline, "Effectiveness of Non-Pharmacologic Airway Clearance Techniques in Hospitalized Patients," will be published in the December issue of Respiratory Care with its accompanying systematic review of the literature.

The Association has also been updating important CPGs that direct the practice of respiratory therapists. These updated CPGs include: hemoximetry, surfactant replacement therapy, humidification during mechanical ventilation, transcutaneous monitoring for neonatal and pediatric patients, capnography/capnometry, and incentive spirometry. In some cases, our CPGs are completely outdated and do not reflect current practice or evidence; those CPGs have been retired. However, other organizations, such as the American Thoracic Society and the American Heart Association, are developing evidence-based guidelines that are of great importance to respiratory therapists. Those guidelines have been added to our CPG website (www.rcjournal.com/cpgs/) for easy access.

Accurate clinical information at your fingertips

The total amount of knowledge in today's world is far greater and often more reliable than the clinical experience of a single respiratory therapist, physician, or even a group of experts. Practitioners no longer need to read through masses of journals in order to take advantage of this knowledge. It is no longer the job of respiratory therapists to know everything, even in their chosen specialty. But it is respiratory therapists' job to be able to find the accurate information when they, and most importantly, their patients, need it. A detailed and exact knowledge of the outcomes of different respiratory therapy interventions, derived from the research, can save lives and resources. ■

REFERENCES

1. Institute of Medicine website. Clinical practice guidelines we can trust. Available at: www.iom.edu/Reports/2011/Clinical-Practice-Guidelines-We-Can-Trust.aspx *Accessed July 27, 2013*
2. Weisz G, Cambrosio A, Keating P, et al. The emergence of clinical practice guidelines. Milbank Q 2007; 85(4):691-727.
3. Hess DR. What is evidence-based medicine and why should I care? Respir Care 2004; 49(7):730-741.
4. Restrepo RD. AARC Clinical Practice Guidelines: from "reference-based" to "evidence-based" (editorial). Respir Care 2010; 55(6):787-788.


NEW!
LifeChoice
ActivOx™
breaking boundaries
PORTABLE OXYGEN CONCENTRATOR
"I have the power."
Power to Stay Active and Sleep Well
• 4.83 lbs. total weight
• Up to 15 hours of battery life*
• 24/7 capable therapy
• 1-3 LPMeq capable
• No tanks or carts required
• FAA-approved
• 4-way carrying case (backpack, shoulder strap, waist pack & briefcase)
*At 1 LPMeq with 3-hour external battery not included in Standard Package.
1.800.220.0977
www.InovaLabs.com
Manufactured & Distributed by InovaLabs
3500 Comsouth Dr, Ste 100, Austin, TX 78744
Visit AARC booth 917 in Anaheim
Follow Us @InovaLifeChoice
Manufactured & Distributed by Inova Labs Inc. © 2013 Inova Labs Inc. All rights reserved. Assembled in the USA. 200063 REV B Feb 2013 – AARCT

Airline Travel Safety

by Debbie Bunch

Gauging health risks in the skies

With the holiday season just around the corner, many chronic respiratory patients will soon be heading to the airport to visit family and friends. The vast majority of them will get there and back with no problems, but they still need to consider their pulmonary conditions when planning the trip. Recent research on the health risks associated with air travel suggests several factors come into play.

Secondhand smoke in the airport

According to a study published late last year as a *Morbidity and Mortality Weekly Report* early release by the Centers for Disease Control and Prevention (CDC),[1] traveling patients could encounter their first health hazard before they even board the plane. Investigators compared levels of respirable suspended particulates (RSPs), a marker for secondhand smoke, in all five of the large-hub airports in the country that currently allow designated smoking areas with those in four large-hub airports where smoking is banned completely.

The results were striking. The average RSP level in the designated smoking areas of the five airports that still allow smoking was 16 times the average level found in the nonsmoking areas of these airports — and 23 times the average level of RSPs measured in the smoke-free airports.

Advocates of designated smoking areas in these airports might claim that nonsmokers can simply avoid entering the smoking areas; but in the CDC study, that was not enough to protect them from smoke emanating from these spaces. The average RSP level in areas adjacent to the designated smoking areas was four times the average level in other nonsmoking areas and five times the average level in the smoke-free airports.

Respiratory therapists who have patients who are sensitive to tobacco smoke should advise them to stay as far away from these areas as possible — even if that means waiting for their flight in another area of the airport should their own boarding area be adjacent to a designated smoking area.

Good to go in the air

Thankfully, respiratory patients who board domestic or international commercial flights that begin or end in the United States don't have to worry about encountering secondhand smoke once they are safely settled in the aircraft cabin. The drive to ban smoking on planes dates back to the 1980s, when a number of organizations — including the AARC — began pushing for federal laws to end the practice of "lighting up" in the skies. For its part, the Association specifically charged the House of Delegates with conducting a survey to determine how people would feel about a ban on smoking during flight.

AARC members surveyed 33,242 airline passengers at 89 airports nationwide, asking passengers if they would support a ban on smoking on all commercial flights.[2] A majority of 64% favored such a ban while 28% opposed it and 8% had no opinion. The survey was released at a press conference during Thanksgiving week in 1987 and went a long way toward convincing legislators to pass a ban on smoking on aircraft.

The first law, which banned smoking on flights of two hours or less, went on the books in 1988; and the AARC followed up with a second survey in 1989 showing that 92.8% of nonsmokers and 58.1% of smokers approved of the law.[3] Over the years, subsequent laws strengthened the ban, so that by 2000, all flights originating or ending in the United States effectively became 100% smoke free.[4]

Take Common Sense Precautions

- Steer clear of designated smoking areas in airports
- Frequently wash hands
- Avoid potentially unsanitary items (such as the pillows and blankets offered on overnight flights)
- Carry sanitizing wipes to disinfect bathroom faucets and other surfaces before touching them

Infectious diseases

While secondhand smoke is no longer a problem for most travelers, some concerns remain about the transmission of disease in such close quarters. According to the CDC, all commercial aircraft built after the 1980s recirculate 10–50% of cabin air mixed with outside air.[5] This recirculated air then passes through a series of filters 20–30 times an hour. In newer planes, recycled air passes through HEPA filters, which capture 99.9% of particles. Theoretically, then, the risk of spreading infectious diseases onboard planes should be low. Some studies bear out the lack of transmission, while others still show a risk.

For example, a CDC study published in 2006 found no increased risk of severe acute respiratory syndrome (SARS) transmission aboard an aircraft — despite the fact that SARS is known to have traveled to North America on board a plane.[6] The researchers attempted to contact all persons within the United States who were on board seven flights carrying people who had SARS. Nineteen percent of a possible 1,766 passengers were reached, and 92% of those agreed to fill out questionnaires. Thirty-seven percent provided blood samples. Negative serology was seen in all 127 of those subjects.

However, a 2009 study out of the David Geffen School of Medicine at UCLA that used a model of airborne transmission within a Boeing 747 predicted a significant rate of infection among travelers exposed to an index case of H1N1 influenza.[7] Results showed that if the source case is traveling in economy class, 2–5 infections could occur during a five-hour flight, 5–10 in an 11-hour flight, and 7–17 in a flight lasting 17 hours.

A concerning transmission rate was also seen by Australian investigators who surveyed patients on two long-haul flights into their country during the H1N1 pandemic.[8] Among 319 of 738 passengers who completed their survey, 13, or 2%, reported suffering from an influenza-like illness (ILI) during the flight. ILI subsequently developed in 32 of their fellow passengers, or 5%. Passengers who sat in the same row or within two rows of a passenger who exhibited symptoms on board had a 3.6% increased risk of developing ILI. Passengers who sat two seats in front or two seats behind, or in the two seats on either side of an infected passenger, had a 7.7% increased risk.

Common sense precautions

The World Health Organization notes that the risk of transmitting respiratory illnesses on board an airborne plane is really no different than the risk posed by any other confined space where people are seated close together.[9] However, when the plane is on the ground and the engines are off, the air filtration system depends on an auxiliary power unit, which may not always be operational. For that reason, long delays on the ground with the main engines off could also pose concerns for vulnerable respiratory patients.

The bottom line for your patients: advise them to take common sense precautions when they plan to fly.

If the patients know they are sitting next to or near a passenger who is obviously ill, they can ask the flight attendant to quarantine the patient in a section of the plane that is isolated from the other passengers. Wearing an N95 mask might also be a good option. One study out of Purdue University, for example, predicted a significantly reduced risk of influenza transmission with the use of N95 masks.[10]

Special considerations

Of course, for patients with more severe conditions or those who are oxygen dependent, flying definitely poses additional challenges. Since the aircraft cabin pressure is generally maintained at the equivalent of 6,000–8,000 feet above sea level, these travelers are at risk for an exacerbation of their underlying condition; and the 10–20% humidity found in most cabins can lead to dryness of the mucous membranes and airways.[5] The CDC recommends that these patients see a physician prior to flight to ensure they are well enough to board a plane.

Flying definitely poses additional challenges for patients with more severe conditions or those who are oxygen dependent.

Patients who are planning to use supplemental oxygen on a plane will also want to check with their physician prior to travel to ensure they are healthy enough to fly.[11] Plus, they must pay careful attention to the battery life of their device as well, particularly if they will need to run the device at its maximum level in order to increase their arterial oxygen tension (PaO_2) to a sufficient level. A 2013 study out of Germany, for example, found a significant reduction in battery life for two commonly used portable oxygen concentrators (POCs) when used at their maximum level.[12]

One good way to maximize battery life is to instruct patients to use their DC outlet to power the POC while traveling in a car or cab to and from the airport and to use the AC outlets in the airport while waiting to board the flight. The Federal Aviation Administration requires passengers to have enough battery life to power their POCs for at least 150% of the flight time.[11]

Patients who are planning to fly with a POC can find complete instructions on the screening of respiratory equipment at airports in the United States and regulations regarding oxygen use on aircraft at www.tsa.gov/traveler-information/portable-oxygen. Additional information on flying with oxygen is available on the National Home Oxygen Patients Association website: www.homeoxygen.org/airline-travel-with-oxygen. ■

REFERENCES

1. Centers for Disease Control and Prevention. Indoor air quality at nine large-hub airports with and without designated smoking areas – United States, October-November 2012. MMWR Morb Mortal Wkly Rep 2012; 61(46):948-951.
2. Milligan S. AARC airline smoking survey: airline passengers prefer smoke-free environment. AARC Times 1987; 11(11):20-25.
3. Milligan S. Support runs strong for smoke-free flights. AARC Times 1989; 13(9):42-47.
4. GovTrack.gov website. H.R. 1000 (106th): Wendell H. Ford Aviation Investment and Reform Act for the 21st Century. Available at: www.govtrack.us/congress/bills/106/hr1000 *Accessed Feb. 26, 2013*
5. Centers for Disease Control and Prevention website. Travelers' Health. Chapter 6: conveyance & transportation issues. Available at: wwwnc.cdc.gov/travel/yellowbook/2012/chapter-6-conveyance-and-transportation-issues/air-travel.htm *Accessed Feb. 26, 2013*
6. Vogt TM, Guerra MA, Flagg EW, et al. Risk of severe acute respiratory syndrome-associated coronavirus transmission aboard commercial aircraft. J Travel Med 2006; 13(5):268-272.
7. Wagner BG, Coburn BJ, Blower S. Calculating the potential for within-flight transmission of influenza A (H1N1). BMC Med 2009; 7:81.
8. Foxwell AR, Roberts L, Lokuge K, Kelly PM. Transmission of influenza on international flights, May 2009. Emerg Infect Dis 2011; 17(7):1188-1194.
9. World Health Organization website. International travel and health. Transmission of communicable diseases on aircraft. Available at: www.who.int/ith/mode_of_travel/tcd_aircraft/en/index.html *Accessed Feb. 26, 2013*
10. Gupta JK, Lin CH, Chen Q. Risk assessment of airborne infectious diseases in aircraft cabins. Indoor Air 2012; 22(5):388-395.
11. Oxygen Concentrator Store website. Tips for traveling with portable oxygen concentrators. Available at: www.oxygenconcentratorstore.com/reference-material/travel-tips/ *Accessed Aug. 12, 2013*
12. Fischer R, Wanka ER, Einhaeupl F, et al. Comparison of portable oxygen concentrators in a simulated airplane environment. Respir Med 2013; 107(1):147-149.

Thomas L. Petty

by Debbie Bunch

AARC Congress 2013 adds signature presentation

Dr. Tom Petty made lasting contributions to respiratory care. A new lecture named in his honor will ensure future generations have the knowledge they need to build on his legacy.

