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Times

AARC Congress 2019: Where Professionals Came to Grow



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Your Ethical Duty

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RC Currents

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Industry Watch

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AARC STAFF SPOTLIGHT

Always ready to help, the AARC staff works hard to help provide a great membership experience for you. Let's meet a few staff members:



Ada Morton

Senior Accountant

ada.morton@aacrc.org

Ada oversees the AARC accounting department.



Erica Jackson

Customer Service Representative

erica.jackson@aacrc.org

Erica assists members with renewing their membership, providing membership information, and using aacrc.org.



Linda Drewello

Accounts Receivable Collector

linda.drewello@aacrc.org

Linda sends invoices and processes payments.



Ray Arambula

Director of Information Technology

ray.arambula@aacrc.org

Ray is responsible for the management, strategy, and execution of technology at AACRC.

Your AACRC Times Team

Communications Manager

Heather Willden, BS

Managing Editor

Douglas Laher, MBA, RRT, FAARC

Contributors

Debbie Bunch, BA

Manager of Marketing and Production

Jeanette Chawdhury, MBA

Senior Graphic Designer

John Knotts

Graphic Designer

Anna Patiño

Director of Business Development

Sarah Vaughn, BS, RRT

Advertising Rates and Media Information

Contact: sarah.vaughn@aacrc.org

9425 MacArthur Blvd., Suite 102

Irving, TX 75063

Voice (972) 243-2272

Fax (888) 206-9006

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9425 N. MacArthur Blvd., Ste. 100

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Voice (972) 243-2272

Fax (972) 484-2720

Publisher

Thomas J. Kallstrom, MBA, RRT, FAARC

Information Contacts

AARC Membership or Other AACRC Services: American Association for Respiratory Care • 9425 N. MacArthur Blvd., Ste. 100,

Irving, TX 75063 • (972) 243-2272 • Fax (972) 484-2720 • www.aarc.org

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AARC Congress 2019: Where Professionals Came to Grow

by Debbie Bunch



The air inside the Ernest N. Morial Convention Center in New Orleans last Nov. 9–12 electrified with energy as thousands of respiratory therapists and other health care providers came together for the premiere meeting of the year in the respiratory care profession.

AARC Congress 2019 attracted attendees from across the country and around the world who arrived in the Crescent City excited to learn more about the latest developments and technology in their profession from experts who were equally excited to share that knowledge with them. They also got the chance to see cutting edge equipment and products in an exhibit hall filled with all the major vendors in the industry. Networking took place in lecture halls and hallways alike, and special events like the Sputum Bowl and Welcome Party made sure everyone enjoyed some downtime as well.

“You could feel professional growth sprouting throughout the meeting as therapists and their colleagues absorbed the content from the program and made new connections with each other that will help them succeed in the coming year,” says AARC President Karen Schell, DHSc, RRT, RRT-NPS, RRT-SDS, RPFT, RPSGT, AE-C, CTTS. “The ultimate benefactors will be our patients, who will receive better and more compassionate care thanks to the knowledge we all gained.”

Friday events get things started

While the Congress didn’t officially begin until Saturday, Nov. 9, the activities really got underway on Friday as early arrivals took advantage of two great pre-courses and participated in events aimed at supporting patients and the profession.

“The Burden of Asthma and Emerging Therapies” session addressed the socioeconomic issues surrounding the condition and how they are affecting our health care system. “Women in Leadership: Moving Forward” provided Congress-goers with an overview of the important role women play in the profession and the need to promote more women into senior leadership positions.

The National Respiratory Patient Advocacy Summit gave RTs the chance to come together with patients and patient organizations. Keynote addresses by Val Chang, JD, executive director of the Hawaii COPD Coalition, and Troy Fields, board member of the ALS Association Florida Chapter, set the stage for great discussions about how patients and therapists can work together to meet the needs of the respiratory patient community. Roundtable sessions hosted by representatives from the ALS Association, the Dorney-Koppel Foundation, the Cystic Fibrosis Foundation, the PHAware Global Association, and the Alpha-1 Foundation

kept the discussion going. The Summit was sponsored by Sunovion (Gold), Genentech, GSK, Mylan, and Vertex (Silver), and The FACES Foundation (Contributing).

Folks who gathered for the American Respiratory Care Foundation (ARCF) Fundraiser witnessed amazing sea creatures at the Audubon Aquarium of the Americas. Located on the Mississippi River adjacent to the French Quarter, the aquarium features a walk-through



Folks who gathered for this year’s ARCF fundraiser got the chance to see amazing sea creatures at the Audubon Aquarium of the Americas.

tunnel where visitors can view everything from penguins and sea otters to stingrays, parakeets, and sharks. The “Night Under the Sea” event included a fabulous dinner, and attendees had plenty of opportunity to network with friends and colleagues. A brief program took place as well to honor Foundation donors and to update everyone on ARCF activities.

Several great prizes went to lucky attendees, too. Money raised by the event will go to support scholarship and research in the profession. The ARCF Fundraiser was sponsored in part by InspirRx and Vapotherm.

Ted Koppel delivers keynote address



Ted Koppel shares his personal experiences with COPD in his keynote address to congress attendees.

The Congress itself kicked off with a great awards ceremony on Saturday morning (see accompanying article in this issue for all the winners), and then former ABC *Nightline* anchor Ted Koppel took the stage for the 2019 keynote address. His topic: “It’s COPD, Dammit.”

Koppel drew on personal experiences to speak from the heart. When his wife, Grace Anne Dorney Koppel, was diagnosed with COPD in 2001, her life, and the lives of her family, were turned upside down. The doctors gave her three to five years to live, and the initial shock of that prognosis sent them all reeling. But instead of accepting her fate and making plans for the end, Grace Anne decided to fight. She enrolled in pulmonary rehabilitation and learned to take her medications correctly. And now she’s still going strong and is one of the biggest advocates for COPD patients.

Ted Koppel was by her side through it all, and he shared his experiences supporting his wife and her newfound cause with Congress-goers.

“Eventually, hard work, taking inhalation exactly as supposed to, going to rehab . . . and here we are, 18 years later,” he said of the journey. Respiratory therapists have played a large role in those efforts.

Koppel went on to reflect on the vast number of Americans diagnosed with COPD and the vast number who have yet to be diagnosed, and he asked why people just don’t have spirometry testing done during their annual physicals.

“If we could diagnose our patients earlier, what an extraordinary gift that would be,” he said.

He believes more patients should have access to pulmonary rehabilitation as well, noting that when he and Grace Anne talk to people who have been through the program at one of their 12 Grace Anne Dorney rehab centers, they inevitably report feeling so much better.

He then posed this question: “Why is pulmonary rehab being reimbursed at half the rate of cardiac rehab?”

He envisions a day when pulmonary rehabilitation will be readily available — maybe even in local Walmart stores — but says it will take a mobilization of political power to get the job done.

“If we can get 100 million Americans to say, let us increase pulmonary rehab reimbursement . . . let us increase money to COPD research . . . if we do all these things, we can make a difference,” he told his audience.

Opening of the Exhibit Hall

After the Opening Session concluded, Congress-goers headed straight to the Exhibit Hall for a brief ribbon-cutting ceremony to mark the opening of the 2019 exhibits. The crowd made its way in, and they weren’t disappointed. The Hall featured a complete array of the latest equipment and products representing all the top vendors in the business. In many cases attendees were able to not only see, but also to touch and try out the devices they found as they made their way among the booths.

The Hall was open Saturday through Monday, giving everyone ample opportunity to visit multiple times to ensure they saw everything they wanted to see.

Exceptional content



Barry Make examines the most recent evidence on the role cigarette smoking plays in COPD during the Thomas L Petty Memorial Lecture.

The Congress program began in earnest Saturday at 11 a.m. and was packed with lectures and symposia covering everything from the treatments and modalities RTs use every day on the job to the cutting-edge technologies that will help RTs change the way they care for patients with lung disease. Heading up the list were our three plenary sessions, which addressed topics of the utmost concern to every RT.

Barry Make, MD, a pulmonologist at National

Jewish Health in Denver, CO, took the podium for the Thomas L. Petty Memorial Lecture. His topic, “What Would Dr. Tom Think of COPD Today?” delved into new research suggesting that COPD is not just reflected by air-flow obstruction.

“Patients with a history of cigarette smoking may not exhibit spirometric abnormalities that currently define COPD,” explained Dr. Make. “The paradigm and definition of COPD are evolving, and air-flow obstruction is no longer the sole criterion that identifies lung disease. Evidence refutes the myth that smokers without air-flow obstruction have healthy lungs.”

Dr. Make examined the most recent evidence on the role cigarette smoking plays in COPD, including factors not associated with air-flow obstruction, and how that evidence is once again changing the definition of the disease. He went on to speculate how this information would have been received by “Dr. Tom,” who devoted so much of his career to the study of COPD and home oxygen therapy.

Lluís Blanch, MD, PhD, a senior intensivist and consultant in critical care at Centre Hospital de Sabadell in Barcelona, Spain, shed some light on patient-ventilator asynchrony in the Donald F. Egan Scientific Memorial Lecture, titled “Asynchrony: Detection, Clusters, and Outcomes.” In addition to covering the various types of asynchrony, he addressed new technology that can automatically detect these mismatches and facilitate patient care.

“Mechanical ventilation in critically ill patients needs to effectively unload inspiratory muscles and provide a safe ventilation, enhancing gas exchange and protecting the lungs and the diaphragm,” said Dr. Blanch. “To do that, the ventilator should be in synchrony with the patient’s respiratory rhythm.”

He believes the complexity of this interplay leads to several concerning issues that clinicians should be aware of and be able to recognize, and that asynchronies between the patient and the ventilator may induce a number of deleterious effects that require a proper physiological understanding to recognize and manage.

“Appropriate handling of asynchronies requires clinical skills, physiological knowledge, and suitable drug management,” noted the physician. “Additionally, new technologies and devices are currently changing our daily practice, going from automated real-time recognition of asynchronies and their distribution during mechanical ventilation, to smart alarms and artificial intelligence algorithms based on physiological big data and personalized medicine.”

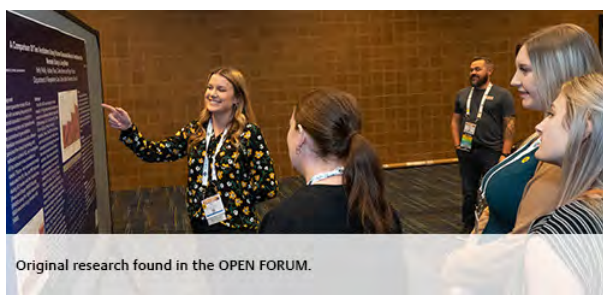
Shelley Mishoe, PhD, RRT, FAARC, who serves as a professor of community and environmental health at Old Dominion University in Norfolk, VA, reviewed the core components of critical thinking that should be incorporated into respiratory therapy practice in the Phil Kittredge Memorial Lecture, “Closing the Gap: Improving Critical Thinking Skills for the Respiratory Therapist.” She also discussed ways to ensure critical thinking skills are fostered in educational programs, continuing education, and best practices to enhance patient care.

“I feel like I have come full circle providing this lecture because Phil Kittredge was a role model for being a critical thinker and one of my early career mentors,” said Dr. Mishoe.

Indeed, Dr. Mishoe credits him with guiding her through her very first publication when he was editor of *RESPIRATORY CARE*. The paper ended up receiving the Bird Literary Award for the year’s best review article in 1980, and she says the process taught her how to publish research articles, negotiate with editors, and respond to feedback from reviewers using critical thinking skills.

