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# Times

2020 Jimmy A. Young Medal

## A Robust Career Set on Talent and Drive

AARC's highest honor goes to  
Terry Volsko, MBA, MHHS, RRT, CMTE, FAARC

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## 2020 Jimmy A. Young Medal

### A Robust Career Set on Talent and Drive

**AARC's highest honor goes to Terry Volsko, MBA, MHHS, RRT, CMTE, FAARC**

by Debbie Bunch



You wouldn't think a love of music would lead a person to the profession of respiratory care, but that's how Terry Volsko, MBA, MHHS, RRT, CMTE, FAARC, ended up in the profession.

"I grew up in Campbell, OH, which is a small suburb of Youngstown, near the Pennsylvania border and about 60 miles east of Cleveland," says this year's winner of the AARC's Jimmy A. Young Medal. "I am the oldest of three girls and was a very inquisitive and competitive child." In addition to loving school and taking part in clubs and community service activities, she studied the piano and competed in solo piano competitions from the age of 10.

As she neared graduation from high school, she set her sights on medical school, but her parents saw a different life for their daughter. In their minds, getting married and staying home with kids should take precedence. But Volsko knew she wanted more, and when she met a young man at the music studio where she was taking piano lessons, her future became clear. The young man was enrolled in the respiratory care program at Youngstown State University (YSU) and told her all about the profession — even noting that a degree in RT could be a stepping stone to medical school.

"He offered to let me shadow him on an evening shift at a children's hospital in Youngstown," she says. The experience was so impactful that she immediately knew she wanted to be an RT, too, and applied to the YSU program. "It is humorous looking back at my high school yearbook," says Volsko now. "I was the only senior who had 'respiratory therapist' listed as my career aspiration. I never pursued a medical degree. I fell in love with the profession that continues to inspire me and bring me joy."

**A pediatric focus**

Music may have drawn her to respiratory care, but Volsko came to the YSU program with plenty of firsthand knowledge of what it's like to work in a hospital. Throughout her high school years, she volunteered at Tod Children's Hospital in Youngstown, helping feed children, take vital signs, and assist the nurses on the general care unit. It was those experiences that set the stage for her lifelong interest in respiratory pediatrics.

"After being accepted in the respiratory care program upon graduation from high school, I transitioned from volunteer to respiratory therapist at Tod Children's," she says. This was the early 1980s, before licensure, when students often went right to work while taking the initial didactic classes and frequently before their first clinical rotation. She graduated with her AAS degree in 1981 and worked in various capacities for the Western Reserve Care System in Youngstown before becoming the neonatal/pediatric respiratory coordinator at St. Elizabeth Health Center. From there she went to work as a clinical specialist in trauma/critical care at MetroHealth Medical Center in Cleveland.

In 1997 she became the pediatric trauma research coordinator at Cleveland's Rainbow Babies and Children's Hospital, and her interest in conducting clinical research blossomed. "The highlight of my career has been the opportunity to work with talented physicians, nurses, and respiratory therapists to discover ways to enhance the quality and efficiency of care we provide at the bedside," says Volsko. "The ability to conduct research has played a major role."



She says she was first introduced to respiratory care research at the OPEN FORUM at the AARC Congress. "I was so inspired by the sessions that I worked on the plane to identify clinical problems with a research potential," she says. She was especially interested in answering questions that arise at the bedside, and she has always worked to conduct studies that would bring valuable knowledge back to the bedside for RTs to use in caring for their patients. She credits the AARC with connecting her with many leading researchers who have helped her achieve her goals, including Donald Prough, MD, Yuriy Petrov, PhD, Robert Chatburn, MHHS, RRT, RRT-NPS, FAARC, Neil McNinch, MS, RN, PStat, Mohamad El Khatib, MD, PhD, RRT, and Arnold Heyman, MD.

Rob Chatburn was her earliest mentor. "He taught me the fundamentals and guided me through many research projects," says Volsko. It wasn't always easy. Chatburn was an exacting guide, and her research proposals, abstracts, and manuscripts often bled with the marks of his red pencil. She says her basic stubbornness and unwillingness to give up kept her going.

"I can still remember the day I had an appointment to review a manuscript draft with Rob. I arrived at his office a few minutes early and he wasn't there yet," she says. "It was painfully obvious that he was prepared for our meeting because on his desk were 5 or 6 freshly sharpened red pencils." By then she knew him well enough to play a little prank. "Before he arrived, I mischievously broke each of the tips off,

with the hope that he would be unable to make a host of corrections,” she recalls with a laugh. “To my dismay, he pulled a red pen from his lab coat pocket!”

Their close professional relationship was almost predestined. Chatburn says he first recalls meeting Volsko in the lobby of the Las Vegas Hilton during the 1994 AARC Congress and discovering that he not only knew her grandfather, but that her cousin was his best friend. “We had grown up near each other in the suburbs of Youngstown, but remarkably had never met,” he says. “In short order we developed a friendship that blossomed into a career-long professional collaboration.”

He believes Volsko has a passion for the art and science of respiratory care that is illustrated through her many publications and presentations. “I like to say that to achieve extraordinary results, you have to live an uncommon life,” says Chatburn. “Terry has done this with a flair and *a joie de vivre* beyond anyone I have ever known.”



Terry Volsko, left, worked closely with new faculty member Amanda Roby, MHHS, BSRC, RRT, RPSGT, during her time as program director at YSU. Roby is now the director of clinical education for the program.

### **Serving her alma mater**

Throughout her career, Volsko has valued not only research but also education, including her own. She knew early on that she would have to advance her degree to get to where she wanted to go, and she wasted no time getting started. She earned her BSAS in health care management in 1987, her MHHS in health care administration in 2004, and her MBA in general business in 2016. All three are from her alma mater, YSU, which makes it unsurprising that when she decided to take on a faculty role in 2007, she did it at YSU.

She credits her long-time mentor, former YSU program director and now professor emeritus Lou Harris, EdD, RRT, for the decision. “It was a once in a lifetime opportunity to work as his director of clinical education and to be mentored for the program director position upon his retirement,” she says. Over the five years she spent with the program, she says she gained immeasurable knowledge in accreditation, program development, faculty development, and community partnership, and she is proud to note that the program was named CoARC Program of the Year during her tenure. The Ohio Board of Regents also approved their newly developed master’s in respiratory care program while she was at the helm.

Volsko maintained her ties with the clinical setting during her time at YSU, volunteering at a long-term care facility for medically complex children with disabilities. The medical director there provided opportunities for her students to work at the facility as well, which gave them invaluable experience participating in physicians’ rounds and helping assess the children.

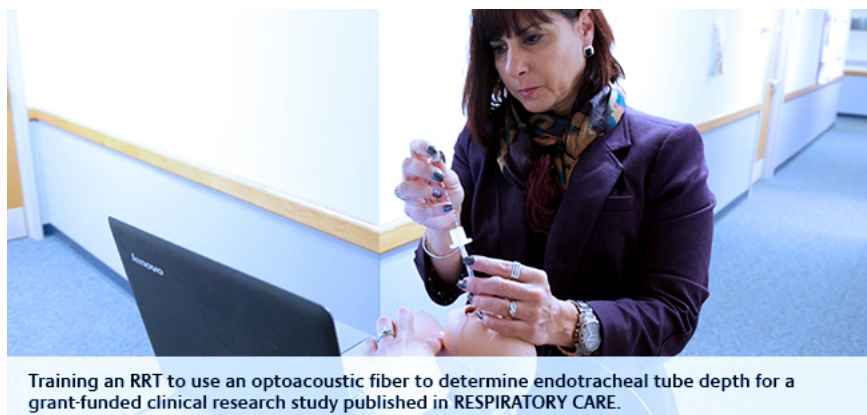


Volsko, second from the left, poses with some of her YSU students at a fundraising event for the Cystic Fibrosis Foundation.

She continued her ongoing interest in research while at YSU, too, again bringing her students along for the ride. “My involvement in clinical research, with YSU faculty from nutrition services and exercise science, afforded my students the opportunity to participate in clinical research with COPD patients at an outpatient pulmonary rehabilitation facility,” she says. “They also were able to participate in brainstorming sessions with industry leaders focused on developing new home oxygen delivery interfaces.” Many of her students ended up presenting their capstone projects as abstracts during the OPEN FORUM at the AARC Congress, and several even developed those abstracts into manuscripts that were then published in a peer-reviewed journal. “My greatest joy was and continues to be found in helping others achieve their goals, fulfill their greatest potential, and realize their dreams,” says Volsko.

She definitely made an impact during her short time with the program. After just four years of service, she received a promotion in rank and tenure. But her first love — respiratory pediatrics — kept calling her name, and when an opportunity arose to join Akron Children’s Hospital, she had to take it. She has served as director of respiratory care, transport, the Communication Center, and the Asthma Care Management Team since 2011, and as operations director of the Patient and Employee Safety Steering Committee. In 2017–2018 she also served as interim administrative director of the Rebecca D. Considine Research Institute at the facility.

“Although my responsibilities at the bedside have changed, my passion for caring for infants and children with respiratory illnesses has never wavered,” says Volsko. She hasn’t forgotten her students either. “After leaving YSU for my current role at Akron Children’s, I was able to hire several of my former students, as well as help my graduates grow professionally and contribute to advancements in respiratory care.”



Training an RRT to use an optoacoustic fiber to determine endotracheal tube depth for a grant-funded clinical research study published in RESPIRATORY CARE.

## Well-published author

Volsko has continued to conduct research at Akron Children's and says three of her most significant studies were spurred by RT staff at the facility: "Evaluating the Effect of Flow and Interface Type on Pressures Delivered With Bubble CPAP in a Simulated Model," "Neonatal Respiratory Therapist-Led Rounds Can Improve Staff Satisfaction and Timeliness of Respiratory Interventions," and "Adherence to Endotracheal Tube Depth Guidelines and Incidence of Malposition in Infants and Children." All three studies appeared in RESPIRATORY CARE.

"Because these studies were inspired by problems the RTs in my department at Akron Children's Hospital identified at the bedside, they allowed me to mentor staff interested in research," she says. "The most gratifying aspect was that the results of these studies led to changes in our practice." The third study on endotracheal tube depth guidelines led to additional research and grant funding opportunities as well.