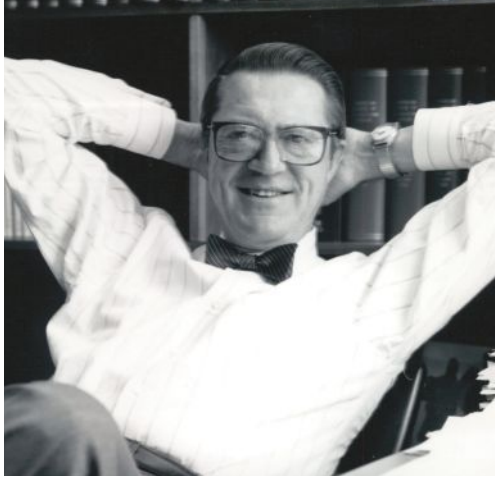
In just a little over a month from now respiratory therapists and other health professionals from across the country and around the world will gather in Anaheim, CA, for AARC Congress 2013. Thanks to a host of new and updated features, they're sure to get what they came for. A quick-hit format of 30-minute lectures with identical start and stop times, a "Night at the Museum" event highlighting the historical aspects of our profession, and great opening and closing keynote addresses by a leading authority on hospital readmissions, Stephen Jencks, MD, MPH, and "The Newlywed Game" host Bob Eubanks promise to make this one of the most exciting meetings the AARC has ever hosted.

Amid all this innovation will be the first-ever Thomas L. Petty Memorial Lecture, scheduled for 1 p.m. on Saturday, Nov. 16. This new lecture is named in honor of one of the most — if not *the most* — influential physicians ever to practice in the respiratory care field. Indeed, many of the mainstays in the profession today can be traced directly back to Thomas L. Petty, MD, FAARC, and his groundbreaking work.

- **Acute respiratory distress syndrome (ARDS)? He was the first to identify the syndrome and show the effects of positive end-expiratory pressure (PEEP) in treating it.**

- **Pulmonary rehabilitation? He started one of the first such programs anywhere in the world and also pioneered the use of long-term oxygen therapy in COPD patients.**

- **Multidisciplinary respiratory care? He pioneered it throughout his long career, convinced that patients would benefit when physicians and RTs were on the same page.**



Memorial Lecture

Highlights of Tom Petty's Medical Career

HERE ARE JUST SOME OF THE HIGHLIGHTS OF DR. TOM PETTY'S LONG CAREER IN PULMONARY MEDICINE AND RESPIRATORY CARE

Professional milestones

- 1967: Published (along with his surgical colleague David Ashbaugh, MD, and two pulmonary fellows) the first description of, and treatment options for, ARDS and documented the beneficial effects of PEEP in this condition

- 1967: Published, with his group, an epochal study, "The Role of Long-Term Continuous Oxygen Administration in Patients with Chronic Airway Obstruction with Hypoxemia"

- 1969: Published the landmark paper, "A Comprehensive Care Program for Chronic Airway Obstruction," outlining the benefits of pulmonary rehabilitation

- 1981–1982: Served as president of the American College of Chest Physicians

- 1983–1984: Served as president of the Association of Program Directors in Pulmonary and Critical Care Medicine

- 1986–1992: Served on the Board of Governors of the American Board of Internal Medicine

Editorial boards and editorships

1. CHEST
2. RESPIRATORY CARE
3. *Archives of Internal Medicine*
4. *Heart and Lung*
5. *Critical Care Medicine*
6. *American Review of Respiratory Diseases*
7. *Seminars in Respiratory and Critical Care Medicine*

The greatest honor

Supported by the Snowdrift Pulmonary Conference, Inc., out of Colorado, the Thomas L. Petty Memorial Lecture will take place every year at the AARC Congress and joins the Donald F. Egan Scientific Memorial Lecture and the Phil Kittredge Memorial Lecture as premier presentations. "Dr. Petty started Snowdrift Pulmonary Conference, Inc., in 1994 for the education of health professionals," says his long-time colleague Louise Nett, RRT, RN, FAARC. "Snowdrift supported a series of books in the frontline advice area for health professionals and also supported educational programs for primary care physicians and medical support professionals." The organization will disband later this year, and the Petty Lecture is a big part of the legacy it will leave behind.

As a physician, Dr. Petty was a pioneer in advancing medicine and had a lasting impact with multiple specialties; but Snowdrift is most excited that AARC Congress will host the memorial lecture due to the close working relationship Dr. Petty had with the respiratory care profession over the years. "Tom had deep respect for the work of respiratory therapists and their contributions to the care and welfare of patients," says Nett. "The officers of Snowdrift felt it would be in keeping with Tom's wishes to support an annual lecture at the International Respiratory Convention & Exhibition."

David J. Pierson, MD, FAARC, editor emeritus of RESPIRATORY CARE and retired medical director of respiratory care at Harborview Medical Center in Seattle, WA, has been selected as the first presenter and calls the assignment the "greatest honor I can imagine."

"For the field of respiratory care and for the respiratory care profession, Dr. Petty was perhaps the most important physician of the last half of the 20th century," says Dr. Pierson. "This new lectureship represents a milestone for the AARC and for the profession. In future years it will unquestionably be the most important, influential, and prestigious lectureship in fields related to respiratory care — not just within the AARC but for everyone working in those fields and the professional associations that represent them."

Setting the tone

Although Dr. Petty's interest in respiratory care can be traced back to a summer trip he took to the top of Mount Evans in Colorado in 1955 to study physiological responses to altitude and induced hyperventilation with two of his physiology professors at the University of Colorado Medical School, he initially planned to be what he termed a "country doctor." After graduating from medical school, he completed an internship at Philadelphia General Hospital and then selected internal medicine as his specialty. From there he served as an assistant resident in medicine at the University of Michigan before returning to the University of Colorado (UC), more residency, and finally, the fellowship in pulmonary medicine that would set the tone for the rest of his career.

Dr. Petty was ultimately named chief resident at UC and later served on the faculty at the medical school, where he would continue to teach until his retirement. From 1965–1985 he was director of the respiratory care unit at the medical center, and he served as head of the pulmonary medicine division from 1971–1983. During his tenure, he was credited with training more than 220 physicians — Dr. Pierson among them — who would themselves go on to lead the way in pulmonary medicine. "I met Dr. Petty in 1971 when I came to Denver to continue my residency training in internal medicine in hopes of winning a place in his pulmonary fellowship program — the most highly regarded anywhere at that time," says the AARC member. "Dr. Petty had more impact on my development as a clinician, teacher, and researcher in respiratory care than any of the many other outstanding teachers and mentors I have had."

The legendary physician taught the young Dr. Pierson the importance of taking an interdisciplinary, collaborative approach to care, and he also stressed the need to concentrate on common conditions like COPD and respiratory failure that caused suffering for so many patients. "He taught me to focus on doing things that mattered to them, not just that might interest me," says Dr. Pierson. "He showed by example how the patient must always come first, and he emphasized having a good time in the process of all this!"

Professional milestones *continued*

- 1986–2006: Chaired or co-chaired a series of six oxygen consensus conferences to clarify issues surrounding home oxygen
- 1994: Founded the Snowdrift Pulmonary Conference, Inc., to educate health professionals on respiratory conditions
- 1997: Founded the National Lung Health Education Program to foster early detection of COPD and lung cancer through greater use of spirometry
- 2013: Dr. Petty's bibliography lists 941 total entries, including 409 citations in PubMed, in 94 different journals. His 1967 *Lancet* paper (Acute Respiratory Distress in Adults) has been cited 1,596 times as of August 2013, according to the Web of Science.

Honors and awards

- 1986: University of Colorado Silver and Gold Award for Excellence
- 1995: American Thoracic Society Distinguished Service Award
- 1995: Master Fellow of the American College of Chest Physicians
- 1996: Master Award of the American College of Physicians
- 1999: Fellow of the American Association for Respiratory Care
- 2002: Senior Fellow of the Lovelace Respiratory Research Institute
- 2003: AARC Jimmy A. Young Medalist
- 2004: Dr. Charles Hudson Award for Cardiopulmonary Health from the AARC
- 2007: Thomas L. Petty, MD, Master FCCP Endowment in Lung Research established by the CHEST Foundation

Along the way, Dr. Petty published more than 400 peer-reviewed scientific papers as well, including his groundbreaking work on ARDS, pulmonary rehabilitation, and the use of ambulatory oxygen. He also authored a number of books and book chapters devoted to pulmonary medicine and respiratory care and served as either an editor or on the editorial board of several journals.

Hands-on physician

Dr. Petty founded the National Lung Health Education Program in 1997 to promote early detection of COPD and lung cancer through greater use of spirometry. He also played an instrumental role in a series of consensus conferences held in the 1990s and 2000s to examine the role of home oxygen in the care and treatment of COPD and other chronic respiratory conditions. "Tom's original work in use of oxygen for COPD became sentinel work in the field," says Nett. "He continued to support new concepts in oxygen delivery until the day he died, and it is interesting that he became a beneficiary of his research and teaching in oxygen the last four years of his life."

As Dr. Pierson noted, however, Dr. Petty remained first and foremost a hands-on physician, seeing patients day and night in the hospital and clinic, and even occasionally in their own homes. Late in his career, patient advocacy took on even greater proportions as he authored a series of books (the final one completed by his colleagues and published posthumously) aimed at helping people on home oxygen live life to its fullest. The "Adventures of an Oxy-Phile" books are credited with leading many a COPD patient to turn the corner when it came to not just accepting home oxygen but realizing the full benefits of its use.

Living legacy

The AARC is proud to add the Thomas L. Petty Memorial Lecture to its annual lineup of premier presentations and looks forward to many years of honoring this legendary physician by doing what he would most want the colleagues he left behind to do: namely, continue to learn more about common respiratory conditions and how both "tried and true" and "new and innovative" treatments can improve the lives of those so afflicted.

"Tom spent his life in academic medicine but never forgot the primary reason he was a physician was to care for patients," says Louise Nett. That philosophy will now live on through the International Respiratory Convention & Exhibition as well. ■

PATIENT SAFETY YOU CAN'T AFFORD TO BE WITHOUT.

Cost-effective, easy-to-use capnography monitors from Nonin Medical.

The Joint Commission, the American Society of Anesthesiologists and the American Heart Association have at least one thing in common. They all recommend the use of ventilation monitoring for patient safety.[1-3]

It helps alert clinicians to potentially serious changes in ventilation such as respiratory depression.

That's one reason to consider capnography monitors from Nonin Medical. Other reasons? Our monitors are highly portable, easy to use, uniquely cost-effective, and come with an industry-best 3-year warranty.

If you're looking to add capnography to your patient monitoring protocol, we invite you to learn more about Nonin.

nonin.com/capnography

1-800-356-8874

References:

1) The Joint Commission, Sentinel Event Alert, Issue 33: Patient controlled analgesia by proxy. December 20th, 2004

2) American Society of Anesthesiology Standards for Basic Anesthetic Monitoring, Committee of Origin: Standards and Practice Parameters, amended October 20th, 2010

3) Field JM, Hazinski MF, Sayre MR, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2010;122:S640-S656

NONIN®

Leaders in *Nonin*vasive Medical Monitoring

Visit AARC booth 404-406 in Anaheim

AARC Congress 2013: *Presentations You Won't Want To Miss!*

Place these sessions at the top of your to-do list this Nov. 16–19 in Anaheim

In our last issue, five speakers scheduled to present sessions in Anaheim, CA, this Nov. 16–19 gave us a preview of their presentations. This month we have another five who have provided brief summaries of their talks. Check them out to see why you don't want to miss the premiere educational event of the year in your profession.

(Continued on page 56)

Photos by Lennie Sirmopoulos, Convention Photography, Tustin, CA

Readmissions Expert To Deliver Keynote Address

When the AARC Congress convenes in Anaheim this November, one topic at the forefront of almost everyone's mind is likely to be reducing unnecessary hospital readmissions. With penalties now in place for hospitals with excessive readmissions for heart attack, heart failure, and pneumonia — and COPD scheduled to join that list in FY 2015 — it's clear that the revolving door patients have been caught in has to stop.

The keynote speaker for AARC Congress 2013 is imminently qualified to address this issue. Stephen F. Jencks, MD, MPH, is a consultant in health care safety and quality, senior fellow at the Institute for Healthcare Improvement, and the former assistant surgeon general of the United States. His groundbreaking research on readmissions, which was published in *The New England Journal of Medicine* in 2009, helped to begin the dialogue about readmissions and their impact on the health care system. In that study, which was based on Medicare claims data, he and his colleagues found that nearly a fifth of beneficiaries who had been discharged in 2003–2004 were re-hospitalized within 30 days and a third were re-hospitalized within 90 days. For patients treated for medical conditions and surgical conditions, those figures skyrocketed at one year. Overall, 67.1% and 51.5%, respectively, had either been readmitted or died.

These troubling findings helped to spur the penalties now facing hospitals for readmissions; and Dr. Jencks has continued to explore the area in the intervening years, most recently with a special emphasis on the unseen consequences of programs focused solely on readmissions. In the June 2013 edition of the *American Journal of Managed Care*, he and his colleagues proposed a new measurement strategy aimed at evaluating the impact of hospital readmission reduction programs on health care utilization using a broadened approach that takes unplanned care composite measures into consideration.