“Phil bolstered my own critical thinking through his effective listening and reasoning, permitting me to explain and support my own work without caving to others’ opinions, which helped me to become a better researcher and persuasive writer,” said Dr. Mishoe. “I was honored to present this year’s Phil Kittredge Memorial Lecture to discuss ways we can close the gap in health care outcomes by improving critical thinking of respiratory therapists.”

Original research was on tap in the OPEN FORUM



Research conducted by and for respiratory therapists is really the most meaningful research respiratory therapists can find, as these are the studies that tackle the very topics RTs are dealing with on a daily basis. Congress-goers found plenty of them in the 2019 OPEN FORUM. In sessions spanning Saturday, Sunday, and Monday, attendees were able to learn more about the studies their colleagues had been conducting in 2019. More than 200 abstracts

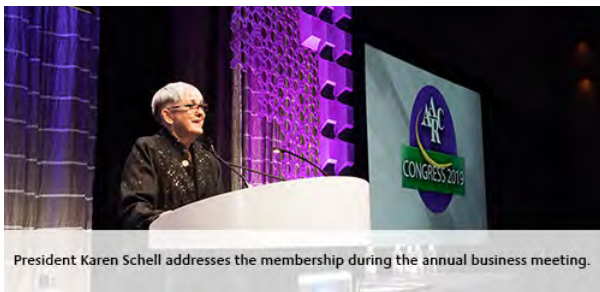
were covered in 14 Poster Discussion sessions, two Posters Only sessions, and an Editors’ Choice session featuring the top eight abstracts for the year. The Editors’ Choice papers included —

- The accuracy of smartphone pulse oximeters in patients visiting an outpatient pulmonary function lab for a six-minute walk test — J. Brady Scott, MS, BSRT, RRT, FAARC, Chicago, IL

- Comparison of methods for spontaneous breathing trials — Maria Madden, MS, RRT, RRT-ACCS, Baltimore, MD
- Decreasing unplanned extubation in the neonatal ICU — Deborah Igo, RRT, RRT-NPS, Portland, ME
- Mortality risk factors in preterm infants treated with high-frequency jet ventilation — Craig Wheeler, BS, RRT, RRT-NPS, Boston, MA
- Evaluation of the Modified Pulmonary Index Score to evaluate pediatric asthma severity in the pediatric ICU — Rachel Gates, BSRT, RRT, Durham, NC
- The impact an accurate COPD diagnosis may have on 30-day hospital readmissions — Richard Rice, MEd, RRT, Cleveland, OH
- EIT assessment of lung volume and tidal distribution: a comparison of two non-invasive ventilation devices — Christopher Culter, BSRC, RRT, RRT-ACCS, Ann Arbor, MI
- Comparison of vibrating mesh nebulizer versus jet nebulizer in the pediatric asthma patient: a randomized controlled trial — Gerald Moody, RRT, RRT-NPS, Dallas, TX

Full-text abstracts of the 2019 OPEN FORUM can be found at rcjournal.com. The OPEN FORUM was supported by an unrestricted educational grant from Monaghan.

President Schell addresses annual business meeting



The Annual Business Meeting on Sunday morning gave everyone a chance to see their AARC in action. AARC President Karen Schell, DHSc, RRT, RRT-NPS, RRT-SDS, RPFT, RPSGT, AE-C, CTTS, reviewed the progress the AARC has made during her first year in office and talked about plans for 2020, noting that the Association will continue to work toward the six Horizon Goals established at the outset of her term.

“Our future is created by what we do today and every day,” she told her audience. “Success will be the result of our hard work, learning from our failures, loyalty, and persistence. The past explains how we got here, but our future is up to us to define.”

Newly elected AARC officials took the oath of office during the meeting as well. Sheri Tooley, BSRT, RRT-NPS, CPFT, AE-C, was installed as our president-elect. Kerry McNiven, MS, RRT, and Raymond Pisani, BSRC, RRT, RRT-ACCS, RRT-NPS, FAARC, assumed the position of directors at large. Four specialty sections held elections as well, and the new leaders include Maria Madden, MS, RRT, RRT-ACCS, Adult Acute Care; Ralph Stumbo, Jr., RRT, CPFT, Diagnostics; Jennifer Anderson, EdD, RRT, RRT-NPS, Education; and Kim Bennion, MHS, RRT, Management.

Dr. Schell summed up the mindset she and her fellow AARC leaders will employ during the final year of her term and emphasized the need for everyone to get involved.

“If we work hard, it will improve our chances of succeeding,” concluded Dr. Schell. “I believe amazing things will happen when we all work together. Our patients need *all* of us to grow the profession.”

International influence continues to flourish

The international scope of the AARC Congress has grown by leaps and bounds in recent years, and the 2019 meeting kept that momentum going. A host of clinicians from other countries made their way to New Orleans, and they added immeasurable value to the Congress for everyone in attendance.

We had 36 international participants in the OPEN FORUM alone. These clinicians traveled to our shores to share their original research —

- Tien-Pei Fang, Puzi City, Taiwan
- Lin Hui-Ling, Taoyuan, Taiwan
- Taha Ismaeil, Riyadh, Saudi Arabia
- Abay Adere, Assela, Ethiopia
- Ching Feng Huang, Singapore
- Khalid Ansari, Bristol, United Kingdom
- Catherine Kamere, Johannesburg, South Africa
- Xiao Qian, Fengtai, China
- Chia-Chen Chu, Taichung, Taiwan
- Tomomi Ichiba, Tokyo, Japan
- Tetsuo Miyagawa, Tokyo, Japan

- Tetsuya Hasegawa, Tokyo, Japan
- Priscilla Flavia Bogoni, Verona, Italy
- Simone Gambazza, Milan, Italy
- Yung-Fang Lin, Kaohsiung, Taiwan
- Szu-I Yu, Taichung, Taiwan
- Yu Jen Chang, Taichung, Taiwan
- Yanling Wang, Beijing, China
- Elizabeth Rohrs, Surrey, British Columbia, Canada
- Hassan Al Gazwi, Dammam, Saudi Arabia
- Taha Ismaeil, Dammam, Saudi Arabia
- Ahmed Al Rajeh, Al-Ahsa, Saudi Arabia
- Chin-Jung Liu, Taichung, Taiwan
- Xiaoting Jin, Beijing, China
- Qian Xiao, Beijing, China
- Yeong-Ruey Chu, Taichung, Taiwan
- Che-Jung Chang, New Taipei City, Taiwan
- Jaber Alqahtani, Dammam, Saudi Arabia
- Ai-chin Cheng, Tainan, Taiwan
- Takamitsu Kubo, Shizuoka, Japan
- Saeed Alghamdi, Makkah, Saudi Arabia
- Hung-Ju Chen, Kaohsiung, Taiwan
- Chun-Mei Chiu, Kaohsiung, Taiwan
- Ahmed Al Hussain, Riyadh, Saudi Arabia
- Jiang Zhizhao, Quanzhou, China
- Madhuragauri Shevade, Maharashtra, India



Presented during the International Reception, Brian N. Oka (left) received the 2019 Toshihiko Koga, MD International Medal for his work on behalf of the Hawaii Society and AARC.

AARC Congress 2019 featured several international speakers as well. Lluís Blanch, MD, PhD, from Sabadell, Spain, delivered the 46th Donald F. Egan Scientific Memorial Lecture on “Asynchrony: Detection, Clusters and Outcomes,” and he also addressed the topic, “Physiologic Rationale for Prone Positioning.” Eddy Fan, MD, PhD, from Toronto, Canada, spoke on “Ventilator-Induced Diaphragm Dysfunction: What is the Evidence?” and

“Placing Artificial Airways: Endotracheal Tubes and Supraglottic Airways.”

L. Felipe Damiani, MSc, PhDc, PT, from Santiago, Chile, covered “Mechanisms of Diaphragm Injury” and “Can Asynchrony Be Detected Automatically?” Thomas Piraino, RRT, FCSRT, FAARC, from Toronto, Canada, spoke on “Diaphragm-Protective Ventilation.” Piraino also took part in the pro/con session, “NIV vs. HFNC for Hypercapnic COPD Exacerbation: NIV Is Superior,” arguing the “con” side of the issue.

AARC leaders and special guests got together with international attendees at the annual International Reception. The event proved to be the perfect place to honor all of the foreign visitors who made their way to New Orleans for our meeting, including our 2019 International Fellows: Khalsa Al Siyabi, BSc, RT, from Oman; Yu-qi Liu, MD, from China; Amsa Mairami, MBBS, FMCpaed, from Nigeria; and Yao Tian, BS, from China. The reception also saw the presentation of the 2019 Toshihiko Koga MD International Medal, which went to Brian N. Oka, RRT, RRT-NPS, FAARC, for his work on behalf of the Hawaii Society and AARC. Oka was recognized as a tireless supporter of our profession on the world stage who clearly represents the spirit of Dr. Koga and the Koga Medal.

The International Fellowship Program is sponsored by AARC House of Delegates, Draeger, the NBRC, and the AARC.



Every year at AARC Congress, the AARC holds a Flag Folding Ceremony to honor the RTs among us, along with family members, who have served.

Extracurricular activities keep attendees engaged

Two special events at the Congress gave attendees something to be inspired by and cheer about.

The special Veterans Day Flag-Folding Ceremony on Monday ensured everyone walked away with a renewed appreciation for



to support their favorite teams in both preliminary rounds and on Finals Night. The battle was fierce but, in the end, these teams came out on top —

First place: Colorado

Second place: California

Congratulations go out to all the teams that competed in New Orleans, making the annual national competition spirited, challenging, and fun! The Sputum Bowl was sponsored by Medtronic.

Orlando is up next!

Clearly, AARC Congress 2019 delivered on everything RTs need to maximize their careers. Now it's time to turn our attention to AARC Congress 2020, which will take place in November in one of the best places on earth for family fun — Orlando, FL. With Walt Disney World Resort, SeaWorld Orlando, Universal Orlando



Resort, and LEGOLAND Florida Resort, there is no end to the entertainment possibilities for young and old alike. No wonder the city has earned the title, "Theme Park Capital of the World!"

But Orlando has plenty to offer the adults-only crowd as well. In fact, steps away from the convention center you'll find everything from trendy outdoor lounges to live venues. According to wallethub.com, Orlando has more nightlife establishments per 100,000 residents than any other city. What's more, many of the parks have options for grownups, too. Universal Citywalk is a great entertainment complex, with everything from quick snacks to fine dining and concert venues. Disney Springs provides visitors with four distinct neighborhoods to explore — The Landing, Marketplace, West Side, and Town Center — and they all have unique characteristics making them worthy of an evening on the town.

So, save the dates — Nov. 14–17 (Sat.–Tues.) — and plan to join us for AARC Congress 2020! ■

the military members among us and the family members of RTs who have served. Military members Joseph Buhain, EdD, RRT, FAARC, Harry Roman, MA, RRT, FAARC, and Wadie Williams, MS, RRT, presided over the ceremony, and special recognition went out to Master Sergeant Thomas Wallsmith, the only RT known to have been killed in the line of duty.

The annual Sputum Bowl revved up the competitive spirit, as Congress-goers came out

to support their favorite teams in both preliminary rounds and on Finals Night. The battle was fierce but, in the end, these teams came out on top —

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Honoring Our Best and Brightest

by Debbie Bunch



The Opening Ceremonies at the 2019 AARC Congress in New Orleans featured an awards ceremony where top performers in the field were honored for everything from scholarship and research to the contributions they have made to specific areas of the respiratory care profession. These awards — bestowed by the AARC, the National Board for Respiratory Care (NBRC), and Commission on Accreditation for Respiratory Care (CoARC) — reflect the hard work and dedication of RT professionals and their colleagues in other disciplines that support the profession and its patients. Please join us in congratulating these deserving clinicians on their honors —



Tim Myers (left) receives the Jimmy A Young Medal from Sam P. Giordano.



