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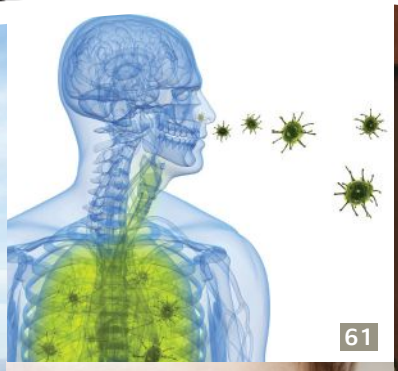

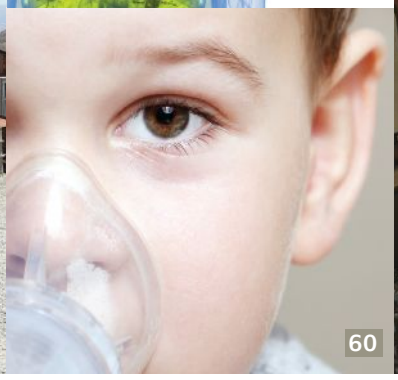

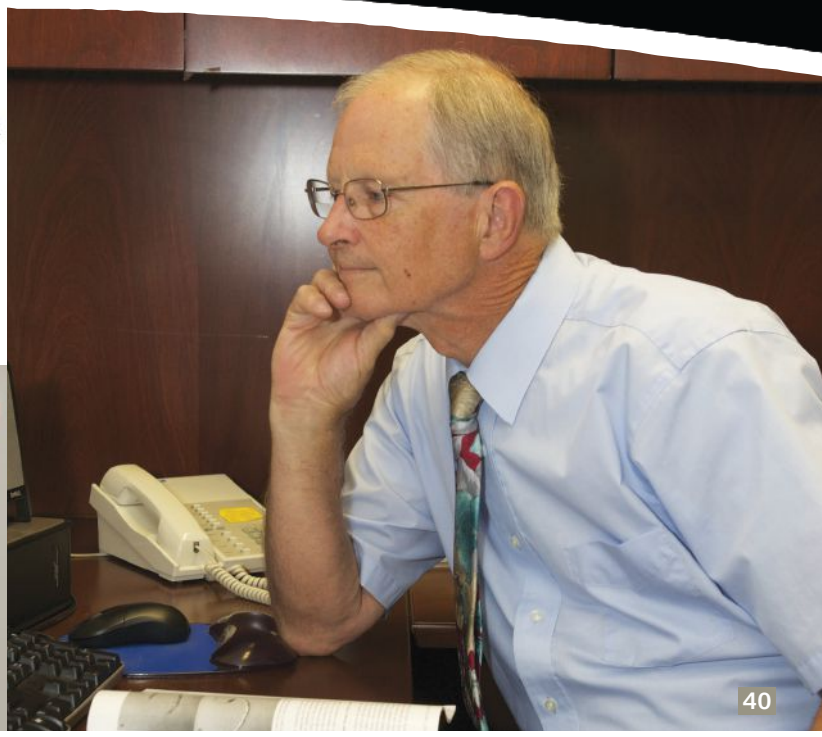

Cover photo by Thomas N. Pajewski, PhD, MD, associate professor of anesthesiology and neurological surgery; and director of neuroanesthesia at the University of Virginia Health System, Charlottesville, VA.

AARC Strategic Plan

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

AARC Strategic Objectives

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

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

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*References: 1. GBS McNeill MBChB, AJ Glossop BMedSci, BM, BS, MRCP, DICM. Clinical Applications of Non-Invasive Ventilation in Critical Care. Cont Edu Anaesth Crit Care and Pain. 2012;12(1):33-37.

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Though necessary and often beneficial at appropriate doses, elevated FiO_2 levels can put patients at risk for hyperoxia and may result in the formation of reactive oxygen species, cytotoxicity, and damage to lung tissue.[1-4]

Oxygen is a drug.[5] Appropriate strategies and protocols surrounding its use should be developed with a multidisciplinary team within every hospital.[6]

References: 1. Kulkarni AC, Kuppusamy P, Parinandi N. Oxygen, the lead actor in the pathophysiologic drama: enactment of the trinity of normoxia, hypoxia, and hyperoxia in disease and therapy. *Antioxid Redox Signal*. 2007;9(10):1717-1730. **2.** Lakshminrusimha S, Steinhorn RH, Wedgwood S, et al. Pulmonary hemodynamics and vascular reactivity in asphyxiated term lambs resuscitated with 21 and 100% oxygen. *J Appl Physiol*. 2011;111(5):1441-1447. **3.** Kannan S, Pang H, Foster DC, et al. Human 8-oxoguanine DNA glycosylase increases resistance to hyperoxic cytotoxicity in lung epithelial cells and involvement with altered MAPK activity. *Cell Death Differ*. 2006;13(2):311-323. **4.** Yee M, Vitiello PF, Roper JM, et al. Type II epithelial cells are critical target for hyperoxia-mediated impairment of postnatal lung development. *Am J Physiol Lung Cell Mol Physiol*. 2006;291(5):L1101-L1111. **5.** US Food and Drug Administration. The Food and Drug Administration Safety and Innovation Act. 2012. http://www.gpo.gov/fdsys/pkg/PLAW-112publ144/pdf/PLAW-112publ144.pdf. Accessed July 16, 2014. **6.** Greenspan JS, Goldsmith JP. Oxygen therapy in preterm infants: hitting the target. *Pediatrics*. 2006;118(4):1740-1741.

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Clinical Perspectives

Morbid Obesity and Respiratory Failure

by Gerard Fulda, MD, FACS, FCCM; and Thomas Gillin, BSRT, RRT

The prevalence of obesity has increased in the United States and, consequently, the number of obese critically ill patients has as well. Our institution, a nearly 1,000-bed teaching hospital, is no exception. The Centers for Disease Control and Prevention (CDC) report that over one-third of U.S. adults are obese.[1] Obesity increases the risk of comorbidities and cost of medical care. Obesity is defined as a body mass index (BMI) of ≥30 kg/m.[2] Morbid obesity is defined as a BMI of ≥40 kg/m.[2] This population brings with it several unique challenges for the respiratory therapist with respect to airway and ventilator management.

Lung function in the morbidly obese

The excessive adipose tissue of the chest and abdominal walls decreases chest wall compliance in the morbidly obese patient. Functional reserve capacity is reduced, and these patients have an increased potential for atelectasis prior to and throughout mechanical ventilation. Simultaneously, there is increased airway resistance in this population.[3] Expiratory reserve volume is reduced; the patient's increased abdominal mass limits the ability of the diaphragm to descend, resulting in a lower total lung capacity. The increase in dependent atelectasis in the lower lung fields leads to an increased ventilation/perfusion mismatching.

about the authors...

Gerard Fulda, MD, FACS, FCCM, is chairman of the department of surgery and director of surgical critical care and surgical research for Christiana Care Health Systems in Wilmington, DE. He is also associate professor of surgery at Jefferson Medical College in Philadelphia, PA.

Tom Gillin, BSRT, RRT, is the surgical critical care specialist at Christiana Care Health System in Wilmington, DE. He also serves on the AARC House of Delegates.

Ventilatory challenges

Additional atelectasis in the morbidly obese is increased with induction of anesthesia.[4] Decreased chest wall compliance further complicates mechanical ventilator management. The use of lung recruitment maneuvers and higher levels of positive end-expiratory pressure (PEEP) assist in ventilating these patients.[5] Our practice converted from a standard starting PEEP of 5 cm H_2O and now uses 8 cm H_2O or higher on all mechanically ventilated patients. In this population we have found that maintaining a higher PEEP decreases the number of hypoxic events during weaning and the time to re-establish targeted oxygenation. There are differing opinions on which ventilation mode is best. If you use volume control, it is important not to generate excessive tidal volumes. Large tidal volumes can result in volutrauma. The patient's actual body weight should not be considered for selection of set tidal volumes. Tidal volumes of 8 mL/kg or less of ideal body weight (IBW) and Pplat of <30 cm H_2O are recommended as they are in most patients. If your institution utilizes pressure ventilation, peak inspiratory pressures necessary to obtain targeted tidal volumes may be higher due to the lack of chest wall compliance. Bilevel ventilator modes are often employed as a means to increase lung expansion. Following extubation, the

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use of noninvasive ventilation (NIV) has been shown to reduce post extubation respiratory failure.[6]

Proper positioning

The additional mass on the chest and abdomen can produce excessive atelectasis. Optimal positioning of the patient can further reduce these effects. There are many barriers to positioning any critically ill patient. Those barriers seem to increase for the morbidly obese. Optimization of the patient's position can be accomplished with the proper people, resources, and equipment. The use of specialized beds, lifts, and slings are helpful in assuring that the mobility of this patient population is not limited due to their excessive weight. Our institution has made great efforts to ensure that the head of the bed is elevated and the patient gets out of bed, if able, to a chair or even to ambulate. Placing the patient in reverse Trendelenberg can be helpful in decreasing the thoracic pressure by dropping the diaphragm, improving oxygenation and lung mechanics.[4] Rotational beds and, in the case of acute respiratory distress syndrome, prone positioning will further alleviate the effects of the patient's body habitus on the amount of atelectasis.

Airway concerns

The fact that your patient is morbidly obese does not necessarily mean that they will be a difficult tracheal intubation. However, there should be a heightened awareness of the many potential complications that this patient population poses for tracheal intubation. Preparation and planning is key to a successful intubation. The evaluation of the face, neck, and mouth should be done prior to the administration of sedatives and/or paralytics. The excessive tissue of the chest, neck, face, and mouth can make it more challenging to obtain a definitive artificial airway. Both the Mallampati score and neck circumference have been used to predict difficult intubation in the morbidly obese.[7] Preoxygenation is imperative and can be more difficult because their body habitus can hinder effective bag-mask ventilation. Ineffective ventilation increases the risk of complications with establishing a definitive airway in the light of ongoing respiratory failure, airway obstruction, or atelectasis. The use of NIV can be useful prior to tracheal intubation. Proper positioning with the head elevated and the use of oral airways if ventilating via a bag-valve mask are recommended. The extra tissue, larger tongue, and smaller space increase the likelihood of airway obstruction. The decision to medicate to facilitate the intubation should not be taken lightly. If rapid sequence intubation is planned, it is imperative to have highly skilled airway providers and rescue devices at the bedside. The use of video laryngoscopy and awake fiberoptic intubation should be considered. If tracheostomy is needed emergently or due to prolonged ventilation, consideration of tracheal depth and the potential requirement of extra-long proximal length tubes may be necessary.

A morbidly obese patient does not necessarily require a difficult tracheal intubation, but RTs should have a heightened awareness of the many potential complications that this patient population poses for tracheal intubation.

Nutritional support

Providing the appropriate nutritional support for critically ill patients can be difficult and even more so in the obese population. Failure to meet the nutritional demands can lead to prolonged mechanical ventilation. There are several ways to determine the nutritional needs of our patients. One way is by using a metabolic cart. There is not always access to these devices, and the patient's condition and ventilator settings may prohibit their use. There are also predictive equations like the Penn State equation that can be employed to guide the nutritional support of the critically ill, mechanically ventilated obese patient. The Society of Critical Care

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INDICATION FOR GLASSIA

GLASSIA is an Alpha$_1$-Proteinase Inhibitor (Human) (Alpha$_1$-PI) indicated for chronic augmentation and maintenance therapy in adults with clinically evident emphysema due to severe congenital deficiency of Alpha$_1$-PI (alpha$_1$-antitrypsin deficiency). GLASSIA increases antigenic and functional (anti-neutrophil elastase capacity, ANEC) serum levels and antigenic lung epithelial lining fluid levels of Alpha$_1$-PI.

The effect of augmentation therapy with any Alpha$_1$-PI, including GLASSIA, on pulmonary exacerbations and on the progression of emphysema in alpha$_1$-antitrypsin deficiency has not been conclusively demonstrated in randomized, controlled clinical trials.

Clinical data demonstrating the long-term effects of chronic augmentation and maintenance therapy of individuals with GLASSIA are not available.

GLASSIA is not indicated as therapy for lung disease in patients in whom severe Alpha$_1$-PI deficiency has not been established.

DETAILED IMPORTANT RISK INFORMATION FOR GLASSIA

HYPERSENSITIVITY

- GLASSIA is contraindicated in immunoglobulin A (IgA) deficient patients with antibodies against IgA or individuals with a history of severe immediate hypersensitivity reactions, including anaphylaxis, to Alpha$_1$-PI products.
- Hypersensitivity reactions have been reported in patients following administration. Patients should be closely followed and vital signs monitored continuously. Discontinue the infusion if hypersensitivity symptoms occur and administer appropriate emergency treatment.

TRANSMISSION OF INFECTIOUS AGENTS

- GLASSIA is derived from pooled human plasma and may carry a risk of transmitting infectious agents such as viruses, the variant Creutzfeldt-Jakob disease (vCJD) and theoretically, the Creutzfeldt-Jakob disease (CJD) agent. Despite manufacturing steps designed to minimize the risk of viral transmission, such products may still potentially transmit human pathogenic agents.

USE DURING PREGNANCY

- GLASSIA should not be given to pregnant women unless clearly needed, as reproduction studies have not been done in animals or humans.

ADVERSE REACTIONS

- The serious adverse reaction observed during clinical trials was exacerbation of chronic obstructive pulmonary disease (COPD). The most common adverse reactions occurring in >0.5% of infusions in clinical trials were headache and upper respiratory infection

Please see GLASSIA Brief Summary of Full Prescribing Information on the adjacent page.

References: 1. GLASSIA [Alpha$_1$-Proteinase Inhibitor (Human)] Prescribing Information. Westlake Village, CA: Baxter Healthcare Corporation. **2.** ASHP guidelines on preventing medication errors in hospitals. American Society of Health System Pharmacists website. http://www.ashp.org/s_ashp/docs/files/MedMis_Gdl_Hosp.pdf. Accessed June 18, 2013.

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GLASSIA [Alpha$_1$-Proteinase Inhibitor (Human)]

Injection Solution - For Intravenous Use Only

Brief Summary of Prescribing Information. Please see package insert for full prescribing information.

INDICATIONS AND USAGE

GLASSIA is an Alpha$_1$-Proteinase Inhibitor (Human) (Alpha$_1$-PI) indicated for chronic augmentation and maintenance therapy in adults with clinically evident emphysema due to severe congenital deficiency of Alpha$_1$-PI (alpha$_1$-antitrypsin deficiency). GLASSIA increases antigenic and functional (anti-neutrophil elastase capacity, ANEC) serum levels and antigenic lung epithelial lining fluid levels of Alpha$_1$-PI.

- The effect of augmentation therapy with any Alpha$_1$-PI product, including GLASSIA, on pulmonary exacerbations and on the progression of emphysema in Alpha$_1$-PI deficiency has not been conclusively demonstrated in randomized, controlled clinical trials.
- Clinical data demonstrating the long-term effects of chronic augmentation and maintenance therapy of individuals with GLASSIA are not available.
- GLASSIA is not indicated as therapy for lung disease in patients in whom severe Alpha$_1$-PI deficiency has not been conclusively established.

DOSAGE AND ADMINISTRATION

- **For Intravenous Use Only.**
- Use aseptic technique for all preparation and administration steps.
- Dose = 60 mg/kg body weight intravenously once weekly.
- Administer at a rate not to exceed 0.2 mL/kg body weight per minute, depending on patient response and comfort.
- Dose ranging studies using efficacy endpoints have not been performed.

CONTRAINDICATIONS

GLASSIA is contraindicated in immunoglobulin A (IgA) deficient patients with antibodies against IgA or in individuals with a history of severe immediate hypersensitivity reactions, including anaphylaxis, to Alpha$_1$-PI products.

WARNINGS AND PRECAUTIONS

Hypersensitivity Reactions

GLASSIA may contain trace amounts of IgA. Patients with selective or severe IgA deficiency and with known antibodies to IgA, have a greater risk of developing severe hypersensitivity and anaphylactic reactions. Monitor vital signs continuously and observe the patient carefully throughout the infusion. Discontinue the infusion if hypersensitivity symptoms occur and administer appropriate emergency treatment. Have epinephrine and other appropriate supportive therapy available for the treatment of any acute anaphylactic or anaphylactoid reaction.