Dr. Jencks will discuss his research in the keynote address, with a focus on the outlying conditions that should be exempt from readmission reduction programs and, most particularly, the role of the respiratory therapist in helping hospitals manage readmissions for the COPD patient.

Dr. Stephen Jencks

1 High-frequency Ventilation in Neonatal and Pediatric Intensive Care

WHO: Robert M. DiBlasi, RRT-NPS, FAARC

WHAT: Respiratory Therapy Researcher and Clinical Manager

WHERE: Seattle Children's Hospital, Seattle, WA

High-frequency ventilation (HFV) is a form of invasive respiratory support that is commonly used as a rescue modality for patients failing conventional mechanical ventilation. Use of HFV began in the neonatal ICU in the early 1990s and has since been implemented in larger pediatrics and adults.

Findings from several animal studies have shown that HFV may be gentler to the lungs than conventional ventilation, but these findings have not necessarily translated into meaningful outcomes in patients. It is often speculated that the point at which HFV is implemented may affect outcomes, especially if it is instituted earlier in the clinical course.

HFV is used as a standalone device or in series with a conventional ventilator. Clinicians are often seduced by new HFV modes with very little experimental data to support their use. Could it be that differences in the device function may impact outcomes differently in patients?

This presentation will focus on high-frequency percussive ventilation (HFPV), which is a form of HFV that is increasingly being used with critically ill patients in the intensive care setting. A brief introduction to operational theory will be explored, followed by a review of the literature as it relates to HFPV. I will discuss our institution's clinical experience with HFPV during neonatal transport and review clinical and bench data.

The takeaway message is that all devices are not created equal. As such, clinicians must be prepared to explore the array of HFV options and determine if these devices are suitable for their patient population. Additionally, this talk will discuss current shortcomings of the different devices and explore areas where new research is needed. ■

Robert DiBlasi

2 COPD Disease Management – A Model for All Settings

WHO: Brian W. Carlin, MD, FAARC

WHAT: Assistant Professor of Medicine

WHERE: Drexel University School of Medicine, Pittsburgh, PA

COPD is currently the third leading cause of death in the United States and only ranks behind back pain as the leading cause of disability. Over 24 million people in this country have COPD, yet less than half have been adequately diagnosed. COPD is associated with comorbidities, and many COPD patients have at least six associated comorbidities.

More notably, the hospital readmission rate for patients who have been hospitalized with a COPD exacerbation is well above 20%, with more than 50% of these patients being re-hospitalized for reasons other than COPD (e.g., congestive heart failure, falls). In the near future, the Centers for Medicare and Medicaid Services (and likely other third-party payers) will decrease reimbursement for those patients who are re-hospitalized.

In order to decrease the readmission rate for these patients, care models are being developed that are centered on the patient, particularly in the home environment following discharge. These care models differ significantly from our current discharge planning models. Managing the "entire patient" during both the hospitalization and the home "transition phase" is essential to help improve the patient's quality of life and reduce the readmission rate. Several of these care models have shown an improvement in the patient's quality of life and a reduction in health care resource utilization. In some of these models, a readmission rate of less than 8% (compared to the current rate of at least 20%) has been shown.

My session will be a review of the essential components in the management of a patient with COPD, with particular emphasis on the various comorbidities. I will discuss effective strategies to detect and treat the comorbidities and give as examples several "transition of care" programs that have been shown to decrease the re-hospitalization rate. ■

Dr. Brian Carlin

3 Aerosol Therapy: Yesterday, Today, and Tomorrow

WHO: Bruce K. Rubin, MD, MEngr, MBA, FAARC

WHAT: Jessie Ball duPont Distinguished Professor and Chair, Department of Pediatrics; Professor of Biomedical Engineering; Physician in Chief

WHERE: Virginia Commonwealth University (VCU) School of Medicine; Children's Hospital of Richmond at VCU, Richmond, VA

Drugs have been delivered by aerosol for more than 1,000 years, and for most of this time this delivery was accomplished via the burning of substances and inhalation of the resulting vapors. More recently, devices have been developed to nebulize a variety of medications; and now, in 2013, we have metered-dose inhalers, dry-powder inhalers, and nebulizers that can deliver medication to the lower respiratory tract with great precision. Progress has been made in designing devices that are efficient, consistent, and relatively inexpensive, as well as in developing extremely sophisticated computer-controlled nebulizers for delivering complex proteins and peptides to the distal air spaces.

As a pediatric pulmonary physician, engineer, and aerosol scientist, I have been given the opportunity to evaluate devices and medications in development that will change the practice of respiratory care. Devices for optimizing administration of medications during mechanical ventilation or with high-flow nasal delivery will allow us to effectively deliver medications to the sickest of patients. We have moved beyond bronchodilators and inhaled corticosteroids to a new era of inhaled therapies, including aerosols for pulmonary hypertension, analgesia, immunizations, proteins, and peptides such as GM-CSF for pulmonary alveolar proteinosis, surfactant administration, antimicrobials, and gene therapy.

As devices have improved, our focus has shifted toward the patient-device interface in order to understand the most effective inhalation techniques to ensure adherence with inhaled therapy. Failure of aerosol therapy today is more likely to be due to patient nonadherence or noncompliance, or to the medication being ineffective for the disease being treated, than to problems with the nebulization system. As "masters of the airways," respiratory therapists must become familiar with these drugs and delivery devices, as well as with techniques to maximize patient understanding and adherence to therapy. This November in Anaheim, I will cover these aspects of aerosol therapy and more. ■

Dr. Bruce Rubin

4 Hospital to Home: Reducing Readmissions – More Questions Than Answers

WHO: Greg Spratt, BS, RRT, CPFT

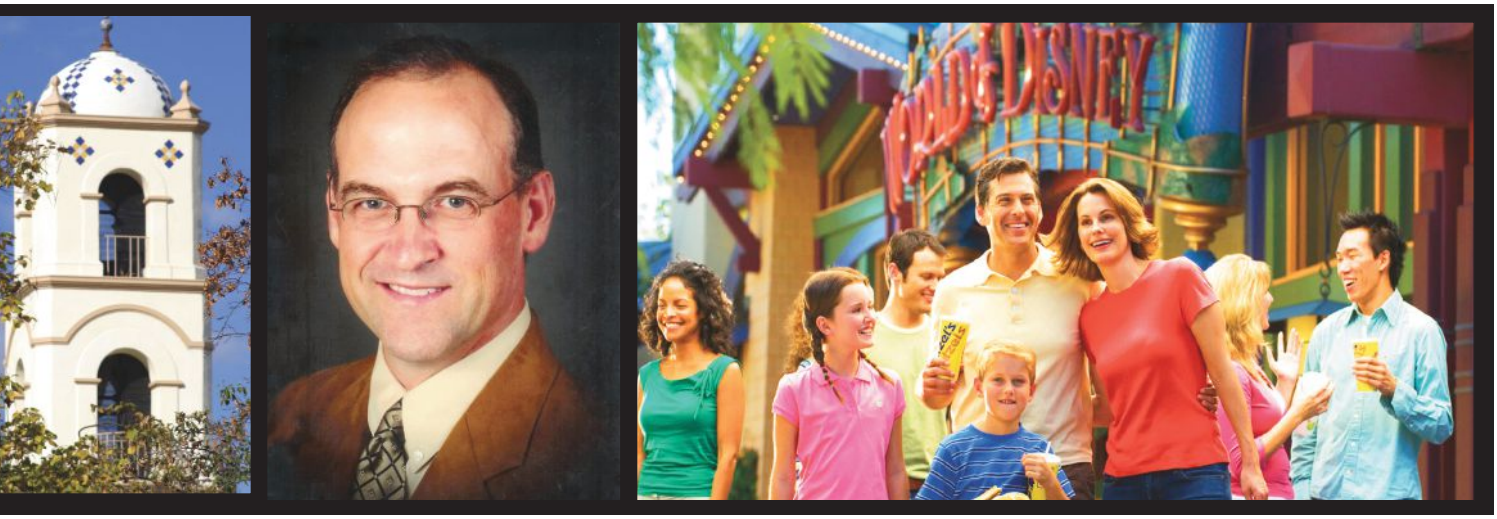
WHAT: Director of Clinical Marketing

WHERE: Covidien–Oridion Capnography, Philadelphia, MO

The Patient Protection and Affordable Care Act was signed into law on March 23, 2010. This health care reform bill established a number of new programs, demonstrations, and pilots designed to reduce costs; and among them is the Hospital Readmissions Reduction Program. Financial penalties for high rates of readmissions for three targeted conditions — myocardial infarction, heart failure, and pneumonia — include having *all* Medicare payments reduced by an adjustment factor up to 1% in FY 2013. This will increase up to 2% in FY 2014 (starting October 2013), and 3% in FY 2015 and beyond.

Respiratory therapists are well positioned for involvement and leadership in programs aimed at reducing readmissions for these conditions. They may be even better positioned in the future as the Centers for Medicare and Medicaid Services has proposed inclusion of patients admitted for an acute exacerbation of COPD in the Hospital Readmissions Reduction Program beginning Oct. 1, 2014.

Hospitals are scrambling to implement programs designed to reduce readmissions; but the question remains, "Is there a 'best model?'" The AARC has put out a call to its members to submit their current efforts to the COPD Best Practices Repository on AARConnect, with the intent of making these examples available to the membership as a whole. This session will focus on some of the current hospital- and home-based practices to reduce readmissions, with the goal of learning from the data that is available as attendees design and improve their own programs. ■



Greg Spratt

5 Preventing ICU Readmissions: Development of a Readmission Risk Assessment Checklist

WHO: Charles G. Durbin, Jr., MD, FAARC

WHAT: Medical Director

WHERE: University of Virginia Health System, Charlottesville, VA

Intensive care unit (ICU) care is risky for patients and expensive for hospitals. Worse than being admitted to an ICU is being discharged too soon. Patients requiring readmission to an ICU experience a high mortality and cost the institution significantly more dollars. Accrediting and payment agencies have suggested imposing penalties for institutions with high rates of ICU readmissions. Prevention of an unnecessary readmission is a high priority.

The AARC assembled a taskforce to summarize what is known about ICU readmission risks and develop a tool that could help predict who is likely to return to an ICU. The product of the group's efforts is a scoring tool that is available for download on the AARC website at www.aarc.org/resources/safety_checklist/risk_checklist.pdf. It weighs various patient factors, including most routine respiratory measures at patient ICU discharge, to create a point system. The higher the total, the more likely the patient will need additional time and care to avoid deterioration and readmission to an ICU.

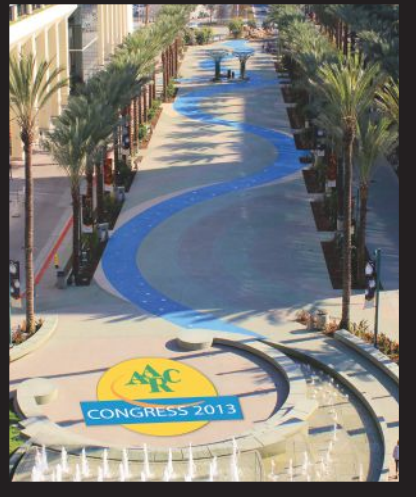
This presentation will examine the data that led to development of the scoring tool, explain how the tool can be used to identify those patients needing careful follow-up monitoring or delayed ICU discharge, and describe several ways institutions have changed processes to deal with these high-risk patients. The project is important for the respiratory community since respiratory deterioration is one of the most common reasons leading to ICU readmission. ■

Dr. Charles Durbin

2013 Egan Lecture Zeroes in on Lung Protective Ventilation

Lung protective ventilation significantly improves outcomes for our sickest patients; but for many respiratory therapists, the devil is still in the details. In this year's Donald F. Egan Scientific Memorial Lecture, leading pulmonologist Rolf D. Hubmayr, MD, will answer our questions about how and when to incorporate lung-protective ventilation strategies into the care of our patients. He also plans to delve into the best modes to facilitate lung protection and will share the latest scientific evidence related to the topic, along with practical suggestions for implementing lung protective ventilation in our facilities.

Dr. Hubmayr currently serves as section chair of pulmonary and critical care medicine at the Mayo Clinic in Rochester, MN, where his research is focused on both mechanisms and biologic sequelae of lung deformation resulting from mechanical ventilation. He and his colleagues are addressing these areas using experimental models ranging in scale from whole animals to structural elements of individual cells. His work has been published in 120 peer-reviewed journals. ■



Dr. Rolf Hubmayr

Anaheim Insider, More To See and Do

California Society for Respiratory Care members Patrick Moore, RRT, and Marianne Shaw, RRT, offer more insider information for Congress attendees who want to take in some of the local sights before, during, or after AARC Congress 2013.