(L to R) Yao Tian (China), Amsa Mairami (Nigeria), Yu-qi Liu (China), and Khalsa Al Siyabi (Oman) were recognized as International Fellows.



The 2019 Specialty Practitioners of the Year were announced during the awards ceremony.

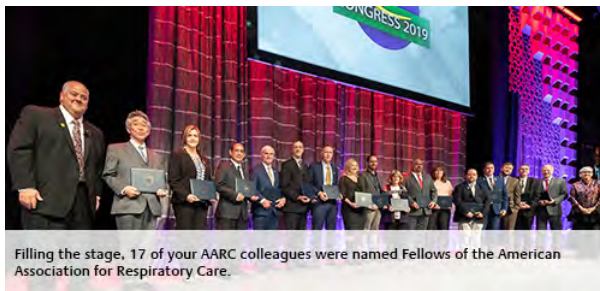
- Jimmy A. Young Medal: Timothy R. Myers, MBA, RRT, RRT-NPS, FAARC
- Life Membership: Kenneth E. Thigpen, BS, RRT, FAARC
- Honorary Membership: Debbie Bunch, BA
- Forrest M. Bird Lifetime Scientific Achievement Award: Jerry A. Krishnan, MD, PhD
- Thomas L. Petty MD Invacare Award for Excellence in Home Respiratory Care: Barry J. Make, MD
- Hector Leon Garza MD Achievement Award for Excellence in International Respiratory Care: Michael T. Amato, MBA
- Dr. Charles H. Hudson Award for Cardiopulmonary Public Health: Tonya A. Winders, MBA
- Mike West MBA RRT Patient Education Achievement Award: Joyce Baker, MBA, RRT, RRT-NPS, AE-C
- Mitchell A. Baran Achievement Award for Clinical Excellence in Aerosol and Airway Clearance Therapies: Michael McPeck, RRT, FAARC
- BOMA Travel Fund: Gerald Moody, RRT, RRT-NPS
- Philips Respironics Fellowship in Mechanical Ventilation: Maria Madden, MS, RRT, RRT-ACCS
- Charles W Serby COPD Research Fellowship: Richard D. Rice, MEd, RRT
- Vyair Fellowship for Neonatal and Pediatric Therapists: Joel M. Brown, II, RRT, FAARC
- Jeri Esierman RRT Professional Education Research Fellowship: Coral Ringer, MN, RN, CPN
- NBRC H. Frederick Helmholtz, Jr. MD Educational Research Grant: Mohammed M. Alqahtani, MS, RRT

- William F. Miller MD Postgraduate Education Recognition Award: Daniel Ulysses Gochenour, MSc, RRT, RRT-ACCS, RRT-NPS, AE-C, CPPS
- NBRC Gareth B. Gish Memorial Postgraduate Education Recognition Award: Marby R. McKinney, MEd, RRT, RRT-NPS, AE-C
- Morton B. Duggan Jr. Memorial Education Recognition Award: Sonya S. Park
- NBRC William W. Burgin Jr. MD and Robert M Lawrence MD Education Recognition Award: Mohaimeed Hamad Alshamrani, MS, RRT



(L to R) Mohaimeed Hamad Alshamrani, Marby McKinney, Daniel Gochenour, and Gustavo Lopez received education recognition awards.

- Jimmy A. Young Memorial Education Recognition Award: Gustavo Lopez
- FAARCs: Robert Aranson, MD, FACP, FCCP, FCCM, FAARC; Aaron Light, DHSc, RRT, RRT-ACCS, FAARC; Kerry J. McNiven, MS, RRT, FAARC; Amanda Richter, MHA, RRT, RRT-ACCS, RRT-NPS, RPFT, FACHE, FAARC; Keith D. Siegel, MBA, RRT, CPFT, FAARC; Lisa M. Trujillo, DHSc, RRT, FAARC; Michael R. Anderson, MD, MBA, FAAP, FAARC; Michael D. Davis, PhD, RRT, FAARC; Jody Lester, MA, RRT, FAARC; Thomas Piraino, RRT, FCSRT, FAARC; Dennis J. Guillot, PhD, RRT, FAARC; Stephen G. Smith, MPA, RT, RRT, FAARC; Kazunao Watanabe, MD, FAARC; Jeffrey A. Davis, BS, RRT, FAARC; Lanny S. Inabnit, MS, RRT, RRT-ACCS, RRT-NPS, RCP, FAARC; Christopher J. Russian, PhD, RRT, RRT-NPS, RPSGT, RST, FAARC; Noel S. Tiburcio, PhD, MBA, RMT, RRT, RRT-NPS, RTRP, FAARC



Filling the stage, 17 of your AARC colleagues were named Fellows of the American Association for Respiratory Care.

- ARCF Fundraiser Reception — Sole Sponsorship Award: InspirRX, Vapotherm
- Support of International Fellowship: AARC House of Delegates, Draeger, NBRC, and AARC
- International Fellows: Khalsa Al Siyabi, BSc, RT; Yu-qi Liu, MD; Amsa Mairami, MBBS, FMCPaed; Yao Tian, BS
- Mallinckrodt Best Paper Award by Best First Author: Renee M. Bartle, RRT, RCP
- Draeger – Shreyas Roy MD Memorial Literary Award: Daniel D. Rowley, MSc, RRT, RRT-ACCS, RRT-NPS, RPFT, FAARC
- Specialty Practitioners of the Year: Adult Acute Care, Karsten Roberts, MSc, RRT, RRT-ACCS; Education, DeDe Gardner, DrPH, RRT, RRT-NPS, FAARC, FCCP; Neonatal-Pediatrics, Sara Wing Parker, MPH, RRT, RRT-NPS, RRT-ACCS, AE-C; Respiratory Care Management, Margie Pierce, MS, RRT, CPFT; Post-Acute Care, Michael W. Hess, MPH, RRT, RPFT; Respiratory Diagnostics, James P. Sullivan, BA, RPFT; Sleep, Beth Brooks, BHS, RRT, RRT-SDS; Surface & Air Transport, Scott C. May, BHS, RRT, RRT-NPS, C-NPT
- Zenith Awards: Aerogen, Draeger Medical, Fisher & Paykel, Hamilton Medical, Monaghan, Philips
- CoARC – Ralph Kendall MD Outstanding Site Visitor of the Year Award: Marby McKinney, MEd, RRT, RRT-NPS, AE-C; Bradley A. Leidich, MEd, RRT, FAARC
- NBRC – Albert H. Andrews Jr. MD Memorial Award: Robert A. Balk, MD, FCCP

The following House of Delegates awards were announced during their meeting —



Congratulations to the Nebraska Society for Respiratory Care for earning the 2019 Summit Award from the AARC House of Delegates.

- Summit Award for Outstanding State Society: Nebraska Society for Respiratory Care
- Outstanding Affiliate Contributor: John Steinmetz, MBA, RRT
- Jerry Bridgers Delegate of the Year: Julie Jackson, BAS, RRT-ACCS, RCP
- Bill Lamb Award for Community Service: Earnestine “Mikki” Thompson, MHA, RRT, FAARC

And, finally, the National Respiratory Patient Advocacy Award was handed out at the National Respiratory Patient Advocacy Summit on Friday afternoon before the Congress officially began on Saturday. Sponsored by AARC and The FACES Foundation, the award recognizes an RT who has offered significant support to his or her patients with chronic lung disease.

The 2019 award went to Kayelene Horne, RRT, RRT-NPS, for her work with pediatric asthma patients at the James Connie Maynard Children's Hospital at Vidant Medical Center in Greenville, NC. Finalists for the 2019 award were Jeff Cain, RRT, and Maureen Lintner, RRT. ■

No One Can Stop You But You

Walter Bond shares his vision for success with attendees during the Closing Ceremony at AARC Congress 2019

by Debbie Bunch



Walter Bond grew up playing basketball in Chicago, IL, and he was good enough to be a star player on his high school team. He dreamed of playing in the NBA, and when he got a scholarship to play college basketball at the University of Minnesota, he thought he was well on his way.

But as any NBA player will tell you, a college scholarship isn't necessarily a ticket to the big leagues, and it wasn't that for Bond either. Still, he wasn't going to give up on his dream. Through hard work, discipline, and parents who encouraged him every step of the way, he ended up being the first undrafted rookie free agent to ever win a spot on the Dallas Mavericks lineup. He went on to play basketball for the Utah Jazz and Detroit Pistons as well before retiring from the sport and becoming a Hall of Fame motivational speaker, sharing the lessons he learned from his experiences on and off the court.

Bond wowed attendees at AARC Congress 2019 in a Closing Ceremony talk that focused on his experiences and how RTs can benefit from them to position themselves to be key players on the health care team, garnering success in their careers and ensuring high-quality care for their patients.

The C student



Much of Bond's talk centered squarely around his own shortcomings in life and how he overcame them with the support of his mother and father. Bond stressed to the audience that his family was firmly in the middle class. His mom was a kindergarten teacher, and his dad was a high school principal.

Bond was raised knowing his parents valued hard work and academic success. His older brother and sister embraced those values from

the beginning, but Bond was slow to come to the table.

"My brother and sister skipped home with their report cards because they got good grades," he said. "Not me. I was a C student."

Those Cs didn't sit well with either of his parents, and they continued to encourage him to do better in school. But by the time Bond was in high school, it became clear that wasn't going to happen. While he worked hard at sports — always the A student there — he continued to discount the value of academics in his life.

Like many children who aren't doing as well as they could, he was full of excuses too, telling his mother, "I flunked Spanish because the teacher didn't like me." His mom had the perfect come-back. "Well, Walter, I think she flunked you because she didn't like your answers," she told her son.

Time to pivot



But I called him dad.”

Being a student in his dad’s school rocked Bond’s world, but his dad had a plan. After the first few days, as they were driving to school together, the older Bond turned to the younger and told him that he wanted him to write down his goals for life and read them to him the next day. His son had his list ready the next morning, and topping the list was, “I’m going to play in the NBA.”

His dad quickly shot that down, telling his son that their family produced student-athletes, not athlete-students. In other words, his schoolwork would need to come first. Bond got into the car the next day with a new list.

“Okay, dad, I’m going to graduate college in four years, and then I’m going to play in the NBA and start feeling good about myself, and when I’m done with the NBA I’m going to make more money in business than I ever did in sports,” Bond said.

His dad told him he needed to read his goal sheet every day, and before he knew it, Bond was making good progress. He started doing his homework and studying for his tests, and, all of a sudden, his grade point average had risen markedly. He ended up being named “most likely to succeed” by his high school class and got the scholarship to play basketball at the University of Minnesota. But once again, he found himself in a position that would require him to reset his path in life.

Back to square one

It all started on his first day at practice when he went into the gym bragging about being All-State from Chicago. It didn’t take long for him to realize lots of his teammates could one-up him. First, there was the All-American from Detroit, and then the player who came to the team after a stint with the 82nd Airborne — a life experience that more than conditioned him for success.

“My freshman year I didn’t play a lick,” Bond said. “I read in the paper that, as a recruit, I was a bust. I was not a true BigTen athlete. Next thing I know, I stop going to class. Next thing I know, I’m a heavy partier with a red Solo cup.”

It was time to bring that goal sheet back out, and that’s exactly what Bond did.