Transmissible Infectious Agents

Because this product is made from human plasma, it may carry a risk of transmitting infectious agents, such as viruses, the variant Creutzfeldt-Jakob disease (vCJD), and theoretically, the Creutzfeldt-Jakob disease (CJD) agent. This also applies to unknown or emerging viruses and other pathogens. The risk of transmitting an infectious agent has been minimized by screening plasma donors for prior exposure to certain viruses, by testing for the presence of certain current virus infections and by inactivating and removing certain viruses during the manufacturing process (see *Description* [11] in full prescribing information for viral reduction measures). Despite these measures, such products may still potentially transmit human pathogenic agents.

All infections thought by a physician possibly to have been transmitted by this product should be reported by the physician or other healthcare provider to Kamada Ltd. at 1-866-GLASSIA or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

No seroconversions for hepatitis B or C (HBV or HCV) or human immunodeficiency virus (HIV) or any other known infectious agent were reported with the use of GLASSIA during the clinical trials.

ADVERSE REACTIONS

The serious adverse reaction[1] observed during clinical trials with GLASSIA was exacerbation of chronic obstructive pulmonary disease (COPD).

The most common adverse reactions (>0.5% of infusions) in clinical trials were headache (6 of 960 infusions or 0.6%) and upper respiratory infection (8 of 960 infusions or 0.8%).

[1]An adverse reaction is any adverse event which met any of the following criteria: (a) an adverse event that began within 72 hours following the end of product infusion, or (b) an adverse event considered by either the investigator or sponsor to be at least possibly related to product administration, or (c) an adverse event for which causality assessment was missing or indeterminate.

Adverse Reactions[1] Occurring in > 5% of Subjects During the First 12 Weeks of Treatment

	GLASSIA No. of subjects: 33	**Prolastin** No. of subjects: 17
Adverse Event (AE)	**No. of subjects with adverse reactions[1] (AR) (percentage of all subjects)**	**No. of subjects with adverse reactions[1] (AR) (percentage of all subjects)**
Cough	3 (9%)	4 (24%)
Upper respiratory tract infection	3 (9%)	0 (0%)
Headache	3 (9%)	3 (18%)
Sinusitis	2 (6%)	1 (6%)
Chest discomfort	2 (6%)	0 (0%)
Dizziness	2 (6%)	0 (0%)
Hepatic enzyme increased	2 (6%)	0 (0%)

Postmarketing Experience

The following adverse reactions have been identified during post-approval use of GLASSIA. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

- Respiratory, Thoracic and Mediastinal Disorders: Dyspnea
- Gastrointestinal Disorders: Nausea
- General Disorders and Administration Site Conditions: Fatigue

USE IN SPECIFIC POPULATIONS

Pregnancy

Pregnancy Category C

Animal reproduction studies have not been conducted with GLASSIA. It is also not known whether GLASSIA can cause fetal harm when administered to pregnant women or can affect reproductive capacity. GLASSIA should be given to a pregnant woman only if clearly needed.

Nursing Mothers

It is not known whether Alpha$_1$-PI is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when GLASSIA is administered to a nursing woman.

Pediatric Use

Safety and effectiveness in pediatric patients have not been established.

Geriatric Use

Clinical trials of GLASSIA included 11 subjects of 65 years of age or older. This number of subjects was not sufficient to determine whether they respond differently from younger subjects. As for all patients, dosing for geriatric patients should be appropriate to their overall situation. Safety and effectiveness in patients over 65 years of age have not been established.

PATIENT COUNSELING INFORMATION

- Inform patients of the early signs of hypersensitivity reactions, including hives, generalized urticaria, chest tightness, dyspnea, wheezing, faintness, hypotension, and anaphylaxis. Advise patients to discontinue use of the product and contact their physician and/or seek immediate emergency care, depending on the severity of the reaction, if these symptoms occur.
- Inform patients that GLASSIA is made from human plasma and may contain infectious agents that can cause disease (e.g., viruses and, theoretically, the CJD agent). Explain that the risk of GLASSIA transmitting an infectious agent has been reduced by screening the plasma donors, by testing the donated plasma for certain virus infections, and by a process demonstrated to inactivate and/or remove certain viruses during manufacturing (see *Warnings and Precautions*). Symptoms of a possible virus infection include headache, fever, nausea, vomiting, weakness, malaise, diarrhea, or, in the case of hepatitis, jaundice.
- Inform patients that administration of GLASSIA has been demonstrated to raise the plasma level of Alpha$_1$-PI, but that the effect of this augmentation on the frequency of pulmonary exacerbations and on the rate of progression of emphysema has not been established by clinical trials.

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Medicine and the American Society for Parenteral and Enteral Nutrition have published guidelines for this population that recommend hypocaloric (60–70% of target energy requirements) feeding with enteral nutrition. They also recommend providing >2.0 g/kg of IBW for those patients with a BMI of 30–40 and >2.5 g/kg of IBW for those with a BMI >40.[8]

RTs can affect care of the morbidly obese patient

As is the case with all critically ill patients, the well-informed, proactive respiratory therapist can greatly affect their outcomes. This particular patient population poses several unique hurdles that must be considered to optimize their care. These can be overcome by a well-equipped, well-organized multidisciplinary team working together. The respiratory therapist's understanding of how morbid obesity compounds respiratory failure can lead to safer and more efficient care. ■

REFERENCES

1. Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010. JAMA 2012; 307(5):491–497.
2. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: executive summary. Am J Clin Nutr 1998; 68(4):899–917.
3. Jones RL, Nzekwu MM. The effects of body mass index on lung volumes. Chest 2006; 130(3):827–833.
4. Eichenberger A, Proietti S, Wicky S, et al. Morbid obesity and postoperative pulmonary atelectasis: an underestimated problem. Anesth Analg 2002; 95(6):1788–1792.
5. Reinius H, Jonsson L, Gustafsson S, et al. Prevention of atelectasis in morbidly obese patients during general anesthesia and paralysis: a computerized tomography study. Anesthesiology 2009; 111(5):979–987.
6. El Solh AA, Aquilina A, Pineda L, et al. Noninvasive ventilation for prevention of post-extubation respiratory failure in obese patients. Eur Respir J 2006; 28(3):588–595.
7. Brodsky JB, Lemmens HJ, Brock-Utne JG, et al. Morbid obesity and tracheal intubation. Anesth Analg 2002; 94(3):732–736.
8. McClave SA, Martindale RG, Vanek VW, et al. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). JPEN J Parenter Enteral Nutr 2009; 33(3):277–316.

Ventilation for Life

Hemodynamic and Physiologic Monitoring of the Mechanically Ventilated Patient

by J. Brady Scott, MSc, RRT-ACCS

The word "monitor" when used as a verb is defined as: to watch, observe, listen to, or check (something) for a special purpose over a period of time.[1] This definition perfectly describes hemodynamic and physiologic monitoring. Clinicians observe the data and trends that monitors generate to help guide clinical decisions. The degree of clinical observation is usually dictated by the severity of illness. A wide variety of monitoring is available in most health care settings and may range from noninvasive devices like pulse oximetry to more invasive tools/methods such as pulmonary artery catheters.

Patient conditions requiring monitoring

Hemodynamic monitoring typically takes place in the emergency department, operating room, and/or intensive care unit, and also can occur during transport situations. This is especially true when patients receive mechanical ventilation or are undergoing invasive procedures. However, not all patients who receive hemodynamic monitoring require mechanical ventilation.

The list of monitoring parameters is vast and may include (but is not limited to): electrocardiogram, blood pressure, central venous pressure (CVP), pulmonary artery pressure, cardiac output, neurologic measurements, gas exchange, and lung mechanics. The type of monitoring used should be modified to meet each individual patient's needs. For example, COPD patients require different assessments than those with neurologic injury.

Key monitoring parameters

Hemodynamic monitoring: Cardiorespiratory interactions are assessed by hemodynamic monitoring. The goals are to assess and ensure that tissue oxygen delivery and end-organ perfusion are optimized.[2] Arterial blood pressure is a common parameter measured. This can be accomplished both invasively and non-invasively. Arterial lines that are placed invasively aid in the continuous monitoring of blood pressure and permit serial sampling of blood gases. While useful, there are several complications associated with arterial lines that include the risk of infection, bleeding, extremity ischemia, and damage to the artery.[3] CVP monitoring allows clinicians to evaluate right atrial pressures and intravascular fluid volume. Questions remain regarding the use of CVP as a tool to guide fluid management.[4] Pulmonary artery catheters (PAC) are useful for the measurement of many hemodynamic values (see Table 1). Indications for PACs are to assess issues related to shock, pulmonary hypertension, valvular disease, and cardiomyopathy. Increasingly, methods to monitor hemodynamic parameters non-invasively are being introduced to lessen the need for PACs because of the associated risks involved with the lines themselves.[2]

Gas exchange: Arterial blood gas analysis is vital to the understanding of respiratory and metabolic disturbances in the body. Blood gases also serve to monitor the effect of therapeutic interventions. They provide valuable information pertaining to the oxygenation status of patients receiving mechanical ventilation. Together, this information can provide information that enables optimization of mechanical ventilation parameters such as positive end-expiratory pressure and the fraction of inspired oxygen. Arterial blood gases also provide information about the acid-base balance in the body.

about the author...

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Noninvasive monitoring: Pulse oximetry is a standard monitoring tool that allows for the measurement of hemoglobin's oxygen saturation in the arterial blood. Capnography is useful in patients receiving mechanical ventilation, as it provides information regarding alveolar carbon dioxide tension on a breath-by-breath basis. This, in conjunction with other parameters, may help clinicians better understand changes in the patient's cardiopulmonary status. Transcutaneous monitoring also provides information regarding ventilatory status of the patient. Regardless of the noninvasive monitor used, the clinician should understand the limitations of the devices. Erroneous readings and incorrect interpretation could cause improper therapeutic interventions.

Table 1. Hemodynamic Values[9]

Measurement	Normal Values (units)
Pulmonary artery systolic pressure	20–35 (mm Hg)
Pulmonary artery diastolic pressure	5–15 (mm Hg)
Mean pulmonary artery pressure (MPAP)	10–20 (mm Hg)
Central venous pressure (CVP)	2–6 (mm Hg)
Pulmonary capillary wedge pressure (PCWP)	5–10 (mm Hg)
Cardiac output (CO)	4–8 (L/min)
Cardiac Index (CI)	2.5–4.0 (L/min/m^2)

Neurologic and cardiac monitoring: Electroencephalographic monitoring is used to continuously evaluate the causes of delirium and coma. It may also detect epileptic activity in critical neurologic/non-neurologic diseases. Focal versus global findings may indicate ischemia or encephalopathy and may indicate severe injury and poor prognosis.[5] Intracranial pressure (ICP) is also a very important neurologic monitoring parameter in the intensive care unit. The major purpose of ICP measurement is to assess cerebral perfusion. As ICP increases, cerebral perfusion decreases; ultimately brain death may ensue if perfusion is severely compromised. Cardiac monitoring, via electrocardiogram, is a mainstay in many situations. It is important for clinicians to understand that some patients may be asymptomatic in the presence of abnormal rhythms, have normal-appearing rhythms in the setting of an abnormal condition, and have an unusual rhythm in the setting of a normal condition.

The future

The future of monitoring progresses as technology improves. Manufacturers are meeting the challenges with innovative devices, some of which are allowing clinicians to non-invasively evaluate cardiac output, use pulse oximetry with confidence, and have a single monitor that integrates several physiologic parameters.[2,6–8]

The respiratory therapist and monitoring

Respiratory therapists are intricately involved in physiologic and hemodynamic monitoring. Understanding the basis and limitations of all monitoring devices is essential. It is important to use monitoring correctly and understand issues that may result in erroneous data, such as motion artifact or catheter dislodgement. Perhaps the most important aspect of monitoring is to consider that patients are more than the sum of their monitoring data. Visually assessing and interviewing the patient (when possible) remains the foundation of patient care. ■

DISCLOSURE

The author is a key opinion leader for Aerogen and serves on the Brovana® advisory board for Sunovion Pharmaceuticals Inc.

REFERENCES

1. Merriam-Webster website. Monitor. Available at: http://www.merriam-webster.com/dictionary/monitor *Accessed on June 29, 2014*
2. Busse L, Davison DL, Junker C, Chawla LS. Hemodynamic monitoring in the critical care environment. Adv Chronic Kidney Dis 2013; 20(1):21-29.
3. Govert JA, Hess DR. Hemodynamic monitoring. In: Hess DR, MacIntyre NR, Mishoe SC, et al editors. Respiratory care: principles and practice, 2nd ed. Sudbury MA: Jones & Bartlett Learning; 2012.
4. Marik PE, Levitov A, Young A, Andrews L. The use of bioreactance and carotid Doppler to determine volume responsiveness and blood flow redistribution following passive leg raising in hemodynamically unstable patients. Chest 2013; 143(2):364-370.
5. Sutter R, Stevens RD, Kaplan PW. Continuous electroencephalographic monitoring in critically ill patients: indications, limitations, and strategies. Crit Care Med 2013; 41(4):1124-1132.
6. Chamos C, Vele L, Hamilton M, Cecconi M. Less invasive methods of advanced hemodynamic monitoring: principles, devices, and their role in the perioperative hemodynamic optimization. Perioper Med (Lond) 2013; 2(1):19.
7. Dunham CM, Chirichella TJ, Gruber BS, et al. Emergency department noninvasive (NICOM) cardiac outputs are associated with trauma activation, patient injury severity and host conditions and mortality. J Trauma Acute Care Surg 2012; 73(2):479-485.
8. Restrepo RD, Hirst KR, Wittnebel L, Wettstein R. AARC clinical practice guideline: transcutaneous monitoring of carbon dioxide and oxygen. Respir Care 2012; 57(11):1955-1962.
9. Adams AB. Monitoring of the patient in the intensive care unit. In: Kacmarek RM, Stoller JK, Heuer AJ, editors. Egan's fundamentals of respiratory care, 10th ed.: Elsevier; 2013.

ADDITIONAL READING

Slutsky AS, Ranieri VM. Ventilator-induced lung injury. N Engl J Med 2013; 369(22):2126-2136.

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1. Linde-Zwirble WL, Bloom JD, Mecca RS, Hansell DM. Postoperative pulmonary complications in adult elective surgery patients in the US: severity, outcomes and resources use. *Crit Care Med.* 2010;14: P210. 2. Agarwal SJ, Erslon MG, Bloom JD. Projected incidence and cost of respiratory failure, insufficiency and arrest in Medicare population, 2009. Abstract presented at Academy Health Congress, June 2011. 3. Wier LM, Henke R, Friedman B. Diagnostic Groups with Rapidly Increasing Costs, by Payer, 2001 -2007. Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality. Statistical Brief #91. June 2010. Available at: http://ww.hcup-us.ahrq.gov/reports/statbriefs/sb91.pdf 4. Kelley SD, Agarwal S, Parikh N, Erslon M, Morris P. Respiratory insufficiency, arrest and failure among medical patients on the general care floor. *Crit Care Med.* 2012;40(12):764.

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Don't Quit Helping: Understanding Pharmacotherapy for Tobacco Dependence

by Georgianna Sergakis, PhD, RRT, CTTS

How often are you consulted on the proper use — or to correct misunderstandings — about the medications used in asthma and COPD management? Respiratory therapists are frequently called upon to provide advice on care of respiratory conditions because of the expectation that they will be familiar with disease management guidelines. Like asthma and COPD, the pharmacologic and counseling treatment strategies for tobacco dependence are evidence based and include medications for maintenance and relief of nicotine cravings. The U.S. Public Health Service (PHS) Clinical Practice Guideline "Treating Tobacco Use and Dependence: 2008 Update" synthesizes evidence for use of pharmacotherapies in attempting cessation.[1] Respiratory therapists interacting with tobacco users need to be current on evidence regarding the various pharmacotherapies. This article discusses the pharmacologic agents available for the treatment of tobacco dependence.

