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AARC Strategic Plan

The American Association for Respiratory Care has a Strategic Plan that includes its Mission and Vision Statements for 2015–2020.

Bookmark this page: http://www.aarc.org/member_services/mission/.

American Association for Respiratory Care

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Patient Safety: First Do No Harm, Accountability, and Behaviors, Oh My…

by Brian K. Walsh, PhD, RRT-NPS, RRT-ACCS, RPFT, AE-C, FAARC

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way . . . .

So begins Charles Dickens's classic work, *A Tale of Two Cities*. The French Revolution had brought the worst of times and the best of times to both France and England. Dickens's words were descriptive of the mood of the world. But these words could be spoken about the state of our profession, health care system, and economy. In many ways, we are experiencing the best of times; at the same time, these are the worst of times.

As to the best of times, approximately 172,000 individuals are currently employed as respiratory therapists, with anticipated growth of 14,900 jobs by 2024. In short, demand for our expertise remains high. Unfortunately, it is not the best of times when medical errors have been blamed for the third leading cause of death[1] and mechanical errors in which warnings were often overlooked by overtaxed caregivers are linked to 119 deaths.[2] I believe our highest priority is the patient safety we bring to respiratory care. In fact, I made it one of my presidential goals.

about the author…

Brian K. Walsh, PhD, RRT-NPS, RRT-ACCS, RPFT, AE-C, FAARC, is president of the AARC.

First, do no harm

Likely the most dangerous phrase in language is "we've always done it this way." I often say in response that we will get what we've always gotten by using this method. As a profession, I am certain we can do better. A second dangerous aphorism is "first, do no harm," not because of the phrase itself, but because of how people interpret it. In fact, "first, do no harm" or the Latin version, "primum non nocere", is often thought to be a part of the Hippocratic Oath, but it is not.[3] In 1860, "first, do no harm" was used to describe the injuries caused by overtreatment often disguised by the disease itself.[4] I think you will find today that in respiratory care, we still tend to provide therapies that do not help and potentially expose patients to added risk.

Like many years ago in medicine, I think you will find today in respiratory therapy, we tend to do similar things. For example, we may routinely provide therapies such as incentive spirometry, airway clearance and/or mucolytics where there is no indication or positive response and which are contrary to some of our clinical practice guidelines.[5-7] Not to mention, these therapies could potentially expose patients to risk for a therapy that should not have been conducted. We could improve the safety profile of our care by simply reducing inappropriate therapy and directing our attention to therapies or practices that do make a difference in the care of patients we serve, such as disease management and pulmonary rehabilitation.

People often translate "first, do no harm" as meaning we should do nothing at all. Because medical errors are the third leading cause of death, we cannot afford to sit back and do nothing, nor can we do it the way we've always done it.

Excellence is to do a common thing in an uncommon way. — Booker T. Washington

We must constantly weigh the potential harm and benefit in every situation. You can start with helping me evaluate your practice and think of ways to prevent errors and improve the safety of the care we provide. We do not want to be a profession known for hurting individuals.

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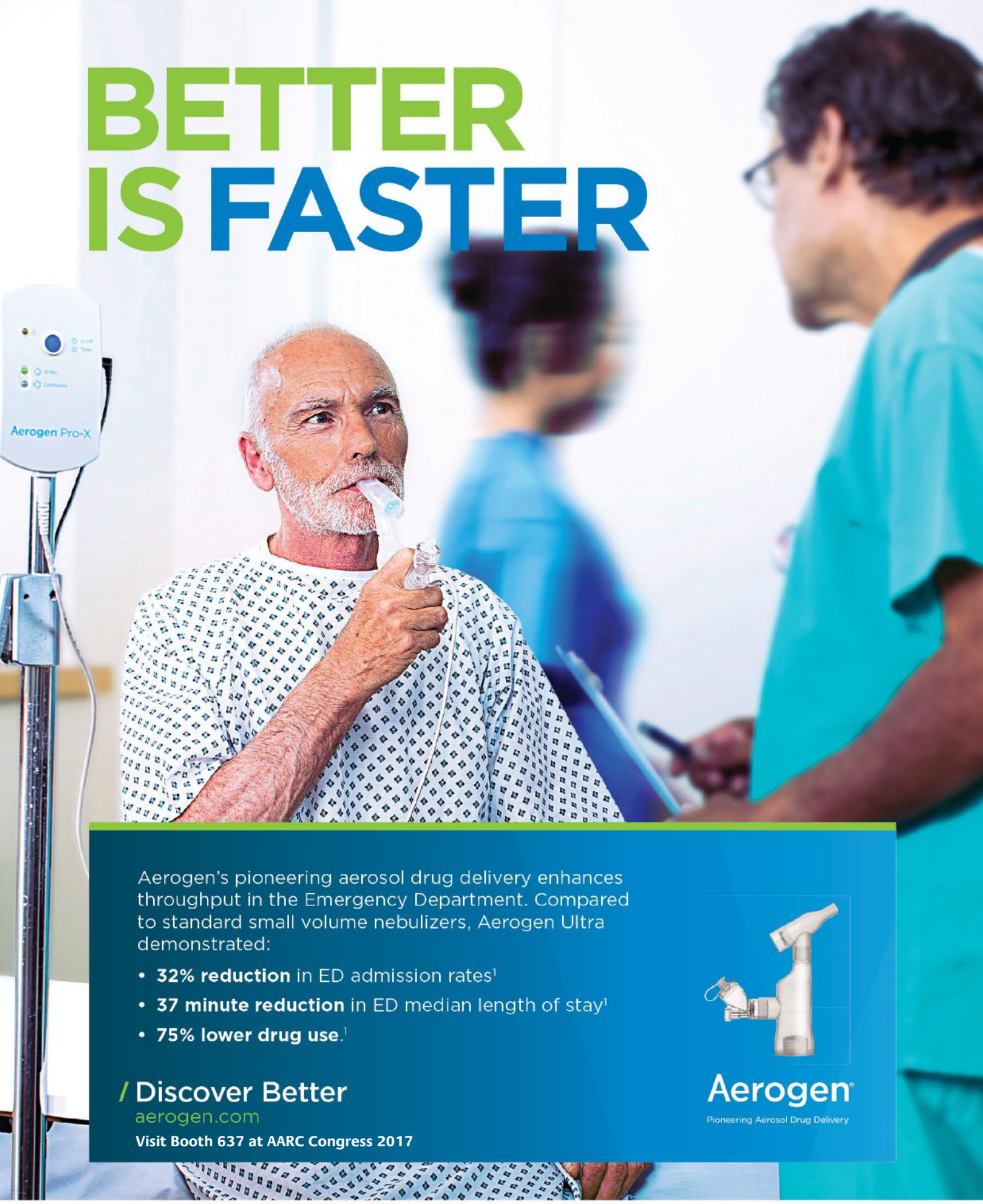

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Table 1 — Accountability for our behaviors

Human Error	At-Risk Behavior	Reckless Behavior
Manage: Process, procedures, training or design	Manage: Remove incentives for behavior, create healthy incentives for the correct behavior, increase awareness	Manage: Remedial, progressive discipline, punitive
Console	Coach	Punish

Accountability

Tactics used in the past to improve patient safety often focused on harsh punishment for medical errors almost regardless of the situation. This approach would cause the removal of both good and harmful clinicians for the same given patient outcome caused by an error. We have begun to put in place a system of accountability and non-punitive disclosure to help us learn from our mistakes and prevent future errors. Often this is referred to as "just culture," created by David Marx (Outcome Engineering, LLC). The concept of learning from your mistakes must take into account the role of disciplinary action and behavioral concepts that lead to errors. Inappropriate use of disciplinary action (too much) or a lack of disciplinary action (too little) can lead to behaviors that do not foster patient safety. Therefore, a fine balance must occur to create a just culture that encourages safety.

Behaviors

There are behaviors I would like us to focus on and understand prior to looking to technology to solve patient safety problems. These behaviors are the basis for the root of error, and we must minimize these behaviors associated with poor patient safety daily. Then you can consider implementing technology that helps you address the behavior that your group struggles with the most.

Before you become too entranced with gorgeous gadgets and mesmerizing video displays, let me remind you that information is not knowledge, knowledge is not wisdom, and wisdom is not foresight. Each grows out of the other, and we need them all. — Arthur C. Clarke

You have heard "to err is human," and our first behavioral concept is human error, which is unintentional and inadvertently causes or could cause harm, a mistake; the second is at-risk behavior, where behavior choices increase the risk of error but the risk is either not recognized or is believed to be justified; and the third is reckless behavior, or what lawyers may refer to as gross negligence, which is a conscious disregard of risk or harm to the patient. All three of these could cause injury or even death, yet history tells us that outcome-based disciplinary action would not be the best choice.

Outcome-based discipline focuses on the level of patient harm. The level of punishment is based on the harm created, but consideration of intent and type of risk is lost. It could in fact reinforce the behavior you are trying to prevent. On the other hand, a rules-based management system is based on the type of behavior and not the outcome, which may reduce the overall risk to the patient and improve patient safety. Table 1 describes the behaviors and management strategies within a just culture environment.

Conclusion

The story is told of an accomplished artist who was applying finishing touches to a bronze sculpture. He kept filing, scraping, and polishing every little surface of his masterpiece. 'When will it be done?' asked an observer. 'Never,' came the reply. 'I just keep working and working until they come and take it away.' — Unknown.

Much the same could be said of our patient safety work as respiratory therapists. We must keep working at our practice to improve patient safety until we retire or expire, because we will never be done. Nor should we ever be done with improving patient safety. The patients we serve, however, will never be the same because of our work. The acorn does not become an oak in a day. It is not one touch of the artist's brush that produces a finished painting. There are always months between seedtime and harvest. Get involved in patient safety programs where you work. Speak up for patient safety, our patients need you and most certainly our profession needs you. Don't give up — stay strong, and keep up the wonderful care you provide. ■

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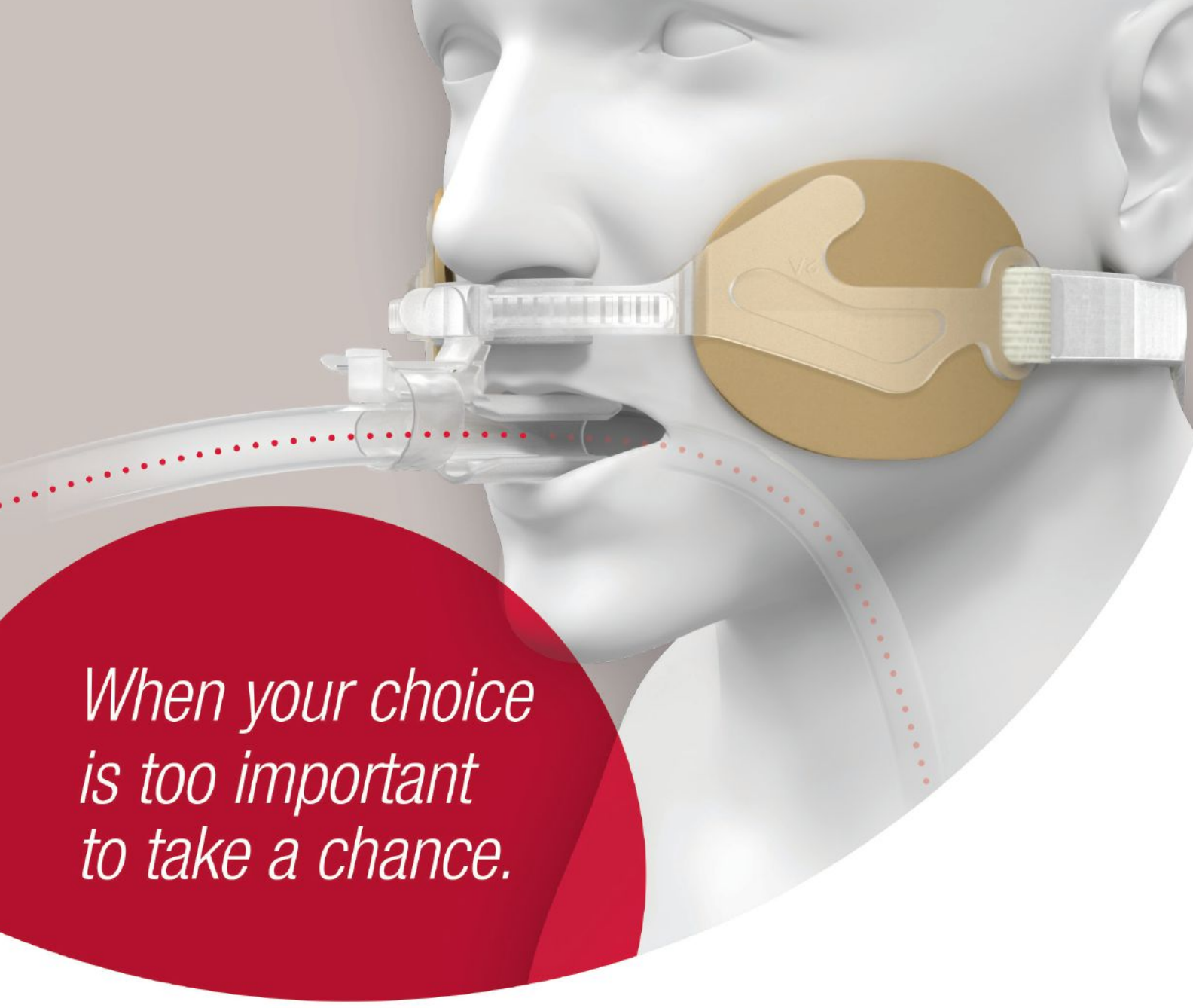

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Safer Airway Initiative – Improving Patient Safety, One Intubation at a Time

by Heather Wright, BSRC, RRT

The Establishing a Safer Airway Initiative is not a new concept — however, the implementation of these programs for safety and high-reliability intubations outside of the operating room has been a movement seen only in the past decade. The Society of Airway Management was established in 1995 to establish a multidisciplinary team "dedicated to the practice, teaching, and scientific advancements of the field of airway management."[1] Larger facilities, such as The Johns Hopkins Hospital and the Veterans Administration system of hospitals, were early adopters of this concept and have been very successful in their efforts. While it has taken community hospitals a longer period of time to gather the funding and the resources to tackle this very important patient safety program, the payoff far outweighs the cost.

A national problem

The Safer Airway Initiative is not about being prepared for the known difficult airway. It is about having a plan for failure to intubate and ventilate regardless of how routine the airway may appear. The National Emergency Airway Registry (NEAR) is an ongoing study of emergency department (ED) intubations with participation from over 25 hospitals in 5 countries. The article "Approach to the Difficult Airway in Adults Outside of the Operating Room" by Ron M. Walls, MD, and Calvin Brown, III, MD, references the data from cohort NEAR III, saying that "in approximately 3 percent of cases, the airway ultimately was secured by a means other than the first method chosen."[2] How many facilities have those adjunct airways already at the bedside for maximum patient safety? How many providers have a "backup" in mind for when things don't go as planned?

about the authors...

Heather Wright, BSRC, RRT, is director of cardiopulmonary services at Calvert Memorial Hospital in Prince Frederick, MD. She recently won the Beacon Award at her facility, in part for her work on a Safer Airway Committee.