Patrick Moore's Picks

One-stop fun . . . In this edition, I want to tell you about a gem that's within walking distance of the convention center; it's the Anaheim GardenWalk. In short, Anaheim GardenWalk is a mecca of outdoor shopping, dining, and entertainment. In fact, it's so close I'm sure you will hang out there at least once when you're in town.

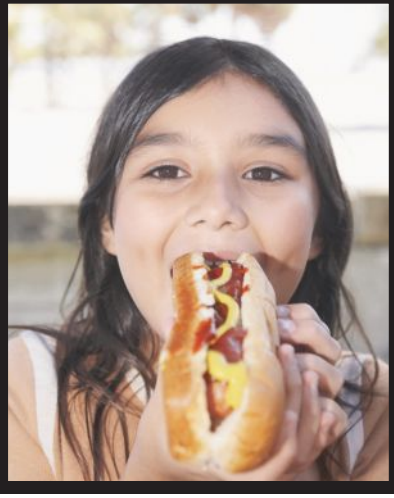
Patrick Moore

GardenWalk features some familiar restaurants such as McCormick & Schmick's, Bubba Gump Shrimp Co., Roy's Hawaiian Fusion Cuisine, P.F. Chang's China Bistro, California Pizza Kitchen, and The Cheesecake Factory. But the gem (and my favorite) for the casual lunch, happy hour, or dinner is Bar Louie Tavern & Grill.

This place is pretty cool because it has that "neighborhood place" feel in the midst of "tourist central." Amid the wide selection of appetizers, pastas, and entrees you'll find my favorite — mouth watering, oversized sandwiches that will totally fill you up. So bring your appetite! They also have martinis in all flavors; and if martinis aren't your favorite, you'll also find a wide assortment of beers, local microbrews, and wines by the glass or bottle.

After you eat, you can mosey over to take in a movie at the UltraLuxe Cinemas. Or, if you like bowling, then it's time to party at 300 Anaheim Bowling & Entertainment Center. It's kind of like a nightclub and a bowling alley that was stuck into a blender and served out in fun! They have unlimited bowling specials during the week to work off your dinner. You can inquire about private bowling parties too, so why not bring your whole RC department?

If you want to do some clubbing, then check out the nightlife at the Heat Ultra Lounge. This awesome nightclub has great DJs and bands from around the globe. There's also great lighting here with a rocking sound system. Boasting two dance floors, exclusive VIP areas, and a luxurious outdoor patio, Heat Ultra Lounge is the best nightclub destination in Anaheim, bar none (www.anaheimgardenwalk.com). ■



Marianne Shaw's Picks

Marianne Shaw

Transatlantic experience . . . Visit the historic Queen Mary and experience the unique art deco style of this beautiful ship that's now been turned into a hotel, with accommodations unlike any other, or just walk around the outside and tour the beauty. You can also take in the Princess Diana collection or experience a traditional British tea in the Queen Mary Tea Room. If you're planning to stick around for a little vacation after the meeting and will still be in town on Nov. 23, visit then to see the Queen Mary dome turned into a winter wonderland filled with awe-inspiring ice creations. You can also ice skate, go ice tubing, and spend time in the Holiday Village. 1126 Queens Hwy., Long Beach, CA 90802 (**www.queenmary.com**).

Spend the day in West LA . . . Head to the Helms Bakery District in West LA for dining and more. With its eclectic collection of restaurants plus home design and home furnishing stores, there is something there for everyone. Check out Father's Office for its collection of craft beers and food pairings. 8800 Venice Blvd., Los Angeles, CA 90034 (**http://helmsbakerydistrict.com**).

Late-night snack . . . Pink's Hot Dogs at LaBrea and Melrose has been family owned and operated since 1939 and serves both hot dogs and hamburgers. Many celebrity sightings have occurred here, and it's also popular with the late nightclub crowd. 709 N. La Brea Ave., Los Angeles, CA 90039 (**www.pinkshollywood.com**).

Slip into a winter wonderland . . . On weekends beginning Nov. 23, 175 artists will showcase their products during the Sawdust Art Festival's 23rd Annual Winter Fantasy. Come experience this unique festival with food, live entertainment, art classes and demonstrations, Santa for the kids, and more. It's fun for the whole family. 935 Laguna Canyon Rd., Laguna Beach, CA (**www.sawdustartfestival.org**). ■

CONGRESS Speaker Academy

Want to present at AARC Congress?

Here's your opportunity to try out!

AARC Speaker Academy

Open auditions for new speakers at AARC Congress 2013 hosted by the AARC Program Committee

The rules are simple:

- Applicants must be AARC members and must have never lectured at AARC Congress.
- Online application must be submitted no later than Friday, October 4, 2013. It must include the title, objectives and a description of your presentation topic.

If your application is accepted, you will audition onsite at AARC Congress 2013, November 16–19 in Anaheim, CA.

- Accepted applicants will be given up to 10 minutes to present a shortened version of their full 30-minute presentation.
- Presenters will be graded on appeal of topic, knowledge of content, quality of visual aids, delivery of lecture, and adherence to the 10-minute time limit.

Selected speakers will be invited to present their topics at AARC Congress 2014 to be held December 9–12 in Las Vegas, NV. Complimentary one day registration for AARC Congress 2014 will be included.

Sign up now to take advantage of this great opportunity.

See full details and apply online at
www.aarc.org/education/meetings/speaker_academy/

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.**

AARC Exam Prep Course

The best way to prepare for the NBRC™ examinations

At the AARC, we know that the NBRC examinations are the most important tests you will take in your career as a respiratory care professional. Whether you are new to the profession or enhancing your credentials, the AARC Exam Prep Course will maximize and focus your study efforts for the exams. It is the ***only*** prep course that includes 4 NBRC practice tests. And, it is integrated with the NBRC exams, giving you a personalized study prescription.

Just graduating? With a full year of access, use this course to prepare first for the CRT exam and later for the RRT exam!

AARC Exam Prep Course

Nonmember Price	**$345**
AARC MEMBER PRICE	**$295**

Member Savings $50

Why make the AARC Exam Prep Course your choice? It provides:

- Free access to NBRC CRT and/or written RRT practice exams (a value of up to $160).
- A personalized study prescription based on your actual NBRC practice test results.
- Over 28 hours of video instruction from top educators, respiratory therapists and physicians (including PDF handouts).
- Tips for developing excellent test-taking skills.
- Study materials addressing all 17 categories in the NBRC CRT/RRT test matrix.
- Option to view study modules as many times as you want. View all modules or just those recommended from the prescription.
- Accessibility for 365 days.
- Opportunity to earn continuing education credit (up to 27.15 hours of CRCE®).

For details and registration, visit www.aarc.org/education/exam_prep/.

The AARC Exam Prep Course is an educational program of the American Association for Respiratory Care.

Industry Watch

Inovio Pharmaceuticals reports good results for H7N9 vaccine

According to Inovio Pharmaceuticals Inc., a preclinical study of its influenza DNA vaccine against the H7N9 flu virus showed 100% of vaccinated animals were protected against sickness and death when they were challenged with a lethal dose of H7N9 virus. The results demonstrated that Inovio's vaccine provided protection against the H7N9 virus as well as exhibited strong T-cell responses. The company believes the vaccine created cellular immune responses that could reduce the severity of the infection in a person who acquires the virus and limits the spread of the virus in a pandemic setting. Detailed study results were presented at an invited plenary session at the TEPIK/APACI International Influenza Symposium held in Seoul, South Korea, last summer.

FDA approves Theravance bactericidal drug

Theravance Inc. reports the FDA has approved VIBATIV® (telavancin) for the treatment of adult patients with hospital-acquired and ventilator-associated bacterial pneumonia (HABP/VABP) caused by susceptible isolates of *Staphylococcus aureus* when alternative treatments are not suitable. VIBATIV, discovered and developed by Theravance, is a bactericidal, once daily, injectable lipoglycopeptide antibiotic with a dual mechanism of action whereby telavancin both inhibits bacterial cell wall synthesis and disrupts bacterial cell membrane function. In 2009, VIBATIV was approved in the United States for the treatment of complicated skin and skin structure infections caused by susceptible isolates of gram-positive bacteria, including both methicillin-susceptible and methicillin-resistant strains of *S. aureus*.

Lung patient's 500-mile bike adventure raises COPD awareness

Philips Respironics supported oxygen-dependent patient Mark Junge, a 70-year-old cyclist and COPD awareness advocate, on a 500-mile bicycle tour through Canada to raise awareness for COPD and encourage oxygen-dependent people to stay as active as possible. "My bike adventure shows the world that people who have respiratory problems, such as COPD, are capable of not only fulfilling their lives but even achieving their fondest ambitions if they can be mobile," says Junge. "Mobility means freedom, and freedom is something that all people across the globe desire."

Will Rogers Institute funds neonatal ventilator purchase

The Betty H. Cameron Women's & Children's Hospital at New Hanover Regional Medical Center in Wilmington, NC, was recently awarded a $50,000 grant from the Will Rogers Institute for the purchase of two neonatal ventilators. "Adding the latest technology to our already clinically advanced technology will be instrumental to provide high-quality care, save more lives, and reduce the number of chronic lung complications that these infants can potentially develop," Fernando Moya, MD, director of neonatology, was quoted as saying.

Ablynx initiates additional studies of RSV drug

Ablynx has initiated two additional Phase I studies with its anti-RSV Nanobody®, ALX-0171, with the goal of commencing pediatric development during the second half of 2014. The additional Phase I studies are being performed to determine the appropriate dosing regimen in the subsequent pediatric development of the nanobody and will include a safety study in adults with hyper-responsive airways, as well as a local and systemic pharmacokinetic study in healthy volunteers. The results of both Phase I studies are expected during the first half of 2014.

Aeolus Pharmaceuticals presents data on anti-mustard gas compound

According to Aeolus Pharmaceuticals Inc., researchers from National Jewish Health, the University of Colorado, and the U.S. Army Medical Research Institute for Chemical Defense have completed third and fourth studies confirming that the company's AEOL

Help your school's **clinical preceptor program meet CoARC** standards with

Clinical PEP:
Practices of Effective Preceptors

This new course from the AARC provides the Program Director or Director of Clinical Education with high-quality resources to supplement your school's preceptor training program and help you meet CoARC standards.

You'll have 365 days of access to:

- Four online modules addressing adult learning, understanding the learning context, the challenging trainee, and handling feedback
- 10 online instructional video sets showcasing effective and ineffective preceptor behaviors
- 2 online videos demonstrating student performance for standardizing preceptor evaluation
- Downloadable workbooks and handouts for preceptors
- Downloadable course management documents for Program Director/Director of Clinical Education

Deliver the training one-on-one, in a group setting, or both – you decide.

Authored by faculty from The Ohio State University, this course addresses the CoARC standard for inter-rater reliability. You will also have the opportunity to participate in IRR research with OSU faculty.

The American Association for Respiratory Care

www.aarc.org/education/clinical_pep/

Clinical PEP: Practices of Effective Preceptors

Nonmember Price	$249
AARC Member Price	$199
Member Savings	*$50*

** Successful completion of course (video and workbook) and testing earns 2 CRCE® credits.*

For complete details and to order this program, visit **www.aarc.org/education/clinical_pep/**

Clinical PEP: Practices of Effective Preceptors is an educational program of the American Association for Respiratory Care.

10150 provides significant lung protection and improves survival in rats exposed to whole mustard gas. Sulfur mustard gas has been used in warfare since World War I and continues to pose a threat to civilian and military personnel, causing blistering of the skin as well as respiratory injury, fibrosis, and death. Data from the studies were presented at the 7th Annual CounterACT Countermeasures Against Chemical Threats Network Research Symposium in Washington, DC.

Open-source software aims to improve bio surveillance

The Johns Hopkins University Applied Physics Laboratory and the Armed Forces Health Surveillance Center have released the Suite for Automated Global Electronic bioSurveillance (SAGES), a collection of flexible open-source software products developed for electronic disease surveillance in all settings. It is specially designed for use in nations with limited capabilities or resources to meet World Health Organization International Health Regulations requirements for outbreak surveillance and reporting. "Resource-limited countries have traditionally lagged behind the information technology revolution in public health because of the challenges they face with IT infrastructure, resources, and cost of proprietary software," notes Sheri Lewis, APL's Global Disease Surveillance program manager. "SAGES is designed to fit the needs of the local environment and uses the existing infrastructure and technology available, requiring minimal investment."

Scripps Research Institute study targets exercise endurance

A drug candidate designed by scientists from the Florida campus of The Scripps Research Institute has been shown to significantly increase exercise endurance in animal models. Specifically, mice treated with SR9009 had a 50% increase in running capacity, measured by both time and distance. The finding could lead to new approaches to helping people with conditions that acutely limit exercise tolerance, such as obesity, COPD, and congestive heart failure. An international group of scientists published the study in the July 14 edition of *Nature Medicine*.