The PHS guideline lists seven first-line pharmacotherapies for nicotine dependence. They are classified as either nicotine replacement (patch, gum, lozenge, inhaler, spray) or non-nicotine products (bupropion, varenicline).[1] Relative risk (RR) obtained from meta-analyses for each of the products used as monotherapy and in combination are given in Table 1. The RR reported for varenicline in comparison to placebo (RR=2.27) suggests that more smokers quit in the treatment group; cessation rates were more than doubled. This notable finding must be weighed against the U.S. Food and Drug Administration (FDA) boxed warning on the product (bupropion, another medication prescribed for tobacco-cessation treatment, also carries a boxed warning). A summary of the products, side effects, and warnings are listed in Table 2.

about the author...

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Nicotine replacement therapy

Nicotine replacement therapy (NRT) is the most widely used type of medication to aid tobacco cessation. The FDA has cleared medications available in multiple formulations to deliver nicotine either through buccal absorption or transdermal delivery. The transdermal patch is intended to deliver a continuous (maintenance) dose of nicotine. Oral NRT products like gum, lozenges, and inhalers also help the smoker cope (faster response) with breakthrough cravings and can be self-titrated according to individual need.[2] Administration of nicotine has been found to decrease withdrawal symptoms, decrease nicotine cravings, and reduce the reinforcing effects of continued smoking.[1–3] Most importantly, use of regulated NRT products addresses nicotine dependence and addiction without the delivery of additional harmful additives and known carcinogens found in various tobacco products like cigarettes and cigars.

Non-nicotine pharmacotherapy

Bupropion SR was the first non-nicotine pharmacotherapy to be approved by the FDA for use in smoking cessation in 1997. Initially approved as an atypical antidepressant, this medication aids in smoking cessation by blocking the re-uptake of dopamine and norepinephrine.[1–3] Bupropion is also a nicotine antagonist, which partially blocks the pleasurable (reinforcing) effects of continued nicotine use. Research supports the use of bupropion to decrease cravings for nicotine and decrease withdrawal symptoms.[1–3] The medication has also been found to be effective in women and men for long-term use and relapse prevention, and use has been associated with a reduction (at least until the end of treatment) in post-cessation weight gain.[4]

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Bupropion can produce the side effects common with many antidepressants. The recommended dose of bupropion is 150 mg twice daily and should be started one week before the quit date to ensure steady-state plasma concentrations.[1]

Varenicline, a partial agonist at nicotinic acetylcholine receptors, is the most recently approved non-nicotine, first-line pharmacotherapy developed specifically for use in smoking cessation.[1–3,5] Approved in 2006, varenicline has been found to be more effective than bupropion and placebo at reducing cravings and decreasing the reinforcing effect of smoking. Recommended dosage is 1 mg twice daily following a titration period of one week. The medication should be initiated one week before the planned quit date.

Combination therapy

Research evidence is growing regarding the use of pharmacotherapies in combination or grouped with behavioral interventions like counseling. Particularly, there are now more studies available that demonstrate the effectiveness of maintenance medications (patch, bupropion, varenicline) combined with quick-relief pharmacotherapy for cravings (gum, lozenge, inhaler, spray). Evidence also suggests that pharmacotherapy combined with behavioral interventions further increases cessation rates.[1–6] Table 1 summarizes the effectiveness of these combinations.

Use of regulated NRT products addresses nicotine dependence and addiction without the delivery of additional harmful additives and known carcinogens found in various tobacco products like cigarettes and cigars.

Special patient populations

Certain comorbidities or special circumstances should raise concern when recommending tobacco-dependence pharmacotherapies. When considering these issues, it is important that the benefits of assisting with smoking cessation be weighed against the detrimental consequences of continued tobacco use. Table 3 summarizes the current evidence for cardiovascular disease and other special populations.

NRT (although not officially recommended for pregnant smokers) is less harmful than tobacco products that include harmful chemicals and carcinogens, which should be a consideration when counseling patients. Because of pregnant smokers' higher metabolic rate, higher doses of NRT may be required. However, research evidence is lacking to determine the safety, efficacy, and outcomes of pharmacotherapy use.[1,7] Similarly, there is very limited research regarding the use of pharmacotherapy for smoking cessation in adolescents.[1,8]

Table 1. Summary of Meta-analyses from Reviews of Pharmacotherapies for Smoking Cessation

Treatment	Number of Studies	RR (95% CI)
Varenicline vs. placebo	14	2.27 (2.02, 2.55)
Bupropion SR vs. placebo	36	1.69 (1.53, 1.85)
NRT (any form) vs. control	117	1.60 (1.53, 1.68)
Combination Therapy		
Nicotine patch (long term, >14 weeks) and ad lib NRT	3	3.6 (2.5, 5.2)
Nicotine patch and bupropion SR	3	2.5 (1.9, 3.4)
Nicotine patch and inhaler	2	2.2 (1.3, 3.6)
Combined behavioral intervention and pharmacotherapies vs. usual care/self-help/brief advice	40	1.82 (1.66, 2.00)
Increased behavioral support and pharmacotherapies vs. less or no behavioral support and pharmacotherapy	38	1.16 (1.09, 1.24)

CI, confidence interval; NRT, nicotine replacement therapy; SR, sustained release; RR, relative risk
Adapted from References 1, 2, 3, 5, and 6.

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* HCUP Nationwide Inpatient Sample (NIS), 2011. Agency for Health Care Research & Quality (AHRQ). hcupnet.ahrq.gov

Table 2. Pharmacotherapy for Tobacco Dependence

Medication	Available	Dosage	Side Effects	Contraindications
Nicotine Patch	OTC	One patch per day 7 mg, 14 mg, and 21 mg Dose according to dependence level or cigarettes smoked per day Use 8–12 weeks	Local skin reaction Insomnia	Do not use if you have severe eczema or psoriasis.
Nicotine Gum	OTC	2 mg, 4 mg Higher dose for more dependent individuals Use up to 12 weeks or as needed	Mouth soreness Stomach ache	Caution with dentures; do not eat or drink 15 minutes before or during use.
Nicotine Lozenge	OTC	2 mg, 4 mg Higher dose for more dependent individuals Use 3–6 months	Hiccups Cough Heartburn	Do not eat or drink 15 minutes before or during use; one lozenge at a time; limit 20 in 24 hours
Nicotine Inhaler	Prescription	6–16 cartridges/day Inhale 80 times/cartridge May save partially used cartridge for the next day Use up to 6 months, then taper off	Local irritation of mouth and throat	May irritate mouth/throat at first (but improves with use)
Nicotine Nasal Spray	Prescription	1 squirt per nostril 1–2 doses per hour 8–40 doses per day Do NOT inhale Use 3–6 months, then taper off	Nasal irritation	Not for patients with asthma; may irritate nose; may cause dependence
Bupropion SR	Prescription	Days 1–3: 150 mg each morning Days 4 – end: twice daily Start 1–2 weeks before quit date Use 2–6 months	Insomnia Dry mouth	Do not use if currently using monoamine oxidase inhibitors; history of seizures; history of eating disorders.*
Varenicline	Prescription	Days 1–3: 0.5 mg every morning Days 4–7: 0.5 mg twice daily Days 8 – end: 1 mg twice daily Start 1 week before quit date; use 3–6 months	Nausea Insomnia Abnormal, vivid, or strange dreams	Caution if currently undergoing dialysis; significant renal impairment; serious psychiatric illness.**

SOURCE: Based on reference 1.

*FDA boxed warning regarding suicidality and antidepressant drugs when used in children, adolescents, and young adults

**FDA boxed warning that patients have reported depressed mood, agitation, behavioral changes, suicidal ideation, and suicide

Table 3. Clinical Use in Special Populations

Medication	Patients with Cardiovascular Disease	Pregnant Smokers	Adolescents
NRT	NRT is not an independent risk factor for acute myocardial events. NRT should be used with caution among particular cardiovascular patient groups: those in the immediate (within 2 weeks) post-myocardial infarction period, those with serious arrhythmias, and those with unstable angina pectoris.	Insufficient evidence. Higher doses are likely to be needed due to metabolic rate.	Insufficient evidence. A small trial testing NRT did not detect a statistically significant effect.
Bupropion SR	Generally well-tolerated; occasional reports of hypertension.	Not investigated.	Few trials, no significant effects.
Varenicline	Not contraindicated.	Not investigated.	Not investigated.

SOURCE: Based on references 1, 7, and 8.

The RT's role

Education and assessment are areas of opportunity in the proper use of tobacco dependence pharmacotherapy. RTs can explain how the use of these medications alone or in combination with counseling increases tobacco-cessation success. A common problem is that NRT is taken ineffectively. For example, the tobacco user may:

- Chew the nicotine gum continuously instead of using the "chew and park" method recommended
- Terminate treatment too early
- Take less than the recommended dose for the severity of tobacco dependence.[5]

Respiratory therapists can explain the difference between the nicotine delivered in the tobacco product (along with all the other harmful chemicals) and the FDA-approved NRT products. As a part of the disease management plan, RTs can assess tobacco history, measure tobacco-dependence severity, recommend appropriate dosage based on severity of dependence, and recommend appropriate maintenance and quick-relief medications.

The mortality and morbidity associated with continued tobacco use makes contributing to proper tobacco-dependence disease management an important contribution to improving the health of our patients. If not already, become an advocate for respiratory therapy and be a part of the tobacco-dependence treatment team. Better yet — lead the way! Whatever you do, don't quit helping your patients to quit.

If you are interested in learning more about tobacco-dependence treatment, look for the AARC's "Clinician's Guide to Treating Tobacco Dependence" that was produced by members of the AARC Tobacco-Free Lifestyle Roundtable. It can be downloaded at www.aarc.org/education/tobacco_dependency/. Or, if you want CRCE credit, log on to the AARC University (http://learning.aarc.org), where the course is free to members. ■

REFERENCES

1. Fiore MC, Jaén CR, Baker TB, et al. Treating tobacco use and dependence: 2008 update—clinical practice guidelines. Rockville MD: U.S. Department of Health and Human Services, Public Health Service, Agency for Healthcare Research and Quality; 2008.
2. Aubin HJ, Luquiens A, Berlin I. Pharmacotherapy for smoking cessation: pharmacological principles and clinical practice. Br J Clin Pharmacol 2014; 77(2):324-336.
3. Aubin HJ, Karila L, Reynaud M. Pharmacotherapy for smoking cessation: present and future. Curr Pharm Des 2011; 17(14):1343-1350.
4. Farley AC, Hajek P, Lycett D, Aveyard P. Interventions for preventing weight gain after smoking cessation. Cochrane Database Syst Rev 2012; 1:CD006219.
5. Raupach T, van Schayck CP. Pharmacotherapy for smoking cessation: current advances and research topics. CNS Drugs 2011; 25(5):371-382.
6. Hartmann-Boyce J, Stead LF, Cahill K, Lancaster T. Efficacy of interventions to combat tobacco addiction: Cochrane update of 2012 reviews. Addiction 2013; 108(10):1711-1721.
7. Coleman T, Chamberlain C, Davey MA, et al. Pharmacological interventions for promoting smoking cessation during pregnancy. Cochrane Database Syst Rev 2012; 9:CD010078.
8. Stanton A, Grimshaw G. Tobacco cessation interventions for young people. Cochrane Database Syst Rev 2013; 8:CD003289.

You Can't Sue a Bug!

by Anthony L. DeWitt, JD, RRT, FAARC

In a famous case from more than 20 years ago, a *pro se* litigant (someone who represents himself in court) filed a lawsuit against the devil.[1] The litigant alleged that Satan had "on numerous occasions caused plaintiff misery and unwarranted threats against the will of plaintiff, that Satan has placed deliberate obstacles in his path and has caused plaintiff's downfall." While this might seem silly, filing a lawsuit in a federal court is no small thing; and the judge had to decide what to do with the lawsuit.

Making reference to the famous story of "The Devil and Daniel Webster,"[2] the federal judge questioned whether there was "personal jurisdiction" over the defendant and noted that "the plaintiff has failed to include with his complaint the required form of instructions for the United States Marshal for directions as to service of process." Concluding it could not exercise jurisdiction, the court dismissed a rather silly lawsuit.

Bedeviled by microbes

Recently, however, a number of very serious cases of refractory infections raised the question of whether a hospital can be sued for failures of infection control. While these cases sometimes are brought by plaintiffs, they are rarely successful. One reason they so often fail is because the party at fault — a medication-resistant bacteria — cannot be sued for damages or served with a lawsuit, much like the subject of the lawsuit above.

An example of one such case filed on the basis of a hospital-acquired infection comes from St. Joseph Missouri.[3] It arose due to a patient who acquired methicillin-resistant *Staphylococcus aureus* (MRSA) following abdominal surgery. The surgery went well, but the patient developed a serious bacterial infection. The plaintiffs alleged that (1) the hospital had failed to put in place proper infection-control procedures, and (2) the hospital failed to give ordered doses of vancomycin to treat the blossoming infection. Ultimately the patient died from MRSA pneumonia.

The hospital, on the other hand, mounted a rather common-sense defense. First, it denied that it did not have effective infection-control procedures in place. The fact that there are infections in hospitals is widely known. Frequently these infections come into the hospital in patients, and sometimes they spread in spite of the very best efforts to prevent their spread. Patients cough and sneeze. Visitors touch patients and then touch vertical and horizontal surfaces and common areas where other patients and visitors are exposed. Even hand sanitizer at every door is not a guarantee that infections won't spread.

As frequently happens in medical negligence cases where the physician is not sued but the hospital is, the hospital alleged that the infection arose not from any failure on its part but, rather, from a mistake made by the doctor who had not been sued. The hospital claimed that the patient's intestines had been nicked during surgery, allowing infectious bowel materials to leak into the abdomen and cause sepsis.

Also, the defendant hospital claimed that MRSA is found in just about every hospital and nursing home in the country. Even if the bug had been acquired in the hospital, there was no way to prove where the causative bacteria had come from. Therefore, the hospital argued, the patient's MRSA pneumonia was not a result of hospital negligence, and plaintiff could not prove causation.

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.

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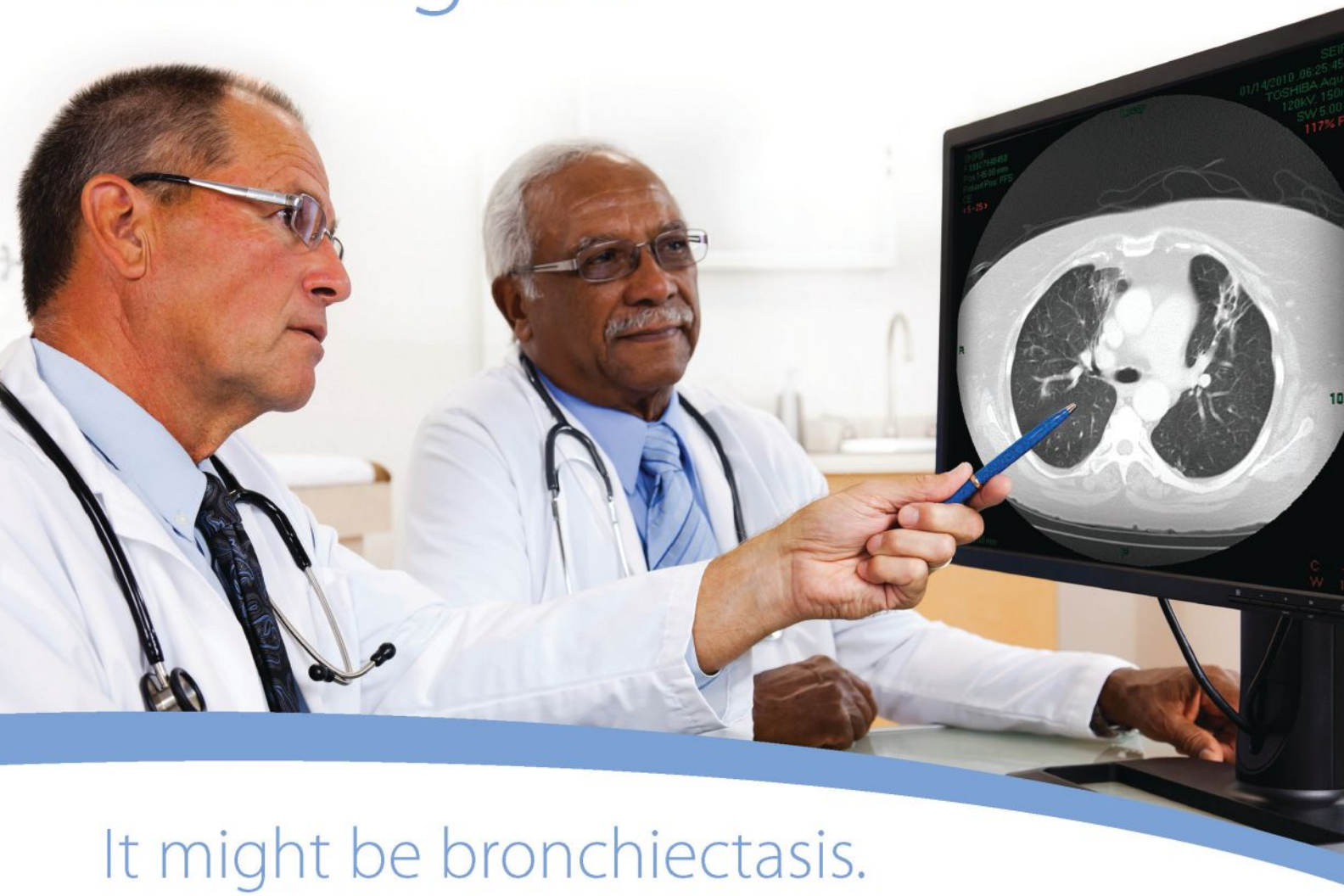

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The defense attorneys were able to argue that the hospital was the "good guy" and that the only "bad guy" here was the bacteria that ultimately caused the patient's death. Given that the family was asking for more than $6 million in damages, there was a lot riding on that defense. Ultimately, the jury found for the defendant finding that bad things sometimes happen without any fault.