Evaluation of need

Our initiative began in 2015 with the vision and leadership of Drew Fuller, MD, MPH, FACEP, RRT, the chief safety officer for Emergency Medicine Associates in the Washington, D.C., area, and an active emergency physician. Fresh off the heels of his successful Safer Sign Out initiative, he presented the Safer Airway idea, and we immediately began our collaboration. A short culture survey was distributed to the respiratory therapists, registered nurses and physicians in our ED, asking them what their perceptions were our current use of airway pathways, equipment availability, and communication during intubations in the ED. The thought of having a well thought out pathway to help us plan for what could happen during an intubation just made sense from a patient safety, resource management, and staff efficiency point of view, and through the survey analysis, staff engagement and support was secured. Unlike other facilities, the birth of this program was not due to the result of a sentinel event or a recent root cause analysis of a bad outcome, but instead the common theme from our staff that "we can always do better." To further support the need of a streamlined approach to airway management, community hospitals of our size (~100 licensed beds) often do not have an anesthesiologist on site during off hours and our in-patient code blue and intubation rates are very low, causing a potential gap in skill set among providers outside of the ED.

Task force

Early in the process, we gained buy-in from Susan Dohony, RN, CPHQ, vice president and chief safety officer

at our hospital. She stated, "As a hospital quality leader and advocate for patient safety, I chose to provide my full support, including funding, for the Safer Airway Initiative. It uses lean principles to organize the steps and equipment in sequencing order as the level of difficulty arises. This initiative fosters teamwork and plan communication, and best of all, there have been no incidents of patient harm related to failed airway management!" In addition to members of the quality and risk management group, we added members of the ED, ICU, and physician leadership, as well as members of the respiratory therapy and anesthesia departments to our Safer Airway Task Force. Rather than recreating the wheel, we carefully selected best practices from the American Society of Anesthesia (ASA), Difficult Airway Society (UK), the U.S. Veterans Administration (OOORAM) program, and global airway experts.

Key components

We focused on the development of 4 key components.

1) Establish a clear "Failed Airway Pathway" with a team-based A, B, C approach.
2) Implement a standardized but comprehensive "airway cart" to assure critical equipment (both basic and advanced) is readily available.
3) Develop team-based practices and utilize a checklist for assuring best preparation and response for difficult airways.
4) Create a robust multidisciplinary education program to assure all team members are competent using the right equipment for the situation, using the right size for the patient, and using the right procedure for placement.

Implementation

Like many other facilities, we already had direct laryngoscopy technology in place. Through the Safer Airway Initiative, we looked to expand on that technology and added a few adjuncts to meet the needs of our diverse provider population who intubate patients, such as flexible fiberoptic scopes and a wider selection of supraglottic airways (SGA). A master list of this equipment was made and used as inventory sheets for restocking the cart after each use, spearheaded by the respiratory therapists. The cart was labeled inside and out to match our Failed Airway Pathway and inventory sheets. Education was conducted with all members of our team using hands-on training, slide presentations, and reference guides. Things like optimal patient positioning, apneic oxygenation, use of $ETCO_2$, and the communication components of plan sharing and readiness were key parts of that training. Knowing when to call for backup is also very important. Recently, a staff therapist, Lynn Gregg, RRT, was awarded the Josie King Hero Award for calling anesthesia to assist in an intubation she anticipated was going to be difficult for the ED physician. That patient had a good outcome due to the quick actions of the team. It is due to engagement and support stories like this that the ED implementation was so smooth. Six months after the ED implementation, we successfully placed a second Safer Airway cart in the ICU.

Takeaways

- DO keep it simple! Avoid complicated algorithms.
- DO engage the staff! Everyone is a stakeholder in this initiative.
- DO use simple kits and SGAs for use in the event of a failed airway until backup arrives.
- DO have a flexible fiberoptic scope on hand for "awake" intubation and for conversion of temporary airways.
- DON'T call it a "Difficult Airway Cart." This cart should be the resource at the head of the bed for every intubation.
- DON'T separate your "routine" and "difficult" intubation supplies.
- DON'T take no for an answer when funding is denied. Continue to advocate for patient safety!

Continuing collaboration

The Safer Airway Initiative does not stop here, and there is no need to reinvent the wheel. I encourage you to visit www.SaferAirway.org for visuals of the toolkit (pathway, cart, checklist, and education) that was developed by hospitals in the Maryland, Virginia, and D.C. region in collaboration with the Emergency Medicine Associates Physician Safety Leadership Group, as well as national airway experts. Safer Airway has been adopted by the Patient Safety Movement as an Actionable Patient Safety Solution (APSS), and the Society of Airway Management has formed a committee to advance formal recommendations for airway safety that will include representation from the American Association for Respiratory Care and other professional health care organizations.

Conclusion

Through the establishment of a team of key stakeholders and the provision of education, the pooling of resources, and the use of best practices already present in your organization, the Safer Airway Initiative can be tailored to fit your needs. There is a moving video on the Patient Safety Movement website (www.patientsafetymovement.org) titled "We Are the Patient Safety Movement" that urges health care providers to "be the change" by "implementing actionable patient safety solutions already established, so we can save thousands of lives and dramatically reduce the cost of health care in America."[3] That speaks volumes about what we do every day. Dr. Fuller emphasizes that "we cannot rely on hope as a model for strengthening safety; we must have high reliability as our standard principle for every day airway." ■

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Clinical Perspectives

Identifying Patient Safety Problems

by Kevin M. McQueen, MHA, RRT, CPPS, CM

Respiratory therapy (RT) departments across the nation often face multiple challenges with competing patient safety improvement priorities from stakeholders throughout their organizations, such as decreasing ventilator-associated adverse conditions and reducing opioid-induced respiratory depression. For any such initiative, the RT department must ensure well-designed processes are in place to reduce the chances that patients will be harmed.

Limited resources, including financial and human capital, make it essential for RT leaders to be thoughtful when selecting patient safety improvement initiatives for their teams. This article offers a brief overview on how RT leaders and frontline therapists can effectively identify and prioritize projects, along with key process improvement methods and tools that can be used to get the most out of the patient safety activities being conducted.

about the authors...

Kevin M. McQueen, MHA, RRT, CPPS, CM, is the director of safety/environment of care and the patient safety officer at Tri-City Medical Center, in Oceanside, CA.

Selecting a patient safety priority project

In an attempt to scale down the endless list of potential projects, RT departments may utilize external or internal data to help determine patient safety priorities. Depending on the project, reviewing both external and internal data sources may be beneficial in providing more robust information during the initial selection phase and throughout the performance improvement sequence.

External data

External patient safety-related data are available at the local, state, and national level, depending on the agency providing the information. Regional regulatory agencies (e.g., Public Health Departments) often provide information related to risks that organizations within the local area may need to address. Nationally, accreditation agencies and patient safety organizations publish high-risk patient safety concerns and process improvement tools that may assist RT departments with project selections. Some examples of external data sources:

- Agency for Healthcare Research and Quality (AHRQ): The website includes several improvement tool kits to assist organizations with improving quality and patient safety.
- ECRI Institute: The ECRI institute publishes an annual list of Top 10 Patient Safety Concerns and Top 10 Health Technology Hazards.
- National Patient Safety Foundation (NPSF): The NPSF Foundation publishes Safety Issues: Hot Topics.
- The Patient Safety Movement (PSM): PSM publishes Actionable Patient Safety Solutions (APSS).
- The Joint Commission (TJC): TJC publishes Sentinel Event Alerts (SEAs).
- The Joint Commission's Center for Transforming Healthcare: The TJC Center for Transforming Healthcare publishes Targeted Initiatives and Targeted Solutions Tools (TST).
- U.S. Food and Drug Administration's Manufacturer and User Facility Device Experience (MAUDE): The FDA's MAUDE database houses medical device reports submitted by manufacturers, importers, device user facilities, health care professionals, patients, and consumers.

Internal data

Internal data come from within the organization and may be either retrospective or proactive depending on how, when, and why the data is collected.

Retrospective or reactive approach: This type of patient safety improvement activity usually takes place only after

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an adverse event occurs. Normally, retroactive data come from chart reviews, data mining, or internal incident reporting systems administered by a hospital's quality or risk management departments.

One example of this type of approach is the risk management tool called root cause analysis (RCA) after an adverse event. RCA is generally indicated for single-event incidents that resulted in an undesired outcome, such as a patient being injured following a failure to respond to a ventilator alarm on a nursing care unit or an endotracheal tube becoming accidentally displaced during a transport.[1] RCA can also be used to investigate "near misses."

RCA brings together care providers who were involved in or have knowledge and experience related to the specific event that occurred. Following a step-by-step process to thoroughly analyze the patient care provided, the RCA team looks for factors along the process that either did not go as expected or may have significantly contributed to the negative outcome. The primary goal of the RCA should be to identify the critical factors that led to the adverse event or near-miss processes, not to look for an individual to blame for the adverse event. Once the key contributing factors or root causes are determined, the RCA team can work together to design processes and systems to mitigate or prevent future harm.[2]

A limitation with using a retroactive improvement model is that the organization waits for adverse events to occur and then attempts to prevent future similar events. The overlapping goal of patient safety programs should always be to prevent harm and adverse events from occurring in the first place. As such, organizations should utilize proactive systems in addition to retrospective models.

Proactive approach: Instead of a retroactive downstream approach, being proactive starts upstream prior to any adverse events. Proactively assessing for risks in combination with an effective mitigation program is often seen as a superior means of improving patient safety because it focuses on the complex health care processes in advance of the care actually being delivered.[3] Haraden believes that health care organizations need to focus more on the conditions that are creating the likelihood of a defect or error occurring.[3] Once the risks are determined, process improvement teams can then work together to design highly reliable processes that effectively reduce the risk of adverse events.

One example of how RT departments can establish a proactive culture of safety is by utilizing a program called a Comprehensive Unit-Based Safety Program (CUSP). Created by Dr. Peter Pronovost at Johns Hopkins Hospital, the CUSP model is geared toward engaging frontline employees in early identification of system defects and empowering unit-level frontline staff to identify risk mitigation strategies.

CUSP is built around a set of steps that include educating employees in the science of safety, how to identify defects or process failures, engaging key stakeholders, learning from defects or errors, and implementing evidence-based clinical interventions along with teamwork tools to improve care and patient safety.[4]

Performance improvement methods and tools

Success or failure of performance improvement projects depends on several factors. Having the full support of an executive member along with a highly motivated and educated team is essential to long-term success. The method or tool selected often depends on the type of project, resources available, and training of the facilitators. There is no single best approach.

Failure Modes and Effects Analysis (FMEA): Usually indicated for situations when organizations desire to implement new programs or to improve a current process, FMEA is a tool for proactively identifying potential failures of a process. While FMEA is similar to RCA in the factors to be examined, and these tools are often confused with one another, FMEA serves a different purpose. The Institute for Healthcare Improvement states that "FMEA is a systematic, proactive method for evaluating a process to identify where and how it might fail and to assess the relative impact of different failures in order to identify the parts of the process that are most in need of change."[5] An effective FMEA assesses the following steps: failure modes (what could go wrong?), failure causes (why the failures may happen), and failure effects (the consequences of each potential failure), followed by creating effective methods to mitigate failures that the team determines to be significant.[5]

Plan-Do-Study-Act (PDSA) / Plan-Do-Check-Act (PDCA): This is a systematic approach based on action-oriented learning to improve processes in a rapid cycle in which the group tries something, evaluates it, and then improves on it in a short time frame. PDSA/PDCA should include the following steps: Identify a goal, establish a team, create a change plan, perform a test of the potential changes, check or analyze the results, and act to sustain the improvements. PDSA/PDCA may be used as a hospital-wide model for continuous improvement, for new processes or program creation, and as an easy-to-use method of implementing effective change.[6]

Lean & Six Sigma (LSS): Traditionally found in manufacturing, LSS has also been found to be useful in helping health care organizations optimize workflow efficiencies, increase production, and reduce waste.[7] The Lean aspect focuses primarily on reducing waste, such as excess movement, re-work, or overproduction in processes; while the Six Sigma statistical tools help teams identify opportunities for variation in processes, which is considered a primary root cause of defects.[7] Recognizing where variation can occur will help the team reduce variation and thus defects. LSS is a disciplined, data-driven method for eliminating waste, limiting variation, reducing defects, and improving consistency.[7]

Summary

RT leaders need to be selective when focusing limited resources on performance improvement endeavors. Becoming knowledgeable in the different methods and tools available can improve project outcomes. Having executive support and an engaged and educated team are two of the most important components when trying to improve patient safety. Remember that patient safety is a journey, and not a destination. ■

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Patient Safety Is No Accident

by Anthony L. DeWitt, JD, RRT, FAARC

In today's litigious world, cute slogans like "patient safety is no accident" will not insulate a facility from liability. Patient safety, like safety in general, begins with clinicians having the proper attitude. It is every therapist's responsibility to protect patients from known, foreseeable harms.

Courts often say that the touchstone for liability under negligence is foreseeability and tend to limit liability to those situations that are foreseeable. Sadly, foreseeability is determined after the fact, not before, and so things that do not look foreseeable at the outset tend to look that way afterward. For example, in Piper v. Bear Medical Co., 180 Ariz. 170 (1993), the plaintiff filed a strict product liability action against Bear Medical because its ventilator was alleged to be defectively designed. As originally designed, the one-way valve on the unit could not be inserted backwards. However, respiratory therapists added bacteria filters to the ventilator using rubber adapters that effectively defeated the safeguard. At some point, a nurse knocked the filter off and reattached the tubing incorrectly. Due to the rubber adapters on the bacteria filter, the one-way valve was inserted backwards. The patient could inhale, but not exhale. As might be expected, this did not produce an alarm, and the patient suffered profound neurological damage as a result. This is a product of poor human factors engineering. If something can be done wrong, it is foreseeable that it will be. Bear designed the ventilator so that this particular harm could not occur, but simply did not go far enough. It failed to anticipate that adapters could defeat its fail-safe.

In pursuing the manufacturer, the plaintiff showed that Bear knew that its products were being altered with bacteria filters; in addition, the rubber adapter used was also made by Bear and Bear had no warning on the machine to alert therapists and nurses to this potential danger. The plaintiff prevailed on the product design and failure to warn claims and obtained a $10,000 compensatory verdict as well as a $750,000 punitive damages verdict (the punitive damage award was reversed on appeal).

Was it foreseeable that a nurse might knock off a bacteria filter? Anyone who has worked in the cramped space of an ICU room knows that it was. Likewise, it was foreseeable that someone would, in trying to minimize the impact on the patient, pick the filter back up and reattach it. Even though it had not happened before, the fact that the ventilator was modified with Bear parts and an after-market bacteria filter was enough to demonstrate liability.

Thus the question becomes, "How does a hospital, or a department within it, identify potential hazards and interdict them?" The answer is multidimensional. First, patient safety has to be the first principle of the department. Every action must be taken with due regard for the patient's safety. This starts with proper staffing and with back-up plans to obtain relief staffing in situations where emergencies exist. A hospital that cannot provide enough bodies to care for patients is inherently unsafe.

The next place patient safety should be implemented is in the hiring process. New hires should be screened for a dedication to patient safety, and everyone should

about the author...

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Studies available upon request. The generally cleared indication for the ResQPOD ITD available for sale in the United States (US) is for a temporary increase in blood circulation during emergency care, hospital, clinic, and home use. The studies referenced here are not intended to imply specific outcomes-based claims not yet cleared by the US FDA.

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be told that if they do not comply with patient safety policies or if they practice in an unsafe manner, their employment will be terminated. The hospital has a duty to its patients to protect them, and that starts with hiring the right people at the outset.