But the study she is most proud of is one she conducted along with a respiratory care graduate student, whom she calls a "brilliant statistician," and a pre-med student. The study was titled, "Validating Lung Models Using the ASL 5000 Breathing Simulator," and she realized the impact it was making when a colleague of hers who was working on a 510k application told her that the FDA had provided him with a copy, noting that he would need to validate his model in accordance with the publication prior to submitting data on the medical device he was working on.



In this OPEN FORUM session, Volsko focused on how to present an abstract.



A team building exercise during a transport retreat – Volsko, in the baseball cap, is working to build a structure with an RN and the Chaplin while the team's secretary looks on.

### **Walking the talk for her professional organizations**

In addition to presenting research during the OPEN FORUM at the AARC Congress and publishing study after study in RESPIRATORY CARE, Volsko has been an active volunteer with her professional organizations. She has served as a reviewer for the AARC Committee on Clinical Practice Guidelines since 1989 and has been a member of the Evidence-Based Guidelines Committee since 2012, chairing the

Pediatric Tracheostomy Care group since 2017. She's also taken on various roles with the Journal, the Program Committee, and more.

"I first met Terry at the 1988 AARC Congress in Orlando, FL, where she was presenting some of her research at the OPEN FORUM," says Ray Masferrer, RRT, FAARC, former associate executive director of the AARC. "Based on her presentations, I vividly remember telling myself that I was watching someone who, sooner rather than later, would impact the profession positively and who would 'walk the talk.'" Masferrer says he's worked with her in many areas over the years, but he believes her knowledge and expertise rose to the top with her participation in the Clinical Practice Guidelines groups, the RESPIRATORY CARE Editorial Board, the Journal Conferences, the OPEN FORUM, and the AARC Program Committee.

Volsko has served on the NBRC Board of Trustees since 2004 as well, working on committees ranging from the Clinical Simulation Committee and Public Relations and Publications Committee to the Licensure Liaison Committee and the RRT Job Analysis Steering Committee. She has been an at-large member of the NBRC Executive Committee since 2019. She's been a member of the ARCF Board of Trustees since 2018.

Volsko traces her volunteerism with these professional organizations back to Dr. Lou Harris. "When I was a student, Dr. Harris instilled in me the value of volunteerism and being an active member of the Ohio Society for Respiratory Care and AARC," she says. "As students we were expected to become a member of the AARC." Her early involvement with her state society led her to get more involved at the national level, and she says the more involved she became, the happier and more fulfilled she was.

She continued the trend of having students join the AARC when she was program director at YSU, and today at Akron Children's she has made AARC membership a requirement for any staff member who wants to take part in either the hospital's career ladder (which governs professional advancement) or care ladder (their version of a professional portfolio offering a financial incentive to publish, conduct quality improvement studies, and demonstrate active involvement in the community, hospital, and profession).

Ray Masferrer says the lessons Volsko learned early on in her career have been paid forward over and over again as the years have marched on. In addition to publishing 42 referenced manuscripts, 75 abstracts, three monographs, 28 chapters in medical textbooks, and two textbooks, he says she has actively mentored 30 novice researchers. Twenty of them were respiratory therapists who were invited to disseminate their findings at national meetings and published manuscripts in peer-reviewed journals. Add in more invited lectures at local, state, national, and international programs than you can count, and the impact she has made is clear.



Volsko speaking at the inaugural Women in Leadership session at the 2019 Summer Forum.



Volsko, left, joined fellow RT managers and the chief nursing office at Akron Children's in presenting the Phil Award to one of her RRTs.

## Female empowerment

One recent program that she's especially proud of is the Women in Leadership session held at last year's Summer Forum and AARC Congress. "This course was important in assisting women develop the knowledge and leadership skills to improve patient, process, and financial outcomes," says Volsko. "The program faculty were committed to helping women learn, stretch out of their comfort zone, and influence positive changes at their respective organizations."

She believes the session also helped raise awareness of the value of professional stewardship and mentoring, not only for women, but most importantly, by women. "With fewer opportunities, women may shy away from mentoring opportunities because of the fear that this would increase competition for the limited career advancement prospects," she says. "The faculty made a pointed effort to encourage participants to 'pay it forward' by mentoring others and serving the profession and their community." The program was extremely well received — so much so that Canadian RTs who attended decided to plan a similar session for their own national respiratory care conference.

Volsko is working for women in other areas, too, and it shows. She received the 2019 Woman of Achievement award from the Women's Network of Northeast Ohio and is actively supporting the next generation of female researchers. Rob Chatburn offers the details. "Recently she provided the start-up funds for an endowed respiratory research and education fund," he says. "She convened a group of young women and is leading them in creative ways to raise money for this endowed fund, which is dedicated to providing small grants for therapist-led translational research and education."



Not long after joining the department at Akron Children's Hospital, Volsko got to take a check flight during crew training with the pilot of the facility's helicopter.



Volsko, center, joined Rob Chatburn, MHHS, RRT, RRT-NPS, FAARC, second from the right, and AARC Executive Director Thomas Kallstrom, MBA, RRT, FAARC, right, in a photo op with a local judge and museum curator at a fundraiser held in Cleveland for the AARC's 75th anniversary a

## **Taking a moment to celebrate**

When the phone call came informing Volsko that she was to be the 2020 Jimmy A. Young Medalist, she was at a regional neonatal ICU with a nursing colleague from Akron Children's. They were waiting to join the Ohio Department of Health onsite survey team for a tour of the new unit and a one-on-one interview.

"My colleague was very excited when I shared my news!" she says. "The survey team couldn't figure out why we were so happy and even commented that leaders aren't typically as happy and excited as we were!" Little did they know that their upcoming tour had taken a momentary backseat as she tried to contain her delight at the thought of joining the ranks of the elite group of professionals who call themselves Jimmy A. Young Medalists.

The news that is still sinking in. "That in and of itself brings tears of joy to my eyes," she says.

# Is Your Post-Accident Incident Plan Ready for Primetime

by Steve Sittig, RRT, RRT-NPS, FAARC



As a component of medical care today, medical transport occurs 24 hours a day, 7 days a week, 365 days a year. According to the Association of Air Medical Services (AAMS), around 550,000 patients are transported by air in the United States every year (<https://aams.org>, Accessed October 2, 2020). The bulk of these transports occur without any incidents, but unfortunately serious incidents and fatal accidents occur despite improving technology and the addition of night vision goggles and the Helicopter Terrain Avoidance Warning Systems. In 2008, the medical transport industry experienced its worst year of accidents, losing 29 flight crew colleagues. There has been spikes in accidents over the years since the record high in 2008. In 2010 there were 16 fatalities, and in 2013 there were 12 fatalities in emergency medical services helicopter operations.<sup>1</sup> While ground ambulance accidents do not often receive the local or national news like helicopter accidents, they also have risk. On average, 2,600 people are injured in 1,500 ambulance accidents each year. Fatalities via ground transport occur most frequently in individuals occupying the passenger compartment who were not properly restrained.<sup>2</sup>

While technology has improved, we still must acknowledge that human factors are a serious contributing factor in accidents and incidents.<sup>3</sup> Being a part of the medical transport industry since 1986, I have observed where this human factor component may play a part. As humans, it is possible for us to fall into complacency, thinking we are so particularly good at what we do that everything is almost automatic. A transport program may go years without an incident or serious accident. Nevertheless, programs do realize that something may go seriously wrong at some point, so they have developed post-accident incident plans (PAIP) as a response to serious events. The PAIP may often remain on a shelf or on a computer for years before it is needed.

## CAMTS

The Commission on Accreditation of Medical Transport Services (CAMTS) is non-profit organization dedicated to improving the quality and safety of medical transport services, with 21 current member transport specialist organizations, each of which sending one representative to the CAMTS Board of Directors. CAMTS was initially formed in 1991, and the AARC was one of the original members to join in 1991. The Commission offers a program of voluntary evaluation of compliance with accreditation standards demonstrating the ability to deliver service of a specific quality. The Commission believes that

the two highest priorities of an air medical or ground inter-facility transport service are patient care and safety of the transport environment.

According to the CAMTS standards, a drill should be conducted semi-annually (one in daytime and one at night) to exercise the PAIP. This drill must include pilots, medical personnel, communications personnel, mechanics, and administrative personnel. Written debriefing and critique of PAIP drills must be shared with all staff members. A full drill must test each of the modes of transport (if the program has rotorwing, fixed wing, or surface capabilities, or a combination thereof) within a three-year time frame. This standard does not differentiate between an accident and an incident, but there is a difference. An accident is defined as an unexpected event that may result in property damage and does result in an injury or illness to an employee. An incident, on the other hand, is an unexpected event that may result in property damage but does not result in a significant injury or illness. An incident may also be called a close call, a near miss, or a near hit.

