AARC Times
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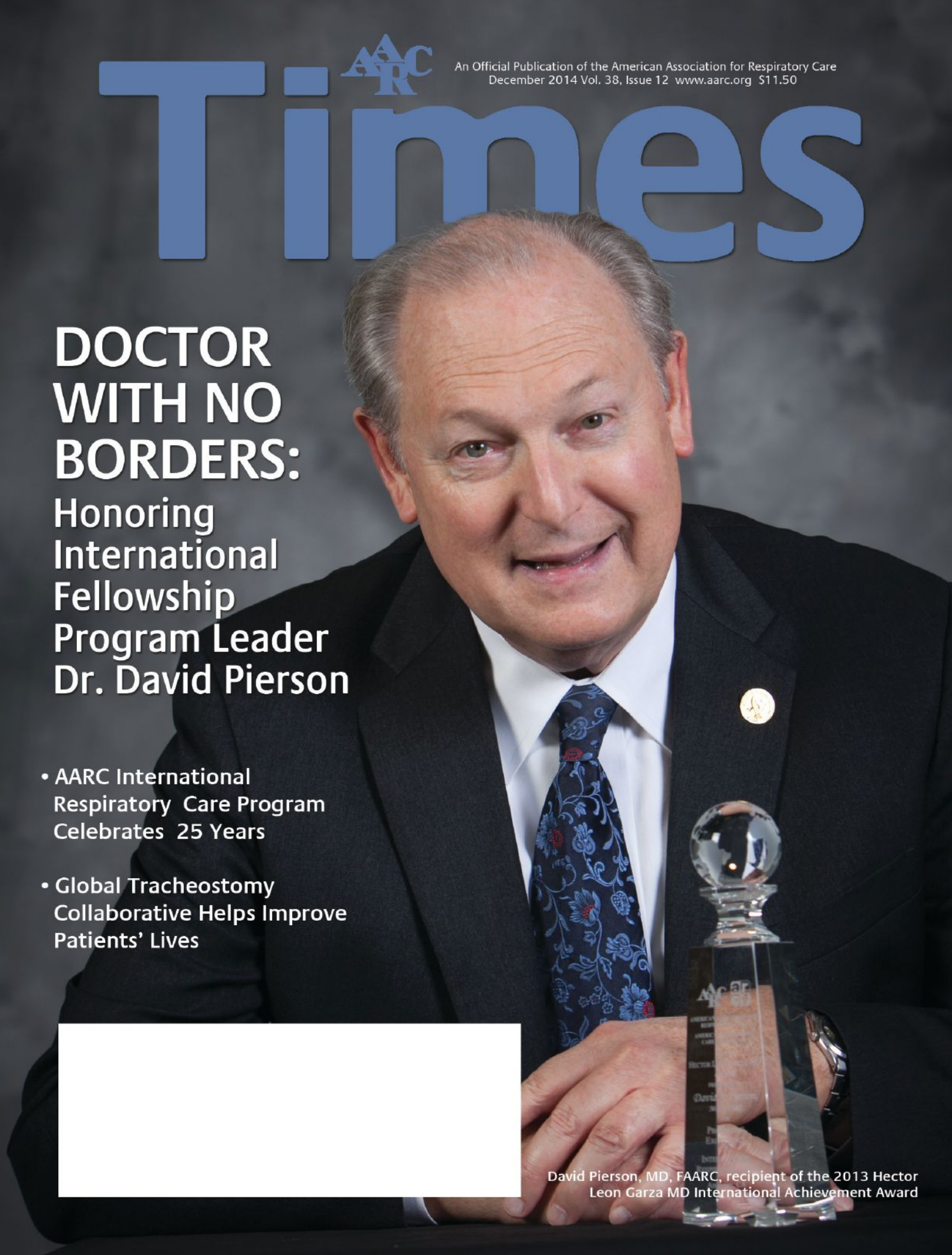
# DOCTOR WITH NO BORDERS:

## Honoring International Fellowship Program Leader Dr. David Pierson

- AARC International Respiratory Care Program Celebrates 25 Years
- Global Tracheostomy Collaborative Helps Improve Patients' Lives



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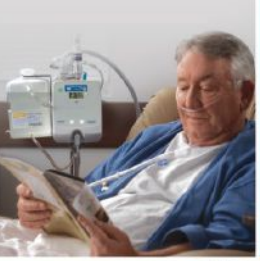

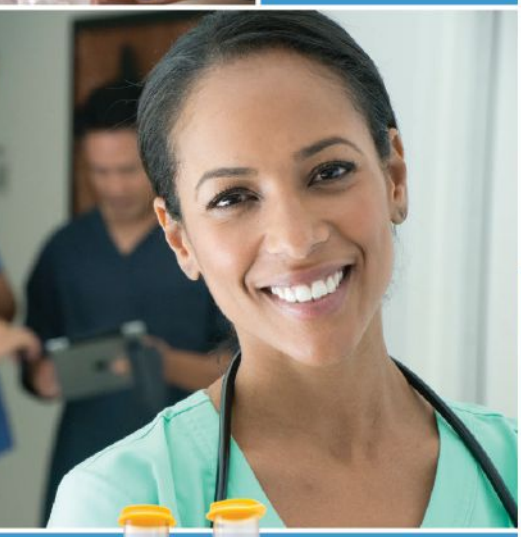

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Cover photo by Lennie Sirmopoulos, Convention Photography, Tustin, CA

## 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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Clinical Perspectives

# The Effects of Smoking Hookah

by Hassan S. Alorainy, BSRC, RRT, FAARC

Hookah (shisha or narghile) has been known to people for hundreds of years, and some resources suggest that hookahs first appeared in northwest India after the arrival of tobacco in that region. A doctor named Aljelani, who was working in the Indian Royal Court around 1588, developed a system in which the smoke passed under water to be purified and cooled. From that time, hookah became a custom for ruling elites in north India. The trend then spread westward and became an ingrained habit in Turkey and many Arab countries. Then with Arab migration into Europe and the Americas, it moved into the Western countries.

Hookah smoking later evolved into a habit of the lower classes of society — such as laborers, craftsmen, and drivers — when they met after a long day to relax and smoke shisha over a cup of tea. More recently, hookah smoking became popular by the end of the 20th century and into the 21st century with the same force among various segments of society — the educated, uneducated, and illiterate. Shisha is an old habit among the people of Asia and the Middle East, but it has recently begun to spread significantly even in Western countries.

Hookah smoking has become widespread among young teenagers due to their false beliefs that hookah is less harmful than smoking tobacco and that when smoke comes through the water it will filter out toxins. Unfortunately, the spread of hookah smoking has been met with odd silence. Most research literature completely ignores it, while the media discusses it in terms of social problems that are considered dangerous and influential. We cannot ignore the fact that this habit is practiced daily for long hours by millions of men and women in Asia, Africa, and Europe in cafes as well as in homes.

It is now known that hookah emits much more polycyclic aromatic hydrocarbon (PAH) carcinogens, and its effects are more harmful than cigarette smoking. Unfortunately, hookah smoking has recently spread dramatically among young men and women in many parts of the world. A recent study was conducted by researchers from King Faisal University in Dammam, Saudi Arabia, on health faculty and students. It showed that about 13% of the students smoked shisha and that 64% of them began smoking at the age of 16–18 years. According to published research from countries in the Middle East, the percentage of hookah smoking among youth and adolescents ranged from 6–34%. The percentage for American college-age students is more significant, with estimates of hookah use over the past month and lifetime ranging from 9.5% to 20.4% and 41% to 48% respectively.

The reason for the large spread of this habit among young people is that they believe hookah smoking is safer than cigarette smoking. Moreover, there are different flavors that improve the taste of the smoke, such as apple, cantaloupe, pineapple, and strawberry. Also, the proliferation of coffee shops create a comfortable atmosphere and services for young people and they have become the main retreat for young people during their recreational and social meetings.

Recent research that studied the relationship of smoking shisha on health showed that smoking shisha is

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about the author...

Hassan S. Alorainy, BSRC, RRT, FAARC, is a senior clinical respiratory specialist at King Faisal Specialist Hospital and Research Centre in Riyadh, Saudi Arabia. He also serves on the executive committee of the International Council for Respiratory Care as governor for Saudi Arabia and as vice-chair of the AARC International Committee.

# It is possible to have too much of a good thing…

## Oxygen is no exception.

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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more harmful than cigarette smoking. A study conducted by researchers at the American University of Beirut in Lebanon showed that a one-half to one-hour session of hookah provided an average of four times the particle carcinogens (PAH), four times the volatile aldehyde, and 30 times more carbon monoxide than just one cigarette. The study also showed that smoking hookah for one hour (about 200 puffs) will release as many carcinogens and toxic elements as released by 10-20 cigarettes. This suggests that the negative effect of smoking hookah might outweigh the dangers of cigarette smoking. The researchers suggest implementing environmental policies related to hookah smoking similar to those related to the use of cigarettes.

Another paper published in Chest 2011 on a sample of volunteers of both men and women also showed that smoking hookah resulted in a direct increase in blood pressure and tachycardia. The researchers found that the effect of hookah on health is not in any way less than the complications of cigarette smoking. Other research has shown that women are more vulnerable to the harmful effects of smoking compared to men. The researchers show that many of those who smoke shisha become addicted to smoking cigarettes later.

Shisha smoking has become a major health problem among the young, and the complications of smoking

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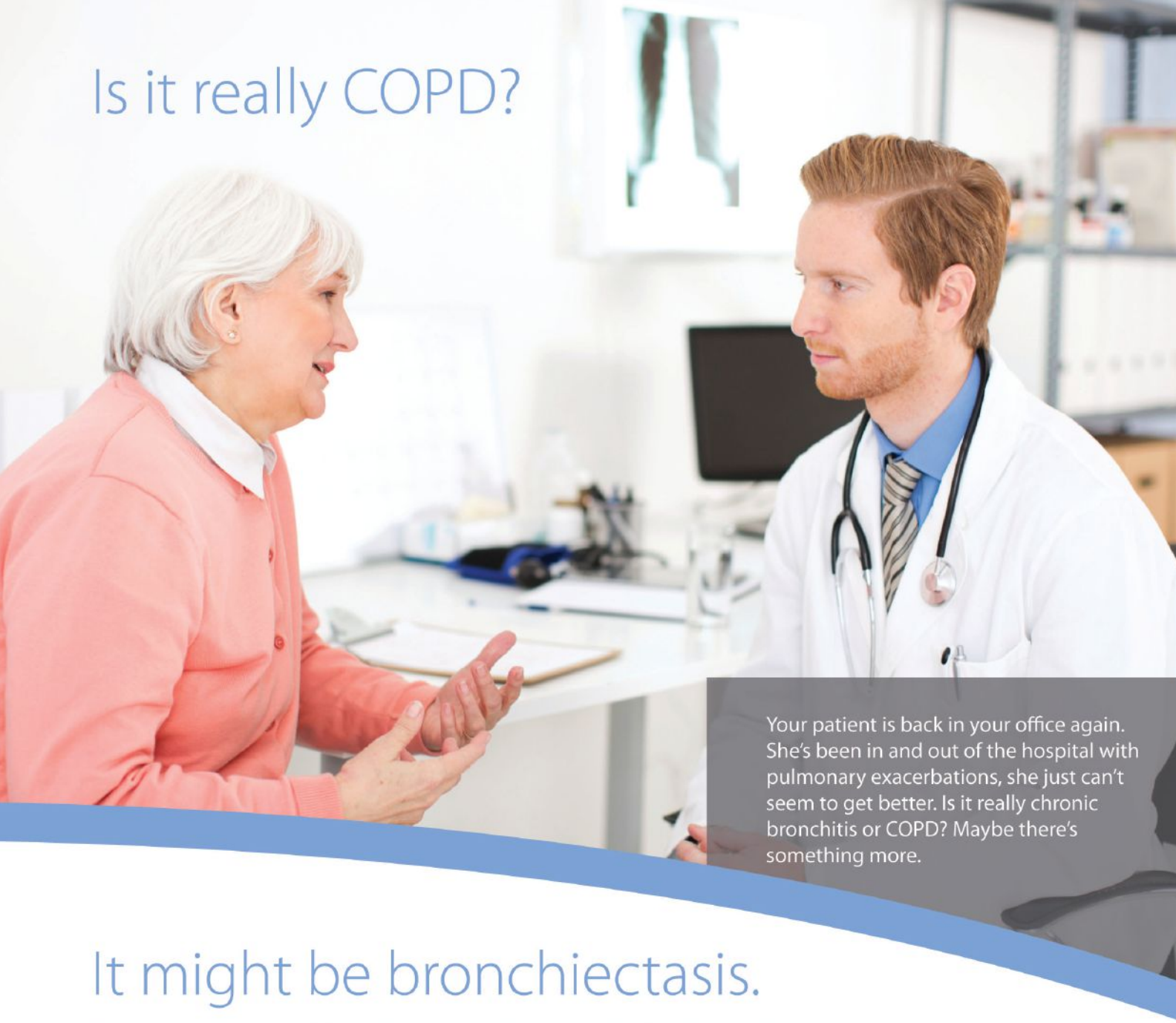
# Is it really COPD?



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## Facts from the Centers for Disease Control and Prevention

- Water pipe smoking delivers nicotine — the same highly addictive drug found in other tobacco products.
- The tobacco in hookahs is burned, and the smoke is at least as toxic as cigarette smoke.
- Because of the way a hookah is used, smokers may absorb more of the toxic substances also found in cigarette smoke than cigarette smokers do.
- An hour-long hookah smoking session involves 200 puffs, while smoking an average cigarette involves 20 puffs.
- The amount of smoke inhaled during a typical hookah session is about 90,000 ml, compared with 500–600 ml inhaled when smoking a cigarette.

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hookah are more than cigarette smoking as it causes addiction and increases the risk of cancer, obstructive and chronic lung disease, vascular disease, gum disease, and tumors of the mouth and esophagus. The impact on the surrounding environment — known as "passive smoking" — is similar to smoking cigarettes. More public education should be provided concerning the risks of hookah smoking. ■

### ADDITIONAL READING

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# 2014 — a Year that Respiratory-related Issues Made Headlines

by Thomas J. Kallstrom, MBA, RRT, FAARC

As we start to wind down 2014 and look back, we see that the year certainly garnered much media attention to health care-related issues and developments in the United States, many of which were not even on the nation's radar screen 12 months ago. We saw challenges to some of our state affiliates regarding respiratory care licensure. This is due to the fact that in 2014, some state legislatures did not see the wisdom of keeping provisions in place in their laws that protect their citizenry by demanding that the person providing respiratory care was competent and did not pose a risk to the public. While this seems to be a "no brainer," it was not. Because of state-imposed fiscal demands, we have seen states take actions to alter or delicense the profession. This did not impact just respiratory care. In some states, perfusionists, nurse midwives, social workers, and others were placed in this same precarious position.