Patient safety has to be dictated in hospital policy. Every policy has to be reviewed, not only for how each task is to be completed, but how to prevent adverse events and patient injuries. For example, every time a therapist plugs in a piece of equipment, they should be taught to evaluate tripping hazards and to minimize them whenever possible. This not only safeguards the patient; it prevents visitors and other staff members from becoming patients due to tripping and falling.

The primary focus must be on the patient. This is the reason many hospitals require therapists to evaluate the patient first at a ventilator check, and ensure the ventilator settings are proper only after ensuring the patient is doing well. While this sounds like common sense, it's worth mentioning that California disciplined a therapist who gave a nebulizer treatment (and documented it) on a patient who had been dead for two hours. If you are not paying attention to the patient, you are not oriented toward patient safety.

The next tier is training. When inservice education is given on any new piece of equipment, the trainer should be asked specifically what the known hazards of the equipment are, e.g., has the manufacturer received any medical device reports from the U.S. Food and Drug Administration? Are there any potential complications when the device is used with other equipment?

When a therapist recertifies for intubation, blood gases, or any other procedure that creates a risk of harm to the patient, the known hazards and the proper precautions should receive prominent mention and should be discussed in terms of documentation. It does no good to teach precautions if the practitioner does not document them in every case.

Often therapists take steps to adapt equipment to new or novel uses. While no one wants to shut down innovation, the fact is that if a therapist is creating a new medical device, the therapist or facility must seek FDA approval before it is used on a patient. When a therapist adapts a piece of equipment from one use (adult critical care) to another (pediatric critical care), that kind of concern is important because it affects patient safety. Like the example with the Bear ventilator, there may be many potential critical failures in adapted equipment that might be apparent to a trained biomedical engineer that wouldn't be obvious to a therapist. This is a serious patient safety issue, as well as a liability issue.

Every therapist should be taught to ask herself: What are the possible complications from this procedure? What do I need to document to ensure patient safety? Is there anything I am overlooking here? Colleagues should be encouraged to consult with each other whenever a potential patient safety issue arises.

After ensuring that policies and training are giving ample emphasis to patient safety, the final step in the process is to audit performance and ensure that therapists are not failing to apply what they have learned in training. Audits of records, interviews with staff, and if necessary, proper disciplinary action, are key to ensuring patient safety.

Supervisors often balk when employee discipline is mentioned in the same breath with patient safety. Safety culture depends on patient safety issue recognition and reporting. Indeed, discipline should always be the last arrow in the quiver, but discipline is necessary to enforce the requirement to think of patients first. While you do not want to make therapists afraid to write an incident report, or openly discuss their errors with colleagues so that others may learn the lessons, neither can you allow unsafe practice to continue and still avoid liability. When a therapist has been identified as a source of patient risk, retaining that therapist becomes a problem for the organization.

Sometimes the Human Resources Department will push back against employee discipline in a particular case because "nobody got hurt." While that might be true in that particular incident, the issue is that, unless redressed, the same behavior will eventually harm a patient, and the facility will suffer if that happens.

One thing I always tell hospital HR administrators is that it is far better to have to defend a wrongful termination lawsuit than it is to defend a wrongful death lawsuit. If the court rules against the hospital on the wrongful termination, the facility can rehire the therapist and no one has been harmed. But if a patient dies or suffers permanent anoxic injury, there is no turning back the clock. ■

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Michael D. Davis, RRT, PhD
Assistant Professor
Medical College of Virginia at
Virginia Commonwealth University
Department of Pediatrics
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- Welcome and Introduction
- Risks and Safety Features of Noninvasive Ventilatory Systems Approved for IPV Delivery: An RT Perspective
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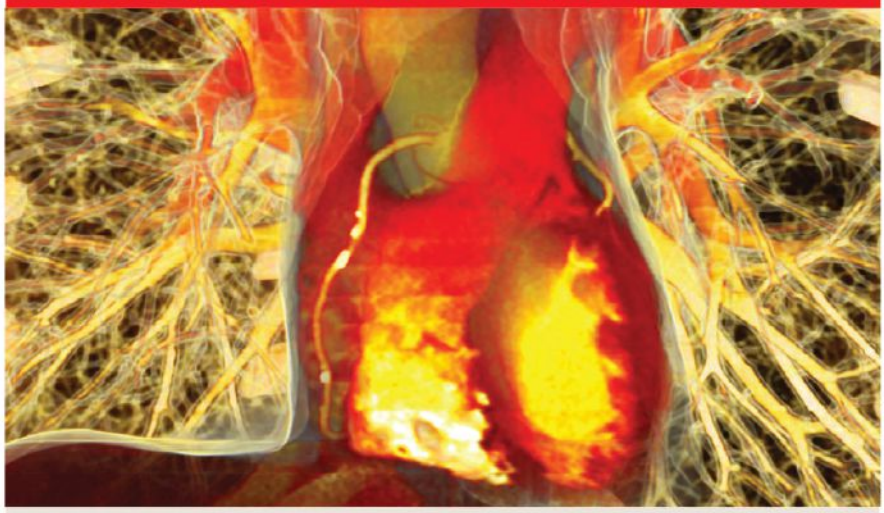

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PROGRAM OVERVIEW

There are inherent risks and safety concerns with any ventilatory mode or delivery system and their management and mitigation, including the universal risk of rebound pulmonary hypertension. Key safety features available on different devices will be discussed in detail, including alarm categories and types, as well as essential clinical practices, including patient and device monitoring, adherence to FDA guidelines, accurate dose delivery, avoiding pitfalls in the drug delivery process, maintaining awareness of drug side effects, and instituting appropriate management.

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Ventilation for Life

Ventilator Alarms – The Long and Winding Road

by Connie Clements Dills, MBA, RRT, RPFT

Many of us may recall ventilator alarms in their primitive form back in the day of the Puritan Bennett™ MA-1, with its honking high peak inspiratory pressure (PIP) alarm and the high-pitched beep of the spirometer on top. Not even a peep from a PEEP (positive end expiratory pressure) alarm, as we poured water into the cylinder attached to the side of ventilator to actually create PEEP. Times have changed, and technology has enabled us to do incredible things with regard to mechanical ventilation. But with these advances have come many more parameters to monitor — and therefore many more alarm conditions that can and do occur. Modern ventilators today can alarm for well over a hundred different reasons, and ventilators are just one of the many medical devices in our hospitals today, nearly all of which produce alarms to alert practitioners to situations that may pose a risk to patient safety.

about the author...

Connie Clements Dills, MBA, RRT, RPFT, is the respiratory practice manager at the Hospital for Special Care in New Britain, CT.

Alarm quagmire

In some respects, we have created a bit of a monster, and we are left pondering a number of very important questions. Do all these alarms require an immediate response? Can we possibly answer each and every one of these alarms in a timely fashion? Are we setting our alarm parameters appropriately? What are appropriate alarm parameters? Can continued enhancements in ventilator technology help reduce some of the most frequent and non-immediately actionable alarms, or at least alter them in some way to reduce the urgency for a response? It is generally accepted that alarm fatigue is a very real pathology plaguing hospitals today. Alarm fatigue is defined by ECRI (Emergency Care Research Institute) as an event that "occurs when staff members are exposed to an excessive number of alarms, which can desensitize them to alarms and result in sensory overload."[1] When we become desensitized, we put our patients at risk. Therefore, we need to take on these tough questions for the safety of our patients.

Taming the issue

At the Hospital for Special Care in New Britain, CT, we have worked to find some workable answers to these questions. The Hospital for Special Care is a 228-bed long-term acute care facility that has a daily average of over 100 ventilator patients, from pediatrics to adults. It is estimated that roughly 19,000 ventilator alarms occur in the hospital's five ventilator units over a typical 24-hour period. Long before The Joint Commission issued the National Patient Safety Goal on Alarm Safety (NPSG.06.01.01),[2] the respiratory leadership at the hospital realized that something needed to be done to address the high number of ventilator alarms and the resulting alarm fatigue. In 2001 the hospital decided to investigate the possibility of implementing middleware to help better monitor their ventilator population. Middleware is software that serves as a data collection bridge between the ventilator and the application within the hospital's network. After trialing it — and budgeting for it — the middleware implementation began in 2002. The middleware had, and still has, the capability to monitor and alert to all possible alarm conditions, which brought us to our first question: Do all of the alarms require an immediate response, and if not, is there inherent risk imposed on the patient? Our approach was to filter the ventilator alerts and have only those that we felt required an immediate response sound an alarm; for example, alerts indicating that the patient may no longer be being ventilated were sent through our middleware to our overhead alert systems

(audible and visual), our paging system, and to our computer work stations. Those specific alarm conditions are patient disconnect, low minute volume (Ve), low inspiratory pressure (LIP), and no data, meaning the ventilator is no longer communicating with the middleware. By filtering in this way, we immediately recognized an 80% reduction in the number of alarms that required an immediate response by a practitioner, all of which had been previously sent through the overhead alert system. Our most frequently occurring alarms are high respiratory rate (RR) and high PIP, but they don't necessarily require an immediate response because they are frequently the result of the patient coughing, speaking, eating, turning, etc. Should a patient trigger a high RR or high PIP alarm for longer than a few breaths, a low Ve alarm will occur, and subsequently the practitioner is alerted by the middleware. Utilizing the middleware in this fashion helped us answer this first question. In the nearly 15 years since implementing this process, we have not had a single ventilator occurrence related to alarms, so clearly not all ventilator alarms require an immediate response.

With regard to our second question, whether all alarms occurring on all of our ventilators could be answered in a timely fashion, it seemed clear at the time that this was unlikely, although we did not monitor that prior to implementation. Besides, what would constitute a "timely" response? Currently there is no standard as to how quickly a ventilator alarm response is needed. We do know, however, that because our respiratory care practitioners are able to differentiate between immediately actionable and non-immediately actionable alarms, they are able to respond to all of the actionable alarms, and they do so in what we feel is a "timely" fashion. We set our threshold at 60 seconds. We collect data on this monthly by unit and over 3-day, 24-hour periods. Our response time is 20 seconds or less. We can now confidently say that we can answer our ventilator alarms in a timely fashion.

There are currently no established standards surrounding ventilator alarms in general, and the AARC is collaborating on this with other members of the industry through AAMI (Association for the Advancement of Medical Instrumentation). The work group will establish databases, benchmarking, and guidelines to this end.[3] One item that we at the Hospital for Special Care find contributes to alarm fatigue by adding to the ambient noise on the units is the high PIP alarm that continues to alarm most frequently, even though it is isolated to the bedside. At present, our standard is to set that alarm at 10 cm H_2O above the patient's average PIP. We are examining whether we can safely raise that alarm setting by 5 cm H_2O, which would dramatically reduce the number of alarms. Two other alarm settings that are of paramount importance for us, as we rely on our middleware, is the appropriate alarm settings for LIP and low Ve. We set LIP 5–10 cm H_2O below inspiratory pressures and low Ve 10–15% below the patient's Ve. We strictly adhere to these standards and monitor them as well. To answer the fourth question, based on historical data and lack of occurrences, we feel we are setting our alarm parameters appropriately.

Finally, when looking at technology, advancements are being made to help us better manage ventilator alarms. Some manufacturers are now incorporating active exhalation valves into their ventilators so that, when a patient is speaking, eating, or coughing, the ventilator does not automatically prompt nuisance high PIP alarms, further decreasing the number of audible alarms and helping reduce the incidence of alarm fatigue.

Recommendations

We are tasked every day with keeping our patients safe, and managing ventilator alarms is an area where we must be vigilant in our practice. There are a number of things that are important to consider when implementing a ventilator alarm management program. First and foremost is that any given monitoring device or system is only as good as the individual(s) using it. Having strong policies or standards in place and a respiratory therapy staff who strictly adheres to them goes a long way in facilitating the implementation of a monitoring system utilizing middleware. If possible, performing pre-implementation auditing is also very helpful to determine the number of alarms you are dealing with on a daily basis, to identify which alarms are going off most frequently, to track how long a ventilator alarm sounds before staff responds to it, and to decide what alarms your organization feels are immediately actionable. This is not to say that any ventilator alarm is unimportant, but for our patients' safety, prioritization is a good and necessary thing.

Through the effective use of middleware systems and enhanced ventilator technology, we are making strides in managing these alarms and helping to preserve everyone's sanity, both patient and practitioner. ■

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New Respiratory Connector Standard Being Developed: ISO 80369-2 Respiratory Connector

by Jim Skog

Every year, medical device misconnections in health care facilities worldwide are documented to cause injuries and fatalities. Addressing this patient safety issue is the focus of the recent ISO 80369 small-bore medical device application standards. The next medical device application area under development for a new published standard is in small-bore respiratory connectors.

Misconnections are accidents that happen for a variety of reasons. Sometimes it is a health care worker changing an infusion therapy, perhaps in a hurry, or in low lighting, and with distractions. Sometimes it is a family member or friend adjusting bedding, clothing, and tubing. Whatever the cause, misconnections can allow the introduction of foreign substances into the bloodstream, the lungs, the intestinal tract, wounds, organs, etc. This is a serious patient safety issue which is being addressed by the ISO 80369 standards — by focusing on new connector design categories.

The evolution of the luer as the mainstream connector in modern medicine has led to what some consider to be overuse. The 6% taper luer is found at the end of hypodermic needles and in a billion intravascular or intravenous sets per year, and it is used for many other small-bore medical device tubing connections. This is a very good connector design, easily producible in high volumes, making it an attractively priced commodity. The problem, however, was widely illustrated when one intensive care patient was documented with 40 different medical devices using luer connectors. When these devices are disconnected and reconnected, there is an increased likelihood for misconnection. Therefore, limiting luer usage is a logical way to reduce such risk.

The International Standards Organization is addressing patient safety issues with a set of new connector standards. These are documented in the ISO 80369-1 standard, published in 2011, which defines the general requirements for small-bore connectors in medical applications. The ISO 80369 standard approved the focus on luers being used in intravenous or hypodermic applications just as they are today, and it created additional categories of medical device usage to specify standards to avoid misconnections with luers as a way to improve patient safety. This 80369-1 document identified six application categories, which represent the highest risk to patients if a misconnection were to occur.

about the author...

Jim Skog, MS, is the global market development manager and product line manager for Nordson Medical, in Loveland, CO. He is a member of the ISO 80369 committee and New Product Development for the Value Plastics product line.

Below are the first four standards, which were published in 2016:

- ISO 80369-3 Enteral Feeding (also called ENFit™) connectors
- ISO 80369-5 Limb Cuff Inflation (including blood pressure) connectors
- ISO 80369-6 Neuraxial (including epidural and spinal) connectors
- ISO 80369-7 Intravascular andHypodermic (traditional luer) connectors

The fifth standard under development is ISO 80369-2 Respiratory connectors. This standard design will likely be finalized and voted on 2018 and published in 2019. The Respiratory category will require two sizes of connectors. The first, called R1, is for sampling tube sizes smaller than ⅛" inside diameter. The larger, called R2, is for driving gases through tubing in the ¼" inside diameter tubing range. These new standards will specify the exact dimensions for how the male and female connectors connect.

The sixth standard, 80369-4 Urinary and urethral applications, is not under development at this time as it was determined to be the least risky of the categories. There is no timetable or plan for implementing 80369-4, and no work has been completed in documenting a sixth connector. This leaves ISO 80369-2 Respiratory connectors as the final application area to be documented as a new standard under the 80369 small-bore medical connector standards.