“My daddy said, go back and do what you said you were going to do, son. Where is the goal sheet, son? Are you looking at it every day like I told you?” Bond said. “I looked in my dorm and I found it.”

He reapplied himself to the goals he had set for himself and, despite the odds, graduated from college and became the first-ever undrafted rookie free agent in the history of the Dallas Mavericks to start on opening night.

Three years later, he retired from the sport and began sharing his life’s lessons as a motivational speaker. Since then, he’s not only started his own company to help other firms rise to a level of excellence, but he’s also written a bestselling book that outlines his philosophies in a way that anyone can understand.

Training and development



something he always did when it came to sports but fell short on when it came to academics. The former taught him the importance of doing everything he did with the kind of grace that would lead people to like him. He believes how well people follow these two principles makes a big difference in how successful they

His dad fully supported that mindset, and when Bond flunked out of his first high school, his father decided it was time for a pivot. Before he knew it, the younger Bond found himself in a school where many of the girls were pregnant and there were 15 Vice Lord gang members on the corner. The worst part of the new school, however, lay in the principal’s office.

“The principal was 6’6” and 240 pounds,” Bond said. “The students called him Mr. Bond.

So how does all this apply to the profession of respiratory care? Bond believes that the lessons he learned from his mom and dad can help anyone succeed in life, and that is as true for RTs as for anyone else.

For him, it comes down to two sayings used by his parents over and over throughout his childhood. His mom’s mantra was, “Be sweet.” His dad’s was, “Go get it.” The latter required him to set his intentions appropriately —

will be in life.

The key is to place yourself at the top of the bell curve. In his company, for example, he says they teach people that 20% of their workforce is going to consist of high performers, and 20% is going to consist of low performers. So, the majority of any organization will essentially consist of C students. He believes companies that rise above that threshold have learned to do what his mom and dad did for him.

“Mom and Dad, you were running a training and development organization masquerading as a family,” he told his audience. Then he asked this question: “What would happen if you invested in your own training and development?” Bond urged RTs to look at their checkbooks and see where they were really investing their money. Were they taking their disposable income and spending it on high-end restaurant meals and the like, or were they using it to finance their development as RTs?

Coming to the AARC meeting, he said, was a good start.

“Success is all around you,” noted Bond. “Anything that frustrates you, the answer is in this room. There’s nothing better than networking with people who do exactly what you do.”

But he stressed the need to go beyond just attending the AARC Congress, telling his audience that they, too, need to have a goals list that outlines where they want to go with their careers. What kinds of things could be on it?

“One day, I’m going to be the head of respiratory care,” he suggested. “One day, I’m going to sit on the board of the Association. One day, I’m going to come to this conference and I’m going to do a breakout. One day, when they upgrade academic and credentialing requirements, I’m not going to complain. I’m going to be sweet, and I’m going to go get it.”

Latch on and learn



Bond ended the session with a story about an experience he had when he went out on a fishing boat that ended up being the genesis for the title of his bestselling book, “Swim! How a Shark, a Suckerfish, and a Parasite Teach You Leadership, Mentoring, and Next Level Success.”

The incident began when the captain reeled in a rather ugly fish and told Bond it was a suckerfish, and that suckerfish attach themselves to sharks to feed off the parasites that gather on their skin. He went on to note that sharks always keep moving, and they never look down — they always look up. They are curious and they are always learning. They are made of cartilage, which means they’re flexible. They know how to do what Bond’s dad ensured he did when he took him into his own school: pivot when things get tough.

When he got off that boat, he said he knew life was really all about sharks and suckerfish and parasites.

“And I realized my daddy was my first shark,” he said. “My brother and sister latched on right away. It took me a little longer. But when I latched on, the C student was transformed.”

That brought him to his final message for his audience at AARC Congress 2019: Mentoring is everything. Bond urged everyone in the room to either reach out to mentor another RT or find someone to mentor them.

“A shark’s job is to take you someplace you can’t take yourself,” he said. “So, when you go home, I want you to write your goals down . . . make them work for your core values and your core culture.” And then get a mentor to help you reach them. ■

Pressure Injuries and the RT: What Is Our Role?

by Thomas J. Cahill, MS, RRT, RRT-NPS, FAARC



The skin is the largest organ of the body. It protects us from infection, aids in the regulation of temperature, retains our moisture, is involved in vitamin D production, and provides sensation. Our skin is also the outward cover that gives us our identity and appearance. Pressure injuries related to medical devices can cause scarring as well as increase our risk of infection. The skin has three major layers: subcutaneous, dermis, and epidermis.

The National Pressure Ulcer Advisory Panel (NPUAP) defines a pressure injury as localized damage to the skin or the underlying tissue, typically over a bony prominence or related to a medical device. Health care-acquired pressure injuries (HAPI) are considered “never events” (i.e., they should “never” be allowed to occur), and since 2008 health care institutions are not reimbursed by the Centers for Medicare and Medicaid Services (CMS) for the additional costs incurred for the treatment of HAPIs.¹ Pressure injuries can interfere with functional recovery, are painful, can lead to infection, increase hospital length of stay, and even can increase the risk of death for patients. Elderly, neonate, and chronically or critically ill patients are the at-risk population for pressure injuries.

HAPIs defined

Pressure injuries can be graded based upon the damage to the skin and the extent of that damage to the surrounding tissue. Below are the grades according to the NPUAP:²

- **Stage 1 pressure injury:** The skin is intact with a localized area of non-blanchable redness.
- **Stage 2 pressure injury:** Loss of the epidermal layer with exposure of the dermis.
- **Stage 3 pressure injury:** Loss of the epidermis and dermis with exposure of the subcutaneous layer.
- **Stage 4 pressure injury:** Exposed fascia, muscle, cartilage, or bone. Eschar or slough maybe visible. Epibole (rolled edges), undermining, or tunneling often occur. Depth varies by anatomical position.
- **Unstagnable pressure injury:** Deep tissue injury that is obscured by eschar or slough.
- **Deep tissue pressure injury:** Skin may or may not be intact and have a persistent localized non-blanchable area that is deep red, maroon, or purple. This injury results from intense and/or prolonged pressure and shear force at the bone/muscle interface.
- **Medical device-related pressure injury:** These injuries are the result of medical devices used for diagnostic or therapeutic purposes. The injury will typically be in the shape of the device. The areas are staged using the staging system above.
- **Mucosal membrane pressure injury:** This is an injury to the mucosal membrane typically related to the use of a medical device.

What can we do?

Skin integrity has traditionally been the responsibility of the nursing staff in the hospital. Having a successful prevention program starts with commitment across the continuum of care. Prevention of HAPIs must be a multidisciplinary team approach. This includes administration as well as all disciplines of caregivers. Respiratory therapists can have the biggest impact for the medical device-related pressure injuries. In most of these scenarios, the respiratory therapist should be the first line of defense for the prevention of a pressure injury. Applying and checking on BiPAP masks, endotracheal tubes, oxygen delivery devices, and pulse oximeter probes are just a few of the opportunities to prevent a pressure injury. Understanding who is vulnerable, what interventions are needed, and how to assess the skin are a few skills every respiratory

therapist should possess.

How to get involved

The first step is to define the problem. What is the prevalence and cost for your institution for a device related pressure injury? Brem and colleagues estimated in 2010 that the cost of a Stage 4 pressure injury was \$129,248,³ in addition, hospital length of stay increased by 10.8 days.⁴

Next, get involved in your hospital's pressure ulcer surveillance and prevention team. They can provide data, training, and prevention tips necessary to get your team up to date on how to predict and prevent pressure injuries.

Training is essential. The respiratory therapist must be able to identify at-risk patients and understand what a pressure ulcer looks like. An online training tool that I have found helpful is the National Database of Nursing Quality Indicators (NDNQI) Pressure Injury Training (<https://members.nursingquality.org/ndnqipressureulcertraining>. Accessed December 3, 2019). It is a comprehensive program that walks you through the different types of skin injuries and how to identify them.

The 3 Ps: prediction, prevention, and protection

Knowing who is at risk will help in prevention. Risk factors for medical device-related pressure injuries include age, poor nutrition, immobility, friction, shear forces, moisture, vasopressors, decreased mental awareness, and long-term use of the device. We need to assess risk upon admission or the start of an intervention and continually reassess the patient who is at risk. Remember to document findings, track the efforts of prevention, and report the results to the rest of the team.

Prevention and protection include identifying risk factors, maintaining good skin care (i.e., keeping sites clean and dry), performing early interventions (e.g., barriers as needed), and rotating the device or site if possible. Dry clean surfaces help prevent friction injuries related to devices. This includes the skin and the area of the device that is in contact with the skin. Your wound team can recommend protective barriers that can be placed to protect and prevent the injury for at risk populations. Clear barriers are a good way to allow monitoring of the site without repeated removal which may lead to skin tearing in the at-risk populations. Off-loading the site by rotation of the device will give you time to clean, dry and assess the site for any redness. Ideally this will help prevent the injury by improving perfusion to that site.

As respiratory therapists, we sometimes lose sight of the long-term consequences of our acute interventions. Awareness and accountability for preventing pressure injuries will improve the lives of our patient after the acute injury or illness. Pressure injury prevention is a team sport, and the respiratory therapist plays an important role on that team. ■

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about the author...



Thomas J. Cahill, MS, RRT, RRT-NPS, FAARC, is the System Director Respiratory, Sleep & EEG at St Elizabeth Healthcare, Edgewood, KY.

Nonventilatory Strategies for Severe ARDS

by Karsten Roberts, MS, RRT, RRT-ACCS



Mechanical ventilation, using low tidal volumes and high PEEP strategies, remains the hallmark for the supportive care of acute respiratory distress syndrome (ARDS).¹ Several adjunctive modalities have been proven to successfully support patient recovery from severe hypoxemic respiratory failure. Modalities such as neuromuscular blocking agents (NMBA), prone positioning, inhaled prostacyclin, and venovenous extracorporeal membrane oxygenation (ECMO) have been cited as potentially beneficial in the supportive care of ARDS.² This article will briefly review each of these strategies and the evidence supporting each.

Background

Understanding when and how ARDS-supportive strategies are used requires reviewing the diagnosis of severe hypoxemic respiratory failure and ARDS using the Berlin Definition. First described over 50 years ago and redefined several times in the interim, ARDS is an inflammatory lung process involving increased edema and pleural pressures.³ The Berlin Definition defines the disease as an acute process. Symptoms manifest within one week of a known clinical insult (e.g., sepsis, multifocal pneumonia).⁴ Chest imaging, including both radiography and computerized tomography, which reveals bilateral opacities not fully explained by effusions, lung collapse, or nodules, is required to evaluate ARDS, and echocardiography is used to objectively assess edema. If cardiogenic shock and fluid overload are eliminated as sources of edema, ARDS is the likely culprit. Importantly, the Berlin Definition includes three mutually exclusive categories of hypoxemia: mild ARDS includes a PaO₂/FiO₂ ratio \leq 300 mm Hg, with PEEP set at \geq 5 cm H₂O; moderate ARDS includes FiO₂ ratios \leq 200 mm Hg, with PEEP set at \geq 5 cm H₂O; and severe ARDS includes a PaO₂/FiO₂ ratio \leq 100 mm Hg, with PEEP set at \geq 5 cm H₂O.⁴ Although most of these patients die from multi-system organ failure, it is important to note that a 2017 prospective study found a distinct subset of patients who die from severe hypoxemic respiratory failure manifested by a PaO₂ \leq 60 mm Hg with FiO₂ set to 1.0 on the ventilator.⁵

Choosing a nonventilatory strategy for managing ARDS requires consideration of a variety of factors. Benefits of the strategy, the risks of the strategy, the evidence behind the strategy, and barriers that may exist must all be considered.² These considerations form the framework for the discussion of what strategies should be employed in adult intensive care.