Infections happen

So it is with infection cases. It is quite common for post-op (and even non-operative patients) to acquire infections in hospitals. Unless the plaintiff has evidence in the medical record or elsewhere of some breach of the standard of care (for example, a breach of the sterile field in surgery), it is very difficult for a plaintiff to win an infection case. Of course, Medicare may still penalize institutions for "never events" related to infection. Infections are always a complication that any prudent surgeon warns against.

However, that does not mean that therapists have nothing to worry about. Patients and their families tend to watch what you do closely; and if you fail to wear sterile gloves while suctioning or breach sterile procedure in some noticeable way (for example, while wearing gloves you scratch your face or rub your nose), this provides the critical leverage necessary for a plaintiff to initiate a lawsuit.

The mere fact that a hospital might have an outbreak of the same type of infection among numerous patients may be some evidence of negligence, but because a plaintiff must prove that a specific act of negligence caused their injury, lawsuits based on clusters of infections often fail for legal reasons.

The most important take-away from these infection cases is this: If you protect the patient at all times, maintain sterile fields, and document that you did so, the likelihood of a successful lawsuit against you diminishes significantly. ■

REFERENCES

1. United States ex rel. Gerald Mayo v. Satan and His Staff, 54 F.R.D. 282 (W.D. Pa. 1971).
2. Benet SV. The devil and Daniel Webster. New York, NY: Farrar & Rinehart; 1937.
3. Case report, Sheeks v. Mulder, found online at http://www.morelaw.com/verdicts/case.asp?n=398-193CC&s=MO&d=8966

How RTs Can Find Answers to Their Medicare Questions: Part 2

by Anne Marie Hummel

Last month in this column we explored certain aspects of the Centers for Medicare and Medicaid Services' (CMS) website to help educate respiratory therapists in areas that impact their profession and may provide answers to their questions about Medicare. It included information on how to find CMS manuals that impact respiratory care services and how to find national and local coverage determinations. This month we want to explore regulations that impact RTs directly as well as introduce you to valuable state and county data on COPD and asthma.

CMS home page: www.cms.gov

Let's start with the yellow horizontal headings across the top of CMS' home page at www.cms.gov. The most often used heading is "Medicare." Once you click on that, you will see numerous secondary headings that provide a multitude of details.

Regulations impacting RTs

Most regulatory issues that impact the respiratory profession in general can be found under the heading "Medicare Fee-for-Service Payment" under the Medicare main menu heading. There you will find subheadings for "Acute Inpatient PPS," "Hospital Outpatient PPS," and the "Physician Fee Schedule." The acute inpatient hospital prospective payment system (PPS) regulations are effective on a fiscal year (FY) basis, which begins Oct. 1 of each year. The hospital outpatient PPS regulations and physician fee schedule updates are effective on a calendar year basis.

If you want to find regulations about including COPD as part of the inpatient hospital readmissions reduction program beginning in Oct. 1, 2014, you would click on the "Acute Inpatient PPS" subheading. The proposed and final rules by year are shown in the left-hand column. The COPD topic is part of the FY 2014 update. Once you click on that link, look for CMS-1599-P [pages FR 27597-27599] or CMS-1599-F [FR 50657-50663] in the Related Links section.

Transitional care management (TCM) services implemented Jan. 1, 2013, and Chronic Care Management (CCM) services to be implemented Jan. 1, 2015, offer new opportunities for respiratory therapists to move from the hospital to the physician practice setting. Recent proposed changes for both of these services would allow clinical staff to work under the general supervision of the physician without having to be an employee of the physician practice. This is good news. Even though the policy isn't final, we don't expect objections to the change.

Designed to prevent unnecessary hospital readmissions, TCM services help transition patients with moderate or complex needs from an inpatient hospital setting (e.g., acute care, skilled nursing, inpatient rehabilitation) to a community setting following discharge. Those needing CCM services must have multiple (two or more) chronic conditions expected to last at least a year or until the death of the patient, that place the patient at significant risk of death, acute exacerbation/decompensation, or functional decline. Access to needed care would be available 24/7.

You can learn more by reading the discussion in the 2015 update to the physician fee schedule. Click on the heading "Physician Fee Schedule," PFS Federal

about the author...

Anne Marie Hummel is the AARC's director of regulatory affairs in Washington, DC.

Table 1. Percentage of Medicare Beneficiaries with COPD and Asthma

	COPD	Asthma
National	**11.28%**	**4.86%**
Indiana (Jefferson Co.)	13.39% (18.34%)	4.56% (4.56%)
Virginia (Buchanan Co.)	10.03% (15.22%)	4.85% (3.05%)
New York (Bronx)	10.69% (9.22%)	5.82% (8.93%)
Wyoming (Crook Co.)	10.28% (9.93%)	3.07% (2.14%)

Regulation Notices, CMS-1612-P and then CMS 1612-P again in the Related Links. The discussion is on pages FR 40364–40368.

Data on Medicare beneficiaries with chronic conditions (including COPD and asthma)

Another heading you may not think to use but one that has a wealth of data is "Research, Statistics, Data & Systems" on CMS' home page main menu. Click on that and scroll down to the heading "Statistics, Trends & Reports" and you will see the subheading "Chronic Conditions." With the emphasis CMS now places on beneficiaries with chronic conditions, we encourage you to spend some time searching the various headings in the left-hand column of the "Chronic Conditions" main page because they contain data on Medicare beneficiaries

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Table 2. Medicare Beneficiaries with Four to Five Chronic Conditions

State	Prevalence	Per Capita Medicare Spending	ED Visits per 1,000 Beneficiaries	30-Day Readmission Rate
National	**21.06%**	**$11,069**	**794**	**12.63%**
Alabama	22.53%	$11,317	819	12.27%
Alaska	14.30%	$11,020	1,028	13.26%
Arizona	19.49%	$11,675	764	12.13%
Arkansas	20.28%	$11,485	862	13.11%
California	19.92%	$10,814	718	13.09%
Colorado	16.00%	$12,922	954	12.18%

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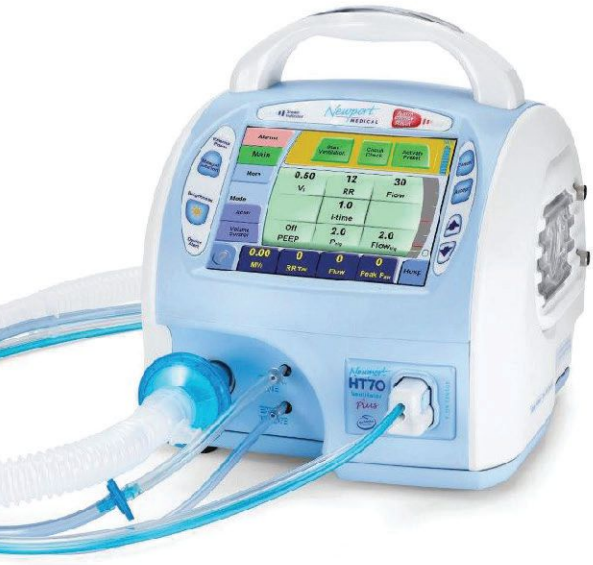

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Table 3. Per Capita Cost of Dyads and Triads that Include COPD and/or Asthma

	Per Capita Cost
Stroke and COPD	$49,025
Stroke and asthma	$46,913
COPD and chronic kidney disease	$45,011
Stroke, chronic kidney disease and COPD	$68,956
Stroke, chronic kidney disease and asthma	$69,980
Stroke, heart failure and asthma	$62,819

with multiple chronic conditions that include COPD and asthma. Within the headings, you can find data presented in a table format, graphs, maps, charts, and more. These data can also come in handy if you talk with your congressional representatives about AARC's legislative initiative.

Click on the heading "Dashboard" in the left-hand column and it will allow you to use an interactive data base to search the prevalence of COPD and asthma among Medicare beneficiaries in your state and county. The respective dashboards can be accessed from the Dashboard main page. Examples include those listed in Table 1.

State and County data with respect to utilization (e.g., number of emergency department visits per 1,000 and hospital readmissions) and per capita spending is only available by the number of chronic conditions, e.g., 0–1, 2–3, 4–5, or 6+. As you can see from Table 2, these data cannot be broken out by COPD and asthma specifically; but they are still important. If you check out the "Chartbook" heading and look at the statistics from the 2012 Chronic Conditions Chartbook, you will see that 98% of the 1.9 million hospital readmissions in 2010 were Medicare beneficiaries with multiple chronic conditions.

Under the "Co-morbidity" heading you can see the prevalence and cost per beneficiary for COPD and asthma when they present with two (dyads) or three (triads) other specific chronic conditions. Data from the 2012 Chronic Conditions Chartbook discussed above also maps out the most costly combinations of chronic conditions, although these data are not available at the state level. From the examples listed in Table 3, three of the five most costly combinations of dyads and triads include COPD and/or asthma.

As you can see, the CMS website provides you with a wealth of information at your fingertips that will not only help you in your job but also help your patients by giving you a better understanding of the Medicare program and all its intricacies. So what are you waiting for? Get started today and have fun exploring! ■

5 More Sessions You Won't Want to Miss

AARC CONGRESS 2014 SPEAKERS OFFER A

Respiratory care professionals who gather in Las Vegas for AARC Congress 2014, Dec. 9–12, will learn about the latest developments in the profession from some of the biggest names in the business. In this edition of our Congress preview, five more top lecturers provide an inside look at the content they'll be delivering in just a few months.

SNEAK PEEK AT THEIR SYMPOSIA

1 An Interactive Quiz: What Is Your Home Care IQ?

by Angela King, BS, RRT-NPS, RPFT, and Gary Jeromin, MA, RRT

The role of the respiratory therapist in home care can be quite challenging. Unlike the controlled hospital environment, the home care world comes with a multitude of factors that range from environmental safety conditions within the home, to the caregiver's ability to operate the equipment, to selecting the correct device and the type and quantity of supplies that can be provided.

Home care is also driven by a complex array of insurance requirements that determine whether the home care company will be paid. The insurance requirements often narrowly specify how the prescription must be written and signed, which qualifying diagnoses are allowed, and which devices can be used. Home care RTs are continuously faced with overcoming physical, social, economic, and cognitive challenges to create an individualized, effective care plan based upon the physician's prescription. Home ventilator patients — especially pediatric patients — require meticulous planning, preparation, and coordination of care. The possibility of a life-threatening event is always a real contingency that must be continuously reevaluated.

The home care RT also faces the prospect of on-call duties — handling calls from patients regarding equipment function and malfunction at all hours of the night. The home care therapist is challenged to diagnose the problem over the phone and provide the correct resolution to the problem as it is presented by the patient or caregiver. The therapist must also be prepared to travel to the patient's home at any hour of the night to correct the problem.

This interactive quiz will cover a mix of factors involved in home respiratory care — from ventilators, noninvasive positive pressure ventilation, and oxygen administration to respiratory-assist devices and airway clearance. We believe it will be a fun yet challenging way for the home care RT (or any other RT who would like to know more about home care) to test his knowledge and skills. ■

Angela King is vice president of clinical services/co-owner of Mobile Medical, based in Leo, IN. Gary Jeromin is senior supervisor of respiratory care at the University of Michigan Health System in Ann Arbor, MI.

2 Current Topics in Tobacco Cessation

by Susan Rinaldo Gallo, MEd, RRT, FAARC

This session will cover some of the most relevant and current issues in smoking cessation. The first presentation, entitled "Vaping: What Is It and Is It Safe?" will delve into the controversial use of e-cigarettes. The use of e-cigarettes has drastically increased in young people. Indeed, these products are considered by some to represent the re-popularization of nicotine inhalation. However, e-cigarettes contain harmful chemicals and have never been shown to be successful as a smoking-cessation method.

The second presentation, "Smoking Cessation and Reimbursement for RTs," will cover the reimbursement possibilities for providing smoking-cessation services. Respiratory care departments and outpatient facilities are able to bill for smoking cessation provided by a respiratory therapist. The lecturers will provide all the necessary information to make this possible in your facility. Information on smoking-cessation counseling will also be presented.

The third session, "Tobacco Policies in the Workplace," will address government and workplace regulations related to smoking. Examples of tobacco-free policies will be presented, along with information on employer health insurance policies that apply extra co-pays for smokers or have other smoking-related provisions — such as stores that sell tobacco products but ban smoking by their employees. Tobacco-use policies will continue to evolve as employee rights and workplace safety issues are taken into consideration, and the examples that will be presented will assist participants in developing their own workplace policies.

Smoking cessation is a valuable service that therapists can offer their patients. Respiratory therapists are perfectly suited to providing smoking cessation because they provide care to smokers every day. Adding tobacco-cessation counseling to their scope of practice allows RTs to be viewed as educators and disease managers. ■

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Susan Rinaldo Gallo is the health systems user analyst for the RT department at Duke University Medical Center in Durham, NC.

— 2014 —

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3 Specialty Care Transport: 2014 and Beyond

by Tabatha Dragonberry, BSRT, RRT-NPS, RRT-ACCS, and Alex Brendel, MBA, RRT-NPS

Medical transport is an expanding industry. Hospital systems are contending with consultants, budget cuts, and regulation changes, resulting in the need for more patients to travel farther distances to receive higher levels of specialized care. In this symposium we will review the ways respiratory therapists are being utilized in this field and how the role of RTs on transport varies greatly across the country.

Currently, there is no standard or regulating body that sets educational, continuing competency, or experience requirement guidelines in regard to respiratory therapists on transport. This lecture series will review survey results on topics that include team composition, scope of practice, and licensure requirements. These are important topics to be aware of as we move forward in advancing respiratory care practice.

There is also a considerable amount of confusion among transport respiratory therapists as to whether their state licensure laws cover them while on transport in a neighboring state. Do you know which states have reciprocity agreements or waivers in place for transport RTs? How would you approach a nearby state with a reciprocity agreement if one is not already in place? It is important to know how reciprocity affects your practice and how to work toward it if it is not currently in place.