### **PAIP Testing and Assessment**

A general rule for any emergency response plan is that it should be periodically tested and updated. **This need is not different than a hospital conducting scheduled fire or severe weather drills.** The PAIP must be part of the transport program's protocol so that appropriate search and rescue efforts may be initiated in the event the aircraft or surface ambulance is overdue, radio communications cannot be established, or location can't be verified. There must be a written plan to initiate assistance in the event the aircraft or ambulance is disabled. PAIPs should be easily identified, readily available, and understood by all program personnel; at a minimum, it should include a list of personnel (with current phone numbers) to notify in order of priority in the event of a program incident or accident (for air or surface). CAMTS has frequently noted as missing in program's family assistance plan is the coordination of family needs immediately after the event, such as transportation, lodging, memorial/burial service, condolences, and initial grief support services or referrals for such services, usually through the appointment of a family liaison. Another frequent issue is that, while the program may have tested scenarios concerning aircraft and ground ambulances, they may overlook drills involving the communications center, such as an evacuation drill for a fire or an intruder while still maintaining operations.<sup>3</sup>

Drills should be planned so that only limited administration staff are aware of it before it is activated. The drill should involve a scenario as close to reality as possible to evaluate the process and the performance of staff. A detailed tracking of responses to scenario situations should be compiled to analyze and assess areas for improvement from any lessons learned. **A "tabletop" drill is an informal training tool managed by a facilitator and is not a true assessment of emergency drill process. There is no hands-on practice or field work by the staff. It is basically a drill on paper without really testing the drill's effectiveness. Once the actual drill is completed, a thorough analysis of any findings and lessons learned must be communicated to all staff.** Any changes suggested in the analysis should then be implemented to improve the program's PAIP. A more complete list of items to consider including in your program's PAIP drills can be found in the CAMTS standards.<sup>4</sup>

### **A PAIP Drill Example**

There are many ways to conduct a good PAIP drill, but one of the best I have seen was focused on the transport team's actions during the drill. The drill began with a page out by rotor (i.e., a call for a helicopter) for a 6-year-old who nearly drowned about 40 miles away. The dispatched team was the pediatric critical care team, composed of the pediatric transport respiratory therapist (RT) and pediatric

ICU registered nurse (RN), along with the pilot and the flight RN. Shortly after liftoff, the flight RN, who was also the safety officer, passed a note to the RT sitting in the helicopter's airway seat. The note was the scenario drill and spelled out what was going to be tested from the pediatric transport team's perspective. The scenario was this: assume that the helicopter had come to a running stop (i.e., a transition from forward flight to a landing on the surface when there may not be sufficient power available to sustain a hover) in an open field at the rescue site, and that the flight RN was dead and the pilot was incapacitated and unconscious. The pediatric critical care team was to exit the aircraft with the survival gear, shut the helicopter down, and call in for support.

As soon as the helicopter landed, the drill was activated. The first task was to shut down the helicopter engines, so the RT entered the cockpit and pulled the engine controls past the detent position to shut the engines down and slow the rotors. Next, the RT and the RN extracted the pilot and placed him a safe distance away from the helicopter. Then they took out the cell phone and handheld GPS from the survival bag and contacted the communications center with their location. Local law enforcement and emergency medical services were directed to find the team.

What was incredibly unique about this exercise was that it was videotaped for presentation to the entire program staff during the debrief session. As the debrief session was conducted, team members could easily imagine themselves in the scenario to see how they were expected to respond.

One can only hope your program's PAIP will never need to be activated, but one never knows when it may be needed. It is important to know how your PAIP plan is structured and to test it with drills and analysis to be certain it is effective for the transport program and does as much as possible for the staff and their families.

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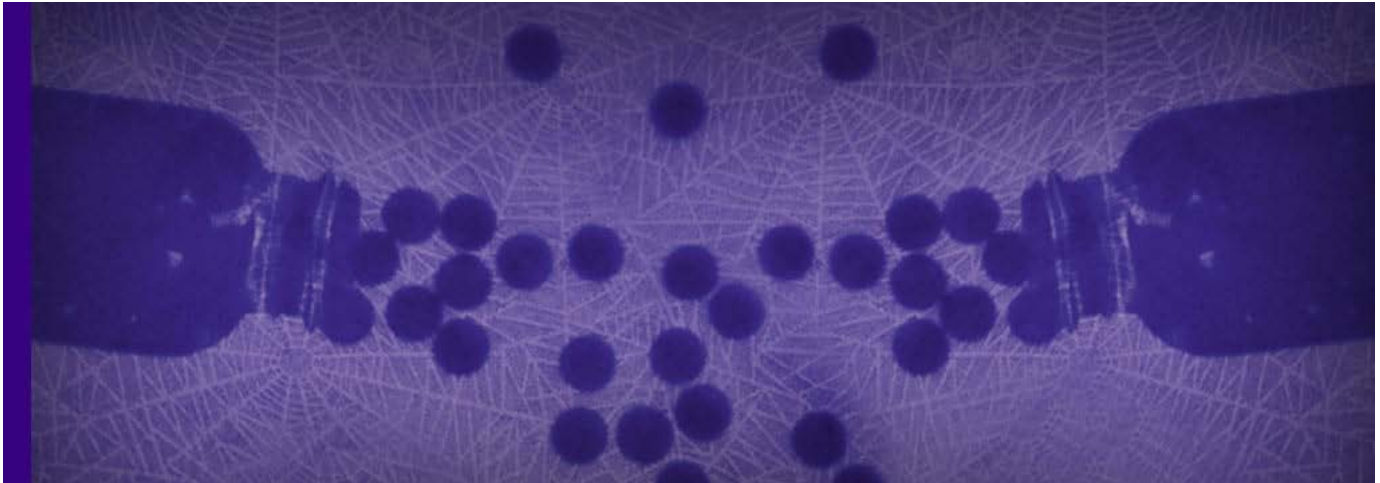
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# Cost Burden of COPD & Comorbidities

by Lanny Inabnit, MS, RRT, RRT-ACCS, RRT-NPS, RCP, FAARC



Chronic Obstructive Pulmonary Disease (COPD) is a preventable and treatable disease with some significant extra pulmonary effects that may contribute to the severity in individual patients. COPD has been identified as a major health concern worldwide. More than 16 million people have been diagnosed with COPD in the United States alone.<sup>1</sup> Hospital admissions for acute exacerbations have been associated with increased resource utilization as well as increased mortality.<sup>2</sup>

## Comorbidities in COPD

The literature relates a number of diseases to COPD including cardiovascular disease, metabolic syndrome, skeletal muscle dysfunction, lung cancer, and depression.<sup>3</sup> Some underlying diseases share common pathophysiologic pathways with; for example lung cancer is directly linked to smoking, as is COPD.<sup>4</sup> Researchers have identified that the systemic inflammation that occurs in COPD can be directly linked to an increased risk of developing several other disease processes.<sup>5</sup> Yin et al.<sup>6</sup> determined in a meta-analysis that the most common comorbidities in COPD are cardiovascular and cerebrovascular diseases, hypertension, diabetes mellitus, neurological and psychiatric disorders, gut and renal disorders, musculoskeletal disorders, and cancer. Congestive heart failure, peripheral vascular disease, cardiovascular disease, diabetes, hypertension, and edema have shown to have the greatest effect on medical costs.<sup>7</sup>

## Cost burden of hospitalizations due to COPD

COPD patients with comorbid conditions such as hypertension and edema led to an increase in medical utilization and cost.<sup>7</sup> For patients covered by Medicaid, the presence and extent of comorbidities leads to a significant increase in health services utilization.<sup>8</sup> There is also an increase in healthcare resource utilization in COPD patients with the comorbid conditions listed above.<sup>9</sup> Chen et al.<sup>10</sup> reported that 51% of the cost for patients with COPD s could be attributed to comorbidities. Patients with COPD with additional comorbidities are associated with a higher number of emergency department visits and office visits.<sup>11</sup> Patients with COPD are also more likely to be hospitalized with certain comorbidities such as pneumonia, hypertension, heart failure, ischemic heart disease, pulmonary vascular disease, thoracic malignancies, and ventilatory failure.<sup>12</sup> While hospitalization rates for patients with COPD hospitalization rates have stabilized overall healthcare costs have increased significantly which has led to a huge

financial burden in the healthcare system.<sup>13</sup> For example, unplanned 30-day readmission rates contributes to a substantial increase in the total cost of care for patients with COPD and comorbidities in patients with COPD contribute to an increase in unplanned 30-day readmissions.<sup>14</sup>

To fully assess the impact of comorbidities, it is essential to identify rational explanations for the cost burden of COPD and define how to assess the burden of COPD. It is estimated that patients with COPD will have between one to three exacerbations per year.<sup>15</sup> It has been hypothesized that the increase in mortality, morbidity, health-care utilization, and reduction in the quality of life of the patient are associated with a larger financial burden on the health care system and it has been documents that medical costs will increase as the severity of COPD increases.<sup>16</sup> Westney et al.<sup>8</sup> investigated the impact of comorbidities in Medicaid patients with COPD and reported an increased cost for patients with multiple chronic conditions.

## **Conclusion**

The health care field focuses on ways to decrease readmission rates, shorten the acute care hospitalization length of stay, and lower the overall costs of delivering care but it can overlook the impact of comorbidities for each patient and fails to address these for each patient. The complexity of COPD makes it difficult to manage patients consistently and to account for all of the possible cost variables. Researchers should continue to look for links between certain comorbidities and COPD. It is important to continue to perform research, both to examine the physiology of the disease process and to help understand risk stratification with regard to each comorbid process. As COPD continues to cause a tremendous burden on the health care system it will be important to increase resources to fund further research that looks at the incremental cost related to specific comorbid conditions in patients diagnosed with COPD.

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#### about the authors...



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# Precious Cargo

## Lake Charles RTs keep infants safe during Hurricane Laura

by Debbie Bunch



Louisiana RTs have certainly seen more than their fair share of hurricanes over the years, but last August it seemed as if even they would experience something new. Not one storm, but two were headed in their direction, and when you add a respiratory pandemic to the mix, it was clear they were going to have their hands full.

Thankfully, one of those storms, Marco, fizzled before it could do much damage, but the other, Laura, was destined to become one of the strongest hurricanes to ever make landfall in their state. With maximum sustained winds topping 150 mph, it hit Cameron, LA, in the early morning hours of Aug. 27 as a Category 4 storm. Lake Charles, just 50 miles to the north, was next.

### Ready to roll

By the time Laura barreled into this city of 80,000, those winds were blowing at 120–135 mph — equivalent to an EF-2 tornado — and kept it up for more than an hour. But the respiratory care department at Lake Charles Memorial Hospital was ready. Arthur Brunson, Jr., MED, RRT, CPFT, who recently joined the facility as its director of pulmonary medicine, kept staff at the main hospital and its three satellites, including the Lake Charles Memorial Hospital for Women, posted as new developments arose. No stranger to crisis situations — he had experienced Hurricane Dolly while living in McAllen, TX, and Hurricane Isaac while in New Orleans, and he had most recently spent about three months working at the NYC Metropolitan Hospital during the height of the COVID-19 crisis in New York — the AARC member knew he had to keep his patients and his staff as safe as possible.

Brunson and his therapists began by storing computers and equipment away in the event of water damage, and the department also started winding down their outpatient clinic operations, including a pulmonary function lab. They increased the number of oxygen cylinders in the department as well to ensure they could care for the 148 patients who were ultimately left in the hospital, including eight on ventilators, 17 on BPAP machines, and five on Airvos. Staff on the night shift were asked to come in a few hours early on the day the storm was scheduled to hit to ensure they would be there well before the worst occurred, and staff on the day shift for the next morning were also asked to arrive early. Everyone

was advised to bring a change of clothes and other personal items they might need should they be stuck at the hospital for a prolonged period of time.