An example of the attention received was seen in large part in Texas where a legislative subcommittee determined that respiratory therapists did not need to be licensed. Over 200 RTs, the Texas Society for Respiratory Care, AARC, patients, and members of the general public traveled to the Texas State Capitol in Austin to show their displeasure and to educate the legislature on why this would have been a public safety mistake. This received significant attention both in Texas and the rest of the country. It is for this reason that years ago the AARC put in place a team ready to assist the state affiliates when they are presented with these types of challenges. We were called upon this year by Texas and other states and provided counsel and, in some cases, we were present with our affiliates at state hearings. This is just one of the benefits that our members make happen through membership dues to the AARC.

about the author...

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

## Public health issues

More media attention was seen this past fall with public health issues that centered around diseases. Enterovirus D68 (EV-D68) was one. EV-D68 was first described in 1962, and it wasn't until 2014 that an outbreak of this proportion occurred. Interestingly, EV-D68 is one of 100 non-polio enteroviruses. Hundreds of children, especially those with asthma, were susceptible to experiencing exacerbating symptoms as we entered the transition from summer to fall. It was the respiratory therapist who was front and center in the management of this disease in the nation's hospitals. In fact, we heard of many media stories that focused on the RT's essential role in treating these patients. No surprise there.

Then in late September we saw a lot of attention focused on Ebola, a disease that primarily had been confined to third-world countries and was now being diagnosed in the United States. In fact, in early October the first person (a health care worker) and later a second were diagnosed with the disease after caring for a hospitalized patient in Dallas. As we know, this led to what some might call "media hyperbole." However, the real story was that many — if not most — of the nation's hospitals and caregivers found they were not prepared to accept and manage a patient with Ebola. There was an immediate need to ensure that clinicians were armed with the necessary knowledge and tools. That is why the AARC quickly put in place time-sensitive information and tools from the Centers for Disease Control and

(continued on page 15)

In term and near-term neonates with hypoxic respiratory failure (HRF)...

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

## Important Safety Information

- INOMAX is contraindicated in the treatment of neonates known to be dependent on right-to-left shunting of blood.
- Abrupt discontinuation of INOMAX may lead to increasing pulmonary artery pressure and worsening oxygenation even in neonates with no apparent response to nitric oxide for inhalation.
- Methemoglobinemia and $NO_2$ levels are dose dependent. Nitric oxide donor compounds may have an additive effect with INOMAX on the risk of developing methemoglobinemia. Nitrogen dioxide may cause airway inflammation and damage to lung tissues.
- In patients with pre-existing left ventricular dysfunction, INOMAX may increase pulmonary capillary wedge pressure leading to pulmonary edema.
- Monitor for $PaO_2$, methemoglobin, and inspired $NO_2$ during INOMAX administration.
- Use only with an INOmax $DS_{IR}$®, INOmax® DS, or INOvent® operated by trained personnel.

**Please see Brief Summary of Prescribing Information on adjacent page.**

INOmax® (nitric oxide) FOR INHALATION

**References: 1.** INOMAX [package insert]. Hampton, NJ: Ikaria, Inc.; 2013. **2.** González A, Fabres J, D'Apremont I, et al. Randomized controlled trial of early compared with delayed use of inhaled nitric oxide in newborns with a moderate respiratory failure and pulmonary hypertension. *J Perinatol*. 2010;30(6):420-424.

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# INOMAX® (nitric oxide) for inhalation
## Brief Summary of Prescribing Information

### INDICATIONS AND USAGE

**Treatment of Hypoxic Respiratory Failure**

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

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

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

Monitor for $PaO_2$, methemoglobin, and inspired $NO_2$ during INOMAX administration.

### CONTRAINDICATIONS

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

### WARNINGS AND PRECAUTIONS

**Rebound Pulmonary Hypertension Syndrome following Abrupt Discontinuation**

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

**Hypoxemia from Methemoglobinemia**

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

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

**Airway Injury from Nitrogen Dioxide**

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

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

**Heart Failure**

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

### ADVERSE REACTIONS

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

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

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

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

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

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

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

### OVERDOSAGE

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

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

### DRUG INTERACTIONS

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

(continued from page 12)

Prevention (CDC) and other government agencies. This was updated hourly and daily. Many members told us that this actually was useful to their own hospitals and hospital systems that had not yet put a plan in place.

### Medicare readmissions penalties

Finally, this past October (fiscal year 2015) and the months proceeding there was media attention to the readmissions penalties imposed by Medicare for COPD patients who readmit to a hospital within 30 days. The AARC had been very proactive on this particular development and in the year and a half preceding made this issue an opportunity for RTs to play — front and center — a more significant role in reducing readmissions for COPD. We asked our members and hospitals to share best practices as they related to their COPD disease management programs, and many stepped up and continue to do so. The majority of these programs started in the hospital and then extended beyond into the outpatient clinic, community, and home. By using a respiratory therapist as part of the team or in a leadership position, we saw statistically significant reductions in health care utilization, including hospital readmissions.

What we did learn this year was that it is essential that whenever a licensure change is made, or government-imposed actions that require a response, or deadly diseases that were not anticipated, end up at our front doorsteps, we need to understand why they happened and then take action to correct the problem. It is part of the obligation of the AARC to not only be aware of impending health care-related news but to enable our members and patients to manage these challenges that, in many instances, are unanticipated. I would encourage you to keep linked to the AARC by going frequently to www.AARC.org to get the information you need to be that important asset to your health care facility. ■

Philippines
Mexico
UAE
Taiwan
Saudi Arabia
Liberia
Israel
China
Ghana
Norway
Haiti
Japan

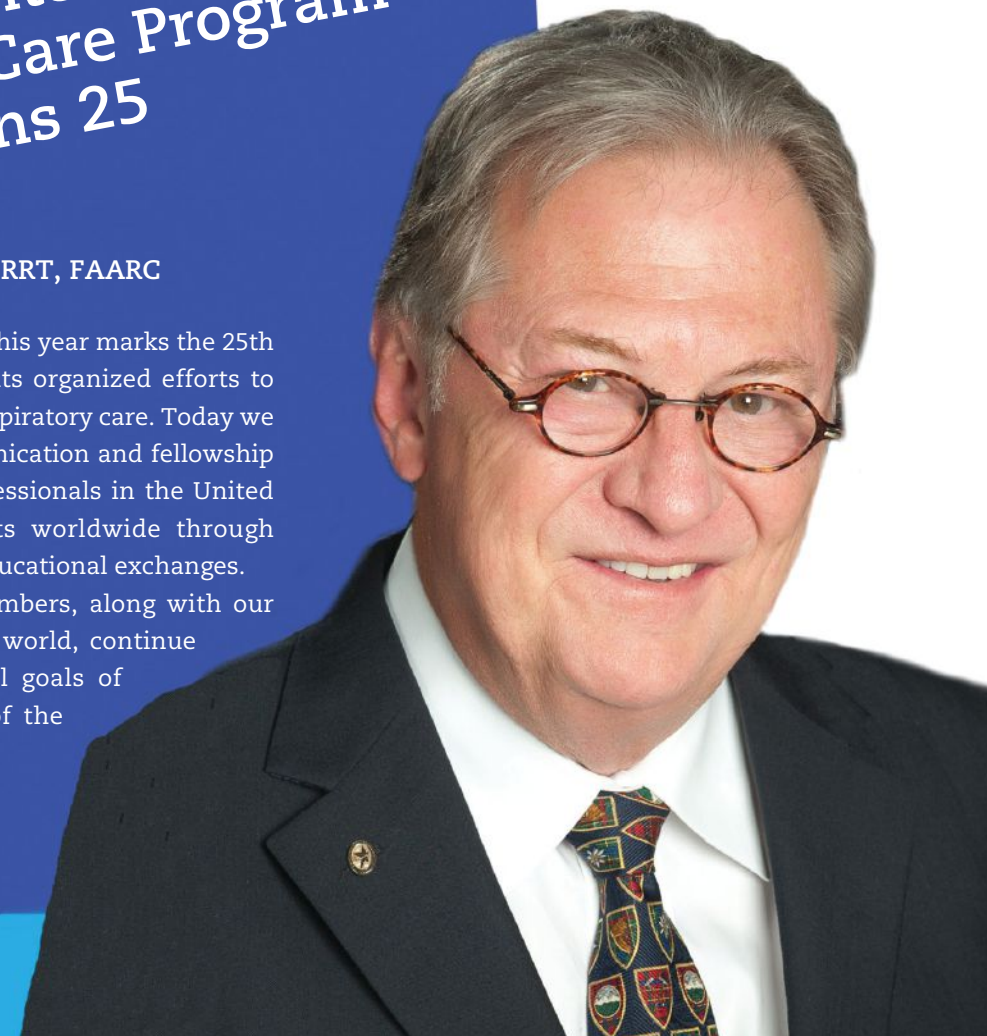
# Happy Birthday!

## The AARC International Respiratory Care Program Turns 25

by John D. Hiser, MEd, RRT, FAARC

I am happy to report that this year marks the 25th year since the AARC began its organized efforts to globalize the profession of respiratory care. Today we continue to promote communication and fellowship among respiratory care professionals in the United States and our counterparts worldwide through cooperation, dialogue, and educational exchanges.

Numerous U.S.-based members, along with our colleagues from around the world, continue to achieve the international goals of the AARC. Here are some of the activities this year.



## Saudi Arabia

Past international fellow and International Council for Respiratory Care (ICRC) Gov. Mohammed Al Ahmari, PhD, MSc, RRT, along with other RTs from Prince Sultan Military College of Health Sciences were invited by The Sixth National Festival of Science and Technology to participate in their annual exhibition where they introduce up-to-date awareness about sciences and advances in technology in health science fields to the public.

*Dr. Timothy Op't Holt chaired the RC Student Competition Award*

Respiratory therapists had the opportunity to exhibit simulation manikins and their utilization in academic and hospital settings, including ventilators, pulmonary function machines, and other respiratory care equipment. They also took the opportunity to educate the public about asthma and COPD awareness and lung health. Interactive stations demonstrating airway management and patient assessment using simulation mannequins were among the stations set up for the public. More than 500 pulmonary function tests, including interpretations and consultation with physicians, were provided.

Gov. Al Ahmari reports that they also held the first Respiratory Care Students' Symposium to give respiratory care students from different respiratory care schools the opportunity to organize, chair, and present scientific lectures and workshops to the profession. "We believe it is very important to invest in our young RC generation and to prepare scholars, educators, and leaders by giving them the trust and leadership in such activities," says Dr. Al Ahmari.

They also conducted the first RC Student Competition Award among respiratory care schools, similar to the AARC Sputum Bowl. The competition was prepared and run by executive committee members (heading RC departments) and came from different hospitals. "In addition to the scientific talks presented by senior RC students from different schools, particularly Dammam University, the competition was so exciting to all of us, as it's so unique and special" noted Dr. Al Ahmari. Eight groups participated for the whole day to reach the finals, which were judged and chaired by Timothy Op't Holt, EdD, RRT, FAARC, a professor at the department of respiratory care and cardiopulmonary sciences at the University of South Alabama. The final round was between Prince Sultan College and Dammam University, and the winning team was the Prince Sultan students. "We emphasized that there is no loser in such a great event, but every team is a winner by being involved in such a scientific activity," Dr. Al Ahmari says. "This will be repeated every year!"

## Ghana

An effort to introduce respiratory therapy to the University of Ghana and Korle Bu Teaching Hospital began in 2012 with the assistance of AARC members Paul Eberle, PhD, RRT; Karen Schell, DHSc, RRT-NPS, RPFT; Lisa Trujillo, DHSc, RRT; and former international fellow Audrey Forson, MB, ChB, FWACP. The proposed curriculum, which is heavily based on the current Weber State University (WSU) respiratory therapy curriculum, has been approved to begin in August 2015. It is anticipated that students will go directly from high school into the BS program.

During the last two years of the four-year curriculum, students will travel to WSU to participate in laboratory and clinical experiences and also spend time in clinical rotations, where they can gain an understanding of the scope and breadth of respiratory care in the United States. See the related article by Dr. Trujillo in this edition of *AARC Times*.

The editors thank *AARC Times* Guest Editor John D. Hiser, MEd, RRT, FAARC, for his special contributions to our December international issue.

**About the Author**
John D. Hiser, MEd, RRT, FAARC, chairs the AARC International Committee and served as the AARC president in 2005. He is the director of the respiratory care program at Tarrant County College Trinity River East Campus Center for Health Care Professions in Fort Worth, TX.

## China

Sir Run Run Shaw Hospital located in Hangzhou, China, celebrated the 20th anniversary of the founding of their respiratory care department. This is the oldest and largest respiratory therapy department in China and is directed by ICRC Gov. Yuan Yue-hua with the assistance of a former international fellow, Hui-Qing Ge, RT. Both were instrumental in planning and conducting the 2014 International Respiratory Therapy Conference and the 8th Intercostal Respiratory Therapy Assembly in Hangzhou this past July. The conference acquired the Level II repeating program approval from the ICRC. There were 335 RTs from 18 provinces attending the conference, which is approximately half of all the RTs in all of China. I (John Hiser) attended the conference with ICRC President Jerome Sullivan, PhD, RRT, FAARC.

Sir Run Run Shaw continues to host a national training course for respiratory therapists from throughout China and has helped train thousands of students since 1998. The training course also has ICRC Level II approval.

International Committee Vice Chair Daniel Rowley, MSc, RRT-ACCS, FAARC, and Brady Scott, MSc, RRT-ACCS, recently traveled to China, where they visited and lectured at Sir Run Run Shaw Hospital. There they worked with past fellow and ICRC Gov. Yuan Yue-hua, RN, RT, presenting symposia and workshops to their respiratory care personnel. Rowley and Scott also traveled to Shanghai and Beijing as invited guests, speaking at several seminars and working with past international fellow and ICRC Gov. Xiang Yu Zhang, MD, FCCP, FACCM, as well as former international fellow Jie Li, MSc, RRT-NPS. The two presented numerous topics during their visits, including mechanical ventilation, new employee orientation policies, and the transfer of evidence-based literature into clinical practice. See their related article in this edition of *AARC Times*.