The test protocols and dimensional tolerances for each of these five new connector standards are very tight, allowing these connectors to coexist within a fairly narrow range of tubing sizes, which will diminish the chance for misconnection. The ISO 80369-7 intravenous connector (luer) standard remains compatible with the

ISO 594-1 and ISO 594-2 luer standards which it replaces. The standards specify the minimum limit for the softness of the plastic material allowed.

The ISO 80369 committee is composed of 50–80 members from 12–18 countries at any given time. Each country has a regulatory body that supports the process; in the United States that organization is the Association for the Advancement of Medical Instrumentation (AAMI). AAMI administers standards programs for over 100 technical committees and working groups that produce standards for medical devices, approved as national standards by the American National Standards Institute (ANSI). Each standard chartered by the International Standards Organization and the International Electrotechnical Commission is developed and voted on through a series of steps before being accepted as a new standard. Each country has a vote of its members and casts one vote for the international decision, along with any objections or questions. Assuming passage, every issue is addressed in the documentation prior to releasing the final standard.

For respiratory therapists and care practitioners, the new connectors will be relatively simple and easy to use. They connect by twisting the male and female sides so the threads snuggly engage, just as they do with locking luer connectors today. There will be no slip connector versions as there are with luers because the seal is secured by the threads holding the joining surfaces together. This design also minimizes the dead-space volume, which is the amount of sample gases lost within the connector. This is especially important with infants and their very small tidal volumes of breath.

Respiratory gases are transported across a very wide range of medical devices today. Everything from nebulizers to ventilators to oxygen therapy solutions to anesthesia systems to capnography to CPAP machines are considered to be respiratory devices. There are more than 100 different kinds of devices and accessories that need to be mindful of the new 80369-2 respiratory standard once it publishes.

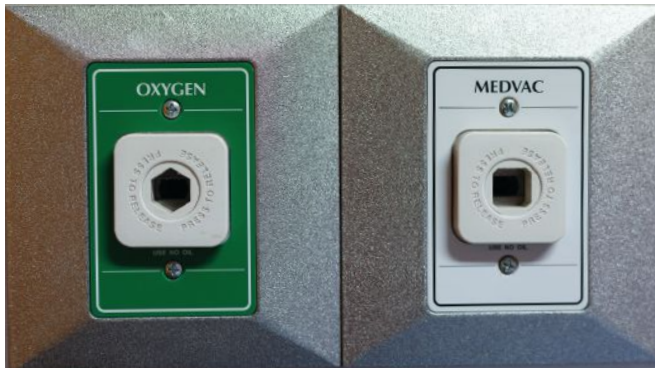
Today these devices utilize many different kinds of tubing connectors. Many facial masks and tracheotomy sets use 15-mm and 22-mm outside diameter flexible or corrugated tubing and connectors. These connector sizes are much larger and are outside of the range of the ISO

ISO 80369 Is Moving Health Care to Safer Levels

Relying on humans to "look before they connect" as a means of reducing human errors has not been successful. No amount of training or signage can effectively prevent accidental misconnections. ISO 80369 standards are based on the principles of human factors engineering, where designing barriers, such as purposely devised connectors for each type of small-bore tubing device, is essential to prevent inadvertent misconnections.

Having effective physical barriers is truly the only way to prevent tubing misconnections. ISO 80369-2 from the Association for the Advancement of Medical Instrumentation brings together key stakeholders to create and test distinct connectors in an effort to make the therapy we provide safer. ISO 80369 is moving health care to safer levels by going beyond reliance on humans to avoid errors when connecting small-bore tubing devices.

— Kevin M. McQueen, MHA, RRT, CPPS, CM, Co-Chair of the AARC Patient Safety Roundtable and Patient Safety Officer at Tri-City Medical Center in Oceanside, CA.



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Indication

UTIBRON™ NEOHALER® (indacaterol and glycopyrrolate) is a combination of indacaterol and glycopyrrolate indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

Important limitations: UTIBRON NEOHALER is not indicated to treat acute deteriorations of COPD and is not indicated to treat asthma.

Important Safety Information

WARNING: ASTHMA-RELATED DEATH

Long-acting beta$_2$-adrenergic agonists (LABAs) increase the risk of asthma-related death. Data from a large placebo-controlled US study that compared the safety of another LABA (salmeterol) or placebo added to usual asthma therapy showed an increase in asthma-related deaths in patients receiving salmeterol. This finding with salmeterol is considered a class effect of all LABAs, including indacaterol, one of the active ingredients in UTIBRON NEOHALER.

The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma.

Please see additional Important Safety Information, including BOXED WARNING, and Brief Summary of Prescribing Information on adjacent pages.

LABA = long-acting beta$_2$-agonist; LAMA = long-acting muscarinic antagonist.

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BRIEF SUMMARY OF FULL PRESCRIBING INFORMATION

Please see package insert for full Prescribing Information, including Patient Information.

INDICATIONS AND USAGE: UTIBRON™ NEOHALER® is a combination of indacaterol and glycopyrrolate indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

Important Limitations of Use: UTIBRON NEOHALER is NOT indicated for the relief of acute bronchospasm or for the treatment of asthma.

CONTRAINDICATIONS: UTIBRON NEOHALER is contraindicated in patients with asthma without use of a long-term asthma control medication. UTIBRON NEOHALER is contraindicated in patients who have demonstrated hypersensitivity to indacaterol, glycopyrrolate, or to any of the ingredients.

WARNINGS AND PRECAUTIONS:

WARNING: ASTHMA-RELATED DEATH

Long-acting beta$_2$-adrenergic agonists (LABAs) increase the risk of asthma-related death. Data from a large, placebo-controlled U.S. study that compared the safety of another LABA (salmeterol) or placebo added to usual asthma therapy showed an increase in asthma-related deaths in patients receiving salmeterol. This finding with salmeterol is considered a class effect of all LABAs, including indacaterol, one of the active ingredients in UTIBRON NEOHALER. The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma.

Data from a large, placebo-controlled U.S. study in asthma patients showed that LABAs may increase the risk of asthma-related death. Data are not available to determine whether the rate of death in patients with COPD is increased by LABAs. A 28-week, placebo-controlled U.S. study comparing the safety of another LABA (salmeterol) with placebo, each added to usual asthma therapy, showed an increase in asthma-related deaths in patients receiving salmeterol (13/13,176 in patients treated with salmeterol versus 3/13,179 in patients treated with placebo; RR 4.37, 95% CI 1.25, 15.34). The increased risk of asthma-related death is considered a class effect of the LABAs, including indacaterol, one of the ingredients in UTIBRON NEOHALER. No study adequate to determine whether the rate of asthma-related death is increased in patients treated with UTIBRON NEOHALER has been conducted. The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma. **Deterioration of Disease and Acute Episodes:** UTIBRON NEOHALER should not be initiated in patients with acutely deteriorating or potentially life-threatening episodes of COPD. UTIBRON NEOHALER has not been studied in patients with acutely deteriorating COPD. The initiation of UTIBRON NEOHALER in this setting is not appropriate. UTIBRON NEOHALER should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. UTIBRON NEOHALER has not been studied in the relief of acute symptoms, and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting beta$_2$-agonist. When beginning UTIBRON NEOHALER, patients who have been taking oral or inhaled, short-acting beta$_2$-agonists on a regular basis (e.g., 4 times a day) should be instructed to discontinue the regular use of these drugs and use them only for symptomatic relief of acute respiratory symptoms. When prescribing UTIBRON NEOHALER, the healthcare provider should also prescribe an inhaled, short-acting beta$_2$-agonist and instruct the patient on how it should be used. Increasing inhaled beta$_2$-agonist use is a signal of deteriorating disease for which prompt medical attention is indicated. COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If UTIBRON NEOHALER no longer controls the symptoms of bronchoconstriction; the patient's inhaled, short-acting beta$_2$-agonist becomes less effective; or the patient needs more inhalation of short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting, a re-evaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of UTIBRON NEOHALER beyond the recommended dose is not appropriate in this situation. **Excessive Use of UTIBRON NEOHALER and Use with Other Long-Acting Beta$_2$-Adrenergic Agonists:** As with other inhaled drugs containing beta$_2$-adrenergics, UTIBRON NEOHALER should not be used more often than recommended, at higher doses than recommended, or in conjunction with other medications containing LABAs, as an overdose may result. Clinically significant cardiovascular effects and fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs. Patients using UTIBRON NEOHALER should not use another medicine containing a LABA for any reason. **Paradoxical Bronchospasm:** As with other inhaled medicines, UTIBRON NEOHALER can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with UTIBRON NEOHALER, it should be treated immediately with an inhaled, short-acting bronchodilator; UTIBRON NEOHALER should be discontinued immediately and alternative therapy instituted. **Immediate Hypersensitivity Reactions:** Immediate hypersensitivity reactions have been reported after administration of indacaterol or glycopyrrolate, the components of UTIBRON NEOHALER. If signs suggesting allergic reactions occur, in particular, angioedema (including difficulties in breathing or swallowing, swelling of tongue, lips and face), urticaria, or skin rash, UTIBRON NEOHALER should be discontinued immediately and alternative therapy instituted. UTIBRON NEOHALER should be used with caution in patients with severe hypersensitivity to milk proteins. **Cardiovascular Effects:** Indacaterol, like other beta$_2$-agonists, can produce a clinically significant cardiovascular effect in some patients as measured by increases in pulse rate, systolic or diastolic blood pressure, or symptoms. If such effects occur, UTIBRON NEOHALER may need to be discontinued. In addition, beta-agonists have been reported to produce ECG changes, such as flattening of the T-wave, prolongation of the QTc interval, and ST segment depression, although the clinical significance of these findings is unknown. Therefore, UTIBRON NEOHALER should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension. **Coexisting Conditions:** UTIBRON NEOHALER, like all medicines containing sympathomimetic amines, should be used with caution in patients with convulsive disorders or thyrotoxicosis, and in patients who are unusually responsive to sympathomimetic amines. **Worsening of Narrow-Angle Glaucoma:** UTIBRON NEOHALER should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately should any of these signs or symptoms develop. **Worsening of Urinary Retention:** UTIBRON NEOHALER should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a physician immediately should any of these signs or symptoms develop. **Hypokalemia and Hyperglycemia:** Beta$_2$-adrenergic agonists may produce significant hypokalemia in some patients, which has the potential to produce adverse cardiovascular effects. The decrease in serum potassium is usually transient, not requiring supplementation. Inhalation of high doses of beta$_2$-adrenergic agonists may produce increases in plasma glucose. In patients with severe COPD, hypokalemia may be potentiated by hypoxia and concomitant treatment, which may increase the susceptibility for cardiac arrhythmias. In 2 clinical trials of 12-weeks duration evaluating UTIBRON NEOHALER in subjects with COPD, there was no evidence of a treatment effect on serum glucose or potassium.

ADVERSE REACTIONS: Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, the adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in clinical trials of another drug and may not reflect the rates observed in clinical practice. The UTIBRON NEOHALER safety database included 2654 subjects with COPD in two 12-week lung function trials and one 52-week long-term safety study. A total of 712 subjects received treatment with UTIBRON NEOHALER 27.5 mcg/15.6 mcg twice daily (BID). The safety data described below are based on the two 12-week trials and the one 52-week trial. **12-Week Trials:** The incidence of adverse reactions associated with UTIBRON NEOHALER in Table 1 is based on two 12-week, placebo-controlled trials (Trials 1 and 2; N=1,001 and N=1,042 respectively). Of the 2040 subjects, 63% were male and 91% were Caucasian. They had a mean age of 63 years and an average smoking history of 47 pack-years, with 52% identified as current smokers. At screening, the mean post-bronchodilator percent predicted forced expiratory volume in 1 second (FEV_1) was 55% (range: 29% to 79%), the mean post-bronchodilator FEV_1/forced vital capacity (FVC) ratio was 50% (range: 19% to 71%), and the mean percent reversibility was 23% (range: 0% to 144%). The proportion of patients who discontinued treatment due to adverse reactions was 2.95% for the UTIBRON NEOHALER treated patients and 4.13% for placebo-treated patients.

Table 1. Adverse reactions with UTIBRON NEOHALER (greater than or equal to 1% incidence and higher than placebo) in COPD patients

Adverse Reaction	UTIBRON NEOHALER 27.5/15.6 mcg BID (N=508) n (%)	Indacaterol 27.5 mcg BID (N=511) n (%)	Glycopyrrolate 15.6 mcg BID (N=513) n (%)	Placebo (N=508) n (%)
Nasopharyngitis	21 (4.1)	13 (2.5)	12 (2.3)	9 (1.8)
Hypertension	10 (2.0)	5 (1.0)	3 (0.6)	7 (1.4)
Back pain	9 (1.8)	7 (1.4)	2 (0.4)	3 (0.6)
Oropharyngeal pain	8 (1.6)	4 (0.8)	8 (1.6)	6 (1.2)

Other adverse reactions occurring more frequently with UTIBRON NEOHALER than with placebo, but with an incidence of less than 1% include dyspepsia, gastroenteritis, chest pain, fatigue, peripheral edema, rash/pruritus, insomnia, dizziness, bladder obstruction/urinary retention, atrial fibrillation, palpitations, tachycardia. **52-Week Trial:** In a long-term safety trial, 614 subjects were treated for up to 52 weeks with indacaterol/glycopyrrolate 27.5 mcg/15.6 mcg twice-daily, indacaterol/glycopyrrolate 27.5/31.2 mcg twice-daily or indacaterol 75 mcg once-daily. The demographic and baseline characteristics of the long-term safety trial were similar to those of the placebo-controlled efficacy trials described above. The adverse reactions reported in the long-term safety trial were consistent with those observed in the placebo-controlled trials of 12 weeks. Additional adverse reactions that occurred with a frequency greater than or equal to 2% in the group receiving indacaterol/glycopyrrolate 27.5 mcg/15.6 mcg twice-daily that exceeded the frequency of indacaterol 75 mcg once-daily in this trial were upper and lower

respiratory tract infection, pneumonia, diarrhea, headache, gastroesophageal reflux disease, hyperglycemia, rhinitis. **Postmarketing Experience:** The following additional adverse reactions of angioedema and dysphonia have been identified during worldwide post-approval use of indacaterol/glycopyrrolate at higher than the recommended dose. Because this reaction is reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate the frequency or establish a causal relationship to drug exposure.