Administrators initially thought patients at the women’s hospital — including 19 infants in the neonatal ICU (NICU) — would be able to shelter in place, but that soon proved to be unadvisable. “On Wednesday, August 26, 2020, by 3 p.m., the day of the storm, the news reports now rated the storm a Category 4, and we knew that this would be a catastrophic storm with the potential for an un-survivable storm surge,” says Brunson. The decision was made to transfer all patients to the main campus, which was further north.

Those tiny babies were of most concern. Brunson says it was all hands on deck to ensure they got there safely. The local ambulance company was called in to assist, and the hospital also enlisted the help of the sheriff’s department, city police officers, and paramedics. “Elizabeth Lund, CRT, and Erik Heyd, RRT, are our NICU transport therapists,” he says. “They transported the most critical, intubated babies with the transport team.” Paramedics handled the rest of the infants, while the other RT in the NICU, Julie Bruce, RRT, stayed behind at the women’s campus to help coordinate the evacuation of patients and equipment.



## Two hours later

The plan was to house the NICU infants on the sixth floor of the main hospital — and to get the equipment and personnel they would need for their care there before they arrived. Laura had other ideas. The storm was moving so fast by then that the evacuation team knew there was no time to waste. Getting the babies to safety must take priority. “As the weather conditions continued to worsen, the speed of the evacuation of the women’s campus increased,” says Brunson. “The NICU patients began to arrive ahead of the equipment.”

Thankfully, many of the RTs on staff at the main hospital had been cross-trained for the NICU and were able to handle the infants until the NICU therapists could arrive. Brunson, along with staff members Thomas Goodaker, RRT, Brittany Bordelon, RRT, Kara Fisher, RRT, and Pamela Batista, RRT, sprang into action, setting up several ventilators and calibrating them to work with the tiny patients heading their way. The temporary NICU was located in the hospital’s pediatric ICU, which facilitated the transition. Still, Brunson says it was a challenge to get the unit up and running in an area that was not designed for a NICU. “We had to use all of our resources to make this work,” he says.

The main hospital RTs received all of the NICU babies and set them up on the appropriate ventilator settings and supplies while the NICU RTs gathered all of the materials their patients would need to receive care on the main campus. Within just two hours, all the babies were tucked into their new beds in the main hospital.

## **Range of needs**

The infants had a range of needs. Of the 19 babies who were transported, three were intubated, three were on nasal CPAP, and four were on Vapotherms. They ranged in weight from just one pound to seven pounds. Another infant who was on oscillatory ventilation and inhaled nitric oxide therapy had been transferred to another hospital earlier that day.

As the eye of Laura got closer and closer, the three NICU RTs settled in to weather the storm with their young charges and the rest of the team. "They continued to set up the necessary equipment, assess their patients, and assist the nurses with whatever they needed them to do until all of the patients were settled," says Brunson.

The weather began to worsen around 10 p.m. Rain and wind could be heard at the nurses' station in the center of the unit, and by 3 a.m., when the eye wall was nearly upon them, they began to feel the building sway. At one point in the night they were afraid the windows up in their sixth floor location were getting ready to break. Erik Heyd quickly helped the nurses move the infants and all their equipment as close to the hallways as possible. "The nurses placed mattresses from the adult beds in front of the windows to help protect the babies if the windows shattered," says Brunson.

Not surprisingly, the parents of their young patients were beside themselves with worry. Brunson says the neonatologist and two neonatal nurse practitioners who were there throughout the storm kept the parents informed as best they could, providing updates on their children throughout the night.

## **Another moving day**

Sometime during the night, the hospital lost power and the facility grew hot and humid. Backup generators were called into action to cool critical areas. All of the city's water plants were severely damaged, too, so the hospital had no water. Staff from the facilities and plant operations departments collected rain water for staff members to use to flush the toilets. A couple of days would pass before water trucks would arrive to fill the hospital's storage tanks. The facility itself weathered the storm with only limited damage to some windows and the roof of the elevator penthouse, but with limited services, the decision was made to evacuate the main campus.

The women's campus also fared well structurally, but the facility's plant was significantly compromised, which meant power and air conditioning to the building were out there, too, and would be for some time. It was clear that the 19 infants in the temporary NICU in the main hospital could not go back there and would once again have to be relocated, this time to other hospitals further away from the storm zone. The Lake Charles staff got them ready for their next journey, and staff from the receiving hospitals came to pick them up. Brunson says his RTs provided the transport teams with detailed reports on each patient.

As for the city of Lake Charles, it is now in recovery mode. In the end, the winds were deadlier than the storm surge, and the city was left with significant damage to buildings and other structures. Arthur Brunson says several of his therapists have been dealing with damage to their own homes.



Thomas Goodaker shares these photos of storm damage to his home.

## Front and center

A lot has been written in recent months about the health care heroes who have made a difference in the COVID-19 pandemic. Respiratory therapists are certainly among them. The parents of 19 newborns in Lake Charles, LA, would say hurricanes bring out the health care heroes, too. And once again, RTs are front and center. Thanks to their efforts on the health care team, those infants will have a great story to tell their grandchildren about how they survived a hurricane in the midst of a pandemic during their first days of life.

*The AARC's Disaster Relief Fund has been activated to support AARC members who suffered property damage during Hurricane Laura. If you are an AARC member who has been affected by Hurricane Laura or would like to donate to the fund, read more [here](#).*

## Wherever life plants you, bloom with grace.

by Karen S. Schell, AARC President, DHSc, RRT, RRT-NPS, RRT-SDS, RPFT, RPSGT, AE-C, CTTS



Who would have thought we would be where we are today with our profession and the pandemic? I can honestly say that I am proud of your grace during this time.

What does it mean to embody grace? Whether we achieve it and in what form we embody it doesn't really matter — grace doesn't demand perfection, it just demands mindfulness. The goal is to be aware of it, seek it, value it, embrace it, and avoid those who try to rob you of it.

This is what grace means to me: If someone has your true best interests in mind, they'll speak with love, with respect, and with grace. We all could stand to be a bit more graceful with ourselves as well. We all have our own insecurities, which may cause us not to operate at our highest level. Loving yourself enough to know that you deserve to be treated with respect, then and only then will you be able to gain the respect of others. Others may have a lack of grace, but we can still wish those people the best. Forgiveness can liberate you from pain, anger, grudges, and negativity, leaving an open space for love, beauty, happiness, gratitude, and happiness. Moving forward with a spirit that knows its worth and its value brings us to a higher place. Grace is important to me and is a gift that leads me to surround myself with more loving people.

This year has been a trying time for all of us. The pandemic, the political uncertainty, and the unknown of what lies ahead all weigh heavily upon us. Our profession has risen to care for our patients, cope with uncertainty, and prepare for the unknown future. Our strength comes from each other and our commitment to providing the best care for our patients. We have been pulled together in ways we never imagined, physically, emotionally, and spiritually. We have endured long hours, short staff, lack of equipment, and loss of life. And we have done it, in my opinion, with the utmost grace. We are here for the long haul. When dealing with life's obstacles that have been thrown at our profession, we all cope in different ways. Some buckle under the pressure, others feel weak or out of control. It is important that we build our strength together. We have the opportunity now to show our grace and reach out to each other, our patients, our communities, families, and co-workers.

Take a moment to reach out to others during this time — we all have grace to share. Strong, high-quality relationships with people bring greater happiness to all of us. Practice mindfulness and pay attention to yourself and your response. It can help ease stresses in yourself and others. Allow yourself to be

vulnerable. A person who opens themselves up learns what real friendship, love, trust, and sincerity feel like. This gives you wisdom to judge situations from a place of emotional strength. Enjoy your own company. Once you know yourself, you can learn to make the best of all moments and to enjoy others. This is our time, these are our moments, so make the best of yourself by accepting the moment and bloom with grace. We did not ask for this time, but we can make the best of the circumstance with kindness, acceptance, and care wherever we are planted.

Thank you for the last two years as your president. This time with you has brought me a new appreciation for the individuals who live and work daily in this profession. Your passion, strength, genuine caring from the heart, and your grace will always be with me. I see a time ahead when we move past these current circumstances, when the world will see the profession as we all know it to be. May your grace guide you to be the best you can be, wherever you are planted. All my love to you who have chosen to rise to your potential and to the potential of the profession.

Karen

### **about the author...**



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# Understanding Hospital Boards

by Anthony L. DeWitt, JD, RRT, FAARC



Big wigs. VIPs. Head honchos. There are lots of names for people who get appointed to a corporation's board of directors. For the most part, people who are appointed are selected based on their business acumen, willingness to serve, and ability to contribute to the management of the corporation. In some organizations, like the AARC, the Board is elected by the membership and exercises its control through officers. That arrangement makes the AARC responsive as a business to the needs of its membership. The AARC has had consistently excellent management for many decades.

In a hospital, however, the board is normally made up of people from within the community who are selected by other board members and voted onto the board by those members. Board membership is an honor and a privilege that carries with it significant responsibilities. Being selected is recognition that a person has skills and expertise that are useful to the corporation, and indicates a belief that their guidance may be helpful to that organization.

When I was the director of the cardiopulmonary department at Blessing Hospital, in Quincy, IL, our hospital had a very active board of directors. It was composed of people from several of the larger employers in the city, and all of those employers had a vested interest in keeping one of the city's hospitals running smoothly and efficiently. As a director, I learned just how important a board can be.

Coming to rural Illinois from metropolitan Florida, I was used to much higher prices for things like pulmonary function tests (PFTs) and oxygen therapy. When I suggested increasing these prices to bring the hospital up to the national averages, I was told that it was useless to try this because the board would not agree. I failed to understand that. How could the board not want the hospital to charge enough to make money? Later I realized cost-containment was an important part of what the Blessing Hospital's board did. The board had an equation that matched the return on investment on a piece of clinical equipment (like a PFT machine) against the expected number of procedures and the amount of time it took to do the tests. Prices were set in a very narrow range, and any upward departure had to be scrupulously validated. By enforcing these policies, the board members ensured that the pricing decisions made by the hospital's officers and administrators were truly benefitting the community.