Decision Resources report sees asthma, COPD savings in ACOs

A new report from Decision Resources finds that both managed care organization pharmacy directors and pulmonologists believe accountable care organizations (ACOs) can result in medical and drug cost savings of at least 12% in asthma and COPD. The savings will result from ACOs' greater focus on prescribing lower-cost therapies, patient screenings, and drug adherence, according to the report. ACOs will accomplish these goals by tying compensation to metrics showing improved outcomes and reduced costs. The report also predicts that most ACOs will have distinct drug formularies in the next three years.

AANMA launches interactive anaphylaxis Web tool

The Allergy & Asthma Network Mothers of Asthmatics (AANMA) and Anaphylaxis Community Experts (ACEs) across the country have launched an interactive Web tool that can be used to track the progress of state laws regarding emergency anaphylaxis preparedness plans in schools. The tool also links users with AANMA's ACEs, state and local volunteers who provide free education and training programs to schools, scouts, coach and sporting organizations, and emergency response services such as fire departments and rescue squads. The USAnaphylaxis™ map is available at: www.aanma.org/advocacy/usanaphylaxis.

Respiratory Motion reports data on ExSpiron system

Four presentations at the recent International Anesthesia Research Society Meeting demonstrated the ExSpiron respiratory monitor's utility in a variety of intra-operative and post-operative settings, according to Respiratory Motion Inc. Clinicians presented data showing the ExSpiron is able to report dangerous decreases in respiration and apneic episodes following narcotic administration in both cardiac and orthopedic surgery patients. The studies were conducted with physicians from Massachusetts General Hospital and Tufts Medical Center in Boston, MA, and Vidant Medical Center in Greenville, NC.

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

Promote. Educate. Generate Awareness.

Brochures That Help You Get the Word Out.

Distribute at Schools, Job Fairs, Health Fairs or RC Week Events

Public Education Brochure

For Current or Future Patients

Brochure defines what a respiratory therapist is and how they benefit a patient's overall respiratory health. Familiarizes the patient with respiratory care and the treatments performed.

Package of 50 BR0003R
Member Price: $10.95
Nonmember Price: $13.95
Plus Shipping and Handling

Career Information Brochures

For Students Considering A Career in Health Care

Defines the profession and the growing career opportunities as a respiratory therapist. Describes how to become an "RRT," salary expectations and the numerous specialty areas.

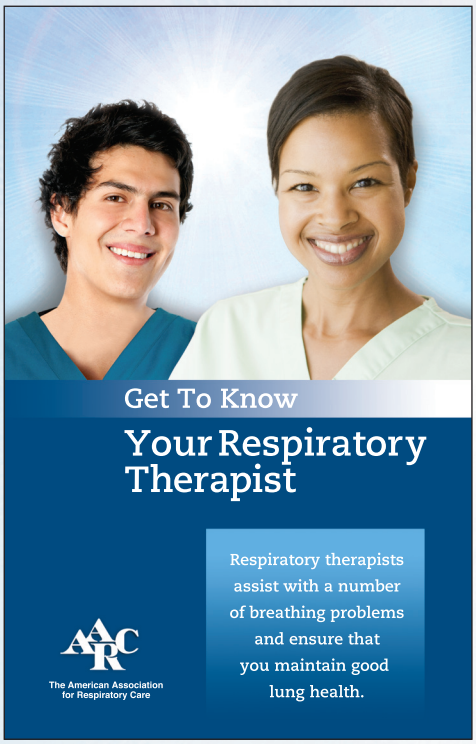
Package of 50 BR0012
Member Price: $10.95
Nonmember Price: $13.95
Plus Shipping and Handling

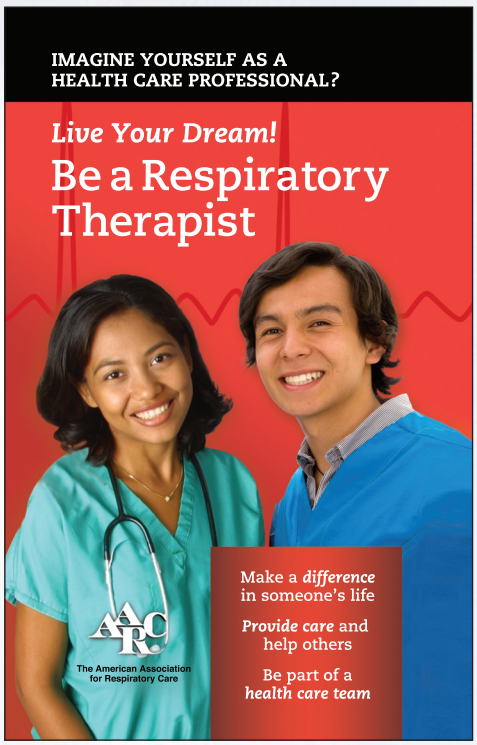
For Individuals Considering a Career Change

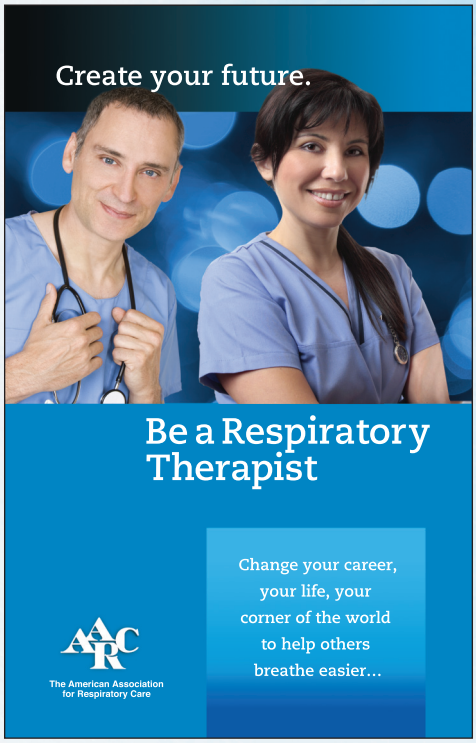
Presents the exciting and rewarding career opportunities as a respiratory therapist. Describes how to become an "RRT," salary expectations and the numerous specialty areas.

Package of 50 BR0013
Member Price: $10.95
Nonmember Price: $13.95
Plus Shipping and Handling

www.aarc.org







Order Online at www.aarc.org or Call 972-243-2272

RC Currents

IN THE NEWS

ARCF Sponsors a "Night at the Museum" Reception at AARC Congress 2013

Join the American Respiratory Care Foundation for "A Night at the Museum" on Friday, Nov. 15, at the Anaheim Marriott and take a stroll through our professional history. The exhibits will showcase the history of respiratory care including respiratory care equipment, historic photos and documents, plus other paraphernalia all highlighting the evolution of the respiratory care profession.

As part of this reception, a short program will be presented to recognize Foundation donors and to highlight ARCF's past, present, and future. Pianist Henry Oh, PhD, RRT, RRT-NPS, will provide entertainment throughout the evening. You will also be able to witness the unveiling of the new Virtual Museum and purchase a brick to help lay the foundation.

You may purchase a ticket for yourself or reserve a table for six or 12 people to enjoy at www.arcfoundation.org/night. Individual tickets are $125, with discounts available for the six-seat and 12-seat options. ■

Join AARC or Renew by Oct. 31 and Win!

AARC is getting close to wrapping up our 2013 AARC membership growth campaign. Just by renewing your AARC active membership or joining as an active new member from now until Oct. 31, 2013, you will be eligible to win an iPad or Kindle Fire.

This means for the renewing active member, all you have to do is pay for your membership before Oct. 31 and you will automatically be entered in our random drawing for an iPad.

For new active members, join the AARC and pay before Oct. 31, and you will be entered in our random drawing for a Kindle Fire.

Prizes will be awarded to random renewing members and new members at the "active member" level. AARC membership includes a subscription to *AARC Times* magazine and/or Respiratory Care valued at $11.50 each. International rates are higher. See details at www.aarc.org/campaign to connect with AARC today! ■

Zenith Voting Now Online!

AARC members have been voting for the top companies in the field for decades now, but this year there's a twist. Voting for our annual Zenith Awards has moved from the traditional paper ballot found in the pages of this magazine to an online format.

So go online now to www.aarc.org/zenith and cast your ballot for the companies you believe are most worthy of the award. Each AARC member is eligible to choose their top 10. The companies with the most votes will then be honored with Zenith Awards during the Awards Ceremony at this year's International Respiratory Convention & Exhibition in Anaheim, CA, Nov. 16–19.

Companies that receive the Zenith Award are chosen based on the quality of their products, accessibility of their sales staff, responsiveness, service record, truth in advertising, and support of the respiratory care profession. The deadline for casting your ballot for the 2013 awards is Sept. 23. ■

Put COPD in the Driver's Seat

This month we'll all be celebrating Respiratory Care Week 2013. What are you doing to mark the occasion?

There are many great ideas to help celebrate our profession, but one of the best is to host an educational display at your hospital or school focusing on COPD. With the new emphasis on COPD resulting from the Affordable Care Act regulations, plus the fact that this chronic lung condition is now the third-leading cause of death, COPD is on everyone's mind these days.

Educating the public and our fellow health care professionals about COPD will help ensure more people are diagnosed at an earlier and more treatable stage of the disease, and it will also help to celebrate and raise awareness of who we are, and possibly inspire others about our profession.

This is where DRIVE4COPD can help. With an array of ready-made resources, including the five-question COPD risk screener, DRIVE4COPD has the tools you need to host a successful event.

For more information, please email our COPD coordinator, Jason Moury at moury@aarc.org. ■

Jeffrey Tibbetts Wins Summer DRIVE4COPD Prize

The AARC is excited to announce the winner of the 2013 Summer DRIVE4COPD prize, which was awarded to Jeffrey Tibbetts of Newton, NH. He participated in a DRIVE4COPD event at the Boston Health and Fitness Expo in Boston back in June. Tibbetts was part of a team of local AARC members that held the event along with AARC COPD Coordinator Jason Moury, BS, RRT. They screened over 550 people for their risk of COPD at the event!

AARC House of Delegates Speaker John Steinmetz, MBA, RRT, drew Tibbetts' name as the winner of the summer prize during the House meeting in Orlando last July. The prize includes two VIP tickets to a local racetrack to watch a race and a special tour with motorsports marketing CEO Jeff Owen, president of Owen Marketing. Tibbetts is attending the Sylvania 300 at the New Hampshire Motor Speedway in September.

The DRIVE4COPD will hold the fall and final drawing at AARC Congress 2013, Nov. 16–19 in Anaheim, CA. So now's the time to get involved and qualify for the grand prize: two VIP tickets to the Daytona International Speedway's DRIVE4COPD 300 and the Daytona 500 this coming February.

To qualify for the next drawing, you must be an active AARC member and participate in a DRIVE4COPD event. If you have not participated in DRIVE4COPD yet, all you need to do is pick a date, pick a location, organize any help for the event, let the AARC know, and then host the event before the final contest drawing. For full contest rules go to www.aarc.org/drive4copd/contest_rules.pdf.

The DRIVE4COPD Contest ends Nov. 8, 2013, so get involved now — and you could be the next winner! ■

BRINGING Breath TO life RESPIRATORY THERAPISTS

Celebrate Your Profession during RC Week 2013 — Bringing Breath to Life

It's time to observe Respiratory Care Week Oct. 20–26 with celebrations and activities that honor respiratory therapists for their contributions. It's the best time of year to tell your colleagues and the public about your chosen profession and what you do daily. Celebrate with 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 event ideas, planning tips, photo sharing, and more at www.AARC.org/rcweek, including t-shirts, posters, banners, and gifts. ■

"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. ■

CTSRC Members Help Feed the Hungry

When the Connecticut Society for Respiratory Care (CTSRC) convenes its fall conference, more than just the education of its members will benefit. For the second time this year, the CTSRC will be collecting food items to donate to food banks in the state.

"Sue Albino, BSRT, RRT, who was the president of the CTSRC, was the individual who came up with the idea," explains AARC member Kerry McNiven, MS, RRT. "She thought that as a profession and as individuals we should give back to the community." The first food drive took place April 30–May 1 during the state society's spring meeting at The Aqua Turf in Plantsville.

"We got the word out by placing it on the printed brochure, which was then uploaded onto our Web page in conjunction with the conference information," says McNiven. "It became a button on the splash page of the website, and we utilized the email feature through the AARC to email all AARC members about the conference and the food drive."

CTSRC members donated nearly 300 pounds of food to help feed the needy in their state.

Volunteers collected the donations as attendees filed in on both days of the meeting, and those who contributed received one raffle ticket for each item they donated. The raffle tickets then went into a drawing for a $50 gift card. Donated food was split between a food bank in Plantsville and Foodshare, a regional food bank serving Hartford and Tolland counties.