***Hui-Quing Ge (Grace) at Sir Run Run Shaw Hospital***

## Liberia

AARC member Michael Davis, RRT, reports that the first RT students in West Africa due to graduate this December are currently working on the frontlines of the Ebola outbreak. Their clinical practice, which began during Davis' trip in June, has evolved emergently, and they are now serving as clinicians by necessity at one of the finest facilities in the Monrovia area, the place most affected by Ebola in Liberia. According to Davis, many hospitals have closed (including the national hospital) and/or have been abandoned by health care workers who refuse to come to work out of fear of Ebola exposure. Not only is Ebola out of control, its effects on the health care infrastructure have led to a frightening increase in deaths due to malaria and typhoid (two of the largest killers in Liberia).

## Israel

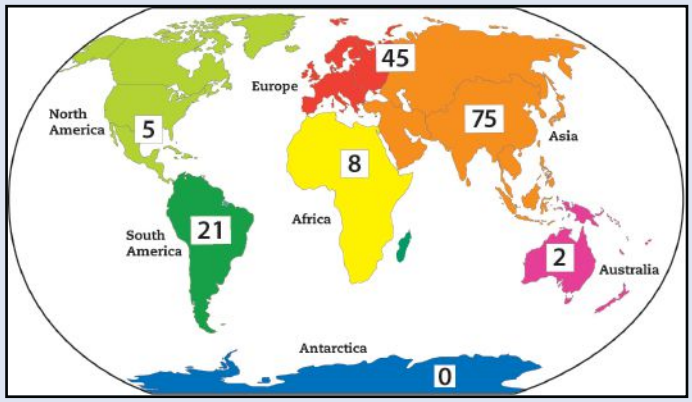
AARC House of Delegates member Brent Kenney, BSRT, RRT, FAARC, recently traveled to Israel, where he presented the first seminar there on high-frequency percussive ventilation (VDR-4) at the Sheba Medical Center in Tel Hashomer, the largest hospital in Israel and the Middle East. Adult and pediatric intensivists from all over Israel attended the seminar. He also traveled to Haifa, Israel, to present a seminar at Rambam Medical Center, where he joined local physicians in placing a patient on high-frequency percussive ventilation.

*Brent Kenney visited Israel.*

International fellows now number 152 from 63 countries. This year's fellows will come from Brazil, Colombia, Japan, Lebanon, and Morocco. →

### AARC International Fellows by Continent

- Africa: 8
- Asia: 75
- Australia: 2
- Europe: 45
- South America: 21
- North America: 5



## Japan

In Japan, former AARC/American Respiratory Care Foundation fellow and the ICRC Gov. Dr. Kazunao Watanabe, MD, led the efforts to present the 14th Annual Respiratory Care Seminar in Shonan last July. The professor of respiratory care at Boise State University, Lonny Ashworth, MEd, RRT, FAARC, presented a total of 18 workshops at 10 locations to physicians and co-medical personnel. These workshops (approved by the International Education Recognition System) were presented to approximately 500 people and continue to make a difference in patient care in Japan.

## Philippines

Over 750 RTs and RT students attended the 10th Annual Convention of the Association for Respiratory Care Practitioners in the Philippines (ARCPP) this last July in Manila. There, RTs celebrated the 3rd RTRP (Respiratory Therapist Registered in the Philippines) oath-taking ceremony, with more than 100 new RTRPs participating. The first textbook written by a Filipino RT and specifically designed to assist RTs in preparing for their exams was published this year by Noel Tiburcio, PhD, RMT, RRT-NPS, a former international fellow.

*Lonnie Ashworth presented workshops in Japan.*

*Noel Tiburcio signed his new textbook for Filipino students.*

## Norway

In Norway, Heidi Markussen, MHSc, RN, and Siguard Aarrestad, MD (past fellows and ICRC governors), worked with their colleagues to present seminars promoting and encouraging research in respiratory care. They completed a two-year e-learning project on quality assurance for long-term mechanical ventilation as well as a national center of excellence project for standardization of training on home mechanical ventilation. In addition, they celebrated the first graduating class of 28 nurses from across Norway who completed a one-year 60-credit-hour course in respiratory care.

## Mexico

The Mexican Association for Respiratory Therapy (AMTR) organized the XII International Congress in Respiratory Care in Mexico City Aug. 6–9, 2014. Distinguished guests and speakers at the Congress included Thomas J. Kallstrom, MBA, RRT, FAARC (executive director and chief executive officer of the AARC); Jerome Sullivan, PhD, RRT, FAARC (president of the ICRC); Gary Smith, BS, RRT, FAARC; and Homer Rodriguez, RRT, FAARC (representing the National Board for Respiratory Care). The meeting was hosted and organized by ICRC Gov. Héctor León Garza, MD, for whom the international Hector León Garza MD Award was named after, beginning in 2005.

Jerome Sullivan presented an award to the AMTR recognizing 25 years of collaboration with the ICRC. The Mexican Association presented honorary membership to Kallstrom, Smith, Rodriguez, and Dr. Sullivan.


*Héctor León Garza organized the XII International Congress in Respiratory Care in Mexico City last summer. AARC CEO Tom Kallstrom attended.*

## Taiwan and Mainland China

Mainland China and Taiwan continue to collaborate on several activities that advance the practice of respiratory care. The 8th Intercoastal Respiratory Therapy Assembly (ICRTA) was held in Hangzhou, China, this year. These conferences are planned and coordinated by RTs in both Mainland China and Taiwan and rotate locations between the two countries each year. Dr. Sullivan and I (Hiser) were invited speakers from the United States.

The Congress of Respiratory Therapists Society of Republic of China (RTSROC) was held in late December 2013 in Taichung City, Taiwan.

Both the ICRTA and the RTSROC meetings held Sputum Bowl competitions this year. The competition in China was organized by a past international fellow, Jie Li. The RTSROC competition, which occurred during Respiratory Care Week in Taiwan, was organized by former international fellow and ICRC Gov. Chia Chen Chu along with China Medical University/Tarrant County College exchange students SSU-Yu Chen, Yu-Yu Tu, Chang-Hsien Yu, and Shun-Yao Chi. These were the first-ever Sputum Bowl competitions in both China and Taiwan.

The following international activities will occur between the writing of this article and the end of the year:

- The First XiaXiang International Forum on Emergency and Critical Care Medicine and Respiratory Therapy in Changsha, China
- The First International Respiratory Therapy Congress in Hubei Wuhan; and
- The 2014 Congress of Respiratory Therapists Society of Republic of China (RTSROC) in Chiayi, Taiwan.

Mainland China and Taiwan continue to collaborate on several activities that advance the practice of respiratory care.

## United Arab Emirates

In the United Arab Emirates, former international fellow and ICRC Gov. Noel Tiburcio, PhD, RMT, RRT-NPS, and his colleagues celebrated "World No Tobacco Day" by performing free spirometry studies in Al Ain, Abu Dhabi. They also performed free spirometry on local truck drivers exposed to unhealthy air quality. The Emirates Association of Respiratory Care Practitioners also conducted free board exam reviews for their members from the Philippines who are preparing for the second respiratory therapist board licensure exam.

## Adult Acute Care Specialty Practitioner of the Year Award

Congratulations to Hui-Qing Ge, RT (Grace) from Sir Run Run Shaw Hospital in Hangzhou, China. Grace will be receiving the 2014 AARC Adult Acute Care Specialty Practitioner of the Year award at AARC Congress 2014 in Las Vegas this December. This prestigious award honors her dedication and outstanding achievements in the specialty practice area of adult acute respiratory care.

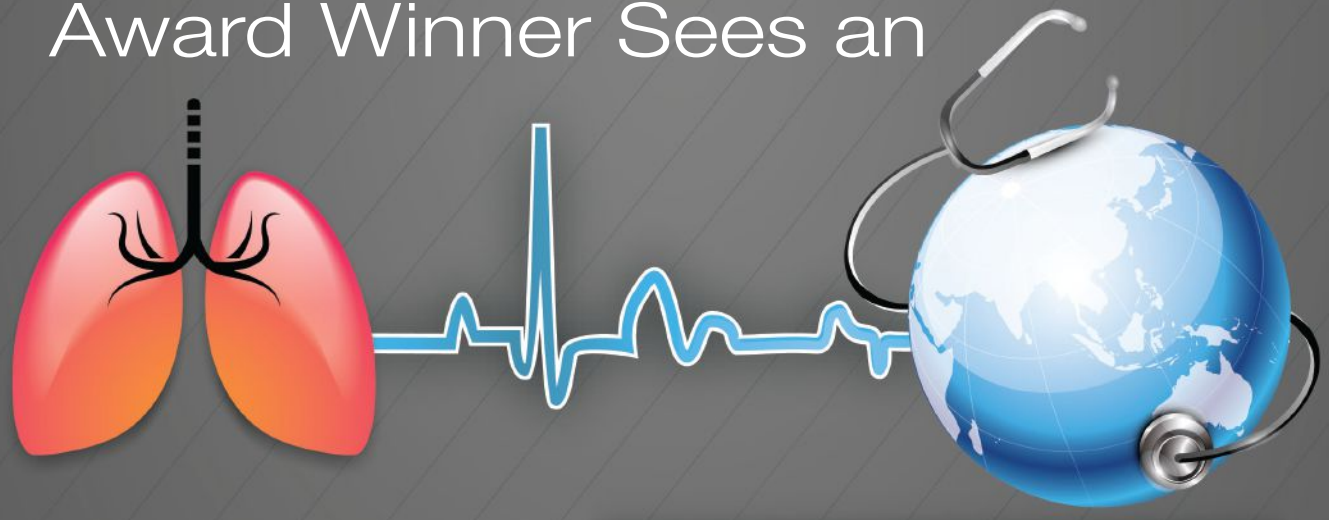
This is also an historical event because it will be the first time that an AARC international member has been selected as a specialty practitioner of the year, especially since she is also a past AARC/ARCF international fellow. This is solid evidence that the AARC and its international colleagues are achieving our long-time goal of globalizing respiratory care. ■

EDITOR'S NOTE: See page 53 for an additional international issue article about respiratory care in Slovenia.

*Noel Tiburcio and colleagues*


*John Hiser, Hui-Qing Ge (Grace), and Jerome Sullivan*

# 2013 Héctor León Garza MD Award Winner Sees an Interconnected World



Major Pierson at the 130th General Hospital in Nürnberg, West Germany, in 1974.

Whether you call it "international" or "intercultural," Dr. David Pierson's long record of service to global respiratory care has sparked a lasting dialogue among RC professionals here and abroad.

**1967** **1970**

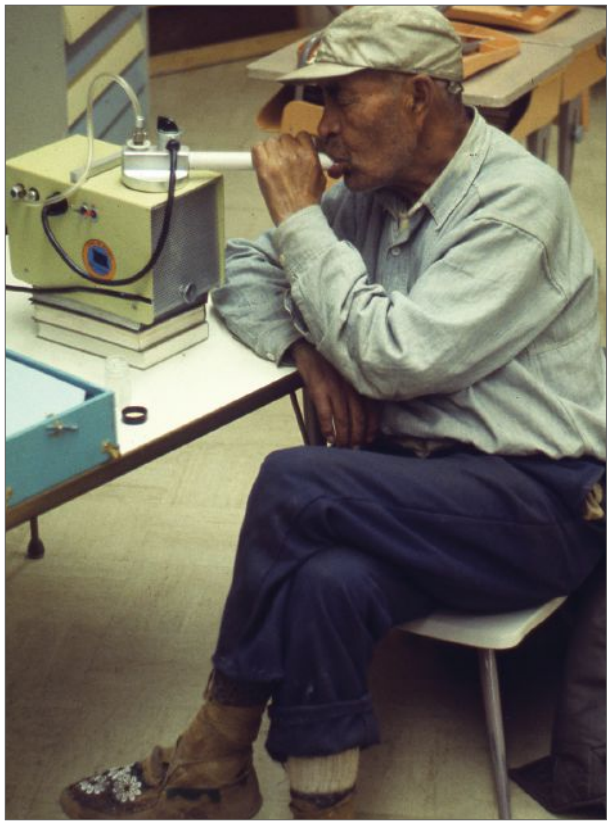
The future Dr. David Pierson checks the results of the tuberculin skin tests he applied two days earlier in Kaltag, AK.

The Héctor León Garza MD International Achievement Award was established to recognize those who have profoundly impacted international respiratory care. Our 2013 award recipient epitomizes that objective. From establishing a respiratory care department in a U.S. military facility in Germany, to hosting international fellows during his long tenure as medical director of respiratory care at Harborview Medical Center in Seattle, WA, to educating international colleagues in nations ranging from China to Guatemala, to increasing the international presence of Respiratory Care during his time as editor, David Pierson, MD, FAARC, has fostered the ties that bind us all together as providers of care for those with respiratory conditions.

**Q** ***AARC Times***: We understand you first got involved in international medicine while you were in the service and established a respiratory therapy department in an overseas hospital.

**A** **Dr. David Pierson:** I grew up in the era of compulsory military service for all males; and although I had obtained deferments in order to complete my education and training, once I finished my fellowship in 1974, I owed Uncle Sam two years. I was one of five physicians who were assigned as general internists to the Army's 130th General Hospital, a 150-bed former German military facility in Nürnberg that served about 50,000 U.S. military personnel and their dependents. The hospital had oxygen tanks, nebulizers, and a couple of ventilators used in the operating room. There was an old spirometer and some other respiratory therapy equipment stored in the basement, but no respiratory therapists were assigned in the hospital under that job designation and no physician had previously shown interest in the field.

There were, however, some medic types with respiratory therapy training scattered around the hospital, as well as a few in the motor pool and elsewhere; and I managed to get several of them assigned under my supervision as RTs. This was the early 1970s, a time when many U.S. hospitals were still



An elderly former TB patient provides an induced sputum specimen during Dr. Pierson's stint on the Yukon River in the northern interior of Alaska as a medical student in the late 1960s.