While most people think of board members simply as very important people in the community, they fail to understand their role in the management of the organization. Board members have duties and

obligations to either their stockholders (in a for-profit hospital) or the public (in a not-for-profit hospital). Those duties include, among other things:

- Selecting the chief executive and chief fiscal officers. These individuals keep the organization in the black and oversee the hospital's continued operations. The board evaluates the performance of the CEO and CFO, as well as any officers it appoints. Hiring and supervising the CEO may be its most important job.
- Establishing policy guidance on goals and objectives. In essence, the mission statement of the organization is the product of the board of directors, and it has a duty to ensure that it sets the objectives and establishes the policies that will ensure community service obligations are met.
- Ensuring that the corporate form of the hospital is appropriate for the times. Some boards have converted their not-for-profit hospital to a for-profit entity by selling a hospital's assets. Often this is done when it becomes obvious to the board that the ongoing operation of the hospital simply cannot be sustained in its current format.
- Developing, overseeing, and monitoring the financial performance of the organization and approving any audits done by the hospital's independent auditors. In this way, the board ensures both that its policies are working and that its service and financial objectives are being met.
- Being accountable to the public (for a not-for-profit hospital) or to the stockholders (in a for-profit hospital) for the operation of the organization. This includes ensuring that the hospital is operating within the bounds of the law and that its corporate compliance program is effective.

In addition to these duties, board members can sometimes be subject to personal liability for errors and omissions. Directors of nonprofit corporations are fiduciaries. A fiduciary is someone in a position of trust who owes a duty of good faith and truth-telling. They have a duty to act for the benefit of the community and the nonprofit organization — not for themselves. Because not-for-profit board members are generally volunteers, board members can usually only be held responsible for intentional misconduct or reckless disregard of their duties. Those duties include putting the corporate interests first, paying attention, and adhering to the organization's bylaws.

### **No advancing personal interests**

Board members must be loyal to the organization. They must act for the benefit of the organization and the community it serves. They cannot advance their own interests. A board member who insisted, for example, that the hospital pay \$2.00 more per sheet to buy linens from his warehouse rather than put those items up for bid would be violating his fiduciary duties through "self-dealing." In a for-profit setting, he could be sued. In a not-for-profit setting, the state's attorney general could move to oust that board member, or the other board members could take that action.

### **Paying attention**

Board members must be informed prior to making decisions and understand both the financial and legal implications of corporate actions. For example, while car dealers routinely pay a "finder's fee" to customers who send them new customers, such action is a violation of the anti-kickback statute in health care. Board members cannot apply the same rules from their business to the hospital's business. Board members regularly review the organization's finances and its policies and objectives. They hire general counsel to keep them operating legally. Where a board has good records of its discussions preserved in its organizational minutes, there is little chance that the board members can be held liable for a failure to pay attention.

### **Sticking to the bylaws**

Every corporation has bylaws and articles of incorporation that limit how the organization can act. When a corporation does things forbidden by its charter, it is acting ultra vires. A board that approves such action violates its fiduciary duty because taking these actions put its very corporate existence at risk.

While shareholders have the ability to sue the board of directors of a for-profit hospital in what are called shareholder derivative suits, the only person that can challenge a not-for-profit entity is the state's attorney general, who has the duty of monitoring these organizations and ensuring that they behave appropriately. Of course, where a not-for-profit corporation uses its status to shield its officers and directors from tax liability or steals from the entity, law enforcement and even the Internal Revenue Service can get involved.

If you thought being a board member was largely a ceremonial duty, you now see that board members play a valuable role in ensuring the hospital (or really, any business) stays on the straight and narrow. That's why having well-qualified board members is important, and why board membership is both an honor and a responsibility. The jobs of hundreds are held in board members hands.

### **about the author...**



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## RC Currents

### IN THE NEWS



#### **Transitions: Long-Time AARC Staff Member Passes Away**

The AARC was saddened to learn of the death of long-time AARC staff member Dale Griffiths, who passed away on Sept. 30 after a long battle with multiple health issues.

“Dale was a kind and decent man,” says AARC Executive Director Thomas Kallstrom, MBA, RRT, FAARC. “He was respected by his coworkers and many in the RT community. He may have been soft-spoken, but his words and actions showed how much he cared about his work and coworkers. He will be missed.” An Honorary Member of the AARC, Griffiths graduated from the University of Nebraska in Lincoln in 1977 with a bachelor’s degree in journalism. He joined the Association in 1984 as the production supervisor for RESPIRATORY CARE. Former AARC Associate Executive Director Ray Masferrer, RRT, FAARC, hired him for the job.

“Dale knew his job well and he agreed with our vision to expand the publication, make its production more effective, and begin using new technology as soon as it became available,” he says. A few years later, the AARC decided to tap into Griffiths’ marketing expertise and he became manager of marketing.

“The internet/digital era was just taking root and rippled through all AARC activities,” says Sam Giordano, MBA, RRT, FAARC, who was then executive director of the Association. “Dale helped guide and implement the many changes we now take for granted in how we publish, promote, and communicate information regarding AARC projects and activities.” Giordano remembers Griffiths as someone who always kept the patient at the forefront of his mind in everything he did. “Above all, Dale was patient-centric,” he emphasizes. “He always knew AARC was helping our patients, albeit indirectly, by helping our members on the front line of patient care, education, and research.”

Griffiths continued to lead marketing efforts at the AARC until 2004, when he was promoted to director of business development. He served as executive editor of Allergy and Asthma Health, a magazine published by the AARC for people living with allergies and asthma, and he played a key role in product development at the Association.

“Dale did go on to grow into more of an all-around marketing guy and developed products and showcased those products,” recalls former AARC Associate Executive Director Sherry Milligan. “One of the projects he was especially proud of was the Peak Performance USA educational tool about asthma.” She says he was also highly admired by the Association’s vendor community. “He did a lot of collaboration with the manufacturers and pharmaceutical companies and made some great friends across the country and around the world.”

AARC members, however, may have been most impacted by the key role Griffiths played in promoting Association programs that were among the most popular with the membership. “Dale worked tirelessly on making Respiratory Care Week a financial success through his selection of merchandise and promotion of the event,” says former AARC Associate Executive Director of Education and Management Bill Dubbs, MHA, MED, RRT, FAARC. “He was the person who marketed and coordinated the production of Professor’s Rounds as the AARC entered distance learning and taught me the ropes when I assumed responsibility for that program.”

Dubbs says Griffiths also successfully marketed the IISP independent study packets, webcasts, and the CRCE continuing education programs relied upon by therapists to meet their continuing education requirements, and he was integral to the promotion of the Uniform Reporting Manual and Human Resources Studies over the years. “Dale cultivated exceptional professional relationships with many AARC member volunteers and went out of his way to make sure their needs were met when they were in town on AARC business,” says Dubbs.

AARC Chief Business Officer Timothy Myers, MBA, RRT, RRT-NPS, FAARC, remembers Griffiths for the guidance he provided to him when he first came on board in the Executive Office. “Dale took me under his wing when I joined the AARC in 2012 to provide insight and guidance on how non-profits worked and operated in the non-traditional business areas of products and advertising,” he says. “We never dreamed when he took a few days off for a minor surgery that it would lead to numerous health issues and his retirement from AARC. I will never forget his infectious smile and love of Nebraska football.”

In addition to his work with the AARC, Griffiths was active in his community, serving on the Coppel, TX, 2030 Vision Steering Committee and the Valley Ranch Association board of directors. He also served as president of both the Coppel Public Library and Friends of the Library Board of Directors. He once received a special "Old Scout Award" for continuing acts of kindness" from his hometown of Wallace in Nebraska.

For the hundreds of AARC members who knew and worked with Dale Griffiths over the years, his loss is personal. But every AARC member who has taken advantage of Association programs like the Uniform Reporting Manual, National Respiratory Care Week, Professors’ Rounds, and more can thank him for his service to their Association and their profession.



## Building a Better Flu Vaccine

Scientists have been working for years now to improve the effectiveness of the influenza vaccine. Researchers from Washington University believe they may have discovered a new path to that goal. The investigators worked from a growing body of evidence suggesting partial immunity developed during previous flu seasons — either through vaccination or from infection — might be causing subsequent vaccination to primarily boost the recognition of those prior strains rather than creating an ability to fight new strains. They developed an approach to assess whether a vaccine activates the kind of immune cells needed for long-lasting immunity against new influenza strains, then used that technique to show that, under the right circumstances, the flu vaccine is capable of eliciting antibodies that protect against a broad range of flu viruses, at least in some people.

Specifically, they found that to get decades-long immunity against the new strains, the flu strains from the vaccine need to be taken to the lymph nodes, where they can be used to train a new set of naïve B cells and induce long-lived memory B cells specifically tailored to recognize the unique features of the vaccine strains. In three volunteers, both memory B cells and naïve B cells in the lymph nodes responded to the vaccine strains, indicating that the vaccine had initiated the process of inducing long-lasting immunity against the new strains.

“Our study shows that the influenza vaccine can engage both kinds of cells in the germinal centers, but we still don’t know how often that happens,” said study author Ali Ellebedy, PhD. “But given that influenza vaccine effectiveness hovers around 50%, it probably doesn’t happen as often as we would like. That brings up the importance of promoting strategies to boost the germinal centers as a step toward a universal influenza vaccine.”



## Vitamin D Doesn't Prevent Severe Asthma in Children

Previous observational studies have suggested vitamin D supplements may prevent severe asthma attacks in children considered at high risk. Not so, report UPMC Children’s Hospital of Pittsburgh investigators who conducted the first placebo-controlled trial to look at the association. They found kids at high risk for severe attacks fared no better when they took vitamin D supplements than when they didn’t.

The study was conducted among nearly 200 children between the ages of six and 16 being treated at seven different U.S. hospital systems. All of the children had at least one asthma attack during the year before the study started. Half of the participants were randomized to receive 4,000 IU of vitamin D per day, and the other half received placebo pills. All of the children had vitamin D levels low enough that supplements should have an effect, if vitamin D truly is beneficial for reducing severe asthma attacks, but

kids with severe vitamin D deficiency were not included since those children required immediate treatment with vitamin D.