McNiven and her colleagues are following a similar plan this fall, and they fully expect to meet or exceed the nearly 300 pounds of food that was donated during the spring conference. ■

International Fellows, Host Cities Announced

The AARC supports the globalization of respiratory care every year through a program that brings health care professionals from abroad to our shores to tour respiratory care facilities in two cities before attending the International Respiratory Convention & Exhibition.

Below are this year's international fellows and the cities that will be hosting them. If you live in one of these host cities or are attending AARC Congress 2013, watch for them and introduce yourself.

- Lysbeth Roldan, RT, Columbia — Baltimore, MD, and Rochester, MN
- Mohamed El-Khatib, MD, PhD, FAARC, Lebanon — Portland, OR, and Ogden, UT
- Daisuke Tsukahara, RN, Japan — Kailua, HI, and Boise, ID
- Jithin K. Sree, BSc RT, MSc RT, India — Charlottesville, VA, and Winston-Salem, NC
- Mohammed Herrag, MD, Morocco — Emporia, KS, and Minneapolis, MN
- Ana Cristina Okada, PT, Brazil — Philadelphia, PA, and Cincinnati, OH

Last Chance To Enter the 2013 AARC Photo Contest!

AARC Times is looking for creative members to enter our AARC Photo Contest — and your deadline to submit photos is Oct. 15, 2013.

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 to appear on the March 2014 cover. For instructions and guidelines, select the *AARC Times* icon on www.AARC.org and click on the "Photo-of-the-Year Contest" link. ■

National Health Observances

- **Respiratory Care Week**; Oct. 20–26; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available
- **Lung Health Day**; Oct. 23; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available
- **COPD Awareness Month;** November; American Lung Association, (800) 548-8252; www.lung.org
- **Lung Cancer Awareness Month;** November; Lung Cancer Alliance; www.lungcanceralliance.org
- **World COPD Day**; Nov. 20; Global Initiative for Chronic Obstructive Lung Disease (GOLD); www.goldcopd.org
- **Great American Smokeout;** Nov. 21; American Cancer Society, (800) 227-2345; www.cancer.org

▶ Strange But True…

Listen up: Researchers from Stirling University in Scotland are working on cigarette packs that play audio messages about the dangers of smoking when opened. So far, the packs have been tested in women age 16–24, but more tests will be carried out soon in larger and more diverse groups of people.

Belt it out: Chronic respiratory disease patients at London's Royal Brompton Hospital are engaging in a new kind of pulmonary rehab. In sessions led by a professional musician, they are learning vocal exercises and singing songs to improve their breathing.

Not just bad for the lungs: Canadian investigators have found a link between air pollution and appendicitis in a new study published in *Environmental Health Perspectives* that looked at 35,811 patients hospitalized for appendicitis between 2004–2008. An 11–22% increase in ruptured appendix cases was seen for every 16 parts per billion increase in ozone concentrations. The researchers can't explain the finding but believe other studies in mice showing that air pollution affects abdominal bacteria may hold a clue. ■

Send Us Photos of Your RC Week Events

We want to hear about what you did to celebrate National Respiratory Care Week this year. Send us your photos to milligan@aarc.org with a brief description before Nov. 9 — and be sure to include your name and email, 100-word event description, organization hosting the event, and city/state. You just might find your story on the AARC website or in an upcoming issue in "RC Currents."

For more information and to see a slide show of how other RTs celebrated this year, check out www.aarc.org/rcweek/photos. ■

D-Day, 69 Years Later

by John Hiser, MEd, RRT, FAARC

John Hiser shared a special moment with this veteran as they visited one of the Normandy beaches where the Allied forces landed in 1944.

For the remaining veterans of World War II, D-Day still holds vivid memories. As the allied forces stormed the beaches of Normandy on June 6, 1944, everyone involved hoped the words of Gen. Dwight D. Eisenhower would come to fruition: "We will accept nothing less than full victory."

As it turned out, that was the case; and our nation has celebrated D-Day every year since. This past spring, The Daughters of WWII organization, which works to return WWII veterans to their battlefields for a visit, contacted the Honor Flight DFW organization to see if they knew of any medical professionals who would be willing to accompany a group of WWII veterans to France to commemorate the day.

Honor Flights is a national organization whose mission is to bring WWII vets to Washington, DC, to visit their memorial. I have taken part in nine honor flights so far and am now a member of the board of directors for the group, so Honor Flight DFW's president (and my fellow AARC member), Tudy Giordano, MS, CPFT, RN, asked me if I would be interested in serving as their medical representative for the trip. I was also able to recruit DeAnn Mitchell, PhD, RN, CDR, USN retired, who is the head of our nursing department here at Tarrant County College in Fort Worth, TX; and the two of us made up the medical team. In addition to the eight WWII vets and the widow of one vet whose husband was killed during the battle of Normandy, the group consisted of 11 escorts, including the president of The Daughters of WWII, Laura Leppert, the wife of former Dallas mayor Tom Leppert.

The veterans on this trip included one oxygen-dependent gentleman, one with sleep apnea, and several others with various medical issues. A CBS news crew, including local anchor Doug Dunbar, accompanied us for the entire trip and did a weeklong special highlighting each veteran during the week after we returned.

We arrived in Paris on June 2 and then went to Caen, which is a small town close to the Normandy beaches. From there we visited several areas in Normandy where the veterans fought in 1944. Each veteran was returned to either the beach where he landed or where he parachuted in. We also visited Les Ventes, the village where the husband of the widow who accompanied us on the trip was shot down. He was a pilot. She waited 62 years before finding out exactly what happened to her husband. We were at the American cemetery in Normandy, which is officially American Territory, on the 69th anniversary of D-Day.

The World War II veterans are like rock stars in that part of France. They were invited to several lunches and ceremonies throughout the visit; and

French schoolchildren gathered around the veterans to thank them for their service.

A special color guard honored the veterans.

each time we stopped they were surrounded by the French people, including schoolchildren, and were asked for pictures and autographs. As for myself, I consider it one of the greatest honors in my life to have been allowed to share this once-in-a-lifetime experience with these national heroes. ■

John Hiser is program director of respiratory care at Tarrant County College in Fort Worth, TX, a past president of the AARC, and a past speaker of the House of Delegates.

The CBS news station in Dallas was on hand to document the trip.

▶Transitions

Kerry McNiven, MS, RRT, has received the President's Award for outstanding service from the Connecticut Society for Respiratory Care. McNiven is director of clinical education at Manchester Community College in Manchester, CT.

Ira Cheifetz, MD, FAARC, AARC Program Committee member and medical advisor for the Neonatal-Pediatrics Specialty Section, was recently named interim chair of the department of pediatrics at Duke University Hospital in Durham, NC, where he also serves as the division chief of pediatric critical care medicine.

Jim Maguire, PhD, RRT, FCCP, former longtime member of the AARC's International Committee, was awarded the first Solacur award from the Latin American Congress of Respiratory Care. The award was presented at the American Congress of Respiratory Care in Santiago de Chile earlier this year.

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

RT Student Members: Send Us Your Stories and Editorials

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

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

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

Respiratory Therapist Riders Reach the Beach

by Joe Dwan, MSEd, RRT-SDS, RRT-ACCS

Steve Mitchem and his fellow team members, Trish Mitchem (left) and Denise Dwan (right) train for the event on a cool day in Portland's Waterfront Park.

Earlier this year, a group of respiratory therapists from Oregon and Washington put together a team of bicycle riders for the 23rd annual charity bike ride "Reach the Beach" sponsored by the American Lung Association of Oregon (ALAO). As team captain of the "Respiratory Therapist Riders," I held numerous training rides to attempt to get us "senior therapists" into shape.

Luckily, Portland is a big bike-riding town, with 12,000 daily bike commuters and numerous bike trails and bike lanes. So finding decent bike rides is easy. Our only problem is the Oregon weather in March and April, when it rains. For myself, I was able to ride 330 miles the month before the big ride in May, including while traveling for business in Denver (5,200 ft.) and western Kansas (4,500 ft.), where I was begging for more hemoglobin to improve my arterial oxygen content (CaO_2).

"Reach the Beach" is the primary fundraiser for the ALAO and brought in over $500,000 this year. Our team raised $1,225 toward that goal, with physicians, nurses, family, and fellow respiratory therapists contributing to our cause, including several Oregon Society for Respiratory Care board members.

Our team consisted of Ed Birnbaum, RRT; my wife Denise, also an RRT; Steve and Trish Mitchem, both RRTs; and Aaron Auble, an honorary RT by association. Ed and Steve are Kaiser Permanente RTs, Ed being a disease manager and Steve on staff at Kaiser Sunnyside Medical Center. Trish is the adult care manager at Oregon Health Sciences University, and Denise is a retired respiratory care educator. I am a retired RC department director for the Kaiser Permanente NW Region who is now working in the RC education field.

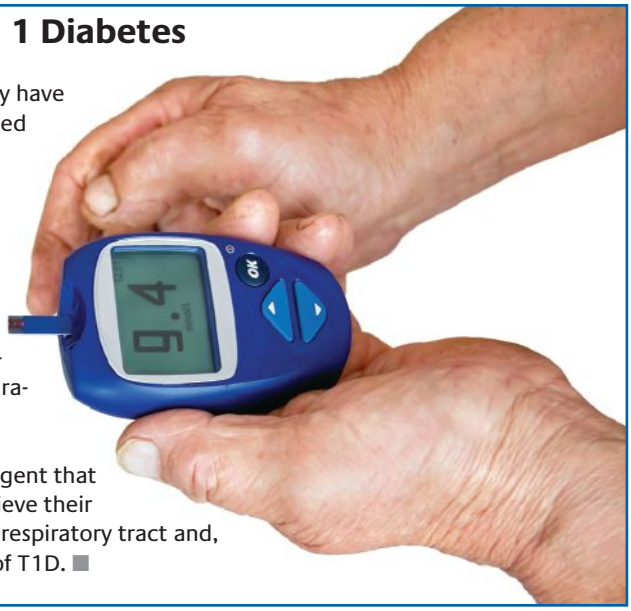
The ALAO ride offers several different routes to accommodate all training levels. The 103-mile ride, which our bike commuter Ed completed, starts in Portland and then winds through Oregon's wine country and over the coastal mountains down to the Pacific Ocean and the aptly named Pacific City. An 80-mile route begins in Newberg, and a 55-mile ride begins in Amity, one of many towns known for Pinot Noir wines. A 28-mile ride beginning in Grand Ronde takes you through the mountains to the sea. Steve, Trish, Aaron, Denise, and I rode the 28-mile ride in the mountains and along the scenic Nestucca River.

We arrived at the Pacific Ocean the day before the ride, where we rented a beach house, and the weather was sunny and in the 60s (that's warm for Oregon). There was good food with good friends and a fire on the beach while watching the sunset. Saturday, May 18, greeted us with rain and fog, so we donned rain gear like northwesterners do and drove to our starting points. We hopped on our bikes and embarked on a long, wet ride with around 2,500 other bike riders who braved the weather to raise money for our COPD and asthma patients. It was definitely worth the trip. Sunday dawned with somnolence and lethargy — just what you would expect from "senior" therapists who had overexerted themselves the day before. We brushed off the sand, loaded the bikes and gear, and had a relaxing drive home.

Opportunities abound for respiratory therapists to contribute back to the RC community — DRIVE4COPD, state respiratory care society and AARC activities and events, the COPD Coalition, and the American Lung Association all offer great programs. Volunteer and you will get more out of it than you ever put into it! ■

Joe Dwan is an instructor for the Kettering National Seminars and adjunct professor at the Oregon Institute of Technology who also serves in the AARC House of Delegates and as a member of the Oregon Society for Respiratory Care board of directors.

Respiratory Infections Linked to Type 1 Diabetes



German investigators publishing in *JAMA Pediatrics* in July have linked respiratory infections in early childhood to an increased risk of type 1 diabetes (T1D) in children considered at high risk for the disease. Their study was conducted among 148 children at high risk for T1D who had 1,245 documented infectious events during their first three years of life.

According to the results, an increased hazard ratio (HR) of islet autoantibody seroconversion was associated with respiratory infections during the first year of life. During the second year of life, no meaningful associations were detected for any infectious category. A higher number of respiratory infections in the six months prior to islet autoantibody seroconversion was also associated with an increased HR.

While the authors could not identify a single infectious agent that might be instrumental in the development of T1D, they believe their findings point to a potential role for infections in the upper respiratory tract and, specifically, for acute rhinopharyngitis in the development of T1D. ■

Infant Vaccine Helps Seniors, Too

A vaccine against pneumococcal bacteria that's been given to infants since 2000 is paying off for everyone else too, particularly older adults, report Vanderbilt University researchers publishing in the July 11 edition of *The New England Journal of Medicine*.