**1974** **1980**


Dr. Pierson and his former trainee, Dr. Shigeru Sakurai, at the first-ever multidisciplinary Japanese conference on home respiratory care chaired by Dr. Thomas L. Petty and Dr. Shiro Kira in Tokyo in 1993.

setting up their first ICUs; and well-organized respiratory therapy departments staffed by trained RTs did not exist in many institutions. Thus, with little direction from the Army, we were pretty much on our own. It was great.

**Q** ***AARC Times***: How did that experience influence your future interest in the international arena?

**A** **Dr. Pierson:** This is a good illustration of what I think of as "international" versus "intercultural" respiratory care. The experience took place in a foreign country; but the patients and clinicians in our facility were Americans, and the care occurred with essentially no interaction with the local people or the German health care system. So this was an international experience, but it was really more an exercise in delivering respiratory care in a medical environment and culture quite different from those at home — an intercultural experience.

Physicians, nurses, and clinical engineers at Nihon University School of Medicine in Tokyo round with Dr. Pierson in the ICUs in 1996.

My first exposure to intercultural respiratory care actually occurred seven years earlier, in 1967, following my second year in medical school. I arranged to spend the summer and fall quarter working with the Alaska state tuberculosis control department — kind of an ad hoc internship in public health. My job was to use census data to compile lists of people in the remote native villages near the Bering Sea and along the Yukon River who had previously been treated for tuberculosis, as well as the children in those villages who needed to have TB skin tests. I would then travel by mail plane to those villages, sometimes with a public health

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nurse and sometimes on my own, obtaining induced sputum specimens from the former TB patients and tuberculin testing all the children. At that point, I had not yet decided on a medical specialty, but there is little doubt that the experiences I gained during those five months played an important role in my future career in respiratory care.

**Q** ***AARC Times***: Speaking of your medical education, you trained with the legendary Thomas L. Petty, MD, FAARC, who was one of our earliest ambassadors in pulmonary/critical care medicine. What pearls of wisdom did you learn from Dr. Petty about navigating the intricacies of the international medical community?

**A** **Dr. Pierson:** As I discussed at length in my Thomas L. Petty Memorial Lecture at last year's Congress, and in the article published in the August issue of Respiratory Care,[1] Dr. Petty is without doubt the single most important physician in the history of respiratory care. This is for many reasons, but one of them was his tireless promotion of both the field and the profession on an international basis. This occurred during his extensive international travels, in personal interactions with his countless friends and colleagues in dozens of countries, and also through the many international visitors he welcomed to his department in Denver. When you trained in Denver, you were aware of being in a center of international interest and influence; and Dr. Petty was a superb role model for what was positive about both international and intercultural interactions.

When I was a fellow, Dr. Petty introduced me to several early leaders in the use of long-term oxygen therapy and other respiratory care modalities in Japan. In 1983 he co-chaired the first-ever multidisciplinary conference on home respiratory care in Japan, and I was invited to participate. In part because of Dr. Petty's advocacy and support, I was subsequently invited back to Japan several times to teach about these things.

**Q** ***AARC Times***: As a long-time member of the AARC's International Committee, you helped to set the direction for the AARC's international involvement. What would you say were your biggest contributions there and why?

**A** **Dr. Pierson:** I think I am most proud of the role I was able to play in establishing the International Fellowship Program. When I first went on the

**1993** **1994**


Dr. Pierson (left rear) joins Dr. Robert Kacmarek (right rear) and the organizers and other presenters at a week-long, multidisciplinary workshop on respiratory care held at Ramathibodi Hospital in Bangkok in 1994.

committee in the mid-1980s, it was made up mostly of people with personal interests in international travel and education; and its activities mainly centered around opportunities for doing those things. The proposal that the Association turn this process on its head and bring individuals interested in furthering respiratory care practice and education in their own countries here to the United States was truly revolutionary. It initiated a whole new phase in the globalization of respiratory care and got to the question, "What is respiratory care?" As I explained in an editorial when I first became editor of Respiratory Care,[2] that term means different things depending on the context. In addition to referring to the respiratory care profession (as pioneered in the United States) and to the AARC's science journal, the term "respiratory care" can also be used to refer to the *field* in which we work — the collection of knowledge, skills, assessments, and therapies used in the diagnosis and management of patients with disorders affecting the cardiorespiratory system.

In other countries, competencies and procedures within the scope of practice of American RTs may be the responsibility of physicians, nurses, physiotherapists, clinical engineers, or others. I think the efforts I have made to emphasize these things in all my international activities within the AARC, and to promote education and best practices regardless of the titles held by the people who need them, have been important.

Dr. Pierson and Dr. Subharee Suwanjutha, chief of pediatric pulmonology at Ramathibodi Hospital, make ICU rounds on a young patient with polio, which still occurred in Thailand in the mid-1990s.

**Q** ***AARC Times***: You and your RT colleagues at Harborview regularly hosted AARC international fellows, too. What did you learn from your direct involvement in the program?

1995 1996

Dr. Pierson teaches respiratory physicians, nurses, and therapists in a workroom in the pulmonary building at Chang Gung Memorial Hospital in Taipei in 1995.

**Dr. Pierson:** Thanks to the efforts of Celeste Stubbs, RRT, and several other Harborview therapists — with terrific participation from many people at other hospitals, home care agencies, and community colleges in and around Seattle — we were able to host international fellows for more than two decades, starting at the very beginning of the program. I was glad to be able to interact with each of the fellows who came through and to show them how an enthusiastic medical director can benefit every aspect of a hospital's respiratory care department.

Some of our international fellows, such as those from Taiwan and, in recent years, China, were RTs with U.S.-style training obtained either here or in programs in their own countries, whose practice at home increasingly resembles that in this country. Others, such as the fellows we had from Thailand and Japan, were physicians or nurses who needed to apply what they learned about respiratory care, the subject area, when they went home, despite not having the separate profession of respiratory care available to them. One-on-one interaction with these bright, enthusiastic health care professionals from varying educational and clinical systems was very beneficial not only to me but also to many Harborview RTs and others here in Seattle.

**AARC *Times*:** You have also lectured on respiratory care in nations around the world. How do you believe your willingness to reach out has not only helped to foster the profession in other countries, but also what you call the "subject" of respiratory care as well?

**Dr. Pierson:** With Robert M. Kacmarek, PhD, RRT, FAARC, I was fortunate between 1994 and 2001 to be able to teach respiratory care at several in-depth workshops in Thailand, Malaysia, and Egypt. These were attended by clinicians from multiple health care professions, as were workshops and seminars in which I participated in Brazil, France, Guatemala, Italy, and Mexico. I should also acknowledge here the important role played by the Asia Pacific Association for Respiratory Care (APARC) in furthering international respiratory care around the Pacific Rim. I gave lectures and conducted more informal teaching sessions at APARC conferences in the Philippines, Thailand, New Zealand, Japan, Malaysia, and South Korea. In addition, although they were for professional associations dominated by physicians, during the 1980s and 1990s I was fortunate to speak on respiratory care topics at other conferences in Argentina, Belgium, Canada, Spain, England, Germany, Hungary, and Switzerland.

I alluded previously to the fact that respiratory care is practiced by different types of clinicians and taught in varying settings in countries with very different histories and health care systems. As a result, there is much variability in the degree to which the prospects for respiratory care as a separate profession have been furthered through my international efforts. U.S.-style respiratory care is well-developed and well-established in several countries, of which Canada, Mexico, Taiwan, and the Philippines are notable examples. In others, such as England and Germany, it seems unlikely that existing systems will change to accommodate a new, separate profession specializing in respiratory care. However, in a

2000 2001

number of countries named earlier, there has been great eagerness and appreciation for the sharing of knowledge and skills by American respiratory care clinicians, despite the fact that their health care organization and delivery systems are quite different from ours.

**Q** ***AARC Times***: The number of international submissions to Respiratory Care increased measurably during your tenure as editor. Why did you think it was important to make the Journal more accessible to these authors and their countries?

**A** **Dr. Pierson:** I think it is not too conceited to say that respiratory care is an American invention. Several decades ago that term in all three of its meanings — a subject area, a specific health care profession, and a scientific journal — was dominated by this country. However, respiratory care, the subject area, has now become international to the extent that the majority of submissions to the Journal come from outside the United States.

I believe two factors are largely responsible — increased recognition of the Journal's quality in the scientific and publishing communities and an increase in the number of potential authors around the world who are doing good quality work in this field. These two things are related, and both reflect the dedicated and substantial efforts of a large number of people over the last couple of decades. Respiratory care, the subject area, is very much a team endeavor, and so has been the evolution of our journal to its present level of excellence and international recognition.

**Q** ***AARC Times***: What do you believe the future holds for the profession of respiratory care in other nations and why?

**A** **Dr. Pierson:** Respiratory care as a health care profession separate from nursing, physiotherapy, or another existing profession, with its own educational system, credentialing mechanism, and official governmental sanction, now exists in several countries in addition to the United States. Whether this will extend to additional countries is a complex question involving cultural factors, existing health care organization, economics, and politics, among other things. It might be debated whether establishment of a respiratory care profession on the U.S. model would be the best thing to do in many countries. Based on what I know of the traditions and structures of health care in the countries I've visited, I'm not at all certain that such is the case. Plus, given a global, international perspective on respiratory care, the subject area, this is not a bad thing.

At last year's International Symposium, Jerome Sullivan, PhD, RRT, FAARC, asked me to make some remarks about the globalization of respiratory care based on what I've seen and learned over the last 40 years. Thinking about this opportunity, I concluded that the process has had three distinct phases. The first of these was characterized by the diffusion of expertise outward from the United States. Individual American physicians and therapists traveled on an ad hoc basis to different countries, mainly to give lectures but also in some instances for more in-depth workshops and other clinical and educational activities. The second phase was ushered in by the International Committee with its International Fellowship Program, which provided sponsored travel for interested and potentially influential individuals from other countries to the United States for the specific purpose of learning about respiratory care and applying it in their home contexts. In this phase, which is ongoing, the important participants flow toward this country, gaining knowledge and making contacts to take home. The third phase, which is now underway, consists of respiratory care research, education, and practice on a fully international scale. This phase is characterized by a fully bi-directional flow of information, expertise, and interest. I think of a map of the world with double-headed arrows connecting every country with every other country. I don't think this phase has been fully realized, but it will be here soon.

The AARC, its International Committee, and its Journal have been more important than any other factor in this evolution. It has been a great privilege to have taken part in it all, and for this opportunity I am sincerely grateful. ■


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2014

## TO HANGZHOU, SHANGHAI, AND BEIJING:

# Our 3-Week Information

J. Brady Scott (left) and Daniel Rowley (background) enjoyed working with RT students and orientees during their visit to China.

# Exchange with China

by Daniel D. Rowley, MSc, RRT-ACCS, FAARC; and J. Brady Scott, MSc, RRT-ACCS


Sustained collaboration between past AARC international fellows and International Council for Respiratory Care (ICRC) governors from China has provided opportunities for respiratory therapists from the United States to promote the art, science, and clinical practice of respiratory care.

## Sir Run Run Shaw Hospital

Yuan Yue-hua, RN, RT (2009 AARC international fellow and ICRC governor for China) is director of the respiratory therapy department at Sir Run Run Shaw Hospital (SRRSH) in Hangzhou, China. The hospital is a 1,200-bed Joint Commission International-accredited academic medical center that employs 45 respiratory therapists. They provide 24/7 patient care in a wide variety of clinical settings including medical, cardiothoracic, and surgical/trauma ICUs. In addition, they provide respiratory services for the emergency department, acute care floors, and pulmonary diagnostics.

Upon arrival in China, we met with Yuan Yue-hua and her leadership team to discuss various clinical and administrative topics. This meeting was spent discussing experiences and sharing new ideas aimed at solving immediate and long-term challenges. A pressing issue that was immediately prioritized was employee orientation, as they were bringing on eight new employees during our visit.

Along with their leadership team, we began performing a formative assessment of the existing orientation program. This assessment led to the introduction and application of adult learning principles; the intent was to make the training and orientation practical and goal-oriented. Didactic and laboratory exercises were utilized to engender active, problem-based learning opportunities that would be relevant and readily applicable to clinical practice.


Yuan Yue-hua

Department Clinical Manager Hui-Qing Ge, RT (2010 AARC international fellow) and department educator, Yan Xiong, RT, created a comprehensive orientation schedule of topics to guide the orientation process. Our goal was to merge new learning content and methods of instruction with the existing curriculum that included:

- Introduction to the profession of respiratory care
- Anatomy and physiology
- Airway humidification and aerosol therapy
- Patient assessment
- Basic and advanced airway management
- Mechanical ventilation
- Oxygen therapy.

Hands-on laboratory exercises followed the didactic presentations. We separated the orientees into small workgroups and then introduced them to the concept of problem-based learning with low-fidelity clinical simulation exercises to enhance learning. We designed the lab exercises to promote team member communication, problem solving, and skill demonstration. The hospital's RT leadership and staff provided language translation from English to Chinese.

## Tongji University

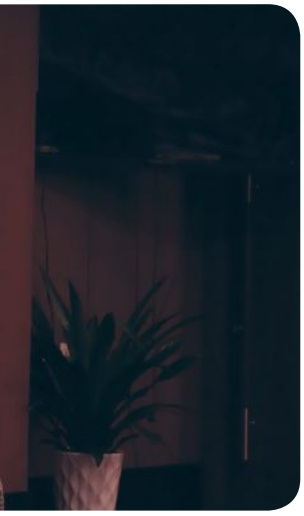
In addition to our work in Hangzhou, Xiang Yu Zhang, MD, FCCP (1998 AARC international fellow and ICRC governor of China), invited us to collaborate with his physician, respiratory therapist, and graduate student colleagues at the Tenth People's Hospital of Tongji University. We toured the surgical ICU with RT staff, led by 2008 AARC international fellow, Qixing Wang, RT. We also attended Dr. Zhang's graduate students' research project presentations that related directly to pulmonary critical care topics. A collegial atmosphere promoted research design-and-result discussions that resulted in further dialogue about future international collaboration between respective institutions.

## Beijing Chao-Yang Hospital

After spending three days in Shanghai, we traveled up to Beijing to meet up with Jie Li, MSc, RRT-NPS, a 2005 AARC international fellow who invited us to present at Beijing Chao-Yang Hospital's Nursing Critical Care Conference. Our presentations focused on translating evidence-based literature into clinical practice. We also toured the adult respiratory ICU and discussed patient care management strategies and mechanical ventilation research that was underway. Yuan Yue-hua also presented at the conference in Beijing.