DRUG INTERACTIONS: Adrenergic Drugs: If additional adrenergic drugs are to be administered by any route, they should be used with caution because the sympathetic effects of indacaterol, a component of UTIBRON NEOHALER, may be potentiated. **Xanthine Derivatives, Steroids, or Diuretics:** Concomitant treatment with xanthine derivatives, steroids, or diuretics may potentiate any hypokalemic effect of beta$_2$-adrenergic agonists such as indacaterol, a component of UTIBRON NEOHALER. **Non-Potassium-Sparing Diuretics:** The electrocardiographic (ECG) changes and/or hypokalemia that may result from the administration of non-potassium-sparing diuretics (such as loop or thiazide diuretics) can be acutely worsened by beta-agonists, such as indacaterol, a component of UTIBRON NEOHALER, especially when the recommended dose of the beta-agonist is exceeded. Although the clinical relevance of these effects is not known, caution is advised in the coadministration of UTIBRON NEOHALER with non-potassium-sparing diuretics. **Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, QTc-Prolonging Drugs:** Indacaterol, one of the components of UTIBRON NEOHALER, as with other beta$_2$-agonists, should be administered with extreme caution to patients being treated with monoamine oxidase inhibitors, tricyclic antidepressants, or other drugs known to prolong the QTc interval because the action of adrenergic agonists on the cardiovascular system may be potentiated by these agents. Drugs that are known to prolong the QTc interval may have an increased risk of ventricular arrhythmias. **Beta-Blockers:** Beta-adrenergic receptor antagonists (beta-blockers) and UTIBRON NEOHALER may interfere with the effect of each other when administered concurrently. Beta-blockers not only block the therapeutic effects of beta-agonists, but may produce severe bronchospasm in COPD patients. Therefore, patients with COPD should not normally be treated with beta-blockers. However, under certain circumstances, e.g., as prophylaxis after myocardial infarction, there may be no acceptable alternatives to the use of beta-blockers in patients with COPD. In this setting, cardioselective beta-blockers could be considered, although they should be administered with caution. **Anticholinergics:** There is potential for an additive interaction with concomitantly used anticholinergic medicines. Therefore, avoid coadministration of UTIBRON NEOHALER with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic adverse effects. **Inhibitors of Cytochrome P450 3A4 and P-gp Efflux Transporter:** Drug interaction studies with indacaterol, a component of UTIBRON NEOHALER, were carried out using potent and specific inhibitors of CYP3A4 and P-gp (i.e., ketoconazole, erythromycin, verapamil, and ritonavir). The data suggest that systemic clearance of indacaterol is influenced by modulation of both P-gp and CYP3A4 activities and that the 2-fold area under the curve (AUC) increase caused by the strong dual inhibitor ketoconazole reflects the impact of maximal combined inhibition. Indacaterol was evaluated in clinical trials for up to 1 year at doses up to 600 mcg. Inhibition of the key contributors of indacaterol clearance, CYP3A4 and P-gp, has no impact on safety of therapeutic doses of indacaterol. Therefore, no dose adjustment is warranted at the recommended 27.5/15.6 mcg twice-daily dose for UTIBRON NEOHALER when administered concomitantly with inhibitors of CYP3A4 and P-gp.

USE IN SPECIFIC POPULATIONS: Pregnancy: Teratogenic Effects: Pregnancy Category C: There are no adequate and well-controlled studies with UTIBRON NEOHALER or its individual components, indacaterol and glycopyrrolate, in pregnant women. Animal reproduction studies were conducted with individual components, indacaterol and glycopyrrolate. Because animal reproduction studies are not always predictive of human response, UTIBRON NEOHALER should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their physician if they become pregnant while taking UTIBRON NEOHALER. ***Indacaterol:*** Indacaterol was not teratogenic in Wistar rats and New Zealand rabbits at approximately 340 and 770 times, respectively, the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 1 mg/kg/day in rats and rabbits). ***Glycopyrrolate:*** Glycopyrrolate was not teratogenic in Wistar rats or New Zealand White rabbits at approximately 1400 and 530 times, respectively, the MRHD in adults (on an AUC basis at maternal inhaled doses up to 3.83 mg/kg/day in rats and up to 4.4 mg/kg/day in rabbits). **Non-teratogenic Effects: Indacaterol:** There were no effects on perinatal and postnatal developments in rats at approximately 110 times the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 0.3 mg/kg/day). ***Glycopyrrolate:*** There were no effects on perinatal and postnatal developments in rats at approximately 1100 times the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 1.88 mg/kg/day). **Labor and Delivery:** There are no adequate and well-controlled human trials that have investigated the effects of UTIBRON NEOHALER during labor and delivery. Because beta-agonists may potentially interfere with uterine contractility, UTIBRON NEOHALER should be used during labor only if the potential benefit justifies the potential risk. In human parturients undergoing Caesarean section, 86 minutes after a single intramuscular injection of 0.006 mg/kg glycopyrrolate, umbilical plasma concentrations were low. **Nursing Mothers:** *UTIBRON NEOHALER:* It is not known whether UTIBRON NEOHALER is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when UTIBRON NEOHALER is administered to a nursing woman. Since there are no data from well-controlled human studies on the use of UTIBRON NEOHALER by nursing mothers, based on the data for the individual components, a decision should be made whether to discontinue nursing or to discontinue UTIBRON NEOHALER, taking into account the importance of UTIBRON NEOHALER to the mother. ***Indacaterol:*** It is not known whether indacaterol is excreted in human breast milk. Indacaterol (including its metabolites) have been detected in the milk of lactating rats. ***Glycopyrrolate:*** It is not known whether glycopyrrolate is excreted in human breast milk. Glycopyrrolate (including its metabolites) have been detected in the milk of lactating rats and reached up to 10-fold higher concentrations in the milk than in the blood of the dam. **Pediatric Use:** UTIBRON NEOHALER is not indicated for use in children. The safety and efficacy of UTIBRON NEOHALER in pediatric patients have not been established. **Geriatric Use:** Based on available data, no adjustment of UTIBRON NEOHALER dosage in geriatric patients is warranted. UTIBRON NEOHALER can be used at the recommended dose in elderly patients 75 years of age and older. Of the total number of subjects in clinical studies of UTIBRON NEOHALER, 45% were aged 65 and older, while 11% were aged 75 and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out. **Renal Impairment:** Based on the pharmacokinetic characteristics of its monotherapy components, UTIBRON NEOHALER can be used at the recommended dose in patients with mild to moderate renal impairment. In patients with severe renal impairment (estimated GFR less than 30 mL/min/1.73 m^2) or end-stage renal disease requiring dialysis, UTIBRON NEOHALER should be used if the expected benefit outweighs the potential risk since the systemic exposure to glycopyrrolate may be increased in this population. **Hepatic Impairment:** Based on the pharmacokinetic characteristics of its monotherapy components, UTIBRON NEOHALER can be used at the recommended dose in patients with mild to moderate hepatic impairment. Studies in subjects with severe hepatic impairment have not been performed.

OVERDOSAGE: In COPD patients, doses of up to 600/124.8 mcg UTIBRON NEOHALER were inhaled over 2 weeks and there were no relevant effects on heart rate, QTc interval, blood glucose or serum potassium. There was an increase in ventricular ectopies after 14 days of dosing with 300/124.8 mcg and 600/124.8 mcg UTIBRON NEOHALER, but low prevalence and small patient numbers (N=49 and N=51 for 600/124.8 mcg and 300/124.8 mcg UTIBRON NEOHALER, respectively) precluded accurate analysis. In a total of four patients, non-sustained ventricular tachycardia was recorded, with the longest episode recorded being 9 beats (4 seconds). UTIBRON NEOHALER contains both indacaterol and glycopyrrolate; therefore, the risks associated with overdosage for the individual components described below apply to UTIBRON NEOHALER. Treatment of overdosage consists of discontinuation of UTIBRON NEOHALER together with institution of appropriate symptomatic and/or supportive therapy. The judicious use of a cardioselective beta-receptor blocker may be considered, bearing in mind that such medicine can produce bronchospasm. Cardiac monitoring is recommended in cases of overdosage. ***Indacaterol:*** The potential signs and symptoms associated with overdosage of indacaterol are those of excessive beta-adrenergic stimulation and occurrence or exaggeration of any of the signs and symptoms, e.g., angina, hypertension or hypotension, tachycardia, with rates up to 200 bpm, arrhythmias, nervousness, headache, tremor, dry mouth, palpitation, muscle cramps, nausea, vomiting, drowsiness, dizziness, fatigue, malaise, hypokalemia, hyperglycemia, metabolic acidosis and insomnia. As with all inhaled sympathomimetic medications, cardiac arrest and even death may be associated with an overdose of indacaterol. In COPD patients, single doses of indacaterol 3000 mcg were associated with moderate increases in pulse rate, systolic blood pressure and QTc interval. ***Glycopyrrolate:*** An overdose of glycopyrrolate may lead to anticholinergic signs and symptoms such as nausea, vomiting, dizziness, lightheadedness, blurred vision, increased intraocular pressure (causing pain, vision disturbances or reddening of the eye), obstipation or difficulties in voiding. In COPD patients, repeated orally inhaled administration of glycopyrrolate at total doses of 124.8 mcg and 249.6 mcg once-daily for 28 days were well tolerated.

PATIENT COUNSELING INFORMATION: Advise the patient to read the FDA-approved patient labeling (Medication Guide and Instructions for Use).

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5/17 UTB149-17

80369 standards. The 80369 standards focus specifically on small-bore connectors, supporting tubing that is less than approximately 5/16" or 8 mm inside diameter. Furthermore, the 80369-2 respiratory connectors will not address any higher pressure applications and focus only on usage in the relevant range of plastic luer connector pressures. A plethora of new suction devices are also changing the scene, with new therapies for aspirating secretions from the lungs and trachea. Some connectors are found on instruments like oxygen concentrators, which are high-pressure devices that utilize regulators to step down the pressure from a tank to a patient device. Larger respiratory gas connectors from storage tanks and facility transport systems, which require the strength of metals, will remain unchanged by this small-bore connector standard, as these connectors have their own standards for design, testing, and usage.

Respiratory tubing connection methods vary greatly as well. Aside from luers, there are two other connection types with concerns: push-on and fir tree. The push-on connection relies on a friction fit, with the tubing fitting over a cylinder that is about the same size as the tubing inside diameter. The fir tree, sometimes called a Christmas tree connector, has graduated ridges that allow different sizes of tubing to push on as far as needed to make a tight connection. These types of connections allow any tubing in the relevant size range to be connected — or potentially misconnected.

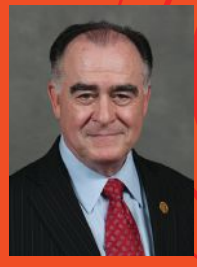
The ISO 80369-2 respiratory standard got off to a quick start in committee, and a design was drafted early in the process. However, the California Legislature passed a House Bill that mandated all hospitals in California to implement the 80369-3 Enteral feeding and 80369-6 Neuraxial standards in a relatively short time frame. When the misconnection testing showed an issue with a respiratory connector design, the respiratory design was prioritized to change. This change and the subsequent redesign and retooling have been completed, and retesting is currently underway. If the testing results are acceptable, the 80369-2 respiratory standard will move quickly toward completion. In the meantime, the timetable for active work on ISO 80369-2 had to be renegotiated.

This new standard will move toward publication with the support of the U.S. Food and Drug Administration and every other country's regulatory bodies. Once published, the adoption will likely occur as respiratory device companies make changes to their products over a period of several years. Many of these companies are tracking the progress of this standard and are planning for implementation in their future product roadmaps. New product submissions to regulatory agencies will comply with these standards or be asked follow an exception process that involves extended testing to ensure no misconnections. Sometimes described as "moving at glacial speed," the ISO 80369-2 respiratory standard will eventually make patients safer around the world. ■

Small-Bore Connectors on Respiratory Therapy and Oxygen Devices and Accessory Connectors

From an international perspective, the consequences of a small-bore connector misconnection can be devastating and cannot be overstated. A major effort has been underway by the Association for the Advancement of Medical Instrumentation for some time to establish new international standards for medical equipment used worldwide to connect various vascular, respiratory, medical gas tubing, enteral, and epidural devices and their accessories to patients.

This initiative is driven by the underestimated and underreported number of cases in which caregivers mistakenly connect the wrong tubing or catheter and deliver substances through the wrong route. These misconnection errors represent a critical worldwide patient safety hazard resulting in injury and, in some cases, death.



— Jerome M. Sullivan, PhD, RRT, FAARC, is President of the AARC International Council for Respiratory Care and is Professor Emeritus at University of Toledo in Ohio.

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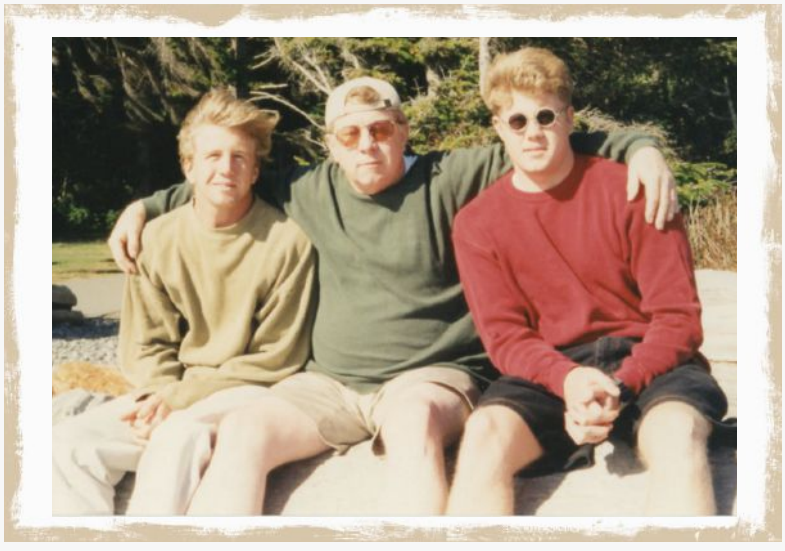
Two sons tell the story of their dad and what he did for the respiratory care profession

by Debbie Bunch



Glen Gee with his sons, Casey and Len Gee.

National Respiratory Care Week is coming up at the end of this month. Len and Casey Gee look back on the first RC Week and the role their father had in making it — and so many other things in respiratory care — happen.

President Ronald Reagan spent a few minutes talking with young Casey Gee during the White House visit, while Casey's dad Glen Gee and John Walton looked on.

When most people see this 1982 photo taken in the Oval Office for the signing of the Presidential Proclamation declaring the first National Respiratory Care Week, they naturally zoom in on the adorable little blonde boy in the foreground. After all, you know what they say about children and animals — they steal every scene.

When Casey Gee (that little boy all grown up) and his brother Len look at that picture, though, their eyes go not to the child, or to the man on the left (1982 AARC President John Walton, MBA, RRT, FAARC), or even to the President of the United States, but to the man standing squarely in the center of the frame looking down on Casey: their dad, Glen Gee, RRT, FAARC.

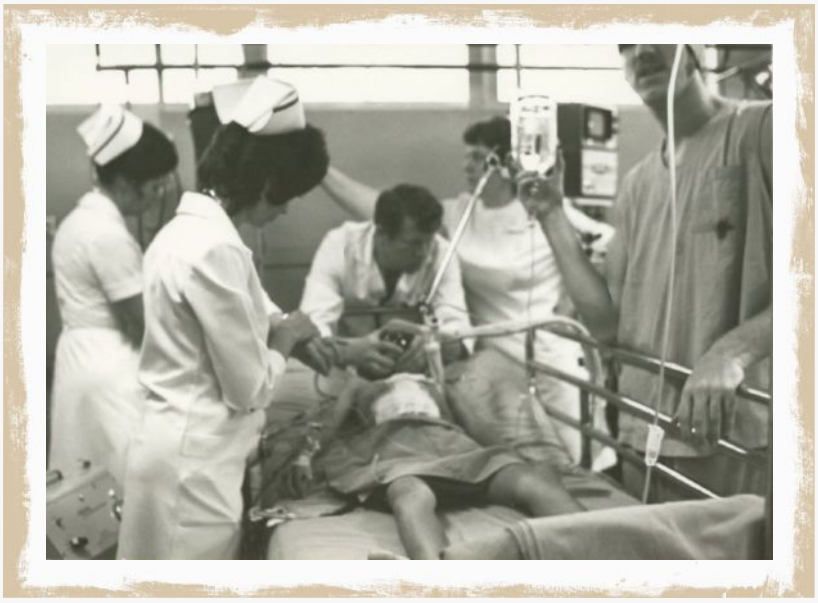
AARC president-elect at the time, Gee was instrumental in gaining support for the first RC Week, but his sons will tell you he did much more than that for respiratory care. They recall growing up with a man who literally dedicated his life to the profession and to ensuring it would achieve the greatness he knew it was capable of achieving.