Results showed vitamin D did not reduce the number of asthma attacks experienced by the children, nor did it reduce their reliance on inhaled steroids. The study was published in a recent edition of JAMA.



### **ACE2 Cells Abundant in the Nose**

Why do some people with COVID-19 lose their sense of smell? Johns Hopkins researchers publishing in a recent edition of the European Respiratory Journal believe the answer may lie in the olfactory supporting cells lining the inside of the nose. In cell studies, they found the “hook” known as the angiotensin-converting enzyme 2 (ACE2) receptor used by SARS-CoV-2 to latch onto and infect cells is up to 700 times more prevalent in those cells compared to other cells lining the nose and trachea.

The investigators looked at ACE2 levels in nasal tissue specimens from 19 adult men and women with chronic rhinosinusitis, in tissue samples from four people who had nasal surgeries for issues other than sinusitis, and in tissue samples of the trachea from seven people who underwent surgery for abnormal narrowing of the trachea. They found high levels of ACE2 among nasal cells called sustentacular cells, which provide structural support. These cells are located in an area called the olfactory neuroepithelium, where odor-sensing neurons are found. The researchers say this area of the nose may be particularly vulnerable to infection and might be the only infected site even when there are no symptoms.

“Loss of the sense of smell is associated with COVID-19, generally in the absence of other nasal symptoms, and our research may advance the search for a definitive reason for how and why that happens, and where we might best direct some treatments,” said study author Andrew Lane, MD.

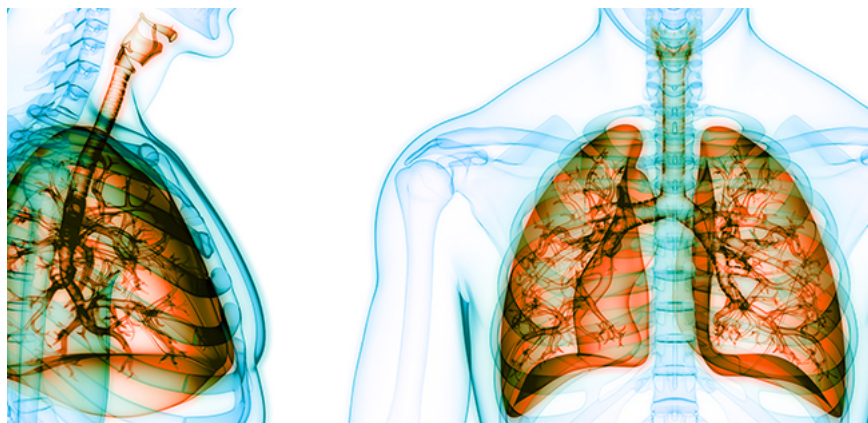


### **Telehealth Concept Improves in the Eyes of Older Americans**

The COVID-19 pandemic has markedly increased the use of telehealth across the nation, and a new poll taken by the AARP suggests older Americans are increasingly getting on board with the concept. The National Poll on Healthy Aging found one in four older adults had made a telehealth visit in the first three months of the pandemic, up from just 4% who said the same in a similar poll taken in 2019. While these older Americans still see some problems with the concept, overall they were significantly more positive about it this year than last year. Among the results —

- 64% reported feeling very or somewhat comfortable with video conferencing technologies, up from 53% in 2019.
- 62% said at least one of their health providers offer telehealth visits, up from 14% in 2019.
- 72% said they are interested in using telehealth to connect with a provider they had seen before, up from 58% in 2019.
- 63% said they are interested in using telehealth for a one-time follow-up appointment after a procedure or operation, up from 55% in 2019.
- 24% said they have concerns about privacy during a telehealth visit, down from 49% in 2019.
- 25% said they are concerned they would have difficulty seeing or hearing the provider during a video visit, down from 39% in 2019.
- About one in three said they would feel comfortable seeing a provider for the first time via a virtual visit, which did not change from 2019.
- About two-thirds felt that the quality of care in a telehealth visit was not as good as an in person visit, again about the same as in 2019.

The survey results are based on responses from a nationally representative sample of 2,074 adults aged 50–80 who answered a wide range of questions online. Laptops and internet access were provided to poll respondents who did not already have them.



### **Emphysema treatment shows promise**

Using lung cells and mouse models of emphysema, researchers from Boston Children’s Hospital have developed a small, engineered peptide molecule called PR1P that protects vascular endothelial growth factor (VEGF) from degradation. VEGF, which is considered key for blood vessel development and keeping lung tissue healthy, goes awry in emphysema, hastening cell death. In this study, mice that inhaled PR1P had significantly increased VEGF levels in their lungs as early as 30 minutes after treatment and levels remained twice as high as in control animals 24 hours later. The researchers also found that PR1P reduced apoptosis in both cell cultures and in live mice, and it reduced lung damage in mice with toxin-induced emphysema that were followed for four and 21 days. Although the study was not designed to assess toxicity, no adverse effects were observed. The study was published in the *American Journal of Respiratory Cell and Molecular Biology* last summer.



## **Asthma and COVID-19**

Does having asthma really put people at increased risk of being hospitalized for COVID-19? According to University of Colorado investigators, the answer may be no. They compared the prevalence of asthma among patients hospitalized for COVID-19, as reported in 15 peer-reviewed studies, with that of the corresponding population's asthma prevalence, then correlated the study's asthma prevalence with the four-year average asthma prevalence in influenza hospitalizations in the United States. They also analyzed the medical records of 436 patients with COVID-19 admitted to the University of Colorado Hospital to evaluate the likelihood that patients with asthma would be intubated more often than patients without asthma.

Results showed the proportion of asthmatics among hospitalized patients with COVID-19 at each study site was relatively similar to that of the site's population asthma prevalence. Conversely, asthmatics make up more than 20% of people hospitalized for influenza in the United States. The authors also found that, among COVID-19 patients, those with asthma did not seem to be more likely to be intubated than non-asthmatics.

The investigators speculate the corticosteroid inhalers used by people with asthma make it more difficult for coronaviruses to enter their airways due to lower levels of expression of ACE2, a protein that binds to SARS-CoV-2. People with asthma that is related to allergies may also have lower expression of ACE2, whether or not they use corticosteroids. The study appeared in a recent edition of the *Annals of the American Thoracic Society*.

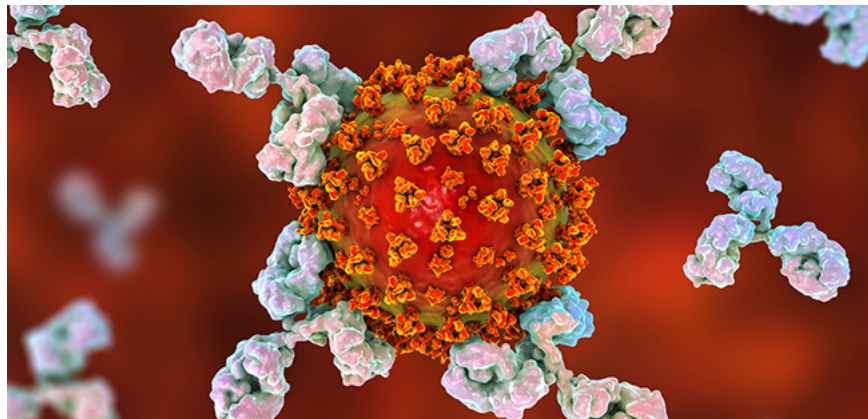


## **AASM Calls for Elimination of Daylight Saving Time**

The American Academy of Sleep Medicine (AASM) has called for the elimination of daylight saving time. In a position statement that was endorsed by a range of other organizations, including the American

College of Chest Physicians, American Academy of Cardiovascular Sleep Medicine, American Academy of Dental Sleep Medicine, and National Safety Council, the AASM makes the case that standard time more closely aligns with the daily rhythms of the body's internal clock. The position statement also cites evidence of increased risks of motor vehicle accidents, cardiovascular events, and mood disturbances following the annual "spring forward" to daylight saving time.

"Permanent, year-round standard time is the best choice to most closely match our circadian sleep-wake cycle," said lead author Dr. M. Adeel Rishi, a pulmonology, sleep medicine and critical care specialist at the Mayo Clinic and vice chair of the AASM Public Safety Committee. "Daylight saving time results in more darkness in the morning and more light in the evening, disrupting the body's natural rhythm."



### **Tocilizumab May Reduce COVID-19 Mortality**

Using their statewide observational database of more than 5,000 patients hospitalized with COVID-19, researchers from New Jersey's Hackensack Meridian Health reported in the August issue of *The Lancet Rheumatology* that the monoclonal antibody drug tocilizumab, typically used to treat rheumatoid arthritis and cancer, improves hospital survival in patients with COVID-19 who are critically ill.

The study included 630 patients who were admitted to the ICUs of 13 Hackensack Meridian Health hospitals from March 1 to April 22, during the height of the pandemic in New Jersey. Along with other treatments, tocilizumab was considered for off-label usage for patients whose respiratory symptoms were declining. Many of those patients were on mechanical ventilation. In the observational study, 210 patients received tocilizumab, and the other 420 did not.

Results showed about a 36% decrease in hospital-related mortality among the ICU patients who received the drug, as compared with patients in the ICU who didn't receive it. The data from the outcomes were adjusted to account for multiple factors, including comorbidities, and was assessed using statistical survival models. Higher C-reactive protein levels predicted which ICU patients gained the most benefit from the therapy. A large multinational, randomized, placebo-controlled Phase 3 clinical trial of tocilizumab is currently underway.



## **CSTS Varies Across the Country**

The American Academy of Pediatrics recommends a car seat tolerance screen (CSTS) for all premature newborns in the United States to identify any heart or breathing risks that could make use of a car seat unsafe in babies whose lungs are not fully developed. A new study in *Pediatrics* finds these tests vary widely from hospital to hospital.