Neuromuscular blockade

It remains unclear just how neuromuscular blocking agents (NMBAs) help to improve oxygenation in ARDS.⁶ However, patients certainly benefit from improved ventilator synchrony and, therefore, decreased airway pressure and lung stress.⁷

The 2019 Formal guidelines for management of patients with severe ARDS recommends continuous infusions of NMBAs for patients with PaO₂/FiO₂ ratios \leq 150 mm Hg, within 48 hours, and for short durations.⁸ This recommendation was based on weak evidence from three randomized controlled trials (RCTs) in which significant improvement in oxygenation was reported in patients who were mechanically ventilated with low tidal volumes. Among these trials, risk of death and risk of barotrauma were significantly decreased, while the risk of ICU acquired weakness did not change.^{7,8}

More recently, the Prevention and Early Treatment of Acute Lung Injury (PETAL) Network published the results of a RCT that included 1,006 patients with moderate-to-severe ARDS (PaO₂/FiO₂ $<$ 150 mm Hg).⁶ Subjects were treated with high PEEP, and the primary endpoint was 90-day all-cause hospital mortality. Patients in the intervention arm of the trial were chemically paralyzed with cisatracurium within the first 48 hours of randomization, with continuous infusion lasting a median of 47.8 hours. The authors concluded that there was

no significant difference between patients who received the chemical paralytic and sedation and those in the control group who received no chemical paralytic and lighter sedation.⁶

Prone position

The use of prone position in patients with PaO₂/FiO₂ ratios ≤ 150 mm Hg shows significantly improved outcomes.⁹ Survival was the primary outcome of the 2013 PROSEVA trial, which was conducted in France and Spain. Patients included in the trial were mechanically ventilated for less than 36 hours and had set FiO₂ ≥ 0.6 and PEEP ≥ 5 cm H₂O.⁹ Additionally, sessions of proning were ≥ 16 hours in length. Results showed that 28-day and 90-day mortality were significantly lower in the prone position versus the supine position (16% vs 33%, respectively, P < .001; and 21% vs 41%, respectively, P < .001).⁹ The early application and prolonged duration of prone positioning distinguishes the PROSEVA trial from previous prone positioning trials in which sessions were either later in the clinical course, shorter in duration, or both.¹⁰ Although other RCTs have shown a trend toward improved mortality, PROSEVA remains the most notable in terms of study design and outcomes.

Even with positive outcomes reported by Guérin and colleagues,¹¹ it has been noted that prone positioning is still in limited use. The APRONET study was a prospective prevalence study that reported prone positioning was used just 33% of the time in patients with severe ARDS.¹¹ This finding is interesting considering prone positioning yielded low complication rates, improved oxygenation, and improved driving pressures. At the end of prone positioning sessions, with an average duration of 18 (16–23) hours, PaO₂/FiO₂ ratios improved from 101 (76–136) to 171 (118–220) mm Hg (P = 0.0001). Driving pressures also decreased significantly from 14 (11–17) to 13 (10–16) cm H₂O (P = 0.001). Despite these findings, more research is warranted to determine the impact of prone position therapy in combination with other adjunctive therapies.¹¹ Furthermore, it is recommended to reserve proning for severe ARDS (PaO₂/FiO₂ < 150 mmHg).³

Extracorporeal membrane oxygenation (ECMO)

While evidence is lacking for a specific ventilator strategy, the benefits of venovenous ECMO may include the ability to use “ultra” lung-protective settings. The goals of this strategy include limiting alveolar strain, preventing atelectrauma, decreasing ventilator F_iO₂ to reabsorption atelectasis, and avoiding lung overdistention.¹² To further investigate the risk of ventilator induced lung injury (VILI) while on ECMO, Rozenecwajg et al¹³ recently published a weakly powered RCT which found lower biotrauma in patients placed on an ultra-lung protective strategy. The investigators used a pressure control mode of ventilation to find minimal driving pressure and bronchoalveolar lavage to observe biomarkers. The authors concluded that limiting plateau pressure, tidal volume, and driving pressures has the potential to decrease VILI.¹³

Literature supporting venovenous ECMO is limited to a handful of RCTs, but there are observational data that can be relied upon to help guide the decision to cannulate eligible patients.¹⁴ The frequently cited CESAR trial is a good example of an RCT that supports the transfer to a care center with ECMO capability and, in many but not all cases, the use of ECMO in ARDS. In the CESAR trial, 180 patients were randomized to ECMO or conventional ventilation. As may be expected, ICU length of stay was a median 24 days in the treatment group versus 13 days in the control group.¹⁵ Similarly, hospital length of stay was 35 days in patients receiving ECMO vs. 17 days in patients in the conventional management group. At six months post-randomization, 63% of patients survived without severe disability. The authors’ main conclusion was the recommendation of transferring adult patients with severe but potentially reversible respiratory failure to tertiary hospitals in which ECMO-based management is available.¹⁵

In observational data from Massachusetts General Hospital, Nehra et al¹⁶ found survival benefit in “carefully selected patients with non-neonatal respiratory failure,” which resulted in 53% of their patients surviving to discharge. The authors found the highest survival to be in patients with viral or bacterial pneumonia. Older age, multiple organ failure, prolonged ventilation prior to ECMO initiation, and long ECMO runs were all associated with decreased survival.¹⁶

To investigate 60-day mortality the authors of the 2018 EOLIA trial randomized patients with P_aO₂/F_iO₂ ratios ranging from 50 – 80 mmHg, for 3 – 6 hours, to receive immediate ECMO.¹⁷ In the trial 35% percent of the patients in the ECMO group and 46% of patients in the control died (P=0.09). Patients in the control group who failed other nonventilatory strategies (e.g., neuromuscular blockade, prone position) crossed over to ECMO, but unfortunately, 57% of these patients died.¹⁷ ECMO has not yet shown to improve outcomes compared to conventional ventilation. However, guidelines do recommend early consideration of ECMO when other strategies fail.⁸

Inhaled prostaglandins

The mechanism of action by which inhaled prostaglandins function is pulmonary vasodilation.¹⁸ In ARDS, pulmonary vasodilation helps to improve oxygenation by way of improved perfusion. Additional benefits may include anti-inflammatory and anti-platelet aggregation properties.¹⁸ Commonly cited drugs include inhaled nitric oxide, alprostadiol, and epoprostenol.

Fuller et al¹⁸ cited two RCTs that showed benefit from inhaled prostaglandins. Dahlem et al¹⁹ reported improved oxygen index in 14 children. In this study, the oxygen index decreased from 10 to 7.4 ($P = 0.001$) when epoprostanol was titrated to 30 ng/kg/min. The other RCT included 67 adult patients treated with alprostadil versus a placebo. In this double-blinded study, the primary outcome was improved diastolic function. The secondary outcome (P_aO_2/F_iO_2), however, did not show significant improvement in oxygenation. Oxygenation in the control group increased from 163.4 to 186.8, while P_aO_2/F_iO_2 improved from 141.2 to 161.5 ($P = 0.21$).¹⁹

Torbic et al²⁰ conducted a retrospective analysis of 105 patients receiving mechanical ventilation for ARDS. Patients were treated with inhaled nitric oxide ($n = 53$) versus inhaled epoprostanol ($n = 52$) to assess improved oxygenation, duration of mechanical ventilation, and ICU and hospital lengths of stay. The authors found no differences in the safety and efficacy of the drugs, although they noted a difference in the financial burden of nitric oxide versus epoprostanol.²⁰

Conclusion

To summarize, optimization of mechanical ventilation is the first step in treatment of severe ARDS.⁸ The evidence and recent guidelines support the use of neuromuscular blockade in the first 48 hours. While the use of inhaled prostaglandins lacks sufficient evidence, there is strong agreement that venovenous ECMO should be considered early when other strategies fail.⁸ Of the strategies highlighted in this article, prone positioning has shown the most promise in supporting the care of severe hypoxemic respiratory failure. ■

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about the author...



Karsten Roberts, MS, RRT-ACCS is registered respiratory therapist and adult critical care specialist. He is currently a respiratory therapist at the Hospital of the University of Pennsylvania, Philadelphia, PA and adjunct faculty at Boise State University.

Oh, The Places You'll Go

by Karen Schell, DHSc, RRT, RRT-NPS, RRT-SDS, RPFT,
RPSGT, AE-C, CTTS, 2019–2020 AARC President



“Oh, the places you’ll go” — Dr. Suess said it best. Great possibilities lie ahead for the profession. Are you ready to go? Look at where we have been, where we are, and what we could be. The profession is on the move. Think about it: Where do we want to be in the future? Are you ready to move forward, explore what can be? . . . The more you learn, the more places you’ll go!

2019 has been a year of growth and learning for the profession. We have worked hard at implementing the six new horizon goals, aligning our committees to reflect our goals, issuing our position paper, developing a scope of practice on the advancement of the profession, publishing on the need of advanced practice, visiting state societies to plant the seed to grow the profession at the grassroots level, supporting various initiatives with our patient advocacy, improving our collaborations with our stakeholders, and introducing the telehealth pilot bill to the U.S. Congress with bipartisan support.

The 2019 AARC Congress in New Orleans brought us together to improve our individual education. The networking opportunities for therapists and students were amazing. Old friends made connections, and new friends were made. The presentations covered a wide variety of interests, and the exhibit hall was full of equipment to pique our interest in opportunities to take back home. The keynote speakers addressed concerns for our patients in diagnosis and treatment of diseases and conditions. Individuals were honored during the award ceremony for their commitment to the profession. International fellows and attendees from other countries learned more about the profession.

2020 brings us more work ahead. We have work to do on measurable outcomes for our committees to show progress on achieving our goals, improving our communication with reaching out to affiliates through better avenues, developing ways to assist our education systems to move toward our 2030 goal of BS degree and RRT certification for entry to practice, working on growing our membership, advocating for our patients, and being more transparent and approachable.

The future ahead for the profession is exciting. The possibilities are many, and the opportunities are limitless. We may have to think outside the box to achieve our goals, to reach new avenues of delivery, and to improve our image in the public eye. This means confronting problems in atypical ways, thinking creatively and freely, and encouraging frequent challenges to the status quo. Are you ready to help? What skills do you have to help us move forward? Can you contribute your expertise and be actively engaged and committed to solutions to help us achieve our goals? Breakthrough thinking and creativity often come from making uncommon connections. Keep in mind, in our daily connections and activities, we have an opportunity to gain different and broader perspectives that could impact the growth of the profession.

Our patients know the value we bring to the health care team. We need to do a better job of demonstrating our value, our expertise, and our commitment to others. The key is to engage and to encourage different views about how a solution could take a new path. We are asking for your engagement. It is time to recognize your value as a respiratory therapist. Value yourself, and others will value you.

It is time to stand proud, to move to your potential, and to grow yourself and the profession! 2020 will be a great year for you and for the profession. “Congratulations! Today is your day. You are off to great places! You are off and away!” ■

about the author...



Karen Schell, DHSc, RRT, RRT-NPS, RRT-SDS, RPFT, RPSGT, AE-C, CTTS, is an assistant clinical professor in the respiratory care department at the University of Kansas Medical Center School of Health Professions in Kansas City, KS, and president of the AARC.