A gift for mechanics

Len Gee, the older brother by four years, was the first to realize what his father did for a living. "I was maybe six or seven years old and my dad was always traveling to far-off places, so my mom would explain why dad was gone," he recalls now. "She explained that he was helping other people who were sick and that he helped doctors take care of these people. I saw pictures of hospitals and equipment from his travels, and it all sort of clicked."

At the time, Gee was serving as director of respiratory care services at Loma Linda University Medical Center in Loma Linda, CA, and part of the job entailed working with hospitals across the country on technology innovation. "I would see equipment that he had modified and listen to him discuss hospital politics and things of that nature with his friends and colleagues at gatherings," says Len.

Len and Casey both remember going into the hospital with their dad when they were young — "I remember the white halls and his office up on one of the higher floors," says Casey — but they were most impressed with the equipment that their dad always seemed to be trying to improve. "He included us in his



Gee with the Loma Linda University heart team in Vietnam.

work world early on and was constantly working on work equipment at home," says Casey. "The dude was tireless, and I don't say that just because I love and admire him — he was relentless in solving problems, and we were his part-time audience for work and working out solutions."

"He really was brilliant when it came to the mechanics of how things worked and how he could improve upon existing designs to help patients," says Len. "He was probably the most mechanically gifted person I have ever come across. He instinctively knew how things worked and how to fix and/or modify them."

Talent for innovation

That talent for innovation is probably what led Glen Gee into his next professional adventure — working for respiratory care equipment manufacturers. After 15 years overseeing the 243-member RT department at Loma Linda, he joined Nellcor Puritan Bennett. There he began a career on the industry side of the profession that persisted until his death in 2013, when he was serving as senior product manager in the Therapeutic Respiratory Systems division at CareFusion. Throughout those years, the Gee brothers witnessed his brilliance on multiple occasions.

"I think his Clinivision invention, where handheld bedside devices could be used to input info into a patient's chart, was decades ahead of its time," says Len. Developed in the days before smartphones and tablet computers, it gave RT departments a point-of-care charting application designed to support clinical information management, improve patient care, increase productivity, and lower costs.

"He had an engineer's mind and just had an inherent gift at solving problems — usually about oxygen flow, etc.," says Casey. "Glen Gee didn't get stumped by a work problem; he just kept working on it until he solved it."

He also worked closely with the U.S. military on several projects that Len says even some of his closest colleagues in respiratory care probably never knew anything about — including one involving a liquid breathing concept and another that figured heavily into the April 24, 1980, raid into Iran to rescue 52 American hostages being held in the U.S. embassy in Tehran.

"His work on portable ventilation units for the government was genius," says Len. "He was involved with outfitting military helicopters with a specialized breathing apparatus for the raid into Iran to help free American hostages...this was the Eagle Claw raid that went terribly wrong at the Desert One site." (The breathing apparatus worked just fine, but other problems on three of the eight helicopters caused military leaders to abort the mission at the last minute, and one helicopter crashed, killing eight servicemen.)

Passion for patient care

Of course, all that passion for respiratory care equipment also could sometimes lead his dad to blow his stack. Len recalls accompanying Gee on one trip to a hospital he helped set up in the former Soviet Republic

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of Georgia that really set him off. The trip was sponsored by Global Healing, an organization Gee helped to found that took U.S. surgeons to the former Soviet republics to provide instruction on the latest open heart surgery techniques and deliver vital equipment and supplies.

"He had arranged for a Lamborghini generator to be donated to the facility," explains Len. "It required some maintenance and the folks that performed it came to him and said, 'Glen, what do we do with these extra parts?' My dad turned every shade of red a person could and said, 'There are no extra parts!'"

He then spent the next day tearing the generator apart and rebuilding it the correct way. A few weeks later those same people came back to him with another problem: they had run the generator without putting oil in it first and it seized up. "He was fit to be tied!" says his son.

For their dad, it was all about bringing the best possible care to patients in need. Casey was on the Republic of Georgia trip, too, and he recalls visiting a surgical unit that was suffering from poor suction equipment and ancient technology. "My dad came up with an idea to snake a surgical tube down a floor and put it into a toilet on continual-flush to create a more effective suction," says Casey. "It worked, and the staff was amazed."

That same hospital had a neonatal care unit that was straight out of the 1950s. "I remember him holding a premature baby in his arms and seeing him cry," says Casey. "I get it — I'm his kid — but when you see something like that it's pretty moving. His greatest passion was patient care, and he felt it in a very authentic way."

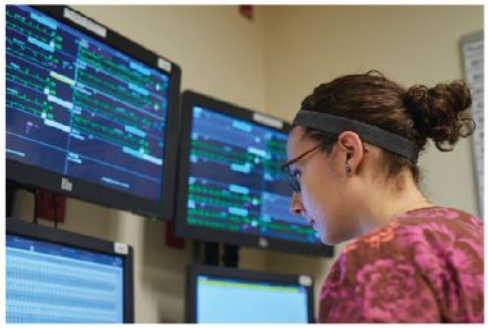
Following in their dad's footsteps

Both of the Gee boys learned a lot about what it takes to be successful in life from their father, and both are enjoying successful careers of their own. Casey is now director of customer relations at Spyopic, a sunglass company where he manages sales support and the customer service/warranty department and oversees key account relations.

Len is a fundraising specialist for the EOD Warriors Foundation (EODWF), a role he came into after first getting involved with the organization — which supports explosive ordnance disposal (EOD) military personnel who have been wounded in the line of duty — on a volunteer basis.

"My friend and cycling buddy, Navy CDR Kevin Childre, asked me to be part of the original group of folks who were assembled to put on the Undefeated 2 Day Bicycle Ride," explains Len. "All proceeds from this ride went to the EODWF." He stayed involved through his friend and also through the time he spent as the logistics manager on a mobile training team at A-T Solutions tasked with providing instruction in post-blast analysis and explosive event exploitation to deploying EOD units.

Gee with a Heart to Heart surgery team member in St. Petersburg, Russia.



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When the opportunity to join the organization came up, he jumped at it, in part to honor the memory of his dad. "It was a way for me to stay connected to my friend and also a way for me to follow in the footsteps of my dad," he says. "I had helped Dad overseas with global healing. Now it was my turn to help give back." More information about that organization's work can be found at www.eodwarriorfoundation.org.

A great day to remember

So, how did Casey end up getting to go on the AARC trip to meet the President of the United States? Whether he realized it or not at the time, Casey was there to represent the millions of American children who have asthma.

"Both my mom and dad were very concerned about my asthma and the attacks that I was having as a child," he says. "I remember very distinctly trying different medications that came out on the market." One device that particularly stands out in his mind was an "inhaler-type device that had a small 'propeller' in it," says Casey. "He'd put a powder in it and I would inhale deeply and I would hear this whine from the propeller as the medicine was pushed down my throat/windpipe. He was really concerned about my breathing issues and was hypersensitive to my attacks."

What does Casey Gee recall about that day with the President in the Oval Office? "It was surreal," he says. "I remember walking across the White House lawn and people coming out to greet us — we didn't drive, we walked. I also remember seeing people on the roof of the White House — security, I guess."

He remembers everyone in the AARC delegation being in a great mood, and he recalls seeing his dad shake hands with the President and have a brief conversation. Then his dad introduced him, and President Reagan shook his hand, too. "Then he turned behind him and grabbed a box of Jelly Bellys from someone and handed it to me. I still have that box and it's awesome — it has the Presidential seal and Reagan's signature on it."

Despite being just eight years old, Casey says he could sense the significance of the occasion. "My father was very composed but exuberant, and he had his hand on my shoulder the entire time." Then, before he knew it, the visit was over and the group headed out to dinner. "Everyone was blown away from the experience."

Using Brezhnev's plane and crew to distribute humanitarian aid to a former Soviet Republic through Heart to Heart

Always looking to the future

The first AARC National Respiratory Care Week set the stage for what has become an annual rite of passage in the profession that will once again take place at the end of October. It is the premiere public awareness event for the profession and the patients it serves.

Len Gee believes his dad was proud of the part he played in helping to establish the special week, but he never overplayed his role in that accomplishment or any of the many others he had during his long career.

— 2017 —

Since 1947, the AARC has been leading the effort to advance the science and practices of the respiratory care profession while promoting the highest quality of care for our patients. Collaborating with the respiratory communities at-large, we have successfully advocated at the federal, state and local level for patients, their families, the community, the profession and the respiratory therapist.

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"He had scads of awards hanging on the wall and had worked with lots of very influential people, but he really did not seem to let any of that go to his head," says Len.

Casey agrees that his dad viewed National Respiratory Care Week in much the same way that he viewed anything else he worked on. "In all honesty, I think my dad saw it as one important step that would be built upon later. My dad was definitely a visionary, and he rarely saw the 'end' of things — he was always looking to improve on past successes."

The respiratory care profession is grateful that he did. ■

See related story on page 44.

In the Service of the President

How did the AARC get invited to the Oval Office for the signing of the proclamation declaring the first National Respiratory Care Week? Many point to two other early RTs who represented the profession well when President Reagan was brought into the emergency department at their hospital after he was shot by John Hinckley, Jr., outside the Washington Hilton Hotel.

The year was 1981, and the President and his entourage, including Press Secretary James Brady, who was also wounded that day along with two others, were making their way to their vehicles. As soon as the shots rang out, Secret Service agents swooped in to shield the President and push him into his limousine, then headed straight for the ED at George Washington University Medical Center.

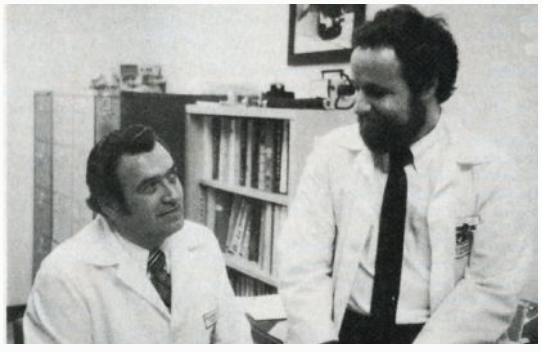
John Stadnyk, RRT, was in his office overlooking the emergency entrance to the hospital when the sirens started to wail. His secretary looked out of the window and said, "I think it may be the President." She was right. Stadnyk, who was director of the department at the time, rushed down to the ED and went to the head of the first bed in the trauma unit, where he saw President Reagan looking up at him.

Since he was the first RT to arrive on the scene, he took over the standard duties of the RT in such a situation and remained on the case, along with Assistant Department Director Charlie Farwell, RRT, throughout the President's 13-day stay in the facility.

Both remember President Reagan as a model patient, ready to comply with any and all treatments the therapists were charged with delivering. When he recovered, Secret Service were ready to whisk him out of the facility as quickly as possible, but Reagan insisted on taking the time to thank the health care professionals who had gathered to see him off instead. A short time later, Stadnyk and Farwell each received an official letter of thanks from the White House and a set of cufflinks with the Presidential Seal and President's signature on the back.

The bottom line: we now had a President who knew exactly who respiratory therapists were and what they did for a living. That experience no doubt played a role in the one just a year later that put little Casey Gee in the Oval Office along with leaders in the respiratory care profession – including his dad.

Editor's Note: This article was based on the November 1981 AARC Times article titled "The Shooting of President Reagan." ■



John Stadnyk and Charlie Farwell helped care for President Reagan after the shooting.

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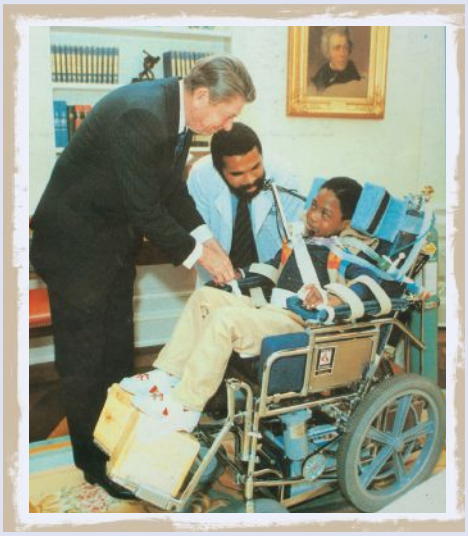
American Association for Respiratory Care

Meeting the President

by Sam Giordano, MBA, RRT, FAARC

Many of us who were respiratory therapists prior to 1982 will recall that our profession was one of the most under-recognized in existence. This lack of recognition resulted in a continuing list of challenges in terms of being excluded from health care policies and, in some cases, from reimbursement for the services and value we provided our patients and our colleagues on the health care delivery team.

The AARC recognized these challenges and determined that one of the best ways for our profession to gain more recognition and respect was to have both Congress and the President declare a National Respiratory Therapy Week. This was a heavy lift because, in those days, both the Senate and the House of Representatives had to pass the resolution by a minimum of a two-thirds vote to gain passage of a special week. We accomplished that goal, and then engaged the White House to encourage President Reagan to sign the first Congressional resolution recognizing Respiratory Therapy Week.



President Ronald Reagan welcomed five-year-old John Magbie and AARC member Dean Sterling, RRT, to the White House.

Both the Congressional and White House pieces were put in place thanks to the AARC and its members. AARC President John Walton, MBA, RRT, FAARC, played an integral role, as did our president-elect at the time, Glen Gee, RRT, FAARC. A few of us were fortunate enough to be invited to the White House to meet with President Reagan as he signed this milestone resolution. I was one of them, and my memories related to the visit remain strong to this day.

The President asked for patients

President Reagan wanted to meet some of the people respiratory therapists take care of; his staff made it clear that they did not need to see an adult patient since President Reagan fulfilled that role himself due to the wounds to the chest he received during an assassination attempt the year before. In short, he was the adult patient representative.

We asked one of our Washington, DC, area AARC members, Dean Sterling, RRT, if he was aware of a pediatric patient in his hospital who could be easily transported to the White House to meet the President. Dean was able to accomplish that goal, and we were all privileged to meet a young patient who was ventilator-dependent. Glen identified another pediatric patient who was living with asthma, and he didn't have to look beyond his own family. His young son Casey fulfilled that that role.

Many therapists have seen the photos of all of us in the White House with President Reagan. But most people don't know that we had only 48 hours to arrange the trip and all the logistics it entailed. And this was in the days before the instant communication we all have now, such as email and the Internet.

As mentioned previously, I have many fond memories of the visit. I especially recall the very flattering words President Reagan had for the respiratory therapists who took care of him while he was injured.