These are just some of the topics we will cover during "Specialty Care Transport: 2014 and Beyond." Join us as we discuss ways to advance the role and practice of the transport RT on specialty care teams. You'll walk away with knowledge of the various roles of respiratory therapists on transport, strategies to address challenges, and information on how to advance clinically and professionally as a transport respiratory therapist. ■

(continued on page 36)

Tabatha Dragonberry is a staff therapist at Children's National Medical Center in Washington, DC. Alex Brendel is a pediatric outreach education coordinator at Carilion Clinic Children's Hospital in Roanoke, VA.

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4 AARC Program Committee Spotlight: Distance Learning in the Not-So-Distant Future

by Georgianna Sergakis, PhD, RRT, CTTS, and Crystal Dunlevy, EdD, RRT

Distance learning is a bit like the HBO series "Game of Thrones" — you either love it or you hate it. Well, Dr. Sergakis loves it, and Dr. Dunlevy hates it — not "Game of Thrones," but online education. The two will be "discussing" the advantages and disadvantages of distance learning in a lively debate format.

To give you a better idea of what's in store, we offer a rare, behind-the-scenes look at the presenters' preparation styles: Dr. Sergakis will tirelessly search the Internet databases and PubMed for articles that support her position, presenting her arguments using a variety of the most current, high-tech toys; Dunlevy will trudge to the library, legal pad in hand, to peruse dusty tomes and write notes with a fountain pen. All she really needs is a lectern and chalk.

No one can argue that distance learning has increased in both supply and demand over the last 20 years, but educators continue to be polarized when it comes to its development and practical application. It takes a lot of time and effort to create a good online class. Dr. Sergakis wants to help you; Dr. Dunlevy wants you not to waste your time (it's never going to be as good as her classroom anyway).

However, distance learning is here to stay, and it's extremely likely that we will be doing more of it; we might as well make the best of it! So, after the banter dies down, the two will build on the pros and cons to give attendees a "nuts and bolts" approach to building a great online course and creating a constructive learning environment for the RT students of the future. ■

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Dr. Georgianna Sergakis is program director and Dr. Crystal Dunlevy is clinical associate professor in the RT program at The Ohio State University in Columbus, OH.

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5 Oxygen Therapy: Doing It Right

by Brian Carlin, MD, FAARC

The use of supplemental oxygen therapy for ambulatory patients with hypoxemia is an essential and important component of care. The science behind the use of supplemental oxygen for such patients dates back nearly 40 years, yet in many instances today such therapy is not afforded appropriately. Issues that often arise range from the appropriate determination of who might benefit from therapy, to appropriate administration (including the actual "prescription"), to the type of equipment provided. The development of newer modalities of delivery and monitoring of the use of supplemental oxygen will require the respiratory therapist to have a keen knowledge and understanding of the various types of equipment available and how to best fit the administration of supplemental oxygen to an individual patient.

This symposium will focus on three separate topics, with an overall objective of helping the RT "do it right." The science behind the use of supplemental oxygen will be discussed with an emphasis on the development of the correct oxygen prescription for an individual patient. Secondly, a discussion of the use of appropriate types of delivery systems/devices based upon practical recommendations for that individual patient will take place. The session will conclude with a "future" look into the oxygen therapy market and potential growth rates. ■

Dr. Brian Carlin is a pulmonologist in Pittsburgh, PA.

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HE HAS OUR BACK

by Debbie Bunch

The AARC's 2014 Jimmy A. Young Medalist has always been there for our profession

Growing up in rural Berwyn Heights, MD, back in the 1950s and 1960s, Charles Durbin, MD, FAARC, spent his days in the great outdoors, collecting everything from rocks and turtles to insects and even snakes. His veterinarian father was a researcher at a U.S. Food and Drug Administration facility in nearby Beltsville, so neighbors would often bring their sick or injured animals to his home for care; and early on Dr. Durbin decided he, too, would go into the medical field. Since his father always said he originally wanted to become a human doctor, that's where he set his sights.

In high school, though, his interests turned in other directions. "Electronics — vacuum tubes and later transistors — was interesting to me, and I collected discarded radios and TVs and used parts to build new devices," he says. "A friend and I built a communication system that used the electrical lines to transmit radio frequency voice transmission." They also built a primitive video recorder using a 78 RPM phonograph, and at one point Dr. Durbin even used the speakers on his parents' phonograph to listen in on their adult conversations — a practice that got him in big trouble when he was eventually caught.

With that indiscretion aside, however, the young Dr. Durbin was by any accounts a fine and upstanding citizen, becoming the first Eagle Scout in his troop at just age 15. When it came time to apply for college, he first thought about pursuing his interests in electronics or math; but with friends whom he thought bested him in these areas, he

ultimately decided to stick with his initial career goal and shoot for a degree in medicine. He enrolled in Franklin & Marshall College in Lancaster, PA; and after two years applied for and was accepted into the five-year medical school program at Johns Hopkins in Baltimore, MD.

Crisis of purpose

Moving to Baltimore was a blessing, he says now, as his father passed away suddenly during the middle of his first year; and it was nice to be closer to home to help his mother with his two younger sisters, who were just 10 and eight at the time. He also married the love of his life that year, and they celebrated their 45th wedding anniversary earlier this year.

By the end of his third year in the program at Hopkins, however, the turmoil created by his father's untimely death led him to suffer what he now calls a "crisis of purpose." "I really didn't want to be a doctor — I was in med school because my dad wasn't a 'doctor,'" he recalls now. "With him being gone and having not seen any role model physicians that I admired, I decided to drop out of medicine and become a biology teacher."

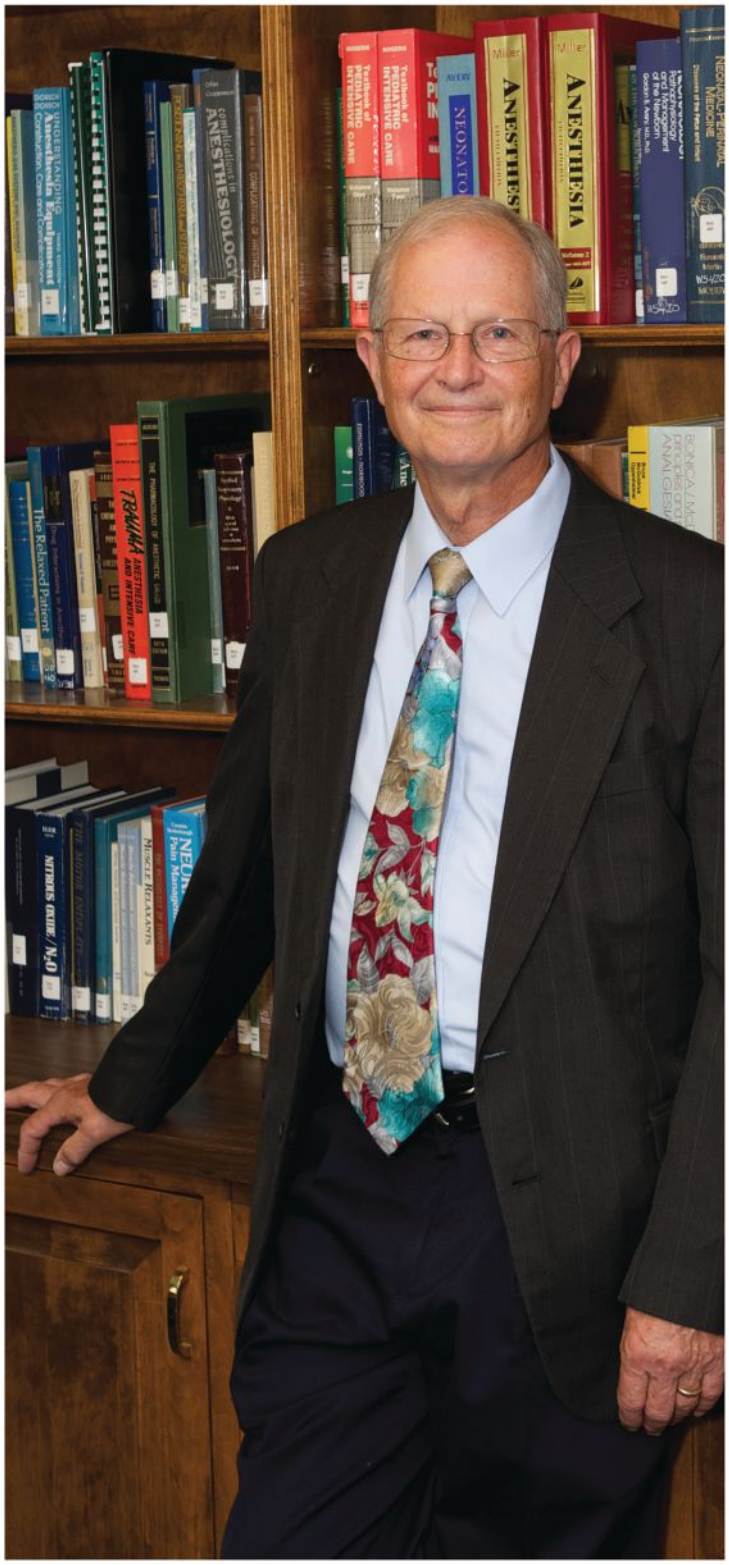
Luckily for medicine and respiratory care, that never happened. When he went to his dean and explained his decision, the dean quickly pointed out that if he did that, he'd get no credit for the three years of medical school he had already completed and would have to do another two years just to get a bachelor's degree in biology. A better idea would be to finish medical school and receive a BA in human biology at the same time.

"I decided to finish the MD-BA and apply for a high school job," says Dr. Durbin. Then he signed up for an anesthesiology rotation, and his life took yet another turn — one that set the stage for the physician he is today.

The perfect fit

"As it turned out, med students were treated well in anesthesia," says Dr. Durbin. He enjoyed the case discussions that took place every day of the two-week rotation, and he also found the mentor he was looking for in Don Benson, PhD, MD, chief of the division of

Dr. Charles Durbin set out to be a doctor because his dad didn't become one. Teaching is his real love, however, and no one has benefited more from his guidance than respiratory therapists.



Charles Durbin, MD, FAARC

All photos of Dr. Durbin by Thomas N. Pajewski, PhD, MD, University of Virginia Health System, Charlottesville, VA

anesthesia at Hopkins. Despite the fact that many of his fellow students looked askance when he informed them of his choice of specialization. "Anesthesia?" they said. "Why would anybody waste their time with hours of boredom interspersed with minutes of panic?" And with that, he says he was hooked. "I saw anesthesia could kindle my passion," says Dr. Durbin, and all these years later he says it's still doing just that. "Anesthesia has been the perfect fit for me. I use my mechanical skills and my brain."

He spent that summer working in the operating room just like an intern and getting paid as well through a scholarship from the American Society of Anesthesiologists. Later on he also worked with a pulmonary physiologist to create a mathematical simulation of the anesthesiology semi-closed circuit, predicting the fresh gas flows needed to prevent CO_2 buildup in the event of CO_2 absorption failure.

"I learned from Dr. Benson that the anesthesiologist is the internist of the operating room," says the physician. "Part of the job is managing medical issues during surgical stress." He signed up for as many internships as he could, and at one local hospital got the chance to perform a number of intubations and even set up an MA-1 ventilator right out of the box and manage mechanical ventilation on a patient with COPD — the first time anyone at that hospital had ever been ventilated. "I ran the blood gas machine myself — the Van Slyke method — and learned which controls to turn to get the patient comfortable and with adequate arterial blood gases." He saw his efforts pay off when the patient survived to extubation.

That experience drove his subsequent interest in critical care. Following his graduation from Hopkins, he trained in internal medicine in Memphis, TN, for two years, where he started a resident teaching rotation in the ICU before beginning an anesthesiology fellowship at the University of Pennsylvania in Philadelphia.

In the RT's corner

Given his love of hands-on technology, you would think Dr. Durbin would have gone on to devote his career to the practice of anesthesiology. If you remember that his original goal during his "crisis of purpose" in medical

Jimmy A. Young Medal

Every year the AARC bestows the Jimmy A. Young Medal on a member of the profession who has exceeded all expectations for meritorious service to the AARC and advancement of the respiratory care profession. The award was created in 1976 to honor the memory of Jimmy A. Young, MEd, RRT, an exemplary member of the profession and AARC leader who died suddenly at the age of 40.

Among his many accomplishments were serving as director of the first "inhalation therapy" department at Massachusetts General Hospital in Boston, co-authoring one of the first textbooks on respiratory care, "Principles and Practice of Inhalation Therapy," and serving as the 22nd president of the AARC. ■

school was to teach high school biology, it's easy to see how he ended up in academic medicine. As a professor of anesthesiology at the University of Virginia (UVa) in Charlottesville, he has had a hand in teaching hundreds of medical students and along the way has helped to prepare hundreds of respiratory therapy students as well.

His introduction to the profession came after he got involved in a new program at the medical center. "UVa had recruited an anesthesiologist-intensivist to start an ICU program," explains Dr. Durbin. "He recruited me to be the third member of the surgical ICU team, and I was assigned to help with respiratory care teaching at Piedmont Virginia Community College (PVCC)." He would eventually become the medical director for the department at UVa, where he worked closely with William Dubbs, MHA, RRT, FAARC, who came on board as department director, and Patricia Doorley, MS, RRT, FAARC, who became program director at PVCC. "We have continued to be friends and colleagues since."

Dubbs says Dr. Durbin not only offered the typical support expected of a good medical director, he went above and beyond to help respiratory therapists grow their scope of practice. "Although he made many positive contributions to the growth and development of the UVa respiratory care department over the past 30 years, it was his research skills and keen interest in quality improvement that initially contributed substantially to the growth and development of those respiratory therapists and that department," says the AARC member. A major contribution came when he served as the guide for RTs who were designing and conducting a study to evaluate whether having therapists suggest therapy modifications based on patient condition to physicians could improve adherence to clinical practice guidelines.

In 2002, Dr. Durbin received the Forest M. Bird Lifetime Scientific Achievement Award.

That paper ("The Effects of Therapist-Evaluation of Orders and Interaction with Physicians on the Appropriateness of Respiratory Care") may not list Dr. Durbin as a co-author, but Dubbs says he was instrumental in spearheading the research, and he is proud of the key role he was able to play in bringing the investigation to fruition. "The study is significant because this is the seminal study demonstrating the important impact of respiratory therapist practice on outcomes," says the physician. "It is also significant to me because of my mentorship contributions."

Says Dubbs, "This paper became an often-cited reference in advancing the delivery of respiratory care by protocol during the next 20 years."

A fabulous mentor

Patricia Doorley says Dr. Durbin's willingness to serve as a mentor to her and many other therapists at PVCC and UVa speaks volumes about his support of the respiratory care profession. Now therapy services coordinator with pulmonary diagnostics and respiratory therapy services at UVa Health System, she first met the physician while serving as director of clinical education at PVCC. However, she really got to know him well when she took over as program director in 1982 and he assumed the role of medical director for the program. "Our relationship developed in many ways during my tenure at PVCC; and by the time I left that position in 1987, we were colleagues as well as friends. As a matter of fact, he and one of the students from the program helped me move into my first Charlottesville home in the summer of 1987."

She had just accepted a position as a staff therapist at the facility; and as she got more into the job, she says Dr. Durbin remained by her side, acting as a mentor and helping her get involved in basic clinical research. They worked together on programs and projects sponsored by the Virginia Society for Respiratory Care (VSRC) as well, and he introduced her to the AARC's Open Forum and invited her to serve as a co-editor of the "Test Your Radiologic Skills" column that appeared in Respiratory Care from 1993 to 2007 — an opportunity she says led to her appointment to the Journal's Editorial Board.

However, Doorley says Dr. Durbin's guidance in clinical care tops the list when it comes to the contributions he made to her career and the careers of many other RTs who have crossed his path. "He taught me to really think about the care I was providing and the

Shown here with former Journal editor Pat Brougher, BA, RRT, Dr. Durbin has served in multiple positions with the Respiratory Care Journal.

physiological impact and implications of my therapeutic interventions," says the AARC member. "He also taught me the importance of being able to critically evaluate information and to confidently share my concerns and recommendations with others."