## China's RC profession continues to evolve

Our last week in Hangzhou was highly productive. We continued orienting new RT staff and participating in morning ICU rounds. We also worked to prepare presentations for a mechanical ventilation seminar that would be delivered to physicians, nurses, and RTs attending from different provinces from around the region. Also,



we met two physicians at the seminar who had been observing respiratory therapy practice at SRRSH over a three-to-six month period because they intend to develop a respiratory care department in their respective institutions.

SRRSH serves as a training center for many aspiring RTs throughout China, many of whom have graduated from medical school or nursing before receiving in-hospital training as respiratory therapists. Academic training programs in respiratory therapy do exist in China, and we had the privilege of seeing and endorsing their clinical and team leadership skills in the ICU.

The respiratory care profession continues to evolve in China. During our time there, we observed many encouraging developments that suggest that our profession will continue to grow and thrive in China. We hope that our short time there was beneficial and look forward to future opportunities for collaboration. ■


## ABOUT THE AUTHORS

Daniel D. Rowley, MSc, RRT-ACCS, FAARC, is respiratory therapy clinical coordinator at the University of Virginia Medical Center in Charlottesville, VA.

J. Brady Scott, MSc, RRT-ACCS, is interim director of clinical education and assistant professor of cardiopulmonary sciences RC program at Rush University in Chicago, IL.

# Ghana To Begin RT Training Program

by Lisa Trujillo, DHSc, RRT

Weber State University (WSU) faculty and students got some great news when they returned from their latest trip to Ghana to bring much-needed medical education and services to health care professionals in the country. In August of 2015, Ghana will begin training respiratory therapists of its own.

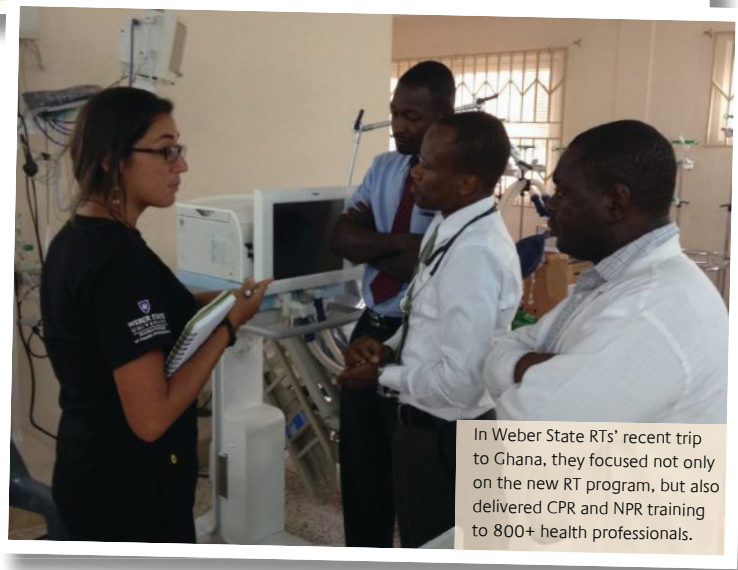
AARC member Lisa Trujillo, DHSc, RRT, assistant professor and director of clinical education at WSU, explains how it all came about in this Q&A.

**You've been working on the Ghana respiratory therapy program for several years now. Where did it all begin?**

The idea for an RT program in Ghana evolved over several years after having spent a great deal of time in hospitals throughout the country. Although the physicians and nurses in Ghana work extremely hard to care for their patients, their workload is quite heavy. The presence of respiratory therapists as members of the health care team would not only assist in the patient workload of physicians and nurses, but it would also add a specialization that focuses on respiratory illness, diagnosis, and treatment that is not currently available.

A focused effort to introduce respiratory therapy to the University of Ghana and Korle Bu Teaching Hospital began in 2012 with the assistance of a handful of individuals who were able to arrange for meetings with the appropriate hospital and university administrators. These meetings provided an opportunity to present respiratory therapy as a profession and the benefits of adding respiratory care providers to the health care team in Ghana. A special thank you to Karen Schell, DHSc, RRT-NPS, RRT-SDS, and Kwami Ahelegbe, RRT, for their participation in these meetings.

The program provided community health education and free clinics for approximately 700 adults and 300 children.



In Weber State RTs' recent trip to Ghana, they focused not only on the new RT program, but also delivered CPR and NPR training to 800+ health professionals.

**How did you and your fellow faculty members from Weber State help develop this new program?**

Paul Eberle, PhD, RRT, WSU RT program director, and I have been involved in the development of this program since the beginning. Once the University of Ghana School of Allied Health Sciences and Korle Bu Teaching Hospital expressed an interest in developing an RT program, we worked closely with them to assist in creating a comprehensive curriculum proposal. The proposal that was approved by the University of

They offered CPAP and mechanical ventilation training for physicians and distributed supplies collected from U.S. donors.

Ghana is heavily based on the current WSU respiratory therapy curriculum.

**How will you be involved in the program going forward?**

The WSU RT program will continue to assist in the development and delivery of the RT program in Ghana through mentoring and training opportunities on our campus in Ogden, UT, and in Ghana. During spring semester 2014, we hosted a Ghanaian pediatrician, Dr. William Obeng, for four months and plan to continue hosting physicians and professors from Ghana for the next several semesters. As faculty, we are committed to mentor and support those who will be educators in this new respiratory therapy program.

**Tell us a little more about how the new program will work.**

It is anticipated that students will be directly admitted from senior high school to the four-year program. Students will spend their first two years completing general education requirements and science courses. Years three and four will be comprised of respiratory-specific courses. The curriculum is structured such that between year three and four, students will travel to WSU to participate in a concentrated laboratory-clinical experience. This will provide students an opportunity to work with a variety of equipment, some of which may not currently be available in Ghana. Students will also have the opportunity to spend time in clinical rotations where they will gain a better understanding of the scope and breadth of respiratory care in the United States.

**How many students are expected to enroll in the first class?**

We expect that they will begin with a class of 10 students. The goal is to select a strong manageable group in effort to ensure success. ■

Lisa Trujillo and Korle Bu Teaching Hospital pediatrician Dr. William Obeng


## *About the Author*

*Lisa Trujillo, DHSc, RRT, is assistant professor and director of clinical education at Weber State University in Ogden, UT.*

# MAKING A DIFFERENCE IN Haiti

by Amy Edson and Jessica Grenham

Senior respiratory care students at Quinsigamond Community College in Worcester, MA, are required to complete a 30-hour community service senior project prior to graduation. Since the two of us had become best friends during our time in the program, we wanted to collaborate on this assignment. It was important for us to find the best possible experience, while fulfilling an academic requirement. We wanted a project where we could make a difference. We decided to volunteer for a humanitarian mission to Haiti.

Before leaving for our trip, we had multiple team meetings that prepared us for our adventure. We learned about health protocols, what to pack, how to emotionally and physically prepare for the trip, as well as what we could expect to be doing upon arrival. Our team consisted of medical professionals including paramedics, nurses, and occupational therapists as well as non-medical missionaries. We were the sole respiratory therapists.

## An eye-opening experience

Upon arrival in Port Au Prince, Haiti, we traveled more than two hours by bus to the Mission of Hope International in Grand Goâve. The clinic, church, and school for the local villages were located in Thozin, just down the road from the mission. The clinic and pharmacy consisted of a small room with two beds, one desk, and a variety of medications that were stored on make-shift shelves.

Each day, our team split up into smaller provider groups in order to maximize the number of individuals we could treat. We saw patients with a wide range of health issues including breathing difficulties, ear infections, heartburn, and malnutrition. It was an eye-opening experience to say the least. Perhaps the hardest part of the day was when a child's "chief complaint" was hunger. These were truly the most heart-wrenching moments of our trip.

One of our clinical days was spent on a mountainside in a mobile clinic. The goal was to provide treatment to isolated individuals who do not have regular access to medical care. Many of these Haitians traveled hours to be seen by our team. In a short period of time, we treated 75 patients. Since Haitians do not have access to over-the-counter medications to treat "minor ailments," many came to our clinic for headaches, heartburn, and minor aches and pains. We followed the World Health Organization protocols for developing-country clinics and dispensed medications as needed. These protocols are guidelines that helped us diagnose and treat common, third-world diseases such as malaria, worms, scabies, and malnutrition.

Along with treating patients, we also worked with the resident nurse to ensure proper documentation and charting using SOAP notes (Subjective, Objective, Assessment, and Plan). We were happy to put our documentation skills


## *About the Authors*

*Amy Edson and Jessica Grenham are respiratory care class of 2014 students at Quinsigamond Community College in Worcester, MA.*


Jessica Grenham (above holding child)

to good use. We recorded medical history, height and weight, blood pressure, heart rate, and lung sounds for each patient in the village. These medical records would be kept by the clinic for future reference.

One highlight of our trip was distributing rice and beans to an entire village. Knowing that we played a role in easing the burden of hunger was incredibly rewarding.

### Students' medical knowledge grew exponentially

During this amazing week, our medical knowledge increased exponentially! More importantly, however, was what we learned about the human condition and the struggles and challenges of those who are less fortunate. This trip was, indeed, a life-altering experience that has changed our lives forever. We are planning a return trip next year to continue the worthy work done by the Mission of Hope International. Additional information for this humanitarian group can be found at www.mohintl.org. ■

Amy Edson

# The Global Tracheostomy Collaborative

by Diane M. Randall, RRT-NPS

Tracheostomy is a common procedure performed in critically ill patients who require mechanical ventilation for respiratory failure and other airway issues. The efficacy of tracheostomy teams and hospital services with standardized protocols for tracheostomy care has been associated with improved outcomes.[1] The Global Tracheostomy Collaborative (GTC) is an international cooperative of hospitals and providers working together to improve the quality of care for tracheostomy patients. This initiative uses evidence-based best practices to improve outcomes and quality of life of their patients. As respiratory therapists, we all have a dedication and responsibility to provide the best possible airway management. The GTC recognizes the respiratory therapist as an important part of a multi-disciplinary team — along with physicians, nurses, speech therapists, other caregivers, and the patients themselves — to achieve this goal.

## Background

Institutions in the United Kingdom, Australia, and the United States have set out to improve the management of tracheostomy patients from surgery to decannulation or discharge. In 2013, Hettige et al of St. Mary's Hospital in London (following on their prior work from 2008), described an assessment implemented tracheostomy care bundle.[2] The bundle was associated with a reduction of serious tracheostomy-associated critical events and paved the way for multidisciplinary tracheostomy teams in the hospital. These team interventions reduced ICU and in-patient lengths of stay.


## About the Author

*Diane M. Randall, RRT-NPS, is a staff respiratory therapist at Joe DiMaggio Children's Hospital in Hollywood, FL.*


In 2009, an Australian group at Austin Health reported on the success of TRAMS, or Tracheostomy Review and Management Service. TRAMS improved outcomes. Patients left acute care sooner, spoke sooner, and had tracheostomy tubes removed sooner. Cost savings were realized.[3]

In 2011, St. Mary's Hospital in London further developed a model that has three components: a tracheostomy bundle checklist, a dedicated multidisciplinary tracheostomy team, and an educational program. The tracheostomy bundle checklist consisted of:[4]

- Humidification that is documented every two to four hours
- Tube patency that is checked for secretion build-up every two-to-four hours
- Safety equipment that is checked each shift
- Cuff integrity that is checked each shift
- Tracheostomy dressing and ties changed at least every 24 hours
- A documented weaning plan
- A documented care plan.

Teams usually consist of physicians, nurses, respiratory therapists, speech therapists, and patients. They come together on a specific day and time to discuss patient history, current issues, application of institutional protocols, and future plans.

Typical current educational requirements are anatomy, physiology, patient-specific indications for tracheostomy, patient-specific technology devices, proficiencies, application of institutional protocols, and survey responses for improvement of educational programs.

Following a multi-institutional analysis of tracheostomy complications, the National Tracheostomy Safety Project was initiated in the United Kingdom in response to preventable harm occurrences in patients with temporary or permanent tracheostomies or laryngectomies.[5] In 2012, this project led to guidelines for the management of tracheostomy and laryngectomy emergencies.[6] All tracheostomy and laryngectomy patients were given head of the bed, or "bed head" signs. This project also led to a multidisciplinary care initiative designed to reduce institutional harm. The algorithms and their derivatives produced from this project will more than likely be used in Advanced Life Support programs worldwide.

The GTC naturally grew from these efforts, recognizing the universal need, common goals, and the numerous benefits of professional collaborations. The first organizational meeting was held in July 2012 in Glasgow,


Scotland. The GTC North American Kickoff was held in Boston on April 28, 2014, hosted by Boston Children's Hospital.

## About the GTC

Briefly, the goals of the Global Tracheostomy Collaborative are to:

- Implement or expand upon best practices
- Manage the GTC database, allowing clinicians to track their institution's tracheostomy care
- Facilitate benchmarking with other centers
- Help members monitor adverse events and track changes in outcome as their interventions are implemented
- Provide expert support and education from international experts
- Share information from world leaders in tracheostomy care
- Share what clinicians have learned with many other centers worldwide.

## A domestic example

In the United States, several hospitals have joined the GTC, including Joe DiMaggio Children's Hospital (JDCH). JDCH is part of the Memorial Healthcare System in Broward County, Florida, which is the third largest public health care system in the United States. JDCH is an example of a hospital that has taken the challenge to join the GTC and work to standardize care, educate staff and families, and eventually extend into the community for better awareness and outcomes for this fragile and very special group of patients. Families and health care professionals partner to work together in an effort to meet the needs of their patients. As with other nationwide institutions, JDCH has seen a growth of chronic conditions in their pediatric population. This includes discharges of long-term mechanically ventilated patients.

JDCH started by developing a formal tracheostomy and ventilator education program for caregivers and families. A process is implemented to give each new tracheostomy patient a primary respiratory therapist as well as an alternate respiratory therapist responsible for meeting educational needs of the family. Printed information is given to families for reference, and a small basic "test" is given to families to check their understanding of the material. Families and caregivers are encouraged to continue hands-on care of their child. Upon discharge, families receive a survey to help identify any needs that the program would require for continuing quality improvement.