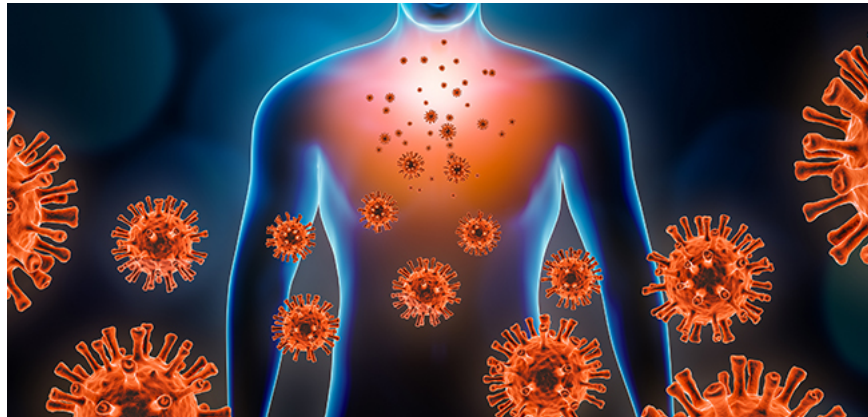
In a survey of 84 newborn nurseries (NBNs) conducted across 35 states, investigators from the University of Maryland School of Medicine found 90.5% reported performing a pre-discharge CSTS. However, NBNs varied in how they selected newborns to be screened and what parameters they used to identify failure on a test. They were also inconsistent in how they dealt with a screening failure, varying in terms of recommending parents use special infant car beds instead of car seats and making referrals to specialists for follow-up monitoring. While most NBNs surveyed said they did repeat a CSTS after an initial failure, the timing ranged from an immediate retest to a minimum seven-day observation before retesting.



## **Readmissions among COVID-19 Patients**

A new study out of the Mount Sinai COVID Informatics Center at the Icahn School of Medicine at Mount Sinai sheds some light on readmissions by patients discharged from the hospital after a bout of COVID-19. The investigators analyzed data on nearly 2,900 patients, finding that more than 100, or 3.6%, returned for emergency care about 4.5 days later. Among that group, 56 required rehospitalization. About half of the patients who came back for further care were returning for respiratory reasons. These patients were more likely than those who did not return to suffer from COPD and hypertension. They also had a shorter initial hospital stay, lower rates of anticoagulation treatment, and were less likely to require intensive

care. Age, sex, and race/ethnicity did not differ between patients who returned and those who did not. The study appeared in a recent edition of the *Journal of General Internal Medicine*.



### **New Guideline on Hypersensitivity Pneumonitis**

The American Thoracic Society has joined medical societies in Latin America and Japan in publishing new guidance on the treatment of patients with hypersensitivity pneumonitis (HP). The condition, which manifests as interstitial lung disease, is often difficult to diagnosis and there has been little consensus on disease definition, diagnostic criteria, and diagnostic approach until now.

“The clinician is often unable to distinguish features of fibrotic HP (f-HP) from those of idiopathic pulmonary fibrosis (IPF), and some patients meeting the criteria for the diagnosis of IPF may in fact have f-HP with pulmonary fibrosis,” said Ganesh Raghu, MD, professor of medicine at the University of Washington and director of the Center for Interstitial Lung Disease at the University of Washington Medical Center. “The high rate of screen failures in patients participating in IPF clinical trials highlights this diagnostic challenge, as pulmonologists may be misdiagnosing patients with f-HP as having IPF, overlooking environmental factors that can contribute to the disease.”

The guideline committee categorized HP into two clinical phenotypes, nonfibrotic and fibrotic HP, and made recommendations for each. Their priority was to help clinicians make a confident and accurate diagnosis of HP. The guideline was published ahead of print by the *American Journal of Respiratory and Critical Care Medicine* in August.



### **How the Cytokine Storm Tampers with Immunity**

COVID-19 severity has been linked to the cytokine storm. Now researchers from Harvard Medical School suggest patients who experience the most severe effects of the disease may also end up with lower long-term immunity from the virus as well. According to their study, high levels of some cytokines may be preventing people from making enough B cells to develop a durable immune response.

The investigators focused on germinal centers — areas within the lymph nodes and spleens where B cells, which are the immune cells that produce antibodies, differentiate. Differentiation and changes in antibody genes are required to build immunity to an infectious agent. When they examined the lymph nodes and spleens of patients who died from COVID-19, they found that the germinal centers had not formed. Because animal models for studying COVID-19 infection were not yet available at the time they began their study, they then turned to previous studies involving mouse models of other infections that induce cytokine storm syndrome, including a malaria model and a model of a bacterial infection in which germinal centers were lost.

In the infected mice, tissue necrosis factor (TNF), one of the most abundant cytokines released in severe COVID-19, appeared to block the formation of germinal centers. When the mice were given antibodies to block TNF or had their TNF gene deleted, the germinal centers were able to form. When the researchers studied the lymph nodes of patients who had died of COVID-19, they found high levels of TNF in these organs. This led them to conclude that TNF may be preventing the germinal centers from forming in people with COVID-19 as well.

The good news is that these findings don't preclude a successful vaccine, because a vaccine would not cause high levels of cytokines to be released in the first place. The study appeared in a recent edition of *Cell*.



### **ATS Issues New Guideline on Chronic Hypercapnic COPD Management**

The American Thoracic Society has released a new clinical practice guideline aimed at advising clinicians on optimal management of patients with COPD and chronic hypercapnia. Published in the *American Journal of Respiratory and Critical Care Medicine* last summer, the document includes these key recommendations —

- Use nocturnal noninvasive ventilation (NIV) in addition to usual care for patients with chronic stable hypercapnic COPD.
- Have patients with chronic stable hypercapnic COPD undergo screening for obstructive sleep apnea before initiation of long-term NIV.

- Avoid initiating long-term NIV during admission for acute-on-chronic hypercapnic respiratory failure, favoring instead reassessment for NIV at 2–4 weeks after resolution.
- Avoid the use of in-laboratory overnight polysomnography to titrate NIV in patients with chronic stable hypercapnic COPD who are initiating NIV.
- Use NIV with targeted normalization of PaCO<sub>2</sub> in patients with hypercapnic COPD on long-term NIV.

“This guideline is needed now because studies in the last few years have shown improved outcomes with NIV for patients with severe COPD,” said the chair of the guideline committee, Robert L. Owens, MD, from the University of California, San Diego. “The guideline incorporates recent studies, while also highlighting priority areas for research.”



### **High Oxygen Levels and the Lung Microbiome**

A new study out of the University of Michigan suggests high levels of oxygen can disrupt the balance in the lung microbiome and lead to potential harm.

The research, which was conducted in mice and funded by the National Institutes of Health, consisted of a series of experiments. First, the investigators exposed healthy mice to high concentrations of oxygen to find out how oxygen affects the lung bacteria. From there, they compared the relative timing of changes in the lung bacteria to the onset of lung injury to determine whether the bacteria were altered by the oxygen or whether they were altered by the injury itself. Results showed the lung microbiome was changed by high oxygen concentrations after just one day, whereas lung injury wasn't detectable until after three days, proving that damage followed the disruption of the microbiome by oxygen. The natural variation in the lung bacteria was also strongly correlated with the variation in the severity of inflammation in the oxygen-exposed mice.

Lastly, the researchers looked at germ-free mice — mice without any microbiome — and found that they suffered no ill effects from high oxygen levels. “It really makes the case that the microbiome is somehow playing a role in lung injury,” said study author Shanna Ashley, PhD. The study appeared in *Science Translational Medicine* last summer.



### **Competing Bacteria in CF May Lead to New Therapeutics**

Competing bacteria in patients with cystic fibrosis (CF) might one day be used against each other, report researchers from the University of North Carolina. The investigators reached that conclusion after examining Type VI secretion systems (T6SS) in both *Pseudomonas aeruginosa*, which typically causes pneumonia in infants or young children with CF and persists for life, and the *Burkholderia cepacia* complex, which only affects teenagers and adults with the disease. Their experiments suggest the T6SS of *Pseudomonas* fends off the T6SS of *Burkholderia* in kids, but as *Pseudomonas* persists in the lungs overtime, it loses its ability to fight that fight, letting *Burkholderia* gain a stronghold. They believe targeting the secretions systems of these two bacteria could lead to new therapeutics to prevent the infections from occurring. The study was published in *Cell Host & Microbe*.



### **Influenza Ups Risk for Heart Complications**

According to a new study conducted by researchers from the CDC, serious heart complications occur in about 12% of patients with influenza. The study, which was conducted by Eric Chow, an infectious diseases fellow at the University of Washington who previously worked as an epidemic intelligence service officer for influenza at the CDC, examined data on more than 80,000 adult patients hospitalized with flu over eight seasons. Overall, about 30% of the 12% who developed serious heart complications were admitted to the ICU and 7% died during their hospitalization. Among patients hospitalized with the flu, 5% had a cardiac complication despite having no documented underlying conditions. The study was published by the *Annals of Internal Medicine* in late August.



## COVID-19 Safety Measures Improve Asthma Outcomes

Could the social distancing, masking, and improved handwashing measures associated with COVID-19 have led to fewer outpatient and inpatient visits for asthma? According to new research from investigators at the Children's Hospital of Philadelphia (CHOP) and the Hospital of the University of Pennsylvania, that may be the case. When they compared the 60 days prior to the first stay-at-home orders in the Philadelphia area to the 60 days after, they found a 60% decrease in the total daily asthma health care visits across CHOP's Hospital and Care Network, which includes more than 50 primary care offices, specialty care and surgical centers, urgent care centers, and community hospital alliances throughout Pennsylvania and New Jersey.

When they compared cases of rhinovirus after the March 17 orders went into place with the number of cases over the same time period in 2015–2019, they also found that cases decreased after the public safety initiatives were implemented to control SARS-CoV-2. A comparison of pollution levels over the same time frames showed no significant reductions.

"These findings can help inform how we care for asthma patients, not only during this pandemic, but also after we return to a new normal," said study author David A. Hill, MD, PhD, from CHOP. "Asthma is one of the most common chronic childhood diseases, affecting one out of every 12 school-aged children in the United States. We should explore whether enhanced infection-prevention measures have utility in children with asthma, irrespective of COVID-19." The study was published in the *Journal of Allergy and Clinical Immunology: In Practice*.