Your Ethical Duty

by Anthony L. DeWitt, JD, RRT, FAARC



Is there an ethical duty for a respiratory therapist to obtain continuing respiratory care education (CRCE) credits? As simple as that question is, the answer is perhaps a bit more complex. There are three sources of authority for requiring continuing education. The first is found in the natural law theory of ethics. The second is found in the AARC Code of Ethics, and the third is found in the law of the state in which a therapist is based.

In the 14th century, St. Thomas Aquinas wrote the *Summa Theologica*, a document that tried to set out a complete discussion of how a society based on law might be structured. He wrote that men should “do good and avoid evil.” That’s close to what the Hippocratic Oath requires in that it specifies that care gives “do no harm.” A detailed discussion of these two ancient doctrines is not necessary because they form the foundation on which the modern study of ethics is based. And certainly, they form the basis for the AARC Code of Ethics.

The answer regarding the ethical duty for therapists who are members of the AARC is found in the first three provisions of the Association’s Code of Ethics. They specify that Respiratory Therapists shall:

- Demonstrate behavior that reflects integrity, supports objectivity, and fosters trust in the profession and its professionals.
- Promote and practice evidence-based medicine.
- Seek continuing education opportunities to improve and maintain their professional competence and document their participation accurately.

Clearly the AARC member has a duty independent of state law to seek out continuing education. This is because continuing education is behavior that reflects integrity and fosters trust in the profession. Because science is constantly updating the contours of medical practice, continuing education also serves the goal of promoting evidence-based medicine.

If all of these were not enough on their own to compel a therapist to seek out education, then certainly state law is. In most states, licensure renewal is contingent upon taking continuing education and documenting it. More importantly, if a therapist fails to attain the required number of hours, they can be called before the state board for discipline.

And if all of this still were not enough to compel you to take the required continuing education credits, then the role of continuing education in litigation is one more powerful reason to seek out continuing education. In nearly every case where a physician, nurse, or other health professional is sued, one of the many “Requests for Production” filed in the case will call for all continuing education records for the past five years.

Early in my career as a therapist I went to a seminar on a variety of topics at the University of Iowa. The presenting physician went through a case of severe epiglottitis, discussed the diagnostic signs, and then told us how rare it was to see one.

Seven months later, a young patient came in with all the signs and symptoms. The emergency department doctor missed it. The pediatrician who was consulted over the phone didn’t ask the right questions, and as a result he ordered intermittent positive pressure breathing (IPPB) treatment to be delivered. The child had stridor, was drooling, would not talk, and had a high fever. All the classic signs were there.

I was the only person in the emergency department who kept talking about epiglottitis. I was ignored

because I was merely a graduate therapist at that point. Instead of giving my concerns the consideration they were due, they told me to do the therapy.

I refused. I knew what the risks were, and I tried to explain them to my clueless boss. But I was the new guy, and so I clearly didn't know anything. Except, I did.

The department director took over, pushing me out of the way, grabbing the child, pinning his arms, and putting an IPPB mask on the child's face as he fought to keep his airway clear. He turned on the IPPB machine and did the therapy. The panicked child voided on himself out of sheer terror. Fortunately, an anesthesiologist came by, heard the crowing noises, and took emergency action to save the child's life. I could very well have inadvertently killed that small child but for that continuing education program that I attended at the University of Iowa.

When lawyers look at continuing education credits, they look for both the existence of presentations on the subject of the lawsuit (e.g., epiglottitis) and for an absence of information on the same subject. They want to find evidence that a therapist knew but didn't take the right steps or — perhaps worse — simply never knew.

When a jury hears that a therapist has been in practice for 15 years but hasn't taken a continuing education course involving airway emergencies during that entire time, it makes them wonder what courses they have taken. Of course, a defense lawyer can use the continuing education credits as a shield. The therapist who got all of his necessary credits, and a few extra, is likely to be seen by the jury as prudent and careful, versus the therapist who obtained the bare minimum and can't describe in a deposition anything new they may have learned in those presentations.

But the real benefit of continuing education is that, as in my experience, it can keep you out of the courthouse in the first place by preparing you for the types of things you may see only once in a career. Doctors are told when they hear hoofbeats to think horses, not zebras. The thinking is that the averages favor more routine explanations for clinical conditions over ones that are somewhat exotic.

That isn't always the case, however, and good continuing education can make it possible to help you identify that occasional zebra when his striped hide isn't readily detectable.

In short, you have a moral, ethical, and legal responsibility to pursue continuing education, and it can affect your professional standing if you do not. Because the AARC keeps records of approved CRCE credits for members, it can be subpoenaed to produce them in court. Be the kind of therapist who wants their records subpoenaed. ■

about the author...



Anthony L. DeWitt, JD, RRT, FAARC, is a practicing appellate attorney and former respiratory therapist. Nothing in this article is meant to be construed as legal advice.

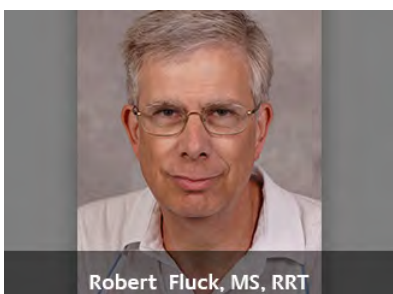
RC Currents

IN THE NEWS



Transitions

AARC Mourns the Passing of Robert Fluck, MS, RRT



AARC members across the country were saddened to learn of the death of long-time AARC member Robert R. Fluck, Jr., MS, RRT, who passed away on Oct. 13 in Syracuse, NY.

Bob Fluck was an educator in the profession who started out as an instructor at the New York University Bellevue School of Respiratory Therapy in 1973. Fluck then joined the faculty at SUNY Upstate Medical Center (now SUNY Upstate Medical University), where he was promoted to assistant professor in 1979 and associate professor in 1985. Fluck served as director of clinical education for the department of respiratory therapy at SUNY from 1984 to 2001,

retiring in 2009.

A member of the AARC since 1973, Fluck made a major impact on the House of Delegates, where he worked on a number of committees over the years and served as secretary in 1984. He then served as speaker of the house in 1986–1987. He was a member of the AARC Board of Directors in 1987–1988 and served on many AARC committees in that capacity as well, including those devoted to clinical practice guidelines and bylaws.

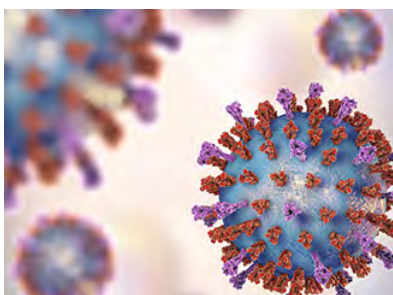
Fluck published more than 22 papers or book chapters during his long career and served as both assistant and associate editor of *RESPIRATORY CARE*. He co-chaired a Journal Conference in 1988.

Bob Fluck received Life Membership in the AARC in 2001, along with many other honors and awards recognizing his service to the profession and the educational community in New York. He also gave tirelessly of his time to organizations in his community, ranging from the North Area Volunteer Ambulance Corps, where he served as a volunteer paramedic, to the American Heart Association, where he was a CPR instructor.

Bob Fluck will be sorely missed and long remembered by all who were privileged to work with him and to learn from him over his distinguished career.

RSV Vaccine in the Works

Researchers from Ohio State University are zeroing in on a new vaccine against the respiratory syncytial virus (RSV). Using a technique called reverse genetics, they have generated RSV that is defective



in N6-methyladenosine methylation — one of the most common modifications that human cells make to RNA. The technique leaves the virus genetically stable, meaning that a live, attenuated RSV with these mutations could not revert back to a stronger virus and wreak havoc in the human body, a concern held in the scientific community since the 1960s when an experimental “killed virus” RSV vaccine was tested in children and unexpectedly increased the chances of hospitalization when they were later infected with RSV.

According to the investigators, their new technique was successful in prompting a robust immune response in cotton rats.

“We now have a novel target to go after, and are working with industry toward a vaccine,” said senior study author Jianrong Li.

The research was published in a recent edition of *Nature Communications*.

Light Smoking Leads to Lung Damage Too

People who think smoking just a few cigarettes a day can't harm their lungs are sorely mistaken, find U.S. researchers publishing in *The Lancet Respiratory Medicine*. In a study that analyzed data on more than 25,000 people, they found that lung function in light smokers declines at a rate much closer to that of heavy



smokers than nonsmokers. Compared to the rate of decline in a never-smoker, which was set to zero for the analysis, the additional decline was 7.65 mL/year for light smokers vs. 11.24 mL/year for heavy smokers, suggesting that a light smoker could lose about the same amount of lung function in one year as a heavy smoker might lose in nine months.

What's more, the study showed that although lung capacity declines at a much lower rate in ex-smokers than in current smokers, the rate doesn't normalize for at least 30 years.

“Smoking a few cigarettes a day is much riskier than a lot of people think,” said study author Elizabeth Oelsner, MD, from Columbia University Vagelos College of Physicians and Surgeons. “Everyone should be strongly encouraged to quit smoking, no matter how many cigarettes per day they are using.”

Genetic Mutation Found for IPF

A genetic study carried out in Japan has identified a mutation that may be responsible for many cases of idiopathic pulmonary fibrosis (IPF). The investigators began by looking at the DNA of two brothers who died from IPF in their 30s. Both carried a mutation — dubbed T622C — in both copies of a gene called *SFTPA1*, which encodes the surfactant protein A1 that is secreted by the cells lining the alveoli, helps prevent the alveoli from collapsing, and protects them from bacterial infection.



From there, the researchers generated mice carrying the T622C mutation and found that they, too, developed IPF. They determined that the mutation was blocking the protein's release from alveolar cells, causing the cells to die via a process known as necroptosis. This form of cell death induces high levels of inflammation, which is thought to increase the formation of scar tissue within the lung. Instead of being secreted, the mutant form of *SFTPA1* allowed the protein to build up inside the alveolar cells and activated a cellular stress pathway that boosted the levels of necroptosis-promoting proteins.

Similar to patients with IPF, the condition in the animals was fatally exacerbated by influenza A infection. Blocking the stress pathway or otherwise reducing the levels of the necroptosis-promoting proteins slowed the development of IPF in *SFTPA1* mutant mice and allowed them to survive influenza A infection. The authors believe inhibiting necroptosis in alveolar cells could suppress earlier events in IPF progression.

The study appeared in a recent edition of the *Journal of Experimental Medicine*.



Significant Harm Seen for E-Cigs, Vaping

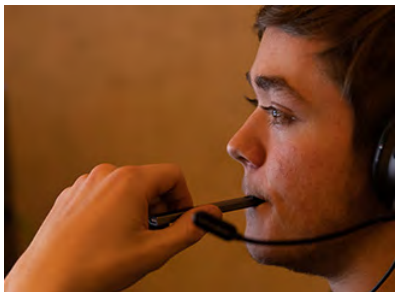
Researchers from the University of California–San Francisco, UCLA, Duke University, and Yale University have published a comprehensive review of all e-cigarette/vaping peer-reviewed scientific papers that pertain to the lungs. The results of this review show significant harm from vaping and e-cigarette use. Among the key findings —

- Epidemiological studies showed increased respiratory symptoms in adolescent vapers, such as increased bronchitis-like symptoms, increased asthma, shortness of breath, etc.
- Several studies showed effects of vaping on the whole lung, including possible lung damage, and identified case reports from around the world indicating lipoid pneumonia that is similar to what is seen with the current epidemic in the United States.
- Animal studies typically reported increased risk of lung damage and immunosuppression, such as increased susceptibility to bacterial or viral infections.