Most important contributions

From the science project he did in high school using his father's electrophoretic equipment to test McDonald's hamburgers for the presence of horse meat (none was found!), to studies on insects he conducted at the Department of Agriculture in high school, and then to help pay his way through college (several of which were published in peer-reviewed literature), Dr. Durbin has made research a priority in his life. He has 70 journal publications to his credit and continues to conduct investigations on a range of topics, particularly those related to the effects of aging on learning, ensuring competence in the aging clinician, and teaching and assessing team skills in junior faculty and residents.

When asked to cite his most important contributions to the respiratory care literature, however, he first notes his 1986 paper on airflow resistance across various neonatal nasal CPAP devices, published in Respiratory Care along with co-author Michael Czervinske, RRT-NPS. That paper won an award at the AARC Congress and served as his introduction to then Journal Editor Philip Kittredge, RRT.

Another study conducted with critical care fellow Robert Kopel, MD, looked at patients readmitted to an ICU. Results showed they had at least two to three times the mortality of patients who were not readmitted — and respiratory issues were the most common reason for the readmission. A follow-up paper co-authored by Betsy Kirby, RRT, revealed a dramatic drop in the mortality rate for these patients after RTs were deployed to the acute care areas — a fact Dr. Durbin attributes to earlier attention to developing issues, improved care team collaboration, and rapid institution of needed care even before the deteriorating patient returned to the ICU. "These concepts are recognized today as supporting the development of rapid response teams and contributing to improving patient outcomes," he says. "These two papers are also the only before-and-after studies in the same institution supporting the contributions of the RT to meaningful outcome improvements."

Finally, Dr. Durbin cites his 2002 study conducted with Stephanie Rostow, RRT, which found that a better pulse oximeter reduced arterial blood gases (ABGs) during weaning after cardiac vessel bypass. He gives Rostow most of the credit for the work — "She carried out this study with very little help from me," he says — but puts it on his "best of the best" list because he believes it served as a prototype for the study of clinical monitors.

Serving to the max

Dr. Durbin says his "commitment to and love of teaching was a natural fit with Respiratory Care and the AARC" and fueled his increasing involvement with both over the years, beginning with his introduction to the leadership team when William Dubbs encouraged him to attend a Journal Conference on positive end-expiratory pressure in the 1980s. "I was impressed and awed with the presenters and the professionalism of the group and the organization," he says now; and the feeling was mutual. Following the conference, Dr. Durbin was invited to review submissions to the *Journal* and from there joined the publication as a member of the Editorial Board. Today he serves as an associate editor for Respiratory Care.

Along the way he also became involved with the AARC Congress Program Committee, where he has played a major role in helping to ensure top quality educational sessions for respiratory professionals from here in the United States and abroad. He has also always been there to lend a hand to beginning researchers preparing their first Open Forum presentations, and he has played an instrumental role in the AARC's 2015 and Beyond project, which is setting the stage for the respiratory therapist of

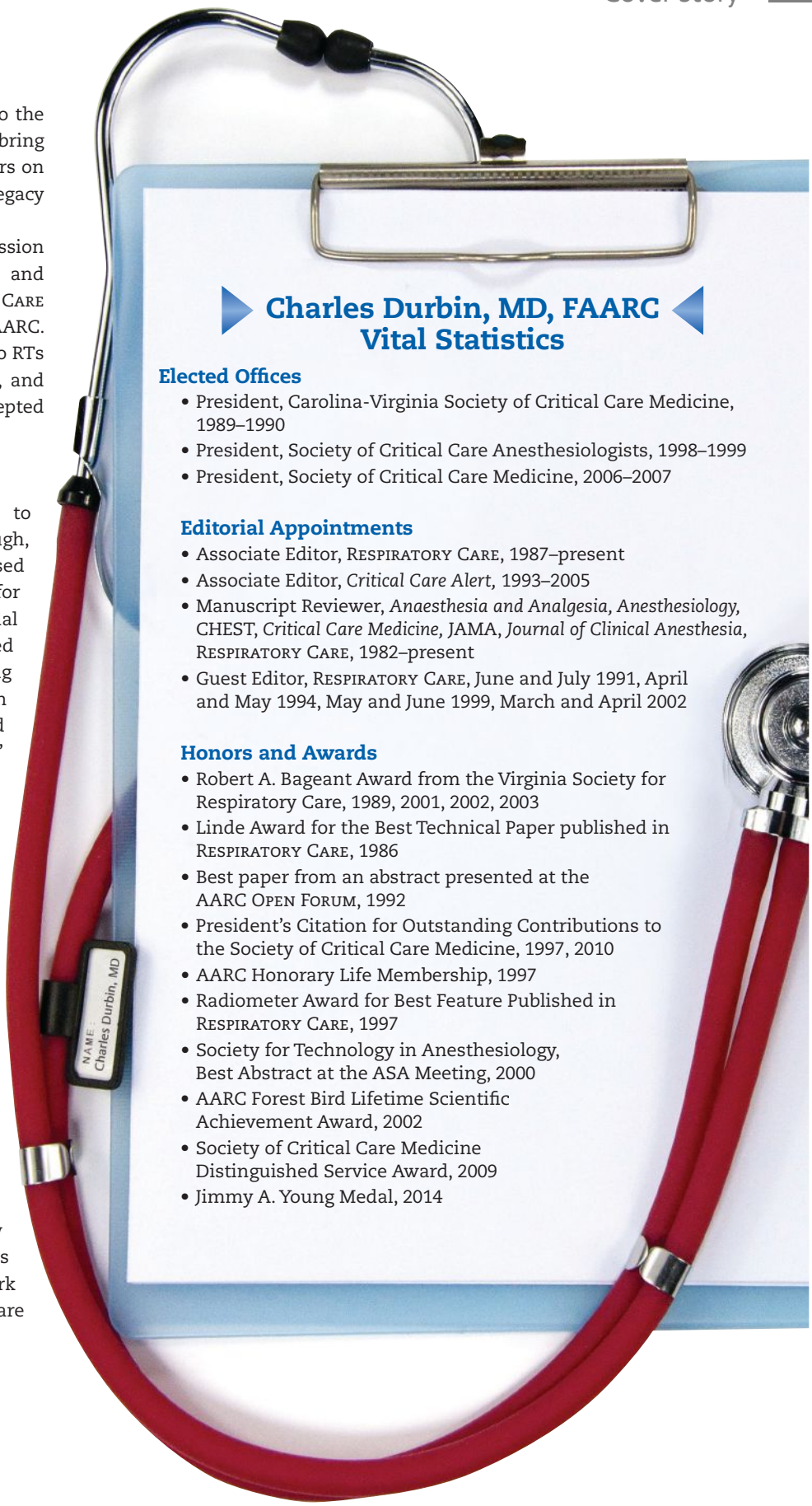
the 21st century. "My contributions to the 2015 and Beyond project, which will bring the RT profession to parity with others on the health care team, will be my legacy contribution," says Dr. Durbin.

"Dr. Durbin has served our profession to the max, both at the state level and the national level," says Respiratory Care Managing Editor Ray Masferrer, RRT, FAARC. "He has been a tremendous mentor to RTs and physicians for many years now, and his dedication to others is widely accepted by those who know him well."

Labor of love

Despite his many contributions to the profession and the AARC, though, Dr. Durbin says he was surprised when he learned he would be up for this year's Jimmy A. Young Medal — and shocked when he learned that he had won. "I love everything I do with the AARC, VSRC, my own department, and the profession; and these activities are their own reward," he says. "For me it has been a labor of love." That may be true, but his RT colleagues certainly believe it is an honor that's well deserved for a man who has always been there for the profession.

"I believe Dr. Charles Durbin's value can best be found in the thousands of small, and sometimes seemingly insignificant, things he has done over the years — personal conversations, presentations, journal articles, lectures, manuscript reviews, the Open Forum sessions, committee meetings, presence at staff presentations, attendance of award ceremonies honoring team members," says Patricia Doorley. "By his everyday words and actions, he has demonstrated to all of us that the work we do and our professional pursuits are important and valued." ■



Charles Durbin, MD, FAARC Vital Statistics

Elected Offices

- President, Carolina-Virginia Society of Critical Care Medicine, 1989–1990
- President, Society of Critical Care Anesthesiologists, 1998–1999
- President, Society of Critical Care Medicine, 2006–2007

Editorial Appointments

- Associate Editor, Respiratory Care, 1987–present
- Associate Editor, *Critical Care Alert,* 1993–2005
- Manuscript Reviewer, *Anaesthesia and Analgesia, Anesthesiology,* CHEST, *Critical Care Medicine,* JAMA, *Journal of Clinical Anesthesia,* Respiratory Care, 1982–present
- Guest Editor, Respiratory Care, June and July 1991, April and May 1994, May and June 1999, March and April 2002

Honors and Awards

- Robert A. Bageant Award from the Virginia Society for Respiratory Care, 1989, 2001, 2002, 2003
- Linde Award for the Best Technical Paper published in Respiratory Care, 1986
- Best paper from an abstract presented at the AARC Open Forum, 1992
- President's Citation for Outstanding Contributions to the Society of Critical Care Medicine, 1997, 2010
- AARC Honorary Life Membership, 1997
- Radiometer Award for Best Feature Published in Respiratory Care, 1997
- Society for Technology in Anesthesiology, Best Abstract at the ASA Meeting, 2000
- AARC Forest Bird Lifetime Scientific Achievement Award, 2002
- Society of Critical Care Medicine Distinguished Service Award, 2009
- Jimmy A. Young Medal, 2014

Las Vegas Insider

In the first edition of our "Las Vegas Insider," members of the Nevada Society for Respiratory Care shared their favorite "off the beaten path" places to eat in their hometown. In this edition, Aimee Barnes, BSRT, RRT, and her colleagues from Pima Medical Institute, Jason Hall, MBA, RRT; Anthony Everidge, BA, RRT-NPS; and David Kashnow, RRT-NPS; keep the momentum going with some fun places to go and things to see that you might overlook in all the glitz and glamour of the Las Vegas Strip.

David's Pick
Hoover Dam
(702) 494-2517

Hoover Dam is a testimony to our country's ability to construct monolithic projects in the midst of adverse conditions. The dam was built during the Great Depression, when thousands of people came to Black Canyon to tame the Colorado River. In this harsh and barren land, they built the largest dam of its time in less than five years.

Today the Hoover Dam still stands as a world-renowned structure. A National Historic Landmark, it has been rated by the American Society of Civil Engineers as one of America's Seven Modern Civil Engineering Wonders.

The dam is located 30 miles southeast of Las Vegas. Take U.S. Highway 93 to Nevada State Route 172. The dam is on the Nevada-Arizona border. Call the number above for tour reservation information. www.usbr.gov/lc/hooverdam

David Kashnow (bottom row, far right) and his students from Pima Medical Institute pose for a "photo op" during a recent field trip to the Hoover Dam.

Aimee's Pick

The Mob Museum
300 Stewart Ave.
Las Vegas, NV 89101
(702) 229-2734

You've heard their names. You may have even heard their crimes. However, you've never heard their whole story. The true story. At The Mob Museum, fact is separated from fiction; and a light is shed on how the mob came to be, the battles that were fought, and what remains today. You'll learn about the mob's biggest players: Al Capone, Whitey Bulger, Bugsy Siegel, John Gotti, and many more. As you move through the museum, you'll also see some of the most infamous mob artifacts, such as the wall from the St. Valentine's Day Massacre.

The 41,000 square-foot building includes approximately 17,000 square feet of exhibition space on three floors. The museum is housed within the historic former federal courthouse and U.S. Post Office. The courtroom on the second floor is where one of 14 national Kefauver Hearings to expose organized crime was held back in 1950. This is truly the underworld uncovered.

Museum hours run Sunday through Thursday, 10 a.m. – 7 p.m., and Friday and Saturday, 10 a.m. – 8 p.m. It is located in Downtown Las Vegas, approximately 8 miles and 10 minutes from the Mandalay Bay. www.themobmuseum.org

The Mob Museum has the true story behind all the stories you've heard about the mob.

Aimee Barnes joins a line-up at The Mob Museum.

Anthony Everidge and Aimee Barnes visit The Mob Museum.

Jason's Pick

The National Atomic Testing Museum
755 E. Flamingo Rd.
Las Vegas, NV 89119
(702) 794-5151

In addition to changing exhibits, the National Atomic Testing Museum showcases its collection of more than 12,000 unique artifacts in educational displays presenting the history and testing of one of man's most significant inventions, the nuclear bomb. With its simulation of an atmospheric bomb blast, the Ground Zero Theater is amazing!

The museum is open Monday–Saturday from 10 a.m. – 5 p.m. and on Sunday from 12 noon – 5 p.m. The museum recommends allowing two–four hours to visit all the exhibits. It is located about 4 miles and 8 minutes from the Mandalay Bay. www.nationalatomictestingmuseum.org

Jason Hall gets "up close and personal" with a B-53 bomb at the National Atomic Testing Museum.

This piece of equipment represents just one of hundreds of artifacts displayed in the museum.

The National Atomic Testing Museum details the nuclear blast near Roswell, NM, in 1947.

Anthony's Pick

Eldorado Canyon Mine Tours
(702) 291-0026

This place is historically amazing and has been featured in movies and music videos. Based in the Eldorado Canyon, the Techatticup Mine is the oldest, richest, and most famous gold mine in Southern Nevada. Located just a short drive outside of Las Vegas, the mine features historical tours and scenic blue water cove trips on the Colorado River. You will visit historical sites where steamboats docked and stamp mills operated over 100 years ago.

The 1880s Mine Tour includes a walking tour of the old Techatticup Mill site. This is where the ore was brought out of the mine to the stamp mill, crushed to a powder, and mixed in cyanide tanks, where the gold and silver were separated. From there, the tour proceeds some 500 feet down into the Savage Mine, where you will actually see the veins chased by the original miners. Once owned by Sen. George Hearst, this mine was claim jumped in 1874, which resulted in numerous murders. The air temperature inside the mine is a cool, comfortable 70 degrees year round.

Open seven days a week, 9:15 a.m. – 2:15 p.m. for mine tours and 9 a.m. – 5 p.m. for canoe/kayak rentals. Located approximately 46 miles and an hour from the Mandalay Bay — it is well worth the drive. www.eldoradocanyonminetours.com ■

Anthony Everidge (center) gets ready to visit one of the historic mines in Eldorado Canyon with Aimee Barnes' sons, Chase (left) and Matt.

Visitors to the mine are led through this narrow passageway.

The mine entrance harkens back to a different century.

Industry Watch

Alios BioPharma reports Phase 2 results on RSV drug

Alios BioPharma Inc. recently announced positive results from a randomized, double-blind, placebo-controlled Phase 2 challenge study of its oral anti-RSV nucleoside analog AL-8176. The study was conducted in healthy adult volunteers who were infected intranasally with RSV. AL-8176 achieved its primary and secondary endpoints of reduction in viral load and improvement in symptom scores as compared to placebo. According to the company, AL-8176 was well tolerated, with no discontinuations of study drug and no clinically significant laboratory abnormalities.

Cardiac Insight, Welch Allyn, strike deal

Cardiac Insight, a University of Washington spinoff biotech company that develops advanced body-worn sensing and computing technologies for applications in cardiology, respiratory, and other complex disease states, has completed a $7 million series B financing round that adds Welch Allyn (a leading medical diagnostic device company) as a major investor. Cardiac Insight plans to use the financing to further develop its body-worn sensing and computing technologies, expand clinical research, and accelerate sales. The two companies have also entered into a strategic collaboration agreement that will give Welch Allyn exclusive global distribution rights for certain Cardiac Insight products and technologies.

Monaghan product wins award

The Aerobika® Oscillating Positive Expiratory Pressure Therapy System marketed by Monaghan Medical Corporation received a Medical Design Excellence Award (MDEA) at an awards ceremony held in New York City last June. MDEAs recognize groundbreaking products that save lives, improve patient health care, change the face of medical technology, and overcome design and engineering challenges. According to Dom Coppolo, MBA, RRT, FAARC, vice president of clinical affairs, their goal was to develop a product that addressed an unmet need for patients suffering from serious respiratory conditions and any patient with a productive cough requiring a non-pharmaceutical method to assist removing lung secretions.