JDCH also implemented changes to its standards of tracheostomy care by implementing tracheostomy bundles. The changes include:

- A standardized "time out" for non-emergency tracheostomy changes ("right patient, right trach")
- Expanding each patient's tracheostomy bedside bag to include a same-size tracheostomy tube, a one-size-smaller tracheostomy tube, lubricant, a 10 mL syringe, tracheostomy ties, a suction catheter with gloves, scissors, and an appropriately sized resuscitation bag with mask.

If tracheostomy patients leave the bedside, the bedside bag goes with them, as well as a suction unit and an oxygen tank. A standard sign at the head of the bed, or "bed head sign," includes tracheostomy tube size; internal diameter, outer diameter, and length; cuff or no cuff; and depth number on suction catheter to prevent the catheter from going past the end of the tracheostomy tube.

## The efforts are rewarding

Collaborative efforts like the GTC and related advances in supportive technology and care of these children create an exciting opportunity for pediatric respiratory care departments and their respiratory therapists.[7] The GTC welcomes inquiries from adult and pediatric hospitals interested in participating; contact www.globaltrach.org. ■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# Thank You, 2014 *AARC Times* Article Reviewers!

The *AARC Times* staff offers our sincere thanks to the people who reviewed the clinical articles in our publication throughout this year. Your special expertise and dedication to the respiratory care profession were critical to our ability to publish informative articles for the respiratory care professional. Thank you, reviewers!

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# Industry Watch

## Insmed presents at ERS

Insmed Incorporated highlighted its novel inhalation technologies for the treatment of orphan pulmonary diseases in a variety of clinical and scientific presentations at the European Respiratory Society's International Congress 2014 in September. Several presentations covered the company's lead product ARIKAYCE™, or liposomal amikacin for inhalation delivered by an investigational eFlow® Nebulizer System (PARI Pharma GmbH), for the treatment of both nontuberculous mycobacteria lung infections and *Pseudomonas aeruginosa* in cystic fibrosis patients. In addition, the company presented posters regarding INS-1009 (treprostinil), a novel inhalation formulation of a proven prostacyclin for the treatment of pulmonary arterial hypertension.

## Masimo announces study results

According to Masimo, a study published in *Anesthesia & Analgesia* demonstrates that Masimo's rainbow® Acoustic Monitoring (RAM™) technology for Acoustic Respiration Rate (RRa®) rapidly detects changes in respiration rate during general anesthesia with a laryngeal mask airway and spontaneous ventilation. They also report it is helpful in the early identification of patients at risk for adverse outcomes. In the study, researchers obtained complete data sets from 50 patients undergoing elective urological surgical procedures in the operating room. "To the extent that immediate knowledge of changes in respiratory rate is beneficial in early identification of patients at risk for adverse outcomes, RRa may be a useful clinical monitoring indicator," investigators concluded.

## Research begins on a breath test for COPD

NYU Langone Medical Center will lead a new clinical initiative funded by a $225,000 grant from the National Institutes of Health to study the effectiveness of a breath test to identify volatile organic compounds in human breath that are biomarkers of COPD. The study will employ patented technology developed by Menssana Research, a leading developer of advanced new breath tests for early detection of a wide variety of illnesses and diseases and the principal recipient of the NIH grant. The study is part of an application process by Menssana to secure FDA approval for the technology and its use in identifying COPD biomarkers. It is hoped that this breath test might enable earlier diagnosis of COPD and tailored treatment.

## FDA clearance for Nonin's eHealth pulse oximeter

The FDA has cleared the Nonin Model 3231 OEM/eHealth finger pulse oximeter for use in the U.S., according to Nonin Medical Inc. The oximeter plugs into a telemedicine hub or kiosk through a USB connector and measures oxygen saturation and pulse rate in pediatric to adult patients. It received EU certification last year. "Leading telemedicine providers such as HealthSpot and Bosch Healthcare have chosen to integrate the Nonin 3231 into their telehealth systems because they expect the 3231 to provide superior performance in the widest patient population, including challenging patients," Mark VanderWerf, vice president of eHealth and OEM for Nonin Medical, was quoted as saying.

## Roche purchases InterMune

Roche and InterMune Inc. have entered into a definitive merger agreement for Roche to fully acquire InterMune for $8.3 billion. The acquisition will allow Roche to broaden and strengthen its respiratory portfolio globally. InterMune's lead medicine pirfenidone is approved for idiopathic pulmonary fibrosis (IPF) in the European Union and Canada and under regulatory review in the U.S. The company also has research programs exploring new targets and pathways that may ultimately lead to improved treatment options for people with IPF and other fibrotic diseases. Roche currently markets Pulmozyme and Xolair in the U.S. and has other novel therapeutic medicines targeting respiratory diseases in clinical development.

## Improving care during pandemics and disasters

The American College of Chest Physicians has released "Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement." The statement aims to guide ethical decision-making, coordination of care, resource conservation, and research in crises and was developed by over 100 clinicians and experts from more than nine countries. It offers the latest evidence-informed suggestions on how to best prepare and manage the critically ill and injured during large-scale disasters and pandemics.

"We have worked to expedite the release of this document given the circumstances, particularly with regard to the resource-poor settings and ethical considerations associated with the current Ebola situation, and hope that this might, in some way, aid those working so selflessly to control the epidemic and provide care for the victims of it," ACCP President Michael H. Baumann, MD, MS, FCCP, was quoted as saying.

## Aeolus files new drug application

Aeolus Pharmaceuticals Inc. has filed an Investigational New Drug Application with the FDA to enable the initiation of a Phase 1 study of AEOL 10150 in healthy human volunteers. The study is designed as the first step in meeting the requirements for approval of the drug as a medical countermeasure for lung damage due to radiation exposure under the FDA's "Animal Rule." Aeolus is developing AEOL 10150 for this indication under a five-year contract with the Biomedical Advanced Research and Development Authority valued at up to $118 million. The drug has previously been tested in 39 patients with amyotrophic lateral sclerosis in two Phase 1 safety studies, where it was well tolerated with no serious adverse events reported.

## RTI and UNC develop "lung-on-chip"

Researchers at RTI International working with investigators at the University of North Carolina at Chapel Hill have developed a new lung-on-chip microdevice for laboratory studies of respiratory challenges and therapeutics. The device includes multiple vertically stacked cellular layers that mimic the structure of airway tissue and was funded by a contract from the Defense Threat Reduction Agency. "The development of this microfluidic lung model, as well as other organs-on-chip, holds the promise of improving the physiological relevance of cellular models for more accurate prediction of the effects of toxicants and drugs on humans and for reducing the use of animals in medical and pharmaceutical research," Sonia Grego, PhD, research scientist at RTI and the project's principal investigator was quoted as saying.

## CAE contracted to provide aeromedical evacuation system

CAE Healthcare has been awarded a contract through ADS Inc. and the Defense Logistics Agency Tailored Logistics Support program to provide the U.S. Air Force Reserve Command (AFRC) at Dobbins Air Force Base with a comprehensive Aeromedical Evacuation Training System. The system can be developed for a range of air mobility aircraft platforms and will provide AFRC with a realistic training environment that will be used to prepare aeromedical evacuation crews for pre-flight and emergency procedures as well as in-flight patient care. CAE will provide a high-fidelity C-130 fuselage trainer that is configured for aeromedical evacuation missions. Within the trainer will be CAE Healthcare iStan human patient simulators, which feature internal robotics that mimic human cardiovascular, respiratory, and neurological systems.

## Developing next-generation health solutions

Qualcomm Incorporated's subsidiary, Qualcomm Life Inc., is collaborating with ResMed, King's Daughters Medical Center, and CareCentrix to develop next-generation connected health solutions powered by Qualcomm Life's transformational 2net™ and HealthyCircles™ platforms. By integrating with Qualcomm Life's scalable solutions, these companies now have access to one of the world's largest open and interoperable mHealth ecosystems of medical device, applications, and service companies in the health care industry.

ResMed is integrating the 2net Hub and Platform with its Astral™ 100 and 150 life-support ventilators to seamlessly capture and transfer near real-time biometric data to the HealthyCircles care coordination platform, allowing care teams to effectively monitor and manage patients by exception. The company is also using HealthyCircles in combination with its CPAP device to enable hospitals and care providers to closely monitor patients to prevent hospital readmissions.

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

— 2014 —

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

# A SALUTE to Our CORPORATE PARTNERS

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

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

AARC

AARC CORPORATE PARTNERS

CareFusion

Masimo

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Philips Respironics

Dräger

Maquet Getinge Group

Teleflex

Boehringer Ingelheim

Forest Laboratories, Inc.

IKARIA Advancing Critical Care

Sunovion Healthy bodies, healthy lives

# RC Currents

IN THE NEWS


If you are going to AARC Congress 2014, be sure to reserve Monday night, Dec. 8, for a chance to win an awesome prize at this year's American Respiratory Care Foundation's Night @ the Vineyard Fundraiser. The grand prize is a trip for four to the Bird Air Lodge in Sandpoint, ID, "home" of Dr. Forrest Bird, the famous aviator and inventor of the respirator, ventilator, and other medical devices.

All registered, paid attendees to the ARCF's Night @ the Vineyards at the Mandalay Bay Resort in Las Vegas will be automatically entered into the drawing held that evening. Additional entry tickets will be sold online at the time of registration and at the event for $25 each. The grand prize also includes up to $800 coach round-trip airfare reimbursement into Spokane, WA, for the winner. The winner also receives free round-trip ground transportation from Spokane Airport to Sandpoint for the winner and guests.

**Disclaimer:** Additional expenses not listed above will be the sole responsibility of the prizewinner. Winners are responsible for any and all federal, state, and local tax liabilities. The grand prize is non-transferrable to a secondary party and must be enacted upon, scheduled, and taken within one year of raffle drawing. This offer is void where prohibited by law; and all federal, state, and local laws and restrictions apply. ■


## Raffle for Signed Bird Mark VII Ventilator Featured at Congress Closing Ceremony

All registered attendees to AARC Congress 2014 at the Mandalay Bay Resort in Las Vegas will have the opportunity to participate in a drawing for a Bird Mark VII respirator, signed by its inventor — Dr. Forrest Bird.

The drawing will be held during the Closing Ceremony on Dec. 12. Prize tickets will be sold at the ARCF Night @ the Vineyard Fundraiser and at the AARC Booth in the Exhibit Hall for $25 each.

**Disclaimer:** Winners are responsible for any and all federal, state, and local tax liabilities. This offer is void where prohibited by law; and all federal, state, and local laws and restrictions apply. ■

# Check Out Our New Members List Online

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

## Request for Proposals for AARC Congress 2015

The AARC Congress — an international respiratory education meeting — attracts 6,000+ attendees annually and preparing for this event takes considerable effort that begins more than a year before the meeting. If you would like to submit proposals for individual lectures or symposia at AARC Congress 2015, your deadline is **Jan. 8, 2015**.

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

Next year, AARC Congress 2015 will take place in Tampa, FL, Nov. 7–10. For more information, see https://adobeformscentral.com/?f=t57Jr3lWlP1kY5mQ18pjfw ■

## AARC Leaders Attend Meetings

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

**Shawna Strickland, Associate Executive Director of Education**

- Speaking on the role of RTs into the future at the Children's Hospital Association Respiratory Care Director's Forum in Las Vegas, NV, on Dec. 8.


## *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.** ■


Respiratory Care Education Annual

The American Association for Respiratory Care

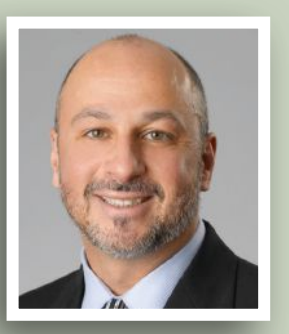
Original Contributions

## CONTRIBUTE TO OUR "TRANSITIONS" COLUMN

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

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

## Moving on Up



**Joseph Lewarski, BS, RRT, FAARC,** has joined ExactCare Pharmacy, a novel retail pharmacy organization with an innovative approach to pharmacy services and patient care. As executive vice president, he will be leading the company's marketing and business development strategies and initiatives. Lewarski came to the position from Invacare, where he served as vice president of clinical affairs and vice president/general manager of the company's global respiratory business. ■

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

## As Seen on *AARConnect*

**AARC**onnection...

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


*With the continuous changes with reimbursement, we are looking at appropriate yet financially wise ways of staffing the sleep center. We are accredited and are committed to the 1-tech/2-patient ratio. We run a clinic twice a week during the daytime. We are a six-bed unit. I was just wondering, how are you staffing your current center? We are currently on 12-hour shifts. The first tech arrives at 6:30 p.m. and does a lot of the preparation and confirmation calls for the next consult day and night studies. The two other techs arrive at 7 p.m. Patients arrive at 7:30 p.m. and 8:30 p.m. I believe we could move to a 10-hour shift model without affecting patient outcomes and quality of our testing. What are some of you doing with staffing in your sleep center, what hours are your staff working, and when do your patients arrive?*

**Chris Babcock, RRT**
**Port Huron Hospital**
**North Street, MI**

*We have a four-bed lab. Techs here usually arrive at 6 p.m. with patients scheduled at 8 and 9. We also adhere to the 1-tech/2-patient ratio. Any home study patients are scheduled around 6:30 p.m. to pick unit/receive instruction. The techs do their prep work, review the patient's chart, and call the next night's patients. Techs are always out by 6 a.m., if not before. It's often closer to 11 hours than 12.*

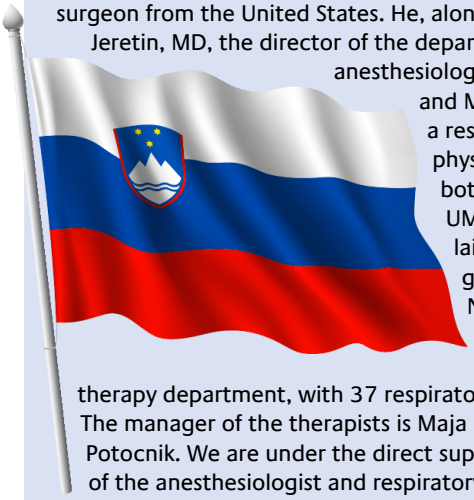
**Jeanette Hobbs, RRT**
**Memorial Hospital & Health**
**Huntingburg, IN**

*We tried reducing our hours to 10.8 per shift, and it didn't work in our four-bed sleep center. We currently are at 11 hours per tech per night, and that is about the minimum that we feel we can handle to provide adequate patient care for a 1-tech/2-patient ratio. Based on the model you've described, I would suggest staying with the 12-hour shifts. Hope that helps.*

**Mark Eley, MS, RRT-NPS, RPFT**
**Community Hospital Anderson**
**Carmel, IN**

# Respiratory Therapy at the University Medical Centre in Ljubljana, Slovenia

Slovenia is a small country of 2 million people in the middle of Eastern Europe. The capital of Slovenia is Ljubljana, with a very large hospital, the UMC – University Medical Centre Ljubljana (2,188 beds). The rudiments of respiratory therapy began in 1967, with a visit from Michael DeBakey, MD, the famous cardiac surgeon from the United States. He, along with Stojan Jeretin, MD, the director of the department of anesthesiology at the time, and Meta Pikelj, a respiratory physiotherapist, both from UMC-Ljubljana, laid the groundwork. Now we have a complete respiratory therapy department, with 37 respiratory therapists. The manager of the therapists is Maja Marija Potocnik. We are under the direct supervision of the anesthesiologist and respiratory therapy department director, Ludovik Strauch, MD. Our department is part of the clinical department of anesthesiology and intensive therapy, headed by Professor Vesna Novak-Jankovic, PhD, MD, (a past AARC international fellow).