- In vitro studies often indicated that exposure of pulmonary cells to e-liquids leads to general cytotoxicity and impaired specialized functions, such as secretion and phagocytosis, which are important for proper lung function.
- Studies on the possible health effects of e-liquid constituents, including nicotine, propylene glycol/vegetable glycerin, and flavors, have shown adverse effects in animal and lab-based studies at some concentrations.
- Among published papers on primary pulmonary cells, the only articles that did not report an effect of vaping on these cells were studies funded by the tobacco industry.

The researchers suggest e-cigarettes should be prescribed cautiously as a smoking alternative for heavy smokers only and should only be recommended as a cessation device along with counseling and other therapies designed to help people quit nicotine product use permanently. They also call for more stringent regulation of vaping products.

The study was published in a recent edition of the British Medical Journal.



This is What Draws Children to E-Cigs

What leads adolescents to try e-cigarettes? According to researchers from the University of Buffalo, it's all about flavor, safety, and family attitudes.

They interviewed adolescent users and non-users of e-cigarettes in the Western New York area to learn about their attitudes toward vaping. Compared to other illicit substances, participants generally had a more positive view of e-cigarettes and acknowledged the popularity and acceptance of vaping among their peers. However, while participants who vaped viewed e-cigarettes as safe, non-users had reservations. While they considered the product to be less harmful than cigarettes, they thought it was still dangerous and addictive. Non-users were also more likely to have parents who viewed vaping negatively, while those who used e-cigarettes were more likely to have older siblings who used the products to quit smoking. That influenced their perception of e-cigarettes as beneficial and potentially provided easier access to vaping products as well. The variety of flavors available for e-cigarettes was an attractive feature for participants who vaped, as they generally disliked the taste of cigarettes.

The authors believe mandatory education on e-cigarette use for teens is warranted, as are appropriate warnings on products and in advertising aimed at adolescents. They advocate for increased regulation of flavorings in e-cigarettes as well.

The study was published in a recent edition of the Journal of Pediatric Nursing.



New CAP Guideline

The American Thoracic Society and Infectious Diseases Society of America have published a new guideline on community-acquired pneumonia (CAP) that offers recommendations on diagnostic testing, site of care, selection of initial empiric antibiotic therapy, and subsequent disease management. The guideline is an update of the CAP guideline published in 2007, with the most significant revisions appearing in the sections on empiric treatment strategies. Additional recommendations are made in the section on disease management. One of the more important revisions calls for greater use of microscopic studies of respiratory tract samples in some subgroups of patients to avoid unnecessarily prescribing therapies for drug-resistant bacteria.

The guideline also addresses the use of corticosteroids in this setting, with recommendations against the routine use of these drugs in adults with CAP or in adults with severe influenza pneumonia. However, the authors do recommend following the Surviving Sepsis Campaign recommendations on the use of corticosteroids in

patients with CAP and refractory septic shock.

“CAP remains one of the leading causes of death in the world,” said Grant Waterer, MBBS, PhD, co-chair of the guideline committee and a professor of medicine at the University of Western Australia. “Not only has there been new data in the past decade, but there is now a strong national and international focus on antibiotic stewardship. It was time to update the guideline so that clinicians could be certain they were still practicing evidence-based care.”

The updated guideline was published in the American Journal of Respiratory and Critical Care Medicine.



Former Smokers Fare Worse than Current Smokers

A new study conducted among older Chinese men has resulted in some surprising findings. Rutgers University researchers set out to determine whether those who were long-time smokers would have other elevated health risks besides lung cancer, which has been well established in this population. While both current and former smokers had worse health than never-smokers, current smokers were less likely to have heart disease, hypertension, high cholesterol, thyroid disease, depression, and anxiety than former smokers. The authors aren't sure why this finding occurred, but they believe more study is

needed to identify the reasons why the former smokers quit in the first place. They speculate that existing health problems may have led these subjects to quit. The investigators also call for the development of strategies to prevent and reduce tobacco use among this population. The study appeared in the Journal of the American Geriatrics Society.

Age Matters



Age may make a difference in the way African Americans with poorly controlled asthma respond to treatment, find U.S. researchers who looked at the best way to step up asthma treatment for those whose asthma had not been treated adequately with low doses of inhaled corticosteroids. The treatment choices in the trial included increasing the dose of the inhaled steroid, adding a long-lasting bronchodilator, or both. The multicenter study included 574 participants, about half of whom were 5–11 years old.

In children under 12 years of age, both approaches were effective: 46% responded better to increasing the inhaled corticosteroid dose alone, and 46% responded better to increasing the inhaled corticosteroid dose and adding a long-lasting bronchodilator. Of the adolescents over 11 years old and adults, 49% responded better to adding a long-lasting bronchodilator than to increasing the inhaled corticosteroid dose, although 20–25% in this group showed no difference in their responses to these approaches.

The trial appeared in a recent edition of The New England Journal of Medicine.

A Diagnosis in 10 Seconds

An automated chest radiography interpretation model that uses artificial intelligence can accurately identify — in just 10 seconds — key findings on the chest radiographs of patients in the emergency department who are



suspected of having pneumonia, report researchers who studied the model in hospitals in Utah. Developed by investigators from Stanford University, the system identified key findings in radiographs with high agreement with a consensus of three radiologists. The CheXpert model was developed by the Stanford Machine Learning Group based on 188,000 chest-imaging studies and fine-tuned by reading an additional 6,973 images from Intermountain Healthcare emergency departments in Utah. The researchers presented their findings at the European Respiratory Society meeting last fall.

Nanoparticles May Predict COPD Severity



The researchers tested their theories on mucus samples from 33 patients who were active or former smokers; seven of the subjects had no history of COPD, 18 had a history of mild to moderate COPD, and eight had severe COPD. The nanoparticles were labeled with a fluorescent marker that could be traced with an ultrasensitive camera, allowing the researchers to observe their movement and the speed at which they diffused through the sample.

Results showed that the nanoparticles moved significantly more slowly in the mucus collected from patients with COPD compared to samples collected from patients without COPD, indicating that their mucus had a more restrictive structure. The effect was even more pronounced in mucus samples from patients with severe COPD, indicating that the pore size within the mucus shrinks as COPD progresses.

“If this restricted structure impacts the ability of immune cells to engage infectious pathogens in the lungs, it could potentially serve as a predictor for COPD flares, a critical risk factor in COPD progression,” said study author Enid Neptune, MD.

If larger studies validate their findings, the investigators believe the structure of mucus could provide new insight into how COPD progresses and may improve therapy as well.

The study appeared in the *European Respiratory Journal*.

The Link between Smoking and Diabetes



Could cigarette smoking raise the risk of type 2 diabetes? According to investigators from Mount Sinai, the answer may be yes. In a study conducted in rats, they found that a protein encoded by a diabetes-related gene called *transcription factor 7-like 2 (Tcf7l2)* mediates a signaling circuit that connects neurons in the brain activated by nicotine to blood-glucose regulation by the pancreas.

The nicotine specifically activates nicotine acetylcholine receptor (nAChR) proteins expressed on neurons in the medial habenula, a brain area that regulates aversive reactions to nicotine. This leads to adverse responses to nicotine that limit both the intake and release of glucagon and insulin by the pancreas. Blood sugar levels rise as a result, and the raised levels create a feedback loop by inhibiting the nAChR-expressing neurons, blocking adverse responses to smoking and thus helping to establish nicotine dependence. *Tcf7l2* modulates the entire signaling circuit, thereby linking nicotine addiction with an increased risk of diabetes.

The study was published in a recent edition of *Nature*.

Smokers Need Comprehensive Program to Quit

If you want cancer patients to stop smoking, offer them a comprehensive quit smoking program. That's the take-home message from a new study conducted among 3,245 smokers who were treated in MD Anderson's Tobacco Treatment Program between 2006 and 2015. At three-, six-, and nine-month follow-ups, smoking abstinence rates averaged 45%, 46%, and 44%, respectively. That compares to a quit rate of about 20% seen in other studies involving smokers who were offered help via quitlines or other minimal interventions.



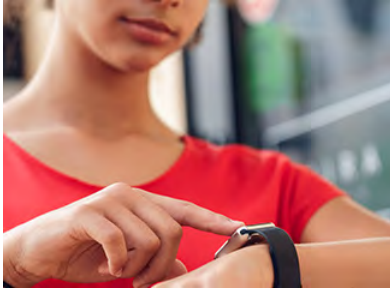
“Patients deserve the absolute best opportunity we can give them to quit smoking,” said Paul Cinciripini, PhD, lead author on the study. “Based on our data, we recommend offering comprehensive smoking cessation to cancer patients as a clinical standard of care.”

Clinicians in the MD Anderson program tailor nicotine-replacement therapy, non-nicotine medications, or a combination thereof to the individual's specific needs. They also provide support through behavioral counseling sessions that take place over eight to 12 weeks following their initial consultation.

The study was published in *JAMA Network Open*.

Step Counters Might Replace Six-Minute Walk Test

Can a step tracker worn on the wrist replace the standard six-minute walk test for some people with pulmonary conditions? According to researchers from Intermountain Healthcare, who conducted a blinded, randomized, crossover trial in a group of 52 patients that included adults with a history of respiratory problems during periods of elevated air pollution, it can. The patients used wrist step counters to track their steps over a 12-week period and filled out respiratory symptom questionnaires. The investigators found they could effectively estimate a patient's six-minute walk distance results using data from the step counters.



The authors believe step counters could play a significant role in helping clinicians monitor lung disease while minimizing health care visits for patients.

“Instead of having one measurement every few months, you could have weekly measurements, and have information about disease progression at more frequent intervals,” said study author Denitza Blagev, MD. “This is a significant improvement and enhanced convenience for our patients.” The study was presented at the recent European Respiratory Society meeting.

Genetic Explanation for Some Cases of SIDS

Researchers from the University of Washington School of Medicine have discovered a genetic anomaly that may explain some cases of sudden infant death syndrome (SIDS). The research focused on mitochondrial trifunctional protein (MTP) deficiency, a potentially fatal cardiac metabolic disorder caused by a genetic mutation in the gene *HADHA*. Newborns with this genetic anomaly can't metabolize the lipids found in milk and die suddenly of cardiac arrest when they are a couple of months old. In MTP deficiency, the heart cells of affected infants do not convert fats into nutrients properly, resulting in a build-up of unprocessed fatty material that can disrupt heart functions.



While infants can be screened for the genetic markers of MTP deficiency, effective treatments have yet to be found. These investigators hope their findings will change that for the better.

“There is no cure for this,” said study author Hannele Ruohola-Baker. “But there is now hope, because we've found a new aspect of this disease that will innovate generations of novel small molecules and designed proteins, which might help these patients in the future.”

The study appeared in a recent edition of *Nature Communications*.

Low-Cost TB Vaccine Could Reduce Lung Cancer Risk

U.S. researchers who followed nearly 3,000 American Indian and Alaska Native children over 60 years have linked the low-cost Bacille Calmette Guerin (BCG) vaccine for tuberculosis to a reduced risk of lung cancer. About half of the children received the vaccine for the first time around the age of eight, while the other half received a placebo. During the follow-up, 325 malignancies were reported, including leukemia, lymphoma, lung cancer, and breast cancer. Malignancy rates overall were lower, but not significantly lower, among the BCG-vaccinated group compared to placebo. However, receiving the BCG vaccine as a child was associated with 2.5 times lower rate of lung cancer later in life, regardless



of smoking and other risk factors.