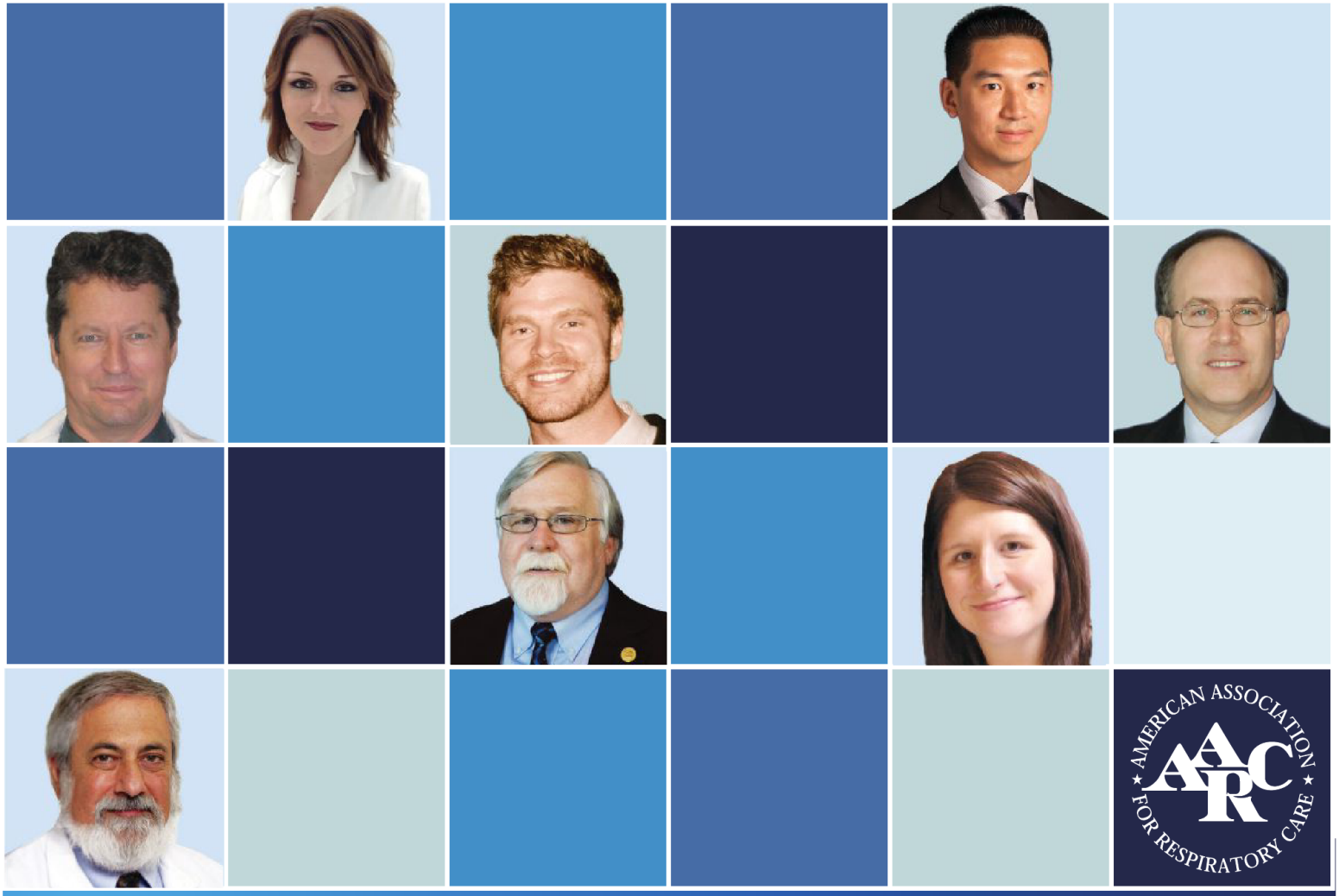
Message received

During this period, the AARC was already committed to smoking cessation and nicotine dependency treatment. One of the ways we helped to further the no-smoking message to the public was to distribute headless matches in a matchbook with the AARC logo that included a related message not to smoke.

I happened to have a few extra headless matchbooks with me when I went to the White House, and I left them in the reception area of the West Wing. As the time for meeting with the President approached, we were moved to the Roosevelt Room — that's the one where cabinet meetings are held — and I left a couple of matchbooks in there as well. I hoped I wouldn't get in trouble and that the matchbooks would be accepted in the spirit in which they were offered.

About two weeks after our visit with the President, I received a note and a small gift. The note was from one of President Reagan's staff members, thanking us for visiting and for our matchbooks. She had enclosed an official looking book of matches with the Presidential seal and the name "Ronald Wilson Reagan," but there was one important modification: she had cut the heads off those matches!

John Walton, Glen Gee, and Dean Sterling were excellent representatives of our profession and took full advantage of that singular opportunity to make a great first impression.



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A Last-Minute Look at What Topics Are on Tap in Indy

Congress speakers offer a sneak peek at their upcoming presentations this fall

Congress 2017 is very near, and if you're still on the fence about whether to go, take a look at these five presentation previews. We think you'll realize that the knowledge to be shared is something you can't afford to miss. Register online at http://www.aarc.org/aarc-meetings/congress-2017/registration.php or onsite at the Congress, set for Oct. 4–7 in Indianapolis, IN.


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CONGRESS 2017

1 The A B C Ds of Personalities in Rehabilitation

Aaron McColpin, DNP, RRT-NPS, FNP, CPFT, RN

Health-related quality of life (HRQOL) is a multidimensional concept that includes domains related to physical, mental, emotional, and social functioning. HRQOL is now an objective of Healthy People 2020 to improve the life and health of all people in the United States. HRQOL goes beyond direct measures of population health, life expectancy, and causes of death. It focuses on the impact that someone's health status has on their quality of life.

A related concept of HRQOL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction. Personality-type characteristics have been shown to have a dramatic effect on health and mortality rates. Clinicians can use HRQOL measures to determine the effects of chronic illness and treatments such as pulmonary rehabilitation.

Symposium participants will have the opportunity to address how to use HRQOL and personality-type characteristic measures within their practice. During the symposium, we will explore the common respiratory and generic HRQOL questionnaires such as the St. George Respiratory Questionnaire, Big Five Personality Questionnaire, Chronic Respiratory Disease Questionnaire, and the Clinical COPD Questionnaire.

Following the symposium, participants will have a greater understanding of personality effects on patients' HRQOL. Using common questionnaires for HRQOL and personality-type characteristics within clinical practice can help personalize care and identify several personality- and disease-specific assessments that can be used in the practice setting. Participants at this symposium will be able to use this new knowledge to enhance their understanding of these interactions with patients to improve their patients' quality of life and clinical outcomes.

Aaron McColpin is an associate professor in the department of health science and nursing at California State University Channel Islands in Camarillo, CA.

2 Regional Management Model

Holly Williams, BS, RRT

"Mergers" and "acquisitions" are words that are becoming very familiar within the health care setting. As hospitals merge and become health care systems with multiple hospital and clinic sites, we all must learn to adapt and grow with our organizations. Organizations look to leaders for ideas and suggestions around efficiencies and cost savings. The regional management model is one way to support your organization in these efforts. Respiratory care professionals are uniquely equipped to function in multiple facilities and to cross traditional lines to fill these emerging roles and meet the challenges of the future.

In this session, we will begin by reviewing some of the top trends affecting health care, including topics such as mergers and acquisitions and financial restraints, as well as how these trends impact the decisions we face daily as leaders in our profession. We will move on to define regions and how to determine workable regions within your health care system.

There will also be discussion on developing efficient organizational charts for your departments around these regions. Implementation of an appropriate organizational chart can help managers gain efficiencies, save money, and improve outcomes. Essential to success of regional management is having the right people in the positions we create.

Finally, we will explore the qualities necessary for a regional manager position, identify barriers, and make recommendations for bringing together a cohesive team. At the end of the session you will be able to prepare and submit a plan to your leadership that will demonstrate the cost savings, improved patient outcomes, and other benefits of a regional management model for respiratory care services.

Holly Williams is director of respiratory care services and the Life Center at Greenville Health System in Greenville, SC.

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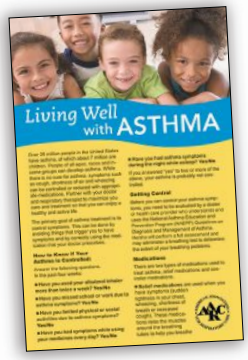

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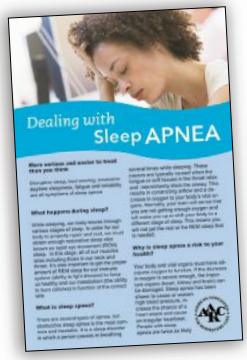

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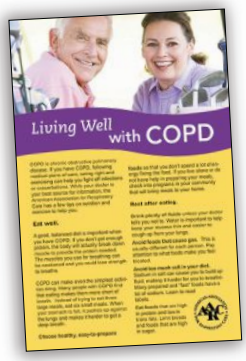

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3 Pro/Con: Early Mobility of Ventilator Patients

Carl Hinkson, MS, RRT-ACCS, RRT-NPS, FAARC

Patients admitted to the ICU for acute respiratory failure who have been on mechanical ventilation are at risk of developing ICU-acquired weakness. This syndrome is associated with a generalized weakness and increased delirium and can prolong mechanical ventilation as well as ICU and hospital length of stay. It is also associated with complications that can persist after discharge.

To date there is no way to treat ICU-acquired weakness after it develops. However, there is a widespread belief that an early ICU mobility program can either prevent or limit the severity of this process. Despite the popularity of early mobility in the ICU, questions remain: how much does this cost, and what benefits does it truly yield?

We hope attendees in our presentation will gain insight into the purported pathophysiology behind ICU-acquired weakness and how the process is diagnosed. Despite what has been written on the subject, there is still a great deal that is unknown. The presenters will cover how an early mobility program can operate, taking lessons from those who have had successful programs. We will make people aware of the stumbling blocks as well. We hope that attendees will leave with a deeper understanding of the costs associated with running an early mobility program and what the data really say about the success of these programs, as well as whether you should consider supporting one in your ICU.

Carl Hinkson is director of the pulmonary service line at Providence Regional Medical Center in Everett, WA.

4 Connecting with Research at the Open Forum

Sara Moore

Have you ever walked by a room at the AARC Congress and noticed grinning RTs standing proudly in front of a poster as a friend takes a photo? These busy rooms are home to the Open Forum and your place to connect with original research. Founded in 1973, the Open Forum has grown from a few abstracts to more than 200 posters presented at this year's meeting. You can find posters in the Exhibit Hall, grouped by topic in a dozen discussion sessions, or attend Editors' Choice presentations of the top abstracts (as selected by the editors of Respiratory Care).

While benefits to authors may be obvious — a venue to share their findings, their abstract published in Respiratory Care, and the opportunity to receive feedback from their peers — the Open Forum also holds value for Congress attendees. From ventilators to monitoring, neonatal/pediatrics to education, management to oxygen, aerosols to asthma . . . there is an Open Forum topic for everyone. Attendees are able to interact directly with authors. Maybe they tested a device you are considering for your facility, or perhaps they have implemented a new RT-led protocol. The authors are on hand to answer your questions about their research, and presentations are often followed by lively discussions of the implications for daily practice and the respiratory profession.

Come and see the work of your peers. You don't have to be an experienced researcher for research to bring vitality to your clinical practice. Expanding your understanding of how research is conducted opens the door to better comprehension of the scientific literature. Hospitals are increasingly focused on aligning daily practice with evidence; the Open Forum is a unique opportunity to examine study findings firsthand and draw your own conclusions. You may even be inspired to conduct your own research project!

Sara Moore is the assistant editor of Respiratory Care.

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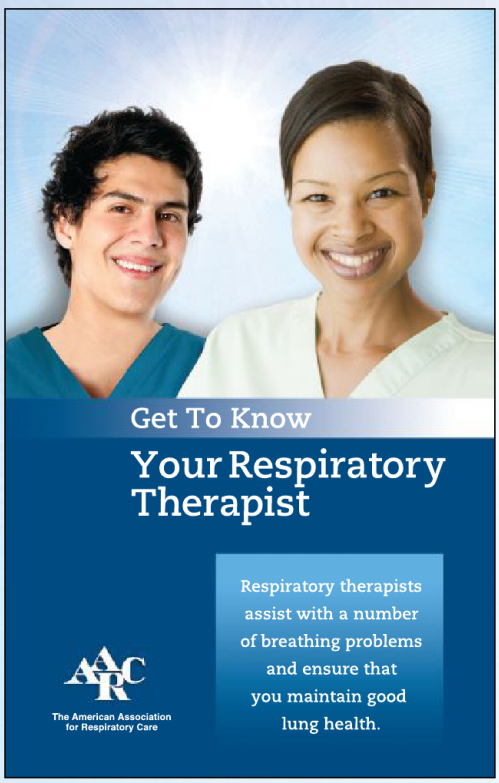

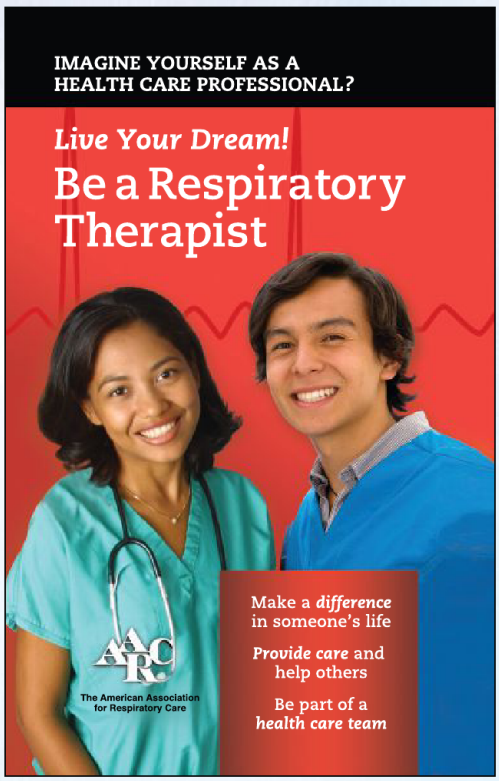

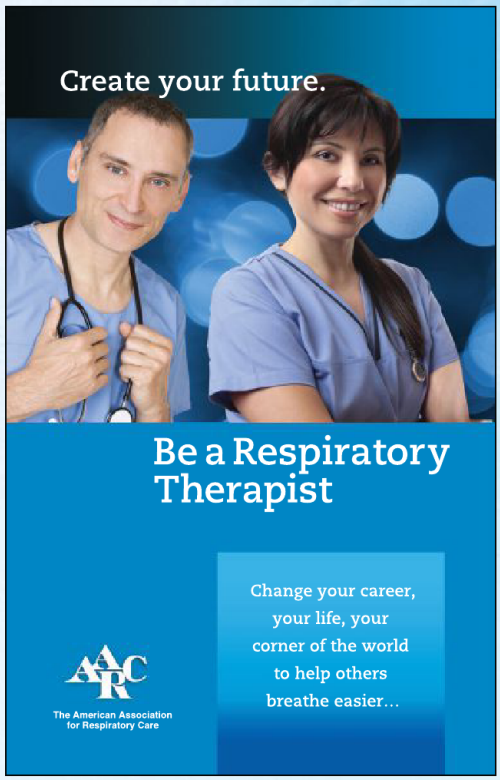

5 Noninvasive Respiratory Support Symposium

Natalie Napolitano, MPH, RRT-NPS, FAARC

Noninvasive respiratory support is commonly used in neonatal and pediatric ICUs to treat respiratory distress/failure and to hopefully prevent invasive mechanical ventilation. Despite the wide use of noninvasive ventilation and high-flow nasal cannula therapy, there is little evidence to guide this practice outside of the use of CPAP in premature infants. Because of this, there is no standard practice or recommendation for clinicians to refer to in the choice and application of the different modalities and settings available.

This symposium consists of four talks from presenters who work in diverse children's hospitals around the country. They will provide an overview of the evidence, reasonable/standard practices, and challenges to providing noninvasive ventilation and high-flow nasal cannula, as well as when to admit defeat and move on to another treatment option. The neonatal and pediatric populations will be addressed separately as they may respond to and be treated differently with these therapies. Following these presentations, one will have a wider understanding of the evidence, or lack thereof, that we have for the use of noninvasive support, and thus the vast topics for which research still needs to be done.