In Europe, respiratory therapists often fall under the jurisdiction of different departments. To our knowledge, our hospital is the only one that has a respiratory care unit staffed with respiratory therapists. This unit is the leader in education for respiratory care, not only in Slovenia, but also for the other countries in Europe.

Respiratory therapists in Slovenia are responsible for airway hygiene, medical gas therapy, lung-expansion therapy, bronchial hygiene therapy, noninvasive medical ventilation, breathing and movement adjustments, and exercise training for patients with lung insufficiency. We perform about 200,000 treatments per year.

The University for Physiotherapy and Section for Respiratory Therapy are responsible for respiratory care education. Each respiratory therapist has a bachelor's degree in physiotherapy. After achieving the BA degree, our physiotherapists can specialize in respiratory care with six months of additional education and training (about 600 hours). The education of the respiratory therapist continues after that. We organize courses every year, and American respiratory therapists such as Vijay Deshpande, MS, RRT, FAARC, and Jim Maguire, PhD, have given lectures about mechanical ventilation and infection control — both well accepted by our medical community.

We couldn't have prospered without the help of the AARC. From 1991 to 2005, several Slovenian respiratory therapists and physicians have been honored with an AARC international fellowship: Meta Pikelj, Ljudmila Jeras, Maja M. Potocnik, Janez Remskar, and our current medical director, Vesna Novak-Jankovic. All of them were very important in establishing the role of respiratory care in Slovenia.

We continue to send therapists to the AARC International Respiratory Congress. Garry Dukes, BS, RRT, and Dr. Deshpande arranged for six of our respiratory therapists to visit hospitals in Charlotte, NC; Atlanta, GA; and San Antonio, TX. It is very important for our therapists to exchange experiences with American colleagues, and we encourage our therapists to be active members of the AARC.

Your RT practices are a guide for us. We try to do our best to follow the American way of respiratory care. Without the help of the AARC and individual American therapists, we couldn't have succeeded. We look forward to a continuing, fruitful experience with our U.S. colleagues. ■

**About the Authors**

Maja Marija Potocnik, RPT, RRT, and professor Vesna Novak-Jankovic, PhD, MD, work in the clinical department of anaesthesiology and intensive therapy at the University Medical Centre in Ljubljana, Slovenia. Jim Maguire, PhD, is the senior scientist with Pall Life Science and the Veterans Administration Hospital in White River Junction, VT.

# ALLERGY-FREE PEANUTS?

According to a recent blog post by the U.S. Department of Agriculture, scientists from North Carolina A&T University are making progress on a method to remove the allergens from peanuts. Such allergens have been known to lead to potentially deadly reactions.

By treating peanuts with protein-breaking enzymes, investigators were able to reduce peanut allergens by 98–100%. The treatment works regardless of the type of peanut product in question — whole peanuts, peanut pieces, or peanuts ground into flour. Skin-prick tests performed on human test subjects by investigators from the University of North Carolina at Chapel Hill validated the test results. The research is being supported by a USDA Agriculture and Food Research Initiative grant. ■

# Section Chair to the Rescue!

Kim Wiles went the extra mile to help a patient find the right portable oxygen device for her.

AARC Home Care Section Chair Kim Wiles, BS, RRT, CPFT, is used to receiving requests from the AARC for programmatic input and the like. However, late last summer we asked her to step up in a different sort of way after AARC was contacted by a patient who was struggling to find a portable oxygen concentrator that would meet her needs. We didn't have to ask twice. Wiles got on the phone with the woman and helped her understand which type of system she would need to do all that she wanted to do. Shortly thereafter we received a thank-you email from the patient detailing the encounter. Here's a little of what she had to say:

*I would like to thank you for putting me in touch with Kim Wiles, who has answered many questions for me and provided invaluable help with portable $O_2$ concentrators. Thanks to the information that she provided, I was able to get the right portable unit.... I need to be able to use the concentrator for exercise as well as everyday activities, but they [her supply company] can't seem to understand that. I've been going to pulmonary rehab since April and want to be able to continue exercising once my insurance no longer covers the rehab. What is the use of rehab if you can't continue on your own due to an inadequate $O_2$ concentrator?*

*Once again, many thanks; and if you could forward this to Kim Wiles I would appreciate it. She was a wonderful resource!* ■

## Diversity

**by John Campbell MA, RRT-NPS, FACHE**

Diversity is often described as differences, such as varying geographic landscapes or diverse plant life and animals in a region. When it comes to people, diversity is often described by the varying cultures, races, religions, and nationalities within a group. Throughout its history, including the present, the United States has opened its arms and invited diverse groups of individuals to become members of our society. Historically, this has also included some conflict and controversy, which continues to this day. We should all remember that unless you are a Native American or of Native American heritage, you or your ancestors immigrated to the United States at some point.

The United States is the great "melting pot" of the world, and today the world of respiratory care mirrors our society and is just as diverse. I have the privilege and honor to work with a diverse group of respiratory therapists at Newark Beth Israel Medical Center and the Children's Hospital of New Jersey. The large department staff is represented by individuals born in South America, Europe, Africa, Asia — and even a small few born in North America. The ethnic backgrounds, races, and religions are as diverse as the names and native languages. By design or coincidence, the overall organization's staff mirrors that of the respiratory care department.

There is a high degree of productivity and cooperation within the respiratory care department that is both refreshing and a pleasure, but it has me wondering how this has come about. I don't think this is due to some overall great management plan or great working conditions. It could be that some of these individuals have had difficulties to overcome in their homelands, with immigration, or their assimilation into our American culture; and some are truly appreciative of the opportunities they have. Some have overcome economic, social, cultural, and language barriers to attend and graduate college and pass the National Board for Respiratory Care competency exams. I am in awe when I consider how difficult a course curriculum is or board exams are for individuals who speak English as a second language. My belief is that the key to the department's overall success is due to everyone's acceptance of diversity.

Our successful group diversity is due to acceptance. The group accepts each other as human beings, celebrating the differences but also making every effort to understand these differences. I've heard the respiratory care department here described as a "mini United Nations," but the United Nations could take a few lessons. There is acceptance, understanding, and cooperation here between individuals whose native countries and ethnic and religious groups have been fighting and warring for years. This respiratory care department is not a utopia; but the general cooperation, politeness, understanding, and overall acceptance make the tough situations a little easier to overcome.

Over a hundred years ago, the Irish, Germans, Italians, Chinese, and many more left impoverishment, discrimination, and oppression to start a new and better life for themselves and their families. Though they may be coming from different countries, they still come to the USA bringing their families and looking for that better life. The students and the faculty of our clinical affiliates, Bergen Community College and Rutgers University, are as ethnically, culturally, and racially diverse as our respiratory care department. These students are working hard to succeed and become productive members of both our American and respiratory care societies. I encourage my respiratory care colleagues to pay it forward and show acceptance to these and all students.

As members of the AARC, we should always be trying to increase our membership. As a member of the Political Advocacy Contact Team, I have witnessed the power in numbers and its positive legislative effects. Today, we should also be reaching out to the diverse populations that make up today's world of respiratory care. The AARC has done much to forward its message internationally, but we as AARC members can help domestically. As AARC members, we need to reach out and encourage AARC membership to our diverse respiratory care populations. This will not only increase AARC membership but will also show these diverse populations that they are accepted by and into our respiratory care family. From experience, I believe we will all prosper and will have an even better AARC through diversity acceptance. ■

**John Campbell, MA, RRT-NPS, FACHE, is the director of respiratory care services, neurodiagnostics, and the sleep lab at Newark Beth Israel Medical Center in Newark, NJ.**

## RT Student Members: Send Us Your Stories

*AARC Times* is always looking for good stories from AARC student members that relate special experiences and give the RT student perspective on the respiratory care profession they have chosen as a career.

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

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

## E-cigarettes Could Be Gateway to Conventional Cigarettes

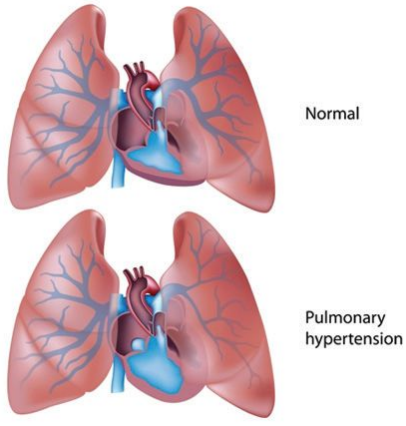
Georgia State University researchers who looked at data from the 2011, 2012, and 2013 National Youth Tobacco surveys of middle and high school students find e-cigarette use may increase the risk for smoking conventional cigarettes among kids. Specifically, among non-smoking youth who had ever used e-cigarettes, 43.9% said they intended to smoke conventional cigarettes within the next year, compared to 21.5% of those who had never used e-cigarettes. Exposure to pro-tobacco advertising was also associated with the intention to smoke among U.S. middle and high school students who reported never smoking.

"Youth exposure to e-cigarette use and pro-tobacco messaging creates an environment that can potentially undermine a half-century-long effort to change social norms, thereby making youth susceptible to using cigarettes," study author Shanta Dube was quoted as saying. The study appeared in a recent edition of *Nicotine and Tobacco Research*. ■

## New Hope for Pulmonary Hypertension

A new study out of UCLA suggests a component of HDL, or the so-called "good cholesterol," may have a role to play in treating pulmonary hypertension.

Using a rodent model, investigators showed that a peptide mimicking part of the main protein in HDL cholesterol reduced the production of oxidized lipids common in the disease. Reducing the amount of oxidized lipids also improved the rodents' heart and lung function. Future research will test the potential of the peptide in human disease. The study was published online by *Circulation* earlier this year. ■

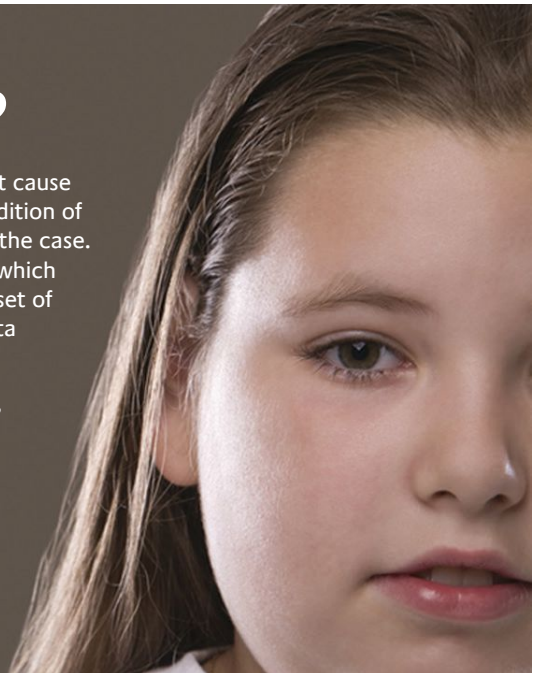


# Which Came First?

Obesity is known to exacerbate asthma in kids, but does it cause asthma? According to a paper published in the September edition of the *Annals of Allergy, Asthma and Immunology*, that may be the case.

"The relationship between obesity and asthma in adults, which shows that being overweight and obese can precede the onset of asthma, is supported by a number of studies," allergist Perdita Permaul, MD, was quoted as saying. "There isn't as much evidence for children; but the progression from obesity to asthma, rather than the other way around, seems probable."

Dr. Permaul and her colleagues go on to cite a study showing that rapid growth in body mass index during the first two years of life increased the risk of asthma up to six years of age. Other studies suggest the onset and duration of obesity and the composition of excess fat can affect lung function. ■



## Lung Cancer Risk Varies According to Respiratory Condition

Some respiratory conditions, but not others, were linked to lung cancer in a pooled analysis of seven studies involving more than 25,000 individuals published in the *American Journal of Respiratory and Critical Care Medicine*. Specifically:

- In analyses adjusting for other respiratory diseases and smoking, chronic bronchitis and emphysema were positively associated with lung cancer, with odds ratios among men of 1.33 for bronchitis and 1.50 for emphysema.
- A positive association was also found between pneumonia diagnosed two or fewer years prior and lung cancer.
- Asthma had an inverse association with lung cancer risk.
- No association was found between tuberculosis and lung cancer.

"The variations in the associations between lung cancer and different patterns of previous respiratory diseases that we observed in our study may indicate differences in the underlying etiological mechanisms," study author Ann Olsson, PhD, of the International Agency for Research in Cancer in Lyon, France, was quoted as saying. "Better understanding of these associations may help guide the type and frequency of clinical surveillance needed for patients with each of these diseases." ■

# For Kansas RTs, It Starts and Ends with Education

Lots of respiratory therapists get involved in community health events from time to time. However, at Community Memorial Healthcare in Marysville, KS, lung health isn't just an occasional pursuit — it's an ongoing mission served by a formal program called Breathe Better that was established in 2012.