## Strange but True . . .

**Pollution takes on more blame:** University of Georgia researchers who conducted a genomic analysis have found that antibiotic resistance is being caused in part by pollution. The main culprit: heavy metal contamination in the environment. In their study, soils with heavy metals had a higher level of specific bacterial hosts that were accompanied by antibiotic-resistant genes.

**Picture this:** Researchers publishing in the *European Respiratory Journal* believe doctors could identify more people at risk for heart disease via telehealth simply by having them take several "selfies" of their face and sending them in for analysis. According to the investigators, tell-tale signs of heart disease, such as thinning or grey hair; wrinkles; ear lobe creases; small, yellow deposits of cholesterol underneath the skin, usually around the eyelids; and fat and cholesterol deposits that appear as a hazy white, grey, or blue opaque ring in the outer edges of the cornea, can be seen on the photos. The scientists have developed a deep learning algorithm that uses the photos to predict risk.

**Meow:** Scientists are turning over every stone to find a treatment for COVID-19. The latest attempt comes from Canadian researchers, who have found that a drug used to treat a deadly disease in cats caused by a coronavirus may also be effective against SARS-CoV-2 in humans. The drug is a protease inhibitor that interferes with the virus's ability to replicate, thus stopping it in its tracks. Because it has already been successfully used in an animal model, it can move ahead to further testing in humans.

### **Contribute to the AARC "Transitions" Column**

The AARC "Transitions" column is devoted to sharing news about the passing of AARC members. [Submit news about your colleagues' recent passing using our Transitions online form](#). 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@aac.org](mailto:heather.willden@aac.org).

## Industry Watch



### **New therapeutic to target neutrophils**

Neutrolis, a biotechnology company developing therapeutics that target neutrophils, has announced the development of NTR-441, a first-in-class DNASE1L3 enzyme analog that has the potential to rapidly and systemically clear neutrophil extracellular traps (NETs) for severe cases of COVID-19. NETs are a fundamental arm of the immune system and play an important role in chronic and acute diseases. “We just published a study of patients who succumbed to COVID-19 in *EBioMedicine* published by *The Lancet*. Surprisingly, we found NETs congesting blood vessels in the lungs of all patients,” said Martin Herrmann, MD, PhD, from the University Hospital Erlangen in Germany, who has studied NETs extensively for the past 15 years. “Clearing these NETs with NTR-441 to restore blood flow may help patients survive COVID-19.”

### **Optimizing sleep to improve glycemic control**

Pamela Martyn-Nemeth, an associate professor at the University of Illinois Chicago, has received a \$3 million grant from the National Institute of Diabetes and Digestive and Kidney Diseases to study sleep optimization to improve glycemic control in adults with Type 1 diabetes (T1D). The role of sleep in glycemic control is increasingly recognized in persons with T1D, but specific recommendations on how to improve sleep in this population are lacking. The study aims to determine whether sleep optimization interventions can help those with T1D improve their sleep and glycemic control. The 12-week randomized controlled trial will be conducted in 120 adults with T1D. Subjects in the sleep-optimization group will receive a wearable sleep tracker that can be monitored through a smart app, as well as information about healthy sleep habits and brief phone counseling sessions.

### **Saliva test for COVID-19**

The Clinical Reference Laboratory (CRL) has received FDA Emergency Use Authorization (EUA) for its CRL Rapid Response, a saliva-based COVID-19 RT-PCR test that can be self-collected at home, at work, or in any other setting. The test has been shown in CRL’s EUA studies to be more sensitive and accurate than the standard COVID-19 anterior nasal swab test. It is more comfortable and easier to administer, is not “technique dependent,” and virtually anyone can self-collect an adequate sample for testing, with test results available in 24–48 hours of receipt at CRL. CRL Rapid Response is ready for immediate commercial launch, making it the first large-scale service of its kind focused on the U.S. workforce. CRL has already lined up several partnerships for CRL Rapid Response testing.

### **Convalescent plasma studies get underway**

Johns Hopkins researchers have received \$35 million in funding from the U.S. Department of Defense for two nationwide clinical trials to test the effectiveness of a convalescent blood plasma outpatient treatment. The randomized double-blind trials with a total of 1,100 people will be conducted at more than 20 ambulatory clinics in medical centers across the United States, including the Navajo Nation. The studies are expected to help researchers determine whether convalescent blood plasma therapy can be used to treat people effectively in the early stage of COVID-19 illness or to prevent infection in those at high risk of exposure to the virus at their home or jobs.

### **Funding continues for black lung program**

The University of Illinois Chicago (UIC) has received \$5 million in funding to support the UIC-Shawnee Health Service Black Lung Clinics Program for an additional five years. The grant will go to the UIC Mining Education and Research Center (MinER), which is housed at the UIC School of Public Health. The renewed funding, which is from the Health Resources and Services Administration, will allow the organization to provide evaluations, education, treatment, and other resources to coal miners living in Illinois and Indiana. The MinER Center has also received a two-year, \$400,000 grant from the Alpha Foundation that will allow the center to expand its research on health outcomes among former coal miners, including lung function decline and progression of coal mine dust-related lung disease.

### **Ventilation training solution**

TruCorp, a provider of medical simulation training manikins, has partnered with health care solutions provider Laerdal Medical to bring an easy-to-implement, cost-effective ventilation training solution to the market. The TruVent simulation platform allows users to teach the core principals of ventilation management without the need for a ventilator. The instructor can adjust patient characteristics to train for different scenarios, creating clinically accurate respiratory simulations either in class or remotely. The TruMonitor and TruVent training solutions are available on iOS or Android devices. “In light of the current COVID-19 crisis, the importance of training in the use of ventilation equipment is evident,” said TruCorp Sales and Marketing Director Michael Calo. “Working with Laerdal allows us to deliver a cost-effective, virtual solution to the global health care network. We are excited for a long and successful partnership.”

### **IND issued for stem cell treatment**

Kimera Labs, Inc., has filed an extended FDA Investigational New Drug (IND) application to study the treatment of COVID-19-related inflammatory disease using Kimera’s first-in-class XoGlo isolated placental mesenchymal stem cell-based exosomes. Exosomes have been reported in scientific and medical publications to exhibit anti-inflammatory properties, including recently published articles on their investigational use for the treatment of ARDS secondary to COVID-19 infection. Kimera believes that its strict donor-screening practices, ultra-purification methods, and current good manufacturing practices ensure the quality and purity of its exosome products for the intended IND clinical trial. The company is proposing a 160-subject clinical trial in a non-hospital ambulatory setting.

### **Campaign aims to break over-reliance on relief inhalers**

The Global Allergy and Airways Patient Platform (GAAPP) and its member organizations are partnering with AstraZeneca to launch a global public health awareness campaign to educate asthma patients on the risks associated with over-reliance on short-acting  $\beta_2$  agonist (SABA) reliever inhalers. The “Break Over-Reliance” campaign launched internationally in September with an educational website featuring information that helps patients take action, supports health care professionals to conduct ongoing treatment reviews, and encourages policymakers to identify mechanisms of change at the policy level to improve national standards of asthma management. The campaign provides an evidence-based digital tool, the Reliever Reliance Test (available at [www.rateyourreliance.com](http://www.rateyourreliance.com)), to assess a patient’s reliance on their SABA. The five-item questionnaire is adapted from the validated SABA Risk Questionnaire and is

aimed at helping patients have relevant consultations with health professionals about how to best control their asthma.

### **Emergency ventilator technology available for free**

Researchers at the Department of Energy's SLAC National Accelerator Laboratory have invented an emergency ventilator that uses standard parts costing less than \$400. They believe it could be an affordable option when more sophisticated technology is not available, is in short supply, or is too expensive. "We wanted to build the simplest device that could be effective," said Martin Breidenbach, professor emeritus of particle physics and astrophysics at SLAC and Stanford University, who led the project and hosted the initial studies in his home workshop. While SLAC and Stanford do not produce or distribute the ventilator, they are offering the technology at no cost to others who want to build the ventilator and deploy it after having obtained regulatory approvals. The scientists described the device in a recent paper posted to the *medRxiv* preprint server.

### **NIH to fund TB research**

Researchers at Rutgers University have been awarded a \$20 million grant from the National Institutes of Health to evaluate new point-of-care tests to diagnose tuberculosis (TB). The funds will be disbursed over five years and support early studies of new diagnostic tests, including non-sputum-based diagnostics that use oral swabs, urine, blood, or stool to detect TB. "We hope that by expanding the types of point-of-care diagnostic tests, we can also increase the access and ease with which the disease is diagnosed and help eradicate TB worldwide," said Jerrold J. Ellner, principal investigator of the program and director of research innovations for the Center for Emerging and Re-emerging Pathogens at Rutgers New Jersey Medical School.

### **Multiple agents to be tested in same trial**

The AIDS Clinical Trials Group (ACTG) has launched the ACTIV-2 Outpatient Monoclonal Antibodies and Other Therapies Trial. ACTIV-2 includes both Phase 2 and Phase 3 evaluations of multiple promising investigational agents for treating early COVID-19 in a single trial and will evaluate the safety and efficacy of investigational agents to treat adults who have COVID-19 illness but do not require hospitalization. The study will also enable researchers to assess the correlation between changes in viral shedding and clinical outcomes, leading to a better understanding of whether effective medications can reduce or halt the transmission of SARS-CoV-2 to others. ACTIV-2 is a randomized, blinded, controlled adaptive platform that allows promising investigational agents to be added and removed over the course of the study to efficiently test a variety of new agents against placebo within the same trial infrastructure.

### **Stem cell therapy for ARDS**

Cartesian Therapeutics, a clinical-stage biopharmaceutical company developing cell and gene therapies for cancer, autoimmune diseases, and respiratory diseases, has initiated a Phase 1/2 clinical trial of its lead RNA-engineered mesenchymal stem cell therapy, Descartes-30, in patients with moderate-to-severe ARDS, including that caused by COVID-19. According to the company's research and analysis, this is the first RNA-engineered cell therapy to enter clinical development for ARDS and COVID-19. It is also the first cell therapy to specifically degrade neutrophil extracellular traps (NETs), which are webs of extracellular DNA and histones that entrap inflammatory cells, block alveoli and vessels, and drive the pathogenesis of ARDS and COVID-19.