Fujifilm, MediVector test new flu drug

Fujifilm Holdings Corp. and its partner MediVector Inc. are testing a new influenza drug in the U.S. The companies have enrolled half of the 1,600 patients required for advanced U.S. studies on favipiravir and plan to complete the clinical trials in March of next year. They plan to file for FDA approval shortly thereafter. Favipiravir is expected to serve as an alternative to Tamiflu in battling influenza infection. U.S. studies on the drug are being funded by the Department of Defense to improve the country's bio response capability and help protect the military from flu pandemics. Animal studies conducted on the medication also suggest it may be effective against the deadly Ebola virus spreading in Africa.

Inova Labs receives FDA clearance

Inova Labs Inc. has received FDA clearance for Activox DUO2™, the first fully-integrated stationary and portable oxygen concentrator system. According to the company, Activox DUO2 combines the benefits of a home-use stationary concentrator with the portability of a best-in-class LifeChoice Activox POC into one integrated system, providing active oxygen therapy to patients with a "no compromises solution" that is ready to go when they are. According to CEO John Rush: "This system removes the hassle and burden of tanks and replaces it with true freedom and mobility, which we believe is imperative to improving an oxygen patient's life."

Threshold Pharmaceuticals launches study

Threshold Pharmaceuticals Inc. has initiated a 440-patient, randomized, double-blind,

placebo-controlled trial of its investigational hypoxia-activated prodrug, TH-302, in combination with pemetrexed in advanced non-squamous non-small cell lung cancer. The international Phase 2 trial is designed to compare the combination of TH-302 and pemetrexed vs. pemetrexed and placebo as second-line therapy in this patient population. A TH-302 dose of 400 mg/m^2 will be utilized in combination with full-dose pemetrexed. The primary endpoint is overall survival. Secondary endpoints include safety and assessment of anti-tumor activity as determined by progression-free survival and objective response rate.

Aeolus Pharmaceuticals announces study results

According to Aeolus Pharmaceuticals Inc., data presented at the NIH Countermeasures Against Chemical Threats (CounterACT) Conference in June confirm the efficacy of AEOL 10150 as a medical countermeasure for sulfur mustard gas inhalation and nitrogen mustard gas skin exposure. An update on progress under the NIH CounterACT nerve agent grant was provided as well. The data come from studies funded by the CounterACT Program, the NIH Office of the Director, and the National Institute of Environmental Health Sciences. Aeolus is a biotechnology company focused on developing compounds to protect against radiological and chemical threats.

Masimo receives FDA 510(k) clearance

Masimo has received FDA 510(k) clearance for its Root™ patient monitoring and connectivity platform. "With the new FDA clearance for Root, Masimo is eager to help U.S. clinicians usher in a new era of patient care and improved patient safety with a platform that should measurably improve the performance and cost curve," CEO Joe Kiani was quoted as saying. "Root can be a hub at the bedside, enable Masimo's breakthrough noninvasive measurements to be used by experts and novices with the trend and analog views, take advantage of a rich set of additional measurements, and allow other companies a robust platform on which to develop other innovative measurements via MOC-9."

Teleflex gains new president

Justin McMurray has been promoted from a vice president position to president and general manager of the anesthesia and respiratory division at Teleflex.

Justin McMurray

The company employs approximately 11,500 people worldwide and serves health care providers in more than 140 countries.

Covidien names group president

Covidien plc has promoted Bryan Hanson to the newly created position of group president, effective Oct. 1. In his new role, Hanson will have global responsibility for all Covidien business segments. In his previous role as group president, Medical Devices & U.S., he oversaw the company's Surgical Solutions, Vascular Therapies, and Respiratory & Monitoring Solutions business units, as well as its Health Systems organization. Hanson joined Covidien in 1992 and has held positions of increasing responsibility in sales, marketing, and general management during his tenure with the company.

International group releases position statement on e-cigs

The Forum of International Respiratory Societies has released a position statement on electronic cigarettes that focuses on their potential adverse effects on human health and calls on governments to ban or restrict their use until their health impacts are better known. "The gravity of tobacco use on global health and the historical behavior of the tobacco industry that has included deceit about the health effects of tobacco, intentional marketing to children, and manipulating nicotine levels in cigarettes to maintain addiction should prompt us to proceed cautiously," Past American Thoracic Society president and lead author of the statement Dean Schraufnagel, MD, was quoted as saying. "Nicotine is central to lifelong addiction, and these are nicotine delivery devices."

ACN to offer Propeller

According to Propeller Health (formerly Asthmapolis) and the Arizona Care Network (ACN), ACN is the first Accountable Care Organization to offer the Propeller platform to its members with COPD. "As an integrated health care delivery network, we are always seeking innovative, evidence- and value-based programs like Propeller that both improve the health and quality of life of our patients and the efficiency of the care we deliver," Mark Stephan, MD, ACN medical director, was quoted as saying.

CareFusion Foundation awards grants

The CareFusion Foundation has awarded $500,000 in grant funding to 11 U.S. nonprofit health care institutions as part of the Foundation's second annual Clinical Excellence Grant Program. The institutions will receive grants of up to $50,000 based on programs that develop and share best practices in improving medication safety and efficiency. "The proper management of medications — from the physician order to the pharmacy to the nursing station to the patient bedside — is a critical issue for health care institutions nationwide," Dr. Carlos Nunez, chief medical officer for CareFusion, was quoted as saying. "Working with these nonprofit partners to develop and share best practices for medication management will advance the field at large and help providers deliver safer, more cost-effective care."

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

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.

Laryngoscope Handle

Teleflex Incorporated's Rusch® DispoLED™ Single-Use Fiber Optic Laryngoscope Handle is a cost-neutral way to combat cross-contamination infection risk during intubation. The device features sturdy construction, an ergonomic grip, and optimal light output for intubation, all designed to inspire clinician confidence during critical procedures. The disposable design helps reduce the risk of cross-contamination and eliminate the hidden costs associated with reusable products. www.teleflex.com

Oxygen Concentrator

The DeVilbiss 5 Liter Oxygen Concentrator has been updated with enhanced quality, durability, performance, and simplicity in mind. Now made in the USA, the concentrator's two-piece cabinet design allows for 15% sound quality improvement and an improved cooling process. The unit is easy to assemble and disassemble, and the energy-efficient design reduces power consumption by 15% or more compared with competitive designs. Turn-Down Technology automatically turns down the unit's flow cycle below 2-1/2 Lpm, resulting in a 35% reduction in system pressure. www.DeVilbiss Healthcare.com

Actigraphy Device

The Actiwatch Spectrum Plus from Philips Respironics collects and downloads continuous and objective activity, sleep, and wake data from ambulatory subjects in one compact, professional-grade scientific device. With abundant memory capacity, the device is capable of more than a month of continuous recording; and the direct USB connectivity facilitates convenient battery charging, data configuration, and retrieval. A rechargeable battery helps decrease the need for routine battery changes, and an "off-wrist" indicator will appear as a marker in the data report to identify when the device was not being worn. www.philips.com

Nasal Pillows System

ResMed's new ultra-light, ultra-quiet AirFit™ P10 nasal pillows system weighs just 1.6 ounces and has only three parts, including a new soft and stable QuickFit™ headgear. Thanks to a new mesh vent called QuietAir™, the AirFit P10 is 50% quieter than its predecessor. The system maintains a secure seal while delivering a high level of facial freedom and has color-coded cushion sizing with small, medium, and large sizes in the standard AirFit P10 system. Also, extra-small, small, and medium sizes are available in the AirFit For Her system, which features headgear designed for women. www.resmed.com

CPAP Sanitizer

The SoClean 2 from Better Rest Solutions uses cutting-edge technology to sanitize CPAP machines automatically by using safe, natural, activated oxygen (ozone) to thoroughly sanitize the entire CPAP system. The device destroys 99.9% of the mold, bacteria, and viruses it comes in contact with — without chemicals, soap, or water. www.betterrestsolutions.com

New Bed System

The Progressa® bed system from Hill-Rom is a therapeutic system designed to treat and prevent complications of immobility, including skin breakdown and lung complications. It features a state-of-the-art design and was engineered to help address patient migration via its StayInPlace™ technology. The bed can be customized with different therapeutic surfaces, gather information on the patient and the bed and send that information to a status board at the nurses' station, and be configured into multiple positions, from a flat bed to a full chair position. www.hill-rom.com

Clinical Surveillance System

Offering acoustic respiration from Masimo; Microstream® end-tidal carbon dioxide technology from Covidien; and contact-free motion, heart rate, and respiratory rate monitoring from EarlySense, Welch Allyn's new Connex® Clinical Surveillance System captures and documents vitals from the bedside directly to the EMR and alerts clinicians to the risk of significant adverse events, including failure to rescue, respiratory failure, falls, hospital acquired pressure ulcers, and cardiopulmonary arrests. www.welchallyn.com

RC Currents

IN THE NEWS

AARC Urges FDA to Issue Final Rule for Tobacco Regulation

The AARC was among 24 leading public health and medical organizations that have called on the U.S. Food and Drug Administration (FDA) to issue a final rule to regulate all tobacco products by April 25, 2015. In addition, the AARC submitted standalone comments to ask the FDA to state that all tobacco products should be under their jurisdiction and regulation.

The AARC had asked its members to participate in a letter-writing campaign as it continued to work with the group and develop our own public comments for tobacco regulation (see www.aarc.org/headlines/14/08/tobacco). In the AARC letter, President George Gaebler states:

"The final rule should be comprehensive in scope and sufficiently strong enough to protect the public, and particularly children, from known or potential risks of the newly deemed products. The FDA should reject the regulatory option that would exempt "premium cigars" from the deeming rule. Any gaps in the FDA's regulatory authority will be an invitation to tobacco industry manipulation to ensure that addictive and dangerous products escape regulation, which can threaten to addict young people and inflict inevitable disease and death."

In our comments we have specifically called for the following actions:

- The FDA should issue a final rule asserting jurisdiction over all tobacco products by April 25, 2015.
- The FDA should not exempt so-called "premium cigars" from regulation.
- The FDA should apply the same sales and marketing restrictions that currently apply to cigarettes to the newly regulated products.
- The FDA should prohibit the use of "characterizing flavors" in cigars, e-cigarettes, and other tobacco products.
- The FDA should require child-resistant packing of nicotine liquid products by April 25, 2015.
- The FDA should revise its flawed cost-benefit analysis of the proposed rule that led the agency to vastly underestimate the likely benefits. ■

California Makes the RRT Credential Mandatory

Legislation in California regarding the respiratory care profession passed the final hurdle in late July when Gov. Jerry Brown signed into law a bill that will make the RRT credential mandatory for respiratory therapists practicing in the state.

The legislation was passed unanimously by both the California Assembly and the California Senate before heading to the governor's desk for final review and signing.

"AB 1972 is the first of many initiatives that the CSRC plans to take to support and strengthen our profession for all California RCPs," noted California Society for Respiratory Care (CSRC) President Michael Madison, MBA, RRT, RCP, in a document posted on the CSRC website when the bill passed the Senate. "The CSRC views initiatives that increase educational opportunities and standards for RCPs one of the strongest ways to ensure that our profession thrives."

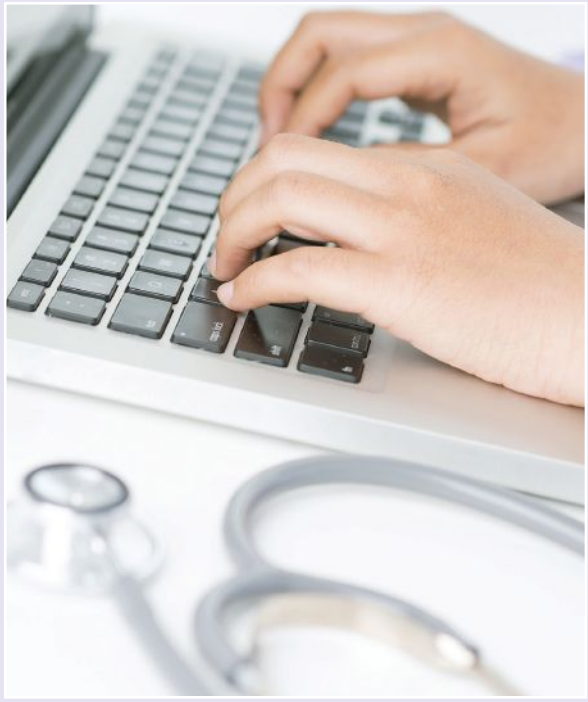
The new law will go into effect on Jan. 1, 2015. Respiratory therapists from any state who earned the CRT prior to Jan. 1, 2015, and whose credential is still valid, will be "grandfathered" in and, thus, will be able to continue to practice or acquire a license in California without earning the RRT. Any questions you might have should be directed to the Respiratory Care Board of California or the California Society for Respiratory Care (www.csrc.org). ■

"Respiratory Care Education Annual" Call for Papers

The AARC will publish Volume 24 of the "Respiratory Care Education Annual" in the fall of 2015. This refereed journal is committed to providing a forum for research and theory in respiratory care education and is listed in the "Cumulative Index to Nursing and Allied Health Literature."

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

Papers should be approximately 6–10 pages in length and must follow the guidelines in the "Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals" (2013). Abstracts should not exceed 250 words. For more information, contact Dennis Wissing, PhD, RRT, FAARC, editor, at dwissi@lsuhsc.edu or (318) 573-9788. Electronic copies of completed manuscripts should be sent to Shawna Strickland at edu@aarc.org. Deadline is **Feb. 16, 2015**. ■



Enter for a Chance To Win a Free Membership Renewal!

AARC Times is looking for creative AARC members to enter our annual AARC Photo Contest. Finalists will receive a **free** one-year membership renewal and have their photo entered into our Photo-of-the-Year Contest with the chance of it being chosen and featured on the cover of *AARC Times*. For information on how to enter, select the *AARC Times* icon on www.AARC.org and click on the "Photo-of-the-Year Contest" link. Deadline to submit photos is **Nov. 14, 2014**. ■

Check Out Our New Members List 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. ■

As Seen on *AARConnect*

AARConnection…
maximizing your membership

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

I am always in a dilemma when I have a referral and the PFT has ratios slightly above 69% but the FEV_1s are lower than 70%. The doctor is calling moderate or severe obstructive disease, the patient is limited in their ADLs, the DLCO is low, and they could even be using O_2. How do we stay Medicare compliant and still offer rehab to these patients because it is medically a benefit? Our medical director says that at times there is a restrictive process; but when there isn't, how do others allow the patient to come to the pulmonary rehabilitation program if they are on Medicare?

Vicki Frausini Moran, BS, RRT-NPS, AE-C
Lawrence & Memorial Hospital
New London, CT

We follow CMS PFT guidelines for COPD and our LCD for non-COPD. Our LCD allows us to enroll a patient with, for example, a DLCO of <65%, capturing some of the folks you were referring to. LCDs for non-COPD, of course, vary from area to area; but at this point we are still able to qualify some of the patients with a non-COPD diagnosis. Sadly, some still do not qualify even though they need it, in my opinion. We offer free support and education to anyone interested via a monthly support group.

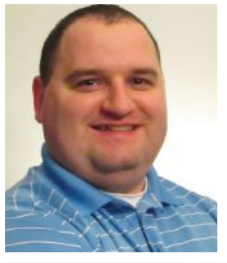
For motivated patients who pursue pulmonary rehabilitation (PR) without insurance coverage, there are hospital-wide discounts for self-pay offered, and their PR Phase II program is modified (as much as possible without sacrificing clinical benefit) to evolve ASAP to a maintenance program with a small monthly fee. Maintenance or Phase III is never permitted unless the patient has a practical history of Phase II in some shape or form. There are many ways to approach this, but this is what we have chosen for now to help meet the need you mention.

Best of luck!

Timothy Near, RRT, CTTS
Indiana University Health Goshen Hospital
Goshen, IN

Moving on Up

Robert C. Cohn, MD, MBA, FAARC, has accepted the William B. and Hazel Gorman Newkirk Chair in Pulmonary Medicine at Dayton Children's Hospital in Dayton, OH.