Department director Cheryl Skinner, BA, RRT, CPFT, explains how it all began. "To celebrate Respiratory Care Week in 2012, the respiratory therapy department borrowed one of the traveling suitcases from the Kansas Respiratory Care Society, which had a set of pig lungs, one healthy and one smoker, and information about different lung diseases. That week we hosted a department open house and had an overwhelming number of people show an interest in lung health." Buoyed by the response, she and her staff — Phillip Caswell, CRT, Robert Garrett, CRT, CPFT, and fellow AARC members Jamie Tiemeyer, BHS, CRT, and Jennifer Berg, RRT — decided to reach out and provide education about lung health to their patients, their co-workers, and their community on a regular basis.

"We started contacting pharmaceutical representatives for educational material and made connections with other hospitals to find out what types of education they were providing," says Skinner. With the assistance of the hospital's director of public relations and marketing and foundation director they also applied for grants to fund the project and received a grant from the Kansas Health Foundation in December 2012. Funds were used to purchase their own traveling suitcase with pig lungs, lung health educational DVDs, a display banner, a tabletop display board, educational pamphlets and materials on lung conditions and smoking cessation, and electronic tablets. The DRIVE4COPD campaign has figured heavily into the program as well, with staff often using the DRIVE4COPD population screener to screen people for the disease.

Over the past couple of years, Skinner and her staff have used these resources to deliver the lung health message to groups ranging from a local childhood health and safety fair to public-speaking events for senior citizens. As of September, they had worked at five events; and last summer, fellow KRCS members Karen Schell, DHSc, RRT-NPS, RPFT, and Charity Clark, MS, RRT, also joined, helping Skinner and her crew go out into the crowd at an annual auto fest/BBQ to screen people with the DRIVE screeners.

Staff show off a board marking their days without a COPD exacerbation.

The inpatient component of the program has been a big success, too. When patients come into the hospital with respiratory problems, RTs meet with them and their families to review the disease and disease process, explain how to manage the condition and the medications it requires, and formulate an action plan they can take home and use to minimize exacerbations. If a patient does end up back in the hospital, RTs go over the material again and help the patient and their family members learn where they may have failed with their home management plan. "To date, our department is at 238 days without a first or second diagnosis of COPD readmission," Skinner told us in early September. "We have only had six all-cause readmissions within 30 days for this year." Last year the hospital had five COPD readmissions and 11 all-cause readmissions.

The real winners, though, are the patients who

Attendees at a COPD luncheon get an "up close and personal" look at the lungs.

The pig's lungs got a good workout during last year's RC Week activities.

take part in the program. Skinner recalls one woman who took full advantage of the education offered to her during the inpatient sessions. "We had an elderly female patient who was newly diagnosed with COPD," she explains. "We educated her and her family while she was here in our hospital." The woman went home on breathing treatments and 24/7 oxygen, and confessed that she was feeling a little overwhelmed by her new disease.

"The patient and her family continued to call and ask questions to learn how to manage her disease," continues Skinner. Thanks to that level of support, plus a referral to an outpatient pulmonologist, she has since been able to decrease her breathing treatments to twice a day and now wears her oxygen only at night. Most importantly, she has not had another exacerbation or been back in the hospital.

Skinner believes outcomes like those show it really is all about the education RTs can provide, whether it's to the general public out in the community or to their patients at the bedside. ■


DRIVE4COPD has been a big part of the effort.

# New Treatment for RSV Looks Promising

Researchers from Le Bonheur Children's Hospital and the University of Tennessee Health Science Center report good results for an experimental drug designed to reduce the viral load and clinical illness in people with the respiratory syncytial virus (RSV).

In the study, healthy adults were voluntarily infected intranasally with RSV and then given the drug. The investigational oral RSV fusion inhibitor achieved primary and secondary endpoints of lower viral load, improvements in total mucus weight, and symptom diary score when compared to placebo.

The investigators now plan to test the drug in naturally infected patients. The study was published in a recent issue of the *New England Journal of Medicine*. ■

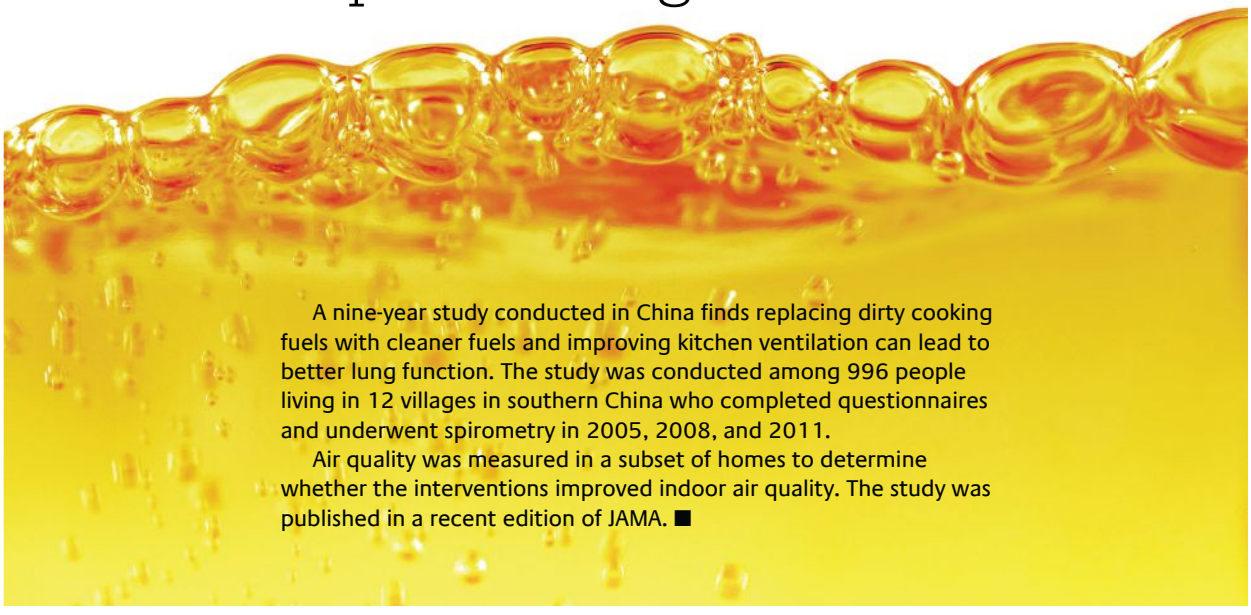
## Help on the Horizon for Opioid-induced Respiratory Depression

A new drug may be able to improve breathing in patients taking prescription opioids to treat moderate-to-severe pain, report Dutch investigators publishing in a recent issue of *Anesthesiology*. In their study, GAL-021 stimulated breathing in 12 healthy male volunteers who underwent opioid-induced respiratory depression, defined as a decrease in breathing capacity of 25–30%.

After treatment, all of the subjects experienced an increase in respiratory rate and tidal volume. No adverse effects were seen on non-respiratory variables such as sedation, pain relief, blood flow, or safety parameters.

GAL-021 is an intravenous respiratory stimulant that works by blocking certain potassium channels in the brain that regulate breathing. In previous studies, the drug successfully reversed respiratory depression in animals without diminishing opioid-related pain relief. "The development of potent painkillers that do not increase the risk of respiratory depression seems still far away," lead author Albert Dahan, MD, was quoted as saying. "Using an add-on drug that reverses or prevents respiratory depression caused by opioid use, without affecting pain relief, is currently our best option to treat this condition." ■

# Cleaner Fuels, Better Ventilation Improve Lung Function



A nine-year study conducted in China finds replacing dirty cooking fuels with cleaner fuels and improving kitchen ventilation can lead to better lung function. The study was conducted among 996 people living in 12 villages in southern China who completed questionnaires and underwent spirometry in 2005, 2008, and 2011.

Air quality was measured in a subset of homes to determine whether the interventions improved indoor air quality. The study was published in a recent edition of JAMA. ■

# 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.**



### Blood Gas Analyzer

Nova Biomedical's Stat Profile Prime® blood gas analyzer combines the microelectronics of the consumer world with Nova's innovative ZERØ™ maintenance cartridge technology for a smaller, faster, and less expensive critical care analyzer. The credit card-sized MicroSensor Card contains biosensors for pH, $PCO_2$, $PO_2$, Na, K, iCa, Cl, Glu, and Lac, and can be replaced in less than half the time of older cartridge systems. www.novabiomedical.com

### Flow Indicator

The FLOCAP flow indicator from Maxtec is a single-use $CO_2$ and flow indication device designed for visualization of a patient's exhaled $CO_2$ and expiratory flow. The $CO_2$ indication will assist the caregiver in verifying proper ET tube placement. The flow indicator helps the caregiver identify end of exhalation, which may help prevent breath stacking and its associated health issues during resuscitation. Contact Maxtec for a free sample. www.maxtec.com

### Compressor Nebulizer Systems

The InnoSpire Deluxe from Philips Respironics incorporates built-in conveniences that encourage adherence to aerosol medication treatment plans. A convenient storage compartment holds extra medicine or nebulizer supplies, and a sturdy handle makes it easy to carry. It partners with the SideStream disposable nebulizer to provide fast and efficient drug delivery. Compact, lightweight, and reliable, InnoSpire Mini is ideal for traveling, and a SideStream Plus breath-enhanced reusable nebulizer makes it easy to use. www.respironics.com

### Next-Generation Bronchoscopes

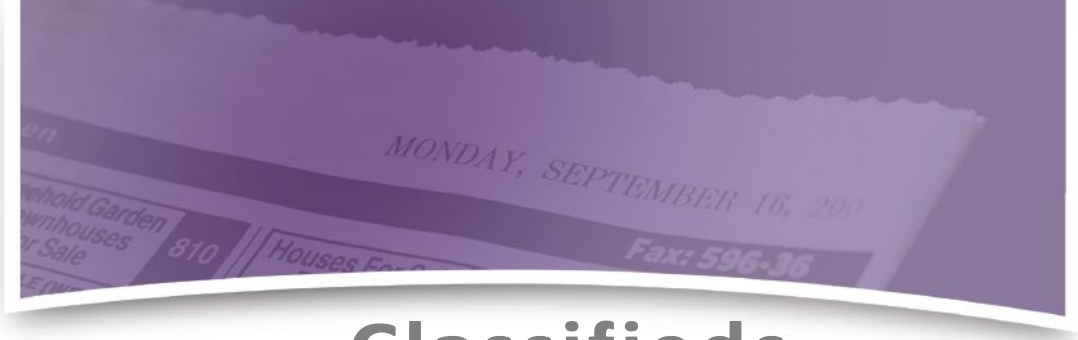
The BF-P190 and BF-XP190 bronchoscopes from Olympus are designed to advance maneuverability, visualization, and versatility. The fully rotatable, slim design of the BF-P190, along with its improved tip angulation, provides better access in peripheral airways. The device also delivers the industry's largest working channel (2.0 mm) available in a slim 4.2 mm true videoscope. With an outside diameter of 3.1 mm and a 1.2 mm working channel, the BF-XP190 is the industry's slimmest true videoscope, making it the scope of choice for peripheral bronchoscopy. www.medical.olympusamerica.com

### Oral Endotracheal Tube Fastener

The AnchorFast Guard™ oral endotracheal tube fastener with integrated tube protection from Hollister Incorporated is designed for critical care teams who want an extra measure of protection for their patients. With the addition of integrated tube protection to the trusted securement system, the AnchorFast Guard tube fastener can help bring a new level of confidence to the ICU. Unlike separate bite blocks, the integrated tube protection sleeve is there before it's needed, helping to prevent occlusion without interfering with routine care. http://anchorfast1.com/

### Surge Kit

The E-Surge Kit from Vortran Medical includes six units of the VAR® (Vortran Automatic Resuscitator) — the world's first fully disposable ventilator — along with four VAR monitors, four oxygen flowmeters, and one each of the company's seven-port multi-outlet manifold with pressure regulator and gauge, heavy duty oxygen hose, and watertight case. The E-Surge Kit completely eliminates any risk of patient cross-contamination and can be stored for emergencies for up to five years. www.vortran.com




# Classifieds

ADVERTISING SECTION

## For Sale/For Rent

### ET-CARE Endotracheal Tube Fixation Device

The new ET-CARE™ Endotracheal Tube Fixation Device — no tape, built-in bite block, sliding track for oral hygiene, includes NG-tube holder. The firm fixation with ET-CARE lessens excessive x-rays, decreases the potential for VAP, reduces accidental extubation. Manufactured in USA (patent pending) by IPI Medical Products Inc. (561) 330-7820, www.ipimedicalproducts.com.

## United States/International

### Michigan/Ohio

Biomedical Electronics Services & Technologies (B.E.S.T), servicing the greater Chicagoland area and surrounding states for over 40 years, is expanding its service areas to new markets. B.E.S.T represents numerous medical and biomedical manufacturers and repairs/rents/sells durable medical equipment. For more information on B.E.S.T — www.ebestonline.com.

B.E.S.T is looking for an experienced, self-motivated independent sales rep for Michigan and Ohio. Previous respiratory sales experience required. If interested, please send a resume to gkacmarek2@aol.com.

### *AARC Times* Classified Advertising Information & Requirements:

**Classified Word Advertisements**

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

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

We reserve the right to make editorial changes for reasons of clarity and consistency. Every effort is taken to avoid mistakes, but *AARC Times* cannot be responsible for clerical or printing errors. **Deadline for Ad Placement/Cancellation** Deadline for ad placement and written cancellations for the next available issue is Nov. 19. Blind ads available. **For Recruitment Advertising Information, Contact AARC Respiratory Jobs** • Respiratory.Jobs@aarc.org • (972) 243-2272 • Fax (972) 484-2720 • 4925 N. MacArthur Blvd., Ste. 100, Irving, TX 75063

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# Calendar of Events

**AARC & State Society Programs**

**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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**January 22–23, 2015 Ruidoso, New Mexico**

New Mexico Society for Respiratory Care Conference

Contact: www.nmsrc.org

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**February 5–6, 2015 Davis, West Virginia**

West Virginia Society for Respiratory Care's annual Winter Conference

Contact: www.wvsrc.org

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Submissions for the next available issue are due Nov. 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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- Published studies show the ***AeroEclipse®* II** BAN can reduce missed and PRN treatments and minimize treatment time resulting in demonstrable reductions in the cost of care.

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 [1]EMMA Users Manual.
Caution: Federal law restricts this device to sale by or on the order of a physician.