Their study shows infant vaccination has reduced pneumonia hospitalization by more than 10% across the board and resulted in some 70,000 fewer hospitalizations every year for those age 85 and older. Overall, more than half of the nationwide decline in pneumonia hospitalizations seen between 2000–2009 occurred among older people.

"The protective effect we saw in older adults, who do not receive the vaccine but benefit from vaccination of infants, is quite remarkable," study author Marie Griffin, MD, was quoted as saying. "It is one of the most dramatic examples of indirect protection or herd immunity we have seen in recent years." In fact, the infant vaccine is credited with protecting older people from pneumonia far better than the pneumovax 23 vaccine, which is recommended for older adults and was introduced in 1983.

The original infant vaccine, PCV7, protected against seven serotypes of the pneumococcal bacteria. A new vaccine, PCV13, was introduced in 2010 and protects against 13 types. The investigators believe the additional protection may result in an even larger decline in pneumonia hospitalizations among the elderly.

"These are adults who won't be hospitalized, won't be getting antibiotics or complications of hospitalizations, and won't be dying, since the risk of death is 5–12% when older adults are hospitalized with pneumonia," continued Dr. Griffin. "Vaccination of infants with pneumococcal conjugate vaccines results in a tremendous public health benefit." ■

Care Transition Program Reduces Readmissions

Researchers from the Bronx Collaborative, a group of hospitals and health insurers in Bronx, NY, report good results from the implementation of a uniform care transition program to reduce hospital readmissions among patients considered at high risk for a readmission. Interventions included:

- A pre-discharge educational session with a detailed booklet of discharge instructions, a medication record, and a list of symptoms that could indicate a change in the patient's condition.
- A post-discharge call within 48–72 hours of discharge to identify patient or caregiver concerns, review symptoms and medications, and verify that a physician office visit was scheduled for within 14 days of discharge.
- A call at 7–14 days post-discharge to confirm that the office visit was made and to answer any questions from the patient or his/her caregiver.
- Calls between 15–60 days post-discharge to check if there were questions and to follow up on open issues.

Among 500 patients who received two or more of these interventions, the readmissions rate over the 60 days following discharge was 17.6%. The readmission rate was 22.8% among 85 patients who, for a variety of reasons, were only able to receive one intervention. That compared to 26.3% for 190 patients who received usual care.

The study was presented at the Case Management Society of America annual meeting in New Orleans, LA. ■

Loyola Study: Acid Reflux Surgery May Halt Rejection of Transplanted Lungs

A new study out of Loyola University Medical Center suggests laparoscopic anti-reflux surgery could help prevent chronic rejection in lung transplant patients.

The investigators arrived at that conclusion after first analyzing various biomarkers taken from lung fluid during bronchoscopies conducted on patients who had undergone a lung transplant. In those examined six to 12 months after transplant, concentrations of certain biomarkers predicted the likelihood of bronchiolitis obliterans syndrome, a condition leading to the formation of scar tissue around small airways in the lungs that affects about half of lung transplant patients within five years.

From there, the investigators found that patients who aspirated showed evidence of a more active immune system, which they believe is triggered when the gastric contents irritate the lungs and leads to rejection of the transplanted lung. Specifically, patients who aspirated showed higher levels of neutrophils and the immune system biomarker interleukin-8.

According to the authors, their findings "justify the surgical prevention of aspiration and argue for the refinement of anti-rejection regimens." The study was published in the July edition of the *Journal of the American College of Surgeons*. ■

Study Notes Air Pollution Could Be Causing Some Childhood Asthma

Air pollution is known to aggravate asthma, but could it actually cause the disease? Researchers from the University of California, San Francisco who studied exposure to nitrogen dioxide (NO_2) in infancy and the later development of asthma believe the answer could be yes.

The study included 3,343 Latino and 977 African-American children and young adults between the ages of eight and 21 who were assessed retrospectively for exposure to air pollution in early childhood. Children who developed asthma before this exposure period were excluded from the study. Results showed a 17% increase in the risk of developing asthma later in life for every five parts per billion increase in NO_2 exposure during the first year of life.

"This work adds to the growing body of evidence that traffic-related pollutants may be causally related to childhood asthma," senior author Esteban G. Burchard, MD, was quoted as saying. The research was published online by the *American Journal of Respiratory and Critical Care Medicine* last summer. ■

AHRQ Publishes Guide on Patient, Family Engagement

The Agency for Healthcare Research and Quality has published a new guide to improve communication between health care providers and their patients. Developed, implemented, and evaluated with the input of patients, family members, clinicians, hospital staff, and hospital leaders, the "Guide to Patient and Family Engagement in Hospital Quality and Safety" is a tested, evidence-based resource based on these key strategies:

Strategy 1: Working with Patients and Families as Advisors: Shows how hospitals can work with patients and family members as advisors at the organizational level.
Strategy 2: Communicating to Improve Quality: Helps improve communication among patients, family members, clinicians, and hospital staff from the point of admission.
Strategy 3: Nurse Bedside Shift Report: Supports the safe handoff of care by involving the patient and family in the change of shift report for nurses.
Strategy 4: IDEAL Discharge Planning: Helps reduce preventable readmissions by engaging patients and family members in the transition from hospital to home.

Learn more about the guide and download the individual components at www.ahrq.gov/professionals/systems/hospital/engagingfamilies/patfamilyengageguide/. ■

Explaining the Influenza-Pneumonia Connection

Public health officials have long been puzzled by the fact that while pneumonia cases clearly increase during influenza epidemics, population-level epidemiological studies looking at seasonal patterns of influenza and pneumococcal pneumonia incidence have revealed either a modest association between the two or no signature of interaction at all. University of Michigan researchers recently used a novel approach they believe resolves the discrepancy and shows that influenza infection increases susceptibility to pneumococcus by about 100-fold.

The investigators created a computer model of pneumococcal pneumonia transmission that analyzed various hypotheses about the potential effects of a prior influenza infection. By challenging the model with hard data from weekly records of influenza and pneumococcal pneumonia hospitalizations in Illinois between 1989–2009 they were able to rank the likelihood of each hypothesis. The clear winner was the susceptibility impact hypothesis, which proposed that individuals infected with influenza are more susceptible to pneumococcal pneumonia. The increased susceptibility to pneumonia lasts for up to a week after infection by influenza.

The researchers also looked at the fraction of pneumonia cases that could be attributed to interaction with influenza, finding that during the peak of flu season, interaction with the influenza virus accounted for up to 40% of pneumococcal cases. However, on an annualized basis, the fraction was between 2–10%, a relatively subtle signature that could help explain why previous epidemiological analyses failed to detect the connection. The study appeared in the online publication *Science Translational Medicine* on June 26. ■

E-cigarettes Appeal to the Young

Although little evidence exists on the safety and effectiveness of e-cigarettes to help people stop smoking, the marketing of e-cigarettes is ramping up in many parts of the country. Researchers from the University of Hawaii Cancer Center who surveyed self-identified smokers are shedding some light on the topic.

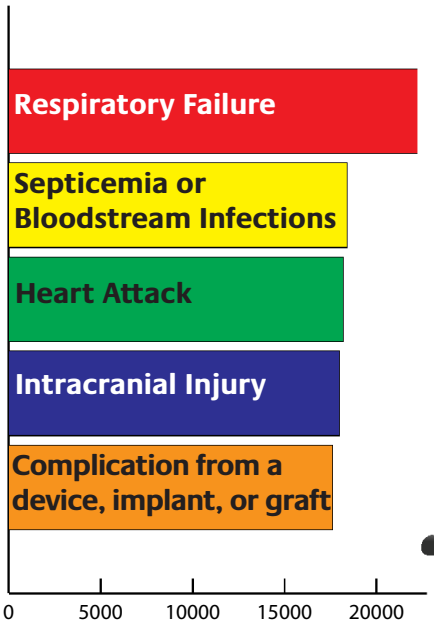
Overall, 13% of the survey participants had tried e-cigarettes as a means of quitting smoking. Most e-cigarette users were younger and had been smoking for fewer years than others. Native Hawaiians were significantly less likely to use e-cigarettes than whites, while smokers who had used nicotine replacement gum, patches, bupropion, or varenicline were two-to-four times more likely to have also tried the new smoking-cessation aids. Further analysis revealed that motivation to quit smoking was higher among those who tried e-cigarettes than those who tried other cessation tools.

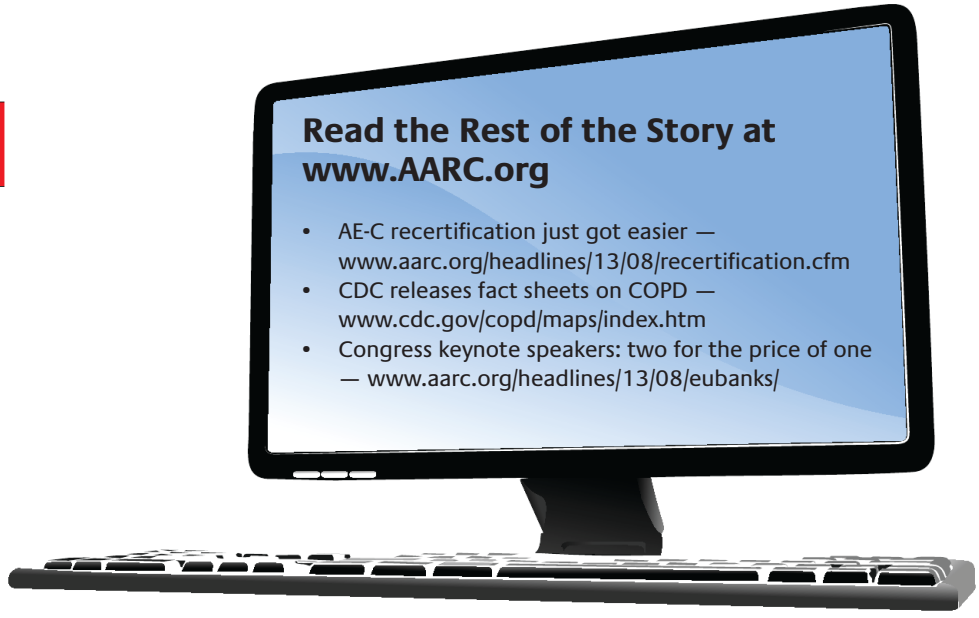
"Despite the lack of firm evidence regarding safety or effectiveness, e-cigarettes appear to have become cessation aids of choice for some smokers who appear to show a relatively higher motivation to quit smoking," write the authors. "Thus, this study confirms the importance of promptly developing appropriate e-cigarette regulations that address smokers' use of e-cigarettes as cessation products." ■

Most Expensive Conditions Called Out

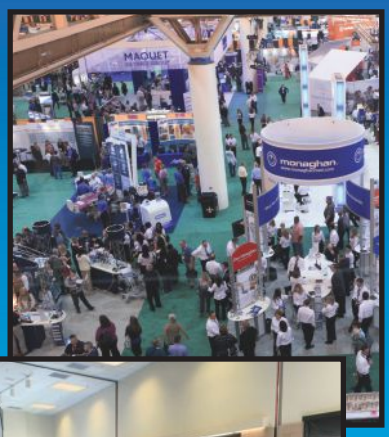
The Agency for Healthcare Research and Quality recently identified the five most expensive conditions treated in U.S. hospitals in 2010 in terms of average cost per stay. Topping the list: respiratory failure, at $22,300.

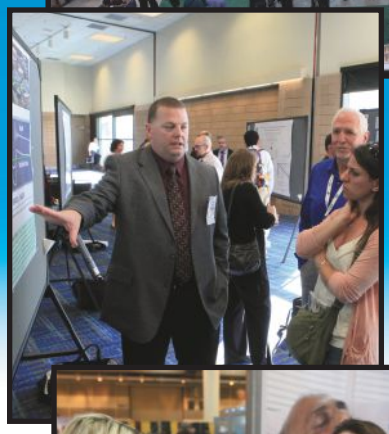
The other five conditions were septicemia or bloodstream infections ($18,400); heart attack ($18,200); intracranial injury ($18,000); and complication from a device, implant, or graft ($17,600). ■

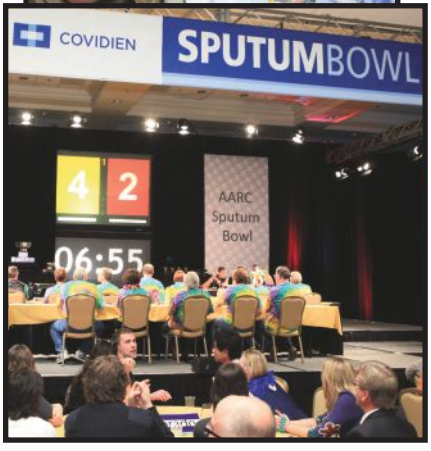




The 59th International Respiratory Convention & Exhibition







Anaheim Convention Center
Anaheim, CA

CONGRESS 2013

Saturday through Tuesday, November 16-19, 2013

Most attendees return year after year to the premier conference in the field of respiratory care.