AARC COPD/DRIVE4COPD Coordinator Jason Moury, BS, RRT, has been appointed to a special state commission on COPD by Gov. Deval Patrick of Massachusetts. The commission was formed to conduct an investigation and study of strategies to promote public awareness and increased knowledge of the causes of COPD.

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

Respiratory Care, the Breath of Life

Respiratory Care Week 2014, Oct. 19–25

This year's RC Week slogan, "Respiratory Care, the Breath of Life," tells everyone what you do and why you do it — giving the Breath of Life.

During RC Week, you can give breath to the profession by sharing your story with your health care colleagues, your patients, and your community. Plan events for awareness and recognition with your RC team. Let everyone know about your role in health care.

As the official sponsor for Respiratory Care Week, the AARC provides everything you need in the RC Week Store at www.AARC.org/rcstore. It's loaded with official themed items for your celebration.

Need help planning for RC Week — visit www.AARC.org/rcweek for event ideas, planning tips, photo sharing, and more.

RESPIRATORY CARE
THE BREATH OF LIFE

SURVEILLANCE Raises Handwashing Rates

Would you be more likely to wash your hands if you knew you were being watched? Canadian researchers publishing in the *BMJ Quality & Safety Journal* suggest the answer may be yes. In a study conducted in two inpatient units, they monitored the hand-washing behaviors of 60 health care workers through direct observation and by electronically measuring the use of hand hygiene dispensers, finding hand washing increased three-fold when auditors were physically present in the units. While the study calls into question the accuracy of hand-washing rates assessed during observation periods, the investigators believe directly observing hand-washing behaviors is still useful because it draws attention to this "important preventative measure."

National Health Observances

- **RESPIRATORY CARE WEEK;** Oct. 19–25; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available
- **LUNG HEALTH DAY;** Oct. 22; AARC, (972) 243-2272; www.AARC.org/rcweek; materials available
- **WORLD COPD DAY;** Nov. 19; Global Initiative for Chronic Obstructive Lung Disease (GOLD); www.goldcopd.org
- **GREAT AMERICAN SMOKEOUT;** Nov. 20; American Cancer Society, (800) 227-2345; www.cancer.org

Student Members Spring into Action and Save a Life

AARC member Lt. Joseph Buhain, USNR, EdD, RRT, FAARC, often receives emails from his students at St. Paul College in St. Paul, MN; but when he opened one from Lee Yang last July, he was both surprised and pleased at the contents. "I would like to thank you for your knowledge and your skills in teaching us as RTs," Yang began. "A few of us went out to spend some time together and ran into a moment where our skills came into use…."

Yang and several of his fellow students had been hanging out at a local pub when a middle-aged man standing behind them fell over on the floor. "I thought he tripped on a bar stool," says Johnny Han, who was nearest to the victim. He and fellow student Macy Vandenberg rushed over to help the man to his feet but soon realized more was going on than just a simple fall.

AARC student members (from left) Josh Gamiao, Johnny Han, Lee Yang, T.J. Kammer, and Macy Vandenberg put their lifesaving skills to the test last summer.

"As we helped him back onto his feet, he was very wobbly and couldn't stand on his own," continues Han. He kept the man upright and proceeded to ask him some questions while Vandenberg stood in front of him to assess the situation further. "Macy was trying to get a response from him, then we tried to get him to sit on a chair," says Han. "But before I could get him settled on the chair, Macy saw his eyes roll back, then he collapsed."

The two students quickly put the emergency care lessons learned from Dr. Buhain during simulation training into action. "I still had a hold on him, so I eased him to the floor, while Macy was checking for a pulse," says Han. "She yelled out, 'There's no pulse, call 911. No pulse, call 911.'" At that point, fellow student T.J. Kammer got into the act too, double-checking the man's pulse and confirming Vandenberg's assessment. Han began chest compressions while Vandenberg addressed the man's clenched jaw and worked to open up his airway. Yang, Kammer, and another student there that evening, Josh Gamiao, stood by, ready to assist if needed.

"After 30–35 compressions and about a minute of him not breathing, I could feel him take in a deep breath and his chest expanding," says Han. "We stayed next to him, talking to keep him alert, and waited for the paramedics to arrive."

The man was taken to a nearby hospital; and the next day, Han received a call from him, thanking them for saving his life. ■

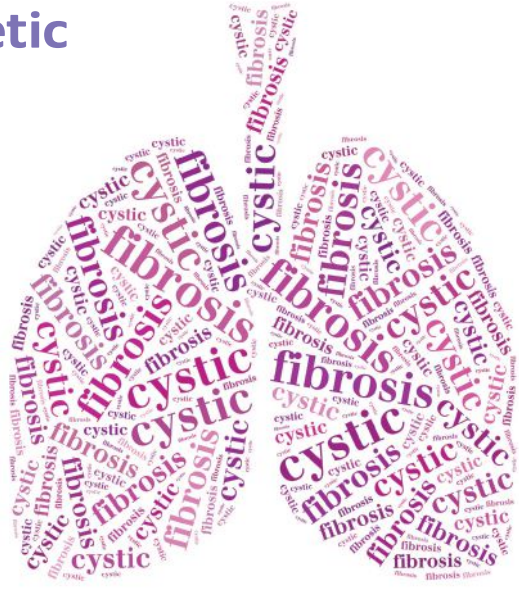
EDITOR'S NOTE: If you have a story to share, we would like to see it. Your stories make our RC Currents column more interesting! You can email your story or story idea to us via Cathcart@aarc.org. Include in the subject line: "Story from a Member" and be sure to provide your member number.

Play the "Pets" Card

If your patients won't quit smoking to save themselves, maybe they'll do it for their pets. According to studies conducted by veterinary medicine researchers at Tufts University and elsewhere, secondhand smoke puts animals at risk for a host of conditions.

Cats, for example, are more likely to develop malignant lymphoma, while dogs are more prone to lung and nasal cancer. E-cigarette users aren't off the hook either. Reports suggest pets will readily retrieve spent nicotine cartridges from the trash to eat them. The American Society for the Prevention of Cruelty to Animals urges pet owners to rid their homes of all tobacco products. ■

Why CF Drugs Aren't Copacetic



Two new drugs aimed at working together to treat cystic fibrosis (CF) are falling down on the job, find researchers from the University of North Carolina at Chapel Hill. Now that the investigators know why, improvements may be on the horizon.

The study was spurred by previous research showing the drug combination modestly improved lung function and led to better health outcomes for some patients, without having a large impact on how patients actually felt. The new investigation found one of the drugs counteracts the beneficial molecular effect of the other by deactivating the protein the therapy is trying to correct.

In lab experiments using tissue samples from CF patients with the most common CFTR genetic mutation, the researchers treated the cells for two days with the corrector compound called VX-809, finding that the amount of CFTR at the cell surface appropriately increased. When they added the potentiator VX-770, however, the corrected CFTR protein showed only a brief increase in function before rapidly destabilizing — a sign the protein was losing its ability to function as an ion channel.

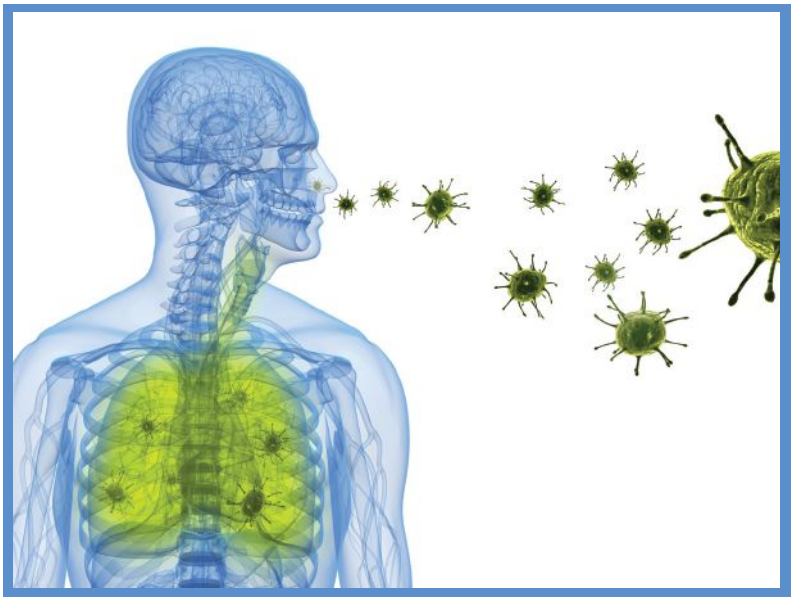
From there, the investigators treated the CF cells for two days with the potentiator and corrector at the same time, mimicking how the drugs were delivered in the recent clinical trial of the combination treatment. They found that the potentiator compound destabilized the CFTR protein and that this destabilization was dependent upon the dose of VX-770. In other words, the potentiator cancelled out the intended effect of having a corrected CFTR protein at the epithelial surface. "The result was striking," study author Martina Entsch, PhD, was quoted as saying. "The potentiator acted like an inhibitor of the corrector compound. We could actually see the protein disappearing."

While the combination therapy may not be the answer, she and her fellow investigators believe this new understanding of how the drugs work together is a victory for gene research because it shows that "targeting the most common mutation in cystic fibrosis is a rational approach for treatment of most patients," according to investigators. The study was published in a recent issue of *Science Translational Medicine.* ■

INTERFERONS MAY TREAT ALLERGIC ASTHMA

Immunology researchers at UT Southwestern Medical Center have identified a mechanism that could underlie the development of cells that drive asthma and allergies. Specifically, their investigation revealed that antiviral molecules known as Type I interferons (IFNs) block the development of allergy- and asthma-driving T helper 2 (Th2) cells. "The fact that interferon could stop the activation of these harmful cells was of particular interest because interferons are already approved by the Food and Drug Administration for the treatment of other diseases, such as multiple sclerosis and hepatitis," explains study author Dr. David Farrar.

The development of Th2 cells is stimulated by an immune molecule that triggers the production of a protein called GATA3 that turns on the genes that distinguish Th2 cells from other cell types, including other T cells. Dr. Farrar's group found that Type I IFNs block this process by turning off a part of the GATA3 gene known as exon 1a, thereby inhibiting the production of the GATA3 protein and, consequently, the development of Th2 cells. "Targeting this pathway may lead to permanent tolerance of these cells to allergens," continued Dr. Farrar. "We are currently pursuing studies that may lead to clinical trials that will determine whether interferon can be used to treat allergic asthma patients." The study appeared in a recent issue of the *Journal of Immunology*. ■



Timing of Infections Makes a Difference in Risk

Patients who develop secondary respiratory infections after suffering from a bout with influenza face an increased risk of more severe disease and even death — but the opposite may be true if the timing is reversed, report researchers from the Wistar Institute publishing in the August issue of *Virology*.

In their study, they found mice that were colonized by *Streptococcus pneumonia* 10 days prior to exposure to influenza were significantly less likely to develop severe disease or pneumonia than mice that were not colonized by the bacteria. While virus infection wasn't blocked, the mice no longer showed signs of illness. In contrast, disease symptoms were exacerbated in mice that were exposed to the flu prior to a secondary pneumococcal infection.

To explain the discrepancy, the investigators used mutant strains of pneumococcus that lacked certain proteins, singling out one bacterial protein, pneumolysin, that was necessary to generate the protective effect of pneumococcus. While the exact mechanisms by which pneumolysin lessens the severity of disease remain unknown, the researchers were able to show that alveolar macrophages were less likely to recruit inflammation-causing immune cells to the lungs when it was present. Less inflammation would mean less chance of developing pneumonia, which is a major source of flu deaths.

Study author Jan Erikson, PhD, believes these results suggest one factor contributing to the highly variable response to influenza virus infection and severity of disease observed in humans may be the presence of specific respiratory tract microbes. "It remains to be seen what lessons we can learn from pneumococcus in lessening flu infections, but I would be interested in seeing if we could get the benefit of pneumococcal colonization without the associated risks," she was quoted as saying. ■

Strange But True...

Faces ID disease: Researchers publishing in the *Emergency Medicine Journal* find people with chest pain and shortness of breath have a reduced range of facial expressions in response to visual cues, suggesting a quick facial expressions test might be a fast and easy way to identify those who may be suffering from serious heart or lung problems.

Baby on board: Food allergies may begin in the womb, report investigators from Australia who found the same immune gene disruptions in 12 one-year-old babies as were seen in samples of their umbilical cord blood taken at birth. They believe the pre-birth programming of allergies may be due to epigenetics, the process by which genes are turned on or off in response to the environment.

Calling all bugs: Smartphones are known to harbor bacteria. New research conducted in 17 people found up to 82% of the bacteria consists of the same strains found on the users' fingers, leading investigators to conclude the smartphone may one day serve as a bacterial health sensor. The technology could be particularly useful in assessing for bacteria carried in and out of hospitals by health care staff. ■

Motivational Interviewing Reduces Secondhand Smoke Exposure

A new study out of Johns Hopkins finds motivational interviewing techniques can lead to significantly reduced secondhand smoke exposure for children living in households where someone smokes.

The study involved 330 children enrolled in the Baltimore City Head Start program whose caregivers reported a smoker living in the children's homes. All of the caregivers received educational materials and participated in activities created by the Environmental Protection Agency, and all were asked to participate in secondhand smoke exposure education and awareness programs at their Head Start locations. Some were also assigned to participate in five motivational interviewing sessions held over three months with a trained health counselor. The sessions were designed to help caregivers set up a home smoking ban and encourage smokers to quit.

The researchers observed a 17% increase in the prevalence of home smoking bans in the motivational interviewing group, compared to a 7% increase in the education-only group. They also saw a 13% decrease in smokers in the motivational interviewing group, compared with a 5% decrease in the education-only group. The study appeared in the June 15 edition of the *American Journal of Respiratory and Critical Care Medicine*. ■

Smoking-Suicide Link Explained

People who smoke are more likely to commit suicide, but that's because more people with psychiatric disorders smoke, right? That's been the conventional wisdom, but now researchers from Washington University School of Medicine suggest smoking may actually lead to psychiatric disorders, and that in itself could explain at least some of the elevated risk.

The investigators arrived at that conclusion after analyzing data compiled as individual states took different approaches to taxing cigarettes and limiting when and where people could smoke. From 1990–2004, states that adopted aggressive tobacco-control policies saw their suicide rates decrease, compared with the national average. The opposite was true in states with lower cigarette taxes and more lax policies toward smoking in public. In those states, suicide rates increased up to 6%.

"Nicotine is a plausible candidate for explaining the link between smoking and suicide risk," says study author Richard A. Grucza, PhD, upon publication. "Like any other addicting drug, people start using nicotine to feel good; but eventually they need it to feel normal. And as with other drugs, that chronic use can contribute to depression or anxiety, and that could help to explain the link to suicide." The study was published online in *Nicotine & Tobacco Research* on July 16. ■

Classifieds

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SCL Health

Calendar of Events

AARC & State Society Programs

October 1–3 Hot Springs National Park, Arkansas

43rd Annual Arkansas Society for Respiratory Care State Meeting

Contact: John Lindsey, john.lindsey@mercy.net

October 9 Bloomington, Indiana

Indiana Society Seminar

Contact: pingle@in-isrc.org, (317) 962-5058

October 15–17 Atlantic City, New Jersey

2014 Annual Shore Conference

Contact: www.njsrc.org, education@njsrc.org

October 21–22 Fairlee, Vermont

Vermont/New Hampshire Society for Respiratory Care Education Conference

Contact: Judith Wahler@vtmednet.org

October 23 Newark, Delaware

21st Annual Trends in Respiratory Care

Contact: Laurene Eckbold, (302) 530-0373 www.delawarelung.org

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December 8 Las Vegas, Nevada

AARC Pre-Congress Courses: Preparing for a Pandemic (The Strategic National Stockpile), Current Practice of Mechanical Ventilation, Pulmonary Function Testing, ECMO for Pediatric and Adult RTs, and Sleep & Wellness 2014

Contact AARC, (972) 243-2272, www.aarc.org/education/meetings

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December 9–12 (Tuesday–Friday)

Las Vegas, Nevada

AARC Congress 2014

Contact AARC, (972) 243-2272, www.aarc.org/education/meetings

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Submissions for the next available issue are due Oct. 19.

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

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