“This common, low-cost vaccine could potentially help lower the risk of lung cancer in this population, and could also have implications for the general population,” said study author Dr. Naomi Aronson, director of the

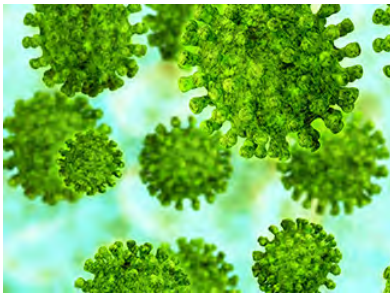
Infectious Disease Division of the Uniformed Services University.
The study was published by JAMA Network Online.

NSAIDs May Mitigate Harm From Air Pollution



U.S. investigators believe they have found a way to minimize lung damage caused by air pollution: take aspirin or another NSAID. In a study involving 2,280 male veterans with an average age of 73, they examined the relationship between lung function test results, self-reported NSAID use, and ambient particulate matter (PM) and black carbon in the month preceding the test. Any NSAID use nearly halved the effect of PM on lung function, with the association consistent across all four weekly air pollution measurements from same-day to 28 days prior to the lung function test. Most of the people in the study used aspirin, but the researchers believe non-aspirin NSAIDs are worthy of further exploration as well. They speculate the findings in their study

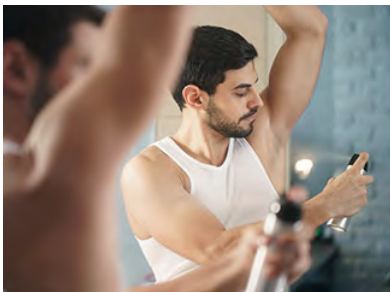
were related to the fact that NSAIDs mitigate inflammation brought about by air pollution. The research appeared in a recent edition of the American Journal of Respiratory and Critical Care Medicine.



Why Respiratory Infections May Be Worse in Diabetics

Diabetes may complicate some respiratory infections, find Maryland researchers who studied the link between the two conditions in a mouse model of Middle East respiratory syndrome coronavirus. Although the virus did not replicate more readily in the diabetic mice compared to the healthy controls, the diabetic mice exhibited a delayed and prolonged inflammatory response in the lung. Diabetic mice had lower levels of inflammatory cytokines and fewer inflammatory macrophages and T cells, indicating that the increased severity of MERS-CoV infection in patients with diabetes was likely due to a mal-

function in the body's response to infection. The authors believe their findings could help explain why the flu or pneumonia may be more severe in people with diabetes as well. The study was published in the Journal of Clinical Investigation.



Strange but True . . .

We have met the enemy and it is us: What's the biggest cause of indoor air pollution? According to researchers from Purdue University who set up a special lab to find out, it's humans themselves. Preliminary results from the lab show volatile compounds in human breath, such as isoprene, and chemicals from self-care products, such as deodorant, makeup, and hair spray, are largely to blame.

Clean up time? An outbreak of *Klebsiella oxytoca* at a German pediatric hospital suggests one of the very things we use to ensure cleanliness might be leading to disease instead. Investigators traced the bacterium, which can cause gastrointestinal and respiratory infections, to a detergent drawer and the door seal of a washing machine that was used to launder the hand-knitted socks and beanies worn by babies on the ward.

We need to clear the air: Three recent studies conducted by investigators at Cincinnati Children's suggest air pollution may be doing more than harming children's lungs. It appears to be linked to mental health issues like anxiety and depression as well. The researchers believe more study is needed to find out why.

Contribute to the AARC "Transitions" Column

The AARC "Transitions" column is devoted to sharing news about the passing of AARC members. You can submit news about your colleagues' recent passing by going to <http://c.AARC.org/transitions>. Please provide any information about the member's recent death, such as an obituary, so that we can share it with our members and pay tribute.

Tell Your Story

Every therapist has a story to tell about a favorite or most memorable patient that would interest others in the profession. Maybe it was an “aha moment” when you knew you had made the right professional decision for that patient. Maybe it was when you first realized how much difference you were making in the lives of that patient and his family. Or maybe it was just something the patient said or did that made you laugh or cry or just be inspired to be a better RT. Our “Storytellers” column is the place to share them. Send your story to heather.willden@aacrc.org. ■

Industry Watch



Asthma, CRS study to get underway

The NIH awarded two Northern Arizona University researchers \$468,472 to study how microbiota in the upper and lower airways drive inflammation in patients with asthma and chronic rhinosinusitis (CRS). “Currently, these diseases are treated separately, but people with CRS often have asthma, leading us to believe there might be a common cause,” said co-investigator Emily Cope. “Surprisingly, the sinus and lung microbiome of CRS and asthma patients have not been studied in tandem.” The team will use next-generation sequencing and metabolomic analysis to study the sinus and lung microbiomes in healthy subjects and CRS patients with and without asthma during the three-year project.

North Carolina researcher embarks on health warnings study

The National Cancer Institute awarded a five-year, \$2.7 million grant to the University of North Carolina Lineberger Comprehensive Cancer Center researcher Adam Goldstein, MD, MPH, to develop more effective health warnings for little cigars and cigarillos. Using a national, web-based questionnaire, he will identify warnings that adult smokers perceive as the most effective, as well as which warnings lead to more intentions to quit. An in-person laboratory study will use eye tracking and facial muscle movement and arousal to develop objective measurements on how flavor descriptions affect the impact of the modified warnings compared to the current warnings.

BI enrolls first patient in CF trial

According to Boehringer Ingelheim, the first patient enrolled in its Phase 2 clinical trial BALANCE-CF 1 to evaluate a new treatment for cystic fibrosis. The trial will investigate how different doses of the compound, an inhaled epithelial sodium channel (ENaC) inhibitor, affects lung function compared to placebo when added to the standard of care in adults and adolescents with cystic fibrosis. The inhaled ENaC inhibitor (BI 1265162) aims to block the absorption of sodium and may help keep the surface of the airways hydrated. This, in turn, could make mucus less thick, making it easier to keep airways clear in patients with cystic fibrosis. It is intended to treat patients with all types of cystic fibrosis mutations and is delivered via Boehringer Ingelheim’s Respimat inhaler.

Texas researchers zero in on cure for TB

Researchers at the Texas Biomedical Research Institute received a four-year, \$2.8 million grant from the NIH to study the role of lung macrophages in metabolic and inflammation responses to tuberculosis (TB). The investigators believe their findings could open the door to a new set of biological pathways critical to the body’s response to TB infection in the lungs. “This newest research has the most clear-cut translation potential in terms of leading to a new strategy for host-directed therapy for TB,” said Texas Biomed President and CEO Larry Schlesinger, MD, who is the principal investigator of the study. “I think our discoveries could lead to a new set of drugs that will ultimately cure TB.”

Icahn School of Medicine receives NIAID grant

Investigators at the Icahn School of Medicine at Mount Sinai have received a contract award of up to \$132 million from the National Institute of Allergy and Infectious Diseases (NIAID) as part of a new Collaborative Influenza Vaccine Innovation Centers (CIVICs) program to further the development of a universal flu vaccine.

The Icahn School of Medicine will team up with Emory University to form a joint vaccine center that will become part of the large CIVICs network of research centers. Total funding will be distributed over the next seven years. CIVICs will work together in a coordinated, multidisciplinary effort to develop more durable, broadly protective, and longer-lasting influenza vaccines.

Duke receives federal dollars for flu vaccine research

The Duke Human Vaccine Institute received three research contracts from NIAID as part of the federal agency's efforts to develop a longer-lasting, more broadly protective vaccine to replace the seasonal flu shot. The initial award amounts to approximately \$29.6 million in first-year funding, but if the options on all three contracts are exercised, total funding could be up to \$400 million over seven years, which would be the largest federal multi-contract award supporting one program in Duke's history. "The Duke Human Vaccine Institute has long been a global leader in the research and development of lifesaving vaccines, and these extraordinary contracts will strengthen the institute's efforts to develop innovative solutions to one of the most pervasive and intractable health challenges we face today," said Duke University President Vincent E. Price.

Pneumothorax Challenge announces winners

The American College of Radiology (ACR) and the Society for Imaging Informatics in Medicine (SIIM) announced the official results from the SIIM-ACR Pneumothorax Challenge at SIIM's 4th annual Conference on Machine Intelligence in Medical Imaging. The challenge required teams to develop high-quality pneumothorax detection algorithms to prioritize patients for expedited review and treatment. A total of 1,475 teams took part in the challenge, and 352 teams submitted results during the evaluation phase of the competition. The number one team was [dsmlkz] sneddy. Complete results and detailed challenge information are available on the SIIM and Kaggle websites.

Cryosurgical device shows good results

CSA Medical, Inc., presented positive 12-month results of its feasibility study for the RejuvenAir Metered Cryospray system at the 2019 European Respiratory Society International Congress in Madrid, Spain. The cryosurgical device applies spray liquid nitrogen to the central airways through a minimally invasive bronchoscopic procedure to treat chronic lung disease. Thirty-five patients were enrolled in the safety and feasibility trial, and the data showed clinically meaningful improvements in multidimensional measures of cough, sputum production, breathlessness, and quality of life as measured with the Saint George's Respiratory Questionnaire and the COPD Assessment Test. The device recently received Breakthrough Device Designation from the Food and Drug Administration.

AAN partners with Green Park Collaborative to create core set of asthma outcomes

The Green Park Collaborative, a major initiative of the Center for Medical Technology Policy, is partnering with the Allergy & Asthma Network (AAN) to develop a core set of outcomes to be used in pivotal and late-phase clinical trials of therapies for moderate to severe asthma. The coreASTHMA initiative will engage patients, clinicians, regulators, payers, health technology assessors, product developers, and other key stakeholders in a structured consensus process to develop the core outcome set. "At this critical juncture, we want to ensure the patient voice translates to asthma research and policy decisions," said Tonya Winders, CEO of AAN. "This project will help facilitate a more transparent and patient-centered definition of value in asthma care."

Distribution agreement will facilitate access to AI-powered lung-imaging analysis

VIDA Diagnostics, Inc., has entered into a distribution agreement with TeraRecon, Inc., that will allow VIDA's LungPrint analysis to be available through TeraRecon's AI Interoperability platform, EnvoyAI, expanding the reach of VIDA's leading artificial intelligence (AI)-powered pulmonary care solutions and creating an integrated physician experience. By precisely quantifying lung characteristics in a chest CT scan, LungPrint helps providers detect COPD and other interstitial lung diseases earlier, often before debilitating symptoms occur. LungPrint also strengthens collaboration between radiologists and pulmonary clinicians, enhancing the content delivered in radiology reports and care team collaboration.

Sleep solution to benefit from co-branding partnership

Medline and Bleep, LLC, are teaming up to co-brand and distribute the DreamPort Sleep Solution, the smallest and lightest CPAP mask solution available, to the hospital and post-acute care markets. "Our partnership with Bleep strengthens Medline's portfolio of patient-centered solutions linked to improved outcomes," said Tim Finnigan, respiratory division president at Medline. "This particular CPAP solution simplifies care, improving efficiency and experience for the health care staff while enhancing consistency of

care.” The system uses hypoallergenic medical grade adhesive strips to reduce the risk of leak and hold the DreamPorts in place under the nose for optimized comfort.

Telavancin has better cure rates than vancomycin

According to Cumberland Pharmaceuticals, Inc., a new publication in Infectious Diseases and Therapy has shown numerically superior cure rates for telavancin compared to vancomycin within a subset of patients who were enrolled in Phase 3 ATTAIN trials and had hospital-acquired pneumonia caused by bacteria with low susceptibility to vancomycin. Telavancin is a patented, FDA-approved anti-infective for the treatment of certain serious bacterial infections, including hospital-acquired and ventilator-associated bacterial pneumonia. It is manufactured and distributed by Cumberland under the brand name Vibativ. ■