In 2013, Expect an Enhanced Experience at AARC Congress!

- Get information "on the go". All sessions are now 30 minutes in length.
- Maximize your CRCE® credit. All lectures start/stop at the same time with no overlap.
- Stay at the headquarters hotel. The Anaheim Marriott offers a highly competitive room rate of **$149/night** and is just steps away from the convention center.
- BYOD (Bring Your Own Device). The Anaheim Convention Center offers complimentary WIFI internet to all Congress attendees.
- Expand your exhibit hall time. Exhibits will open earlier in the day and offer a full 8 hours of unopposed time with exhibitors over 3 days.
- Learn even more from an additional plenary lecture, bringing RTs together to celebrate the arts and science of respiratory care.
- Improve your travel schedule – AARC Congress is now a 3-1/2 day meeting! Spend Tuesday afternoon visiting your favorite California destination at Disneyland, the beach, or Anaheim Stadium!
- Attend the new Closing Ceremony - AARC Congress 2013 concludes with a celebration that you'll not want to miss!

And Back by Popular Demand . . .

- Welcome Reception - Catch up with old friends at this AARC favorite event.
- Sputum Bowl - Test your respiratory knowledge against trivia experts from state affiliates.
- Complimentary video recordings of the sessions for registered attendees.
- "Specialty Section" specific meeting rooms make scheduling your time easier.
- Mobile Event App for your smartphone offering all the Congress information you need at your fingertips.

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

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

Calendar of Events

AARC & State Society Programs

September 25–26
Sturbridge, MA
MSRC's 36th Annual Meeting
Contact: Valeri-Ann Bolduc, (528) 429-7478

September 25–27
Hot Springs, AR
42nd Annual ASRC State Meeting and Educational Seminar
Contact: John Lindsey, (501) 620-3281

September 26–27
Lexington, KY
8th Annual State Educational Meeting
Contact: Tami McDaniel at (606) 669-1431

September 26–27
Mars, PA
PSRC's Western Regional Conference
Contact: Thomas Lamphere, (215) 687-2904, www.psrc.net

September 27
Fredericksburg, VA
Virginia Society for Respiratory Care's Pediatric/Neonatal Conference
Contact: Tabatha Dragonberry, dragonberry@me.com or www.vsrc.org/go/events

September 30 – October 1
Frankenmuth, MI
Michigan Society for Respiratory Care's Fall Conference
Contact: (866) 989-6772

October 3–4
Indianapolis, IN
Indiana Society for Respiratory Care's 39th Annual Fall Seminar
Contact: Pat Ingle, (317) 962-5058

October 20–26
Respiratory Care Week
Contact: AARC, (972) 243-2272, www.aarc.org/rcweek

October 23
Lung Health Day
Contact: AARC, (972) 243-2272, www.aarc.org

October 24
Newark, DE
Delaware Society for Respiratory Care's 2013 Annual Trends in Respiratory Care Conference
Contact: www.delawarelung.org

November 1
Urbandale, IA
Iowa Society for Respiratory Care's Annual Meeting
Contact: Amy Weiford, (319) 296-2329

November 16–19 (Saturday–Tuesday)
Anaheim, CA
AARC Congress 2013
Contact: AARC, (972) 243-2272, www.aarc.org/education/meetings

December 5–6
Springfield, MO
MSRC's 9th Annual Fall Specialty Conference
Contact: Christopher Cox, (417) 659-6590

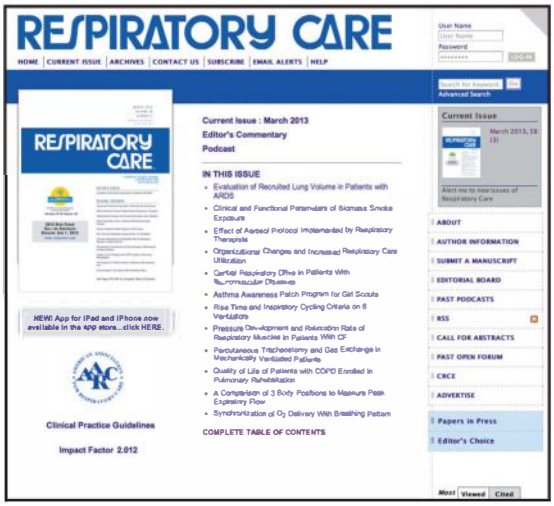
Submissions for the next available issue are due Oct. 17.

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

RESPIRATORY CARE

The official science journal of the American Association for Respiratory Care

RESPIRATORY CARE Online everywhere you go! You choose how you want it…



Mobile Optimized Site

Browse the Journal from **any smartphone** in a streamlined view. Just enter **www.rcjournal.com** in your phone browser.

RESPIRATORY CARE App: Now for Android and Apple

Featuring the last few issues of the Journal, with new articles released weekly. Everyone can browse abstracts and view complete full text articles in the app and as a PDF. Full issue download.

Download on the App Store

ANDROID APP ON Google play

www.rcjournal.com

Classifieds

ADVERTISING SECTION

For Sale/For Rent

Interface for NIV and PAP Therapy

InnoMed has been innovating, developing, and delivering sleep solutions since 2001, and our Nasal Aire® II Critical Care is a nasal cannula style interface for noninvasive ventilation and PAP therapy. This lightweight interface wears like a familiar oxygen cannula and delivers air without the typical discomforts of masks, such as nasal bridge sores, air leaks near the eyes, and claustrophobic feelings. Contact customerservice@innomedinc.com, www.innomedinc.com, (800) 200-9842

ACCS Study Guide

Oakes' ACCS Study Portal and Practice Exam, $34.95. Seven Oakes' books, plus one year online access to Oakes' Critical Care Library, all for $99. Visit www.RespiratoryUpdate.com and www.RespiratoryBooks.com.

AARC Times Classified Advertising Information & Requirements:

Classified Word Advertisements

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

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

We reserve the right to make editorial changes for reasons of clarity and consistency. Every effort is taken to avoid mistakes, but ***AARC Times*** cannot be responsible for clerical or printing errors. **Deadline for Ad Placement/Cancellation** Deadline for ad placement and written cancellations for the next available issue is October 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_2013.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

St. Mary's Hospital
The Regional Medical Center

RESPIRATORY THERAPIST

Our Respiratory Department, under the medical direction of a Pulmonologist/Interventionist, undertakes many progressive therapies and interventions. We operate adult oscillators and frequently use advanced modes of ventilation, specifically "Hibashi Method" APRV.

In our Critical Care Areas we place arterial lines and intubate when necessary, as well as assist with bedside bronchoscopy. Our ventilator protocols allow a therapist-driven approach to initiation, weaning, and extubation readiness. On the general care floors our patient-driven protocol allows initiation or modification of care in regards to CPT, bronchodilators, positive pressure therapy, and other therapies at the therapist's discretion. Our protocols also extend to the Emergency Department and Level III NICU, allowing for the earliest interventions possible, positively impacting our outcomes.

St. Mary's is located in Grand Junction, Colorado, where reaching a balance between work and life is just easier. And yes, the sun shines here 300 days a year.

Please apply at www.stmarygj.org

Respiratory Therapy Professionals

IHR

Location: United Arab Emirates
Classification: Permanent
Hours: Full time

Respiratory Therapy Professionals positions are available for candidates looking to become part of Cleveland Clinic Abu Dhabi, brought to you by Mubadala Healthcare – a world-class multispecialty hospital currently under construction in Abu Dhabi, United Arab Emirates. This 364 (expandable to 490) bed facility, will be a unique and unparalleled extension of US-based Cleveland Clinic's model of care.

Cleveland Clinic Abu Dhabi is seeking experienced professionals looking to enhance their careers and embark on a new adventure. Cleveland Clinic Abu Dhabi is recruiting for the following positions:

- **Supervisor Respiratory Therapy** (Min 6 years' experience, 3 as Supervisor)
- **Respiratory Therapist** (Min 2 Years' experience)

Ideal candidates have:

- A Bachelor Degree Holder (or three years Diploma)
- RRT by NBRC (US) or CSRT (Canada)
- MS/MPH/MBA for Supervisor is preferred

Compensation & Benefits:

Cleveland Clinic Abu Dhabi's in-country tax free remuneration includes an attractive tax-free base salary, allowances and benefits that are structured to recognize good performance and provide our Caregivers and their families a quality work-life balance.

In addition to the comprehensive compensation package, Cleveland Clinic Abu Dhabi also offers additional benefits such as health insurance, life insurance for Caregivers, annual leave packages, medical (sick) leave as well as reimbursement for moving and furniture expenses where applicable.

For informal and confidential chat, please call us at: 1-888-728-3456, email us: ihr@ihrcanada.com or visit our website www.ihrcanada.com

TEXAS STATE UNIVERSITY
SAN MARCOS

The rising STAR of Texas

The Department of Respiratory Care at Texas State University in San Marcos, Texas invites applications for a faculty position at the clinical assistant professor level with responsibilities in didactic and clinical instruction. Duties and expectations include: clinical teaching assignments specific to the Austin-Round Rock-San Antonio areas with didactic responsibilities on the San Marcos campus; areas of expertise may include one or more of anatomy & physiology, ECG & CXR interpretation, pharmacology, pulmonary pathology, neonatal/pediatric care, critical care, ventilator management/airway management, pulmonary rehabilitation, PFT testing, polysomnography, web-based and traditional teaching, and evidence-based RC practice with documentation of recent clinical proficiency; clinical teaching and service activities; scholarly activities will be available but are not required. Salary commensurate with experience and qualifications. RRT and Masters required, doctorate preferred. Review of applicants begin October 14 and continue until position filled. See application and qualification specifics at http://facultyrecords.provost.txstate.edu/faculty-employment/faculty-employment/2014-35.html

AARC 2013 PROFESSOR'S ROUNDS

NEW! VAP to VAE: Implications for the Respiratory Therapist

Item # PR20137

Dean Hess, PhD RRT FAARC and
Kathy Deakins, MHA RRT-NPS FAARC

Because there is no reliable definition for ventilator-associated pneumonia (VAP), the CDC convened a multidisciplinary group to develop a new surveillance definition. The result is a tiered approach that focuses on ventilator-associated events (VAE). VAE definitions will detect a wide variety of complications in patients on mechanical ventilation. VAE prevention presents many opportunities for respiratory therapists, including use of noninvasive ventilation, implementation of lung-protective ventilation strategies, ventilator discontinuation protocols, and VAP prevention strategies.

$295 for Nonmembers
$265 for MEMBERS

MEMBERS SAVE $30

Sponsored in part by an unrestricted educational grant from

CareFusion

Present this current respiratory care topic on DVD to your entire staff. Topic is approved for one [1] CRCE® per participant.

Find out more at www.AARC.org/go/pr2

We're looking for red-hot talent this winter!

Seasonal Plan in Central Texas

Adult & Pedi Registered Respiratory Therapists

With 11 innovative hospitals, Seton Healthcare Family is the leading health care provider in Central Texas and is home to Dell Children's Medical Center—the region's only freestanding pediatric hospital. Find out for yourself why we're ranked as one of the Top 100 health care systems in the nation!

- ***13-26 week contract starts as early as October 2013 & runs through March 2014***
- ***Premium pay rates***
- ***Friendly staff, mild winters & no state income tax***
- ***Tell your friends, too!***

Now is the best time to earn a little extra cash for the holidays. Apply online at **seton.net/careers** today or email **Ccarter@seton.org**. Our Seasonal Plan will make your career sizzle! EOE/AA/M/F/D/V

facebook.com/SetonCareers

@SetonCareers

Seton Healthcare Family

Not just a living. A way of life. Austin, Texas.

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.

Join the SERVOlution™

MAQUET
GETINGE GROUP

The new SERVO with SERVOlution.

- **Relieve**—help reduce work of breathing
- **Synchronize**—improve patient ventilator interaction and patient comfort
- **Protect**—reduce lung stress and help maintain muscle conditioning
- **Baby**—help protect infants with improved synchrony and NIV support

Scan to Learn More

MAQUET is committed to providing therapeutic options for disease-specific entities that help you improve patient outcomes. SERVOlution is our new innovative approach to mechanical ventilation that provides you with comprehensive, goal-oriented therapeutic packages for a patient's course of treatment in the ICU.

Explore how the new SERVO with SERVOlution can help you liberate your patients from mechanical ventilation.

SERVOlution is a trademark of MAQUET Critical Care AB.

AT AARC 2013, VISIT MAQUET BOOTH #645

www.maquetusa.com

GO from
OW!
to
WOW!™

HEMOGLOBIN

Noninvasive > Quick

Pronto-7®– Your solution for painless spot-check testing of hemoglobin (SpHb®), SpO_2, pulse rate, and perfusion index.

www.masimo.com/Pronto-7

800-257-3810

MASIMO

Visit AARC booth 611 in Anaheim