Natalie Napolitano is a clinical specialist in research at Children's Hospital of Philadelphia in Philadelphia, PA.

Washington, DC, 1979: An AARC Keynote Address of Global Import

Michael McPeck, BS, RRT, FAARC

Over the years, the AARC has presented an eclectic, exciting, entertaining, and informative series of keynote addresses at the annual International Respiratory Congress. But for me, the one that soars over all the others was the 1979 Keynote Address in Washington, DC.

The keynote speaker was Isaac Asimov, PhD, a professor of biochemistry and a prolific writer of both popular science and science fiction, who was very well known for his *I, Robot* collection of short stories, among other works. Dr. Asimov mesmerized the assembled respiratory care professionals with an intriguing and eye-opening slide show lecture on "the greenhouse effect" and global warming. Yes, this was 1979 and it was the first time that I, and presumably many of my contemporaries in respiratory care, had learned of this topic. I sat in the audience, spellbound — hearing about impending planetary harm from the burning of fossil fuels and about the greenhouse effect, whereby the CO_2 traps heat in our atmosphere and warms the planet as it accumulates. I sat up and took notice, surprised and shocked: CO_2 — we all know what that is!

I believe Dr. Asimov's compelling 1979 AARC keynote presentation was remarkably prescient in terms of the current-day understanding of global warming. It was a masterful teaching presentation that he had begun honing as far back as 1967. I credit Isaac Asimov and the AARC keynote tradition with introducing respiratory therapists to this topic, regardless of which side of the climate change controversy one sits.

Michael McPeck is a research scientist in the aerosol laboratory of the division of pulmonary and critical care medicine at the State University of New York School of Medicine at Stony Brook on Long Island.

Managing Editor's Note: The opinions about global warming expressed here are those of the author and do not necessarily reflect the views of AARC and its publishing division. ■

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RC Currents

IN THE NEWS

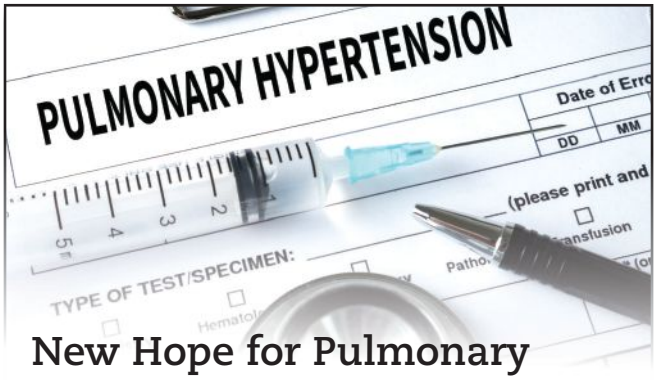
Submit Your Retirement Story to "Reflections"

Our "Reflections" column is geared especially toward AARC members who have recently retired from the respiratory care profession. We'd like you to look back at your career and tell us what it meant to you and why. We hope to receive your story soon. Submit your story to *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org. ■

Now Seeking Your Ideas for Congress 2018

We know it seems early, but we're already gearing up to plan Congress 2018. The requests for proposal (RFPs) for our next AARC Congress, set for Las Vegas, opened up on August 1 and will run through the end of December. If you have a topic or speaker to suggest for next year's meeting, please use our new and improved "RFP 2.0" application process on our website at www.AARC.org to make your request. The AARC's Program Committee will begin culling through all the suggestions early next year.

There will be no deadline extensions this year, so be sure to get your RFPs in by December 31, 2017. Your input is important to help the committee ensure the 2018 meeting covers the topics that matter most to you. ■



New Hope for Pulmonary Hypertension Patients

A novel airway-delivered gene therapy for treating pulmonary hypertension (PH) is in the works at the Icahn School of Medicine at Mount Sinai. The therapy is based on research showing that the gene therapy technique increases the expression of SERCA2a, a protein that regulates intracellular calcium within the vascular cells and prevents them from proliferating within the vessel wall. The technique has been shown to improve heart and lung function in rodent and pig models and to reduce and even reverse cellular changes caused by PH. The therapy is delivered via an inhaled aerosolized spray. Mount Sinai is working with Theragene Pharmaceuticals, Inc., to further the research in humans.

Outstanding Clinical Preceptors Honored by New Program

Earlier this year, the AARC Education Section launched a new program to award some much needed recognition to the countless AARC members who volunteer to serve as clinical preceptors for respiratory therapy students in their hospitals.

The program was the brainchild of Shellie Moore, MEd, RRT-NPS, program director and assistant professor in the respiratory care program at Gannon University in Erie, PA. "When I came up with this idea, I felt very passionate, and still do, that a strong need exists in recognition and in support of all preceptors," says the AARC member. "They are at the front lines of all student education, where the meat and potatoes come together."

For Moore — and it is probably safe to say, the vast majority of other program educators out there today — clinical preceptors are the unsung heroes of RT education, the folks who deliver real-time education to students at the bedside, where critical teaching moments happen. "It's those preceptors who are the heart of helping students apply all the concepts taught in the classroom, tested on the board exams, and expected of all RTs."

She took her idea to the AARC, where it found immediate acceptance. AARC Education Section Chair Ellen Becker, PhD, RRT-NPS, FAARC, saw it as both a great way to recognize those who go above and beyond for students and a way to foster the next generation of RT program educators as well. "Presently there is a shortage of educators who have graduate degrees to teach in academic programs," she says. "Many therapists recognize that they want to become educators while precepting students. Establishing this award is one way to potentially groom future academic educators and recognize the strong contributions provided by preceptors."

Moore is simply happy that the great work being done by dedicated preceptors is now getting the recognition it deserves. "My wish is that this award from our national organization brings a combined element of pride and appreciation to those preceptors who give of themselves daily in the clinical setting," says the educator. "My wish is that this award will help them realize that someone noticed."

The first group of preceptors to receive the recognition was announced last summer. Please join us in honoring these dedicated professionals!

- Kirtherese Tolefree, MS, RRT; Rush Oak Park Hospital; nominated by Rush University respiratory care program
- Ankeet Patel, MS, RRT, RRT-ACCS; Rush University Medical Center; nominated by Rush University respiratory care program
- Emilee Lamorena, MS, RRT, RRT-NPS; Ann and Robert H. Lurie Children's Hospital; nominated by Rush University respiratory care program
- Maya Jenkins, MS, RRT; Central DuPage Hospital; nominated by Rush University respiratory care program
- Roisin McLaughlin, BS, RRT, RPFT; Rush University Medical Center; nominated by Rush University respiratory care program
- Edita Meksraityte, MS, RRT-ACCS, AE-C; Rush University Medical Center; nominated by Rush University respiratory care program
- Ellen Moran, MS, RRT, RPFT; Rush University Medical Center; nominated by Rush University respiratory care program
- Ryndell Magbalon, BS, RRT-ACCS, RPFT; Rush University Medical Center; nominated by Rush University respiratory care program
- Renee Kiourkas, MS, RRT, RPFT; Rush University Medical Center; nominated by Rush University respiratory care program
- Andrew Klein, MS, RRT-ACCS, RRT-NPS, AE-C; Rush University Medical Center; nominated by Rush University respiratory care program
- Anne Geistkemper, MS, RRT-NPS; Rush University Medical Center; nominated by Rush University respiratory care program
- Sachin Patel, BSRC, RRT; Houston Methodist Hospital; nominated by University of Texas Medical Branch-Galveston respiratory care program
- Kali Moore-Watts, MS, RRT; The Ohio State University Medical Center; nominated by The Ohio State University respiratory care program
- Jodylynn Rolla, BS, RRT, CPFT; Steward Family Healthcare Northside; nominated by Laurel Technical Institute respiratory care program ■

Saving Respiratory Care at Santa Fe Community College

When New Mexico Governor Susanna Martinez vetoed all state funding for higher education earlier this year, Santa Fe Community College (SFCC) had no choice but to take a hard look at its programs. Despite exemplary graduation and placement rates, respiratory care was one of the most expensive majors at the college, and that put it squarely in the crosshairs for elimination.

Enter SFCC Program Director Rebecca Jeffs, DOM, RRT, and Scotty Silva, BS, RRT, respiratory care manager at Christus St. Vincent Regional Medical Center (CSVRMC). Jeffs immediately put together a report based on the program's annual CoARC report and sent it to her advisory committee asking for input and feedback. Silva, who depends on SFCC program graduates to fill his open positions, alerted his executive team, including CEO Patrick Carrier, to the possible closure of the program. College President Randy Grissom got into the act as well, engaging in discussions with Carrier to find out if the facility would be interested in supporting the program. And the program's medical directors, Richard Honsinger, MD, and James Ziomek, MD (who began his career as an RT), even offered to take a 50% cut in their reimbursement to, as they both put it, "support this excellent program."

The upshot of this overwhelming outpouring of support? CSVRMC agreed to contribute $250,000 to the SFCC Foundation for the continued funding of the respiratory care program. "It is so rare that respiratory care practitioners are recognized as essential to excellent patient care," says Jeffs. "I feel that the hospital, in working with the SFCC Foundation to support the respiratory care program, has ensured there are well-trained respiratory care graduates from our Northern New Mexico community to join the CSVRMC cardiopulmonary team. CSVRMC has truly recognized the contribution of respiratory care practitioners and assured continuing excellent care for our community."

Silva echoes those sentiments. "Frankly, I remain in awe, as I have been a respiratory therapist for over 24 years, and to see an organization take this action was beyond my expectations." He credits Patrick Carrier for taking the time to quickly learn about the RT department's partnership with the college program — over the past few years, 32% of new RTs have come from the college, the department uses the school's simulation lab to complete its yearly clinical competencies, CSVRMC is the primary clinical rotation site for the program, and CSVRMC staff serve as clinical instructors — and then do something about it.

Silva explains he simply expressed his personal and professional concerns about the proposal to eliminate the RT program at SFCC and wanted to make a clear and practical case for keeping it open. "I could only hope to find an open ear to hear the case for keeping the program open, and, to my great surprise, I found that ear in my CEO," he says. Silva gives all the credit for their success to Carrier and his colleagues in the C-suite, Lillian Montoya, COO, and the entire CSVRMC board of directors.

Silva says he also learned a valuable lesson in the process. "Our hospital administrators are not our adversaries and can, in fact, be an important ally in developing, addressing, and meeting our professional objectives," says the manager. "Maintaining a clear line of effective communication with hospital administration is necessary for our continued success as a profession." ■

AARC members Rebecca Jeffs, second from the left, and Scotty Silva, fourth from the left, join representatives from SFCC and CSVRMC in celebrating the huge check written by the hospital to ensure the respiratory therapy program can continue to provide the community with the RTs required to serve patient needs.

Rebecca Jeffs, left, and Scotty Silva join SFCC Director of Clinical Education Jessica Romero, BSRT, RRT-ACCS, in front of a poster outlining the mission of the RT program.

Improving the Patient Experience in Little Ways Every Day

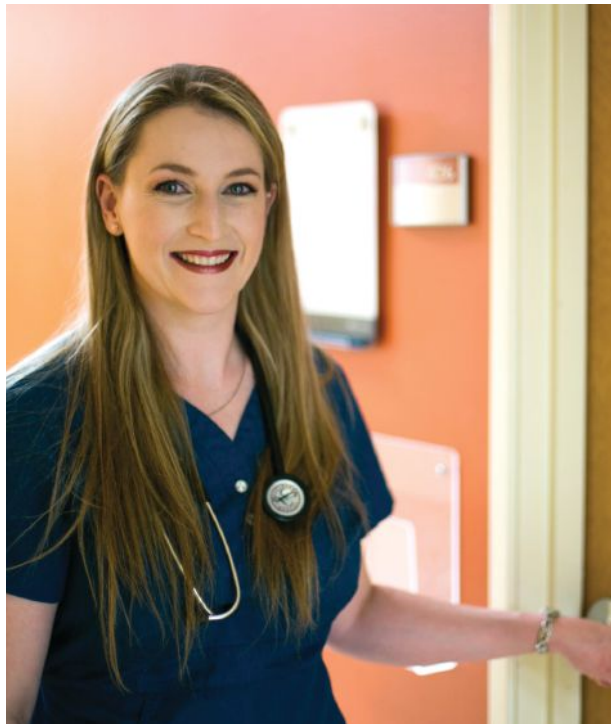
By D'Aun Flesher, BSRT, RRT-NPS, AE-C

During the course of our busy days, many RTs may think they don't have time to provide a patient with an exceptional experience. But providing a great patient experience doesn't have to be a grandiose act of immense kindness; rather, it's a lot of small things that can be easy to do and can take just the tiniest bit of initiative and compassion to seek out opportunities to make a difference.

Many of these opportunities don't require any additional time and can be easily implemented during the time we already spend in a patient's room. Even though I consider myself to be an introvert, I always put my "work face" on and smile and make eye contact when I greet each patient. Then, because charting in our rooms typically puts my back to the patient, I apologize to the patient in advance and explain what I'm doing and why.

If I'm doing a nebulizer treatment, I look around after I start and make sure the patient has his call light nearby and check if he needs his water refilled, a clean blanket, another box of tissues, or if there is anything else I can be doing while we wait for the treatment to finish. We also use whiteboards in the hospital rooms to let our patients know how often they can expect to see their RTs throughout the day, as well as how to reach us between treatments if needed.

In addition to the small stuff, I try to make any opportunity for a "big moment" work, if I can. For example, one day while giving a nebulizer to a patient on the general floor, I asked how his day was going. He told me that he was upset that he hadn't been able to visit his wife, who was in our ICU. I felt badly because I didn't think I'd be able to help due to my packed schedule that day, but when I had a few minutes that I'd planned to spend catching up on my charting, I instead found a wheelchair, took him to the ICU — after communicating with his nurse, of course — and did my charting outside the room while he visited his wife. While that one took considerably more effort than most "Exceptional Patient Experience" moments, I still feel great knowing that I made a difference in his day all those years ago.



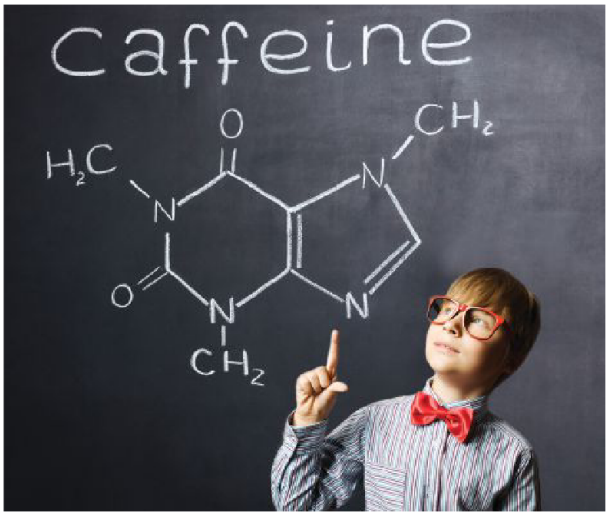
D'Aun Flesher believes every patient deserves an exceptional patient experience. Photo by Rochelle Fliethman, PharmD.

Most of the time, you can create opportunities to make someone's day by being aware of what their needs might be—and it isn't limited to our patients! On the pediatric floors, the parents rarely get a break, so I start by telling them that I'll be with their child in the room for about 20 minutes if they want to take a walk, make a phone call outside, or get some coffee. In the NICU, parents of the tiniest preemies get so few opportunities to see their baby's face without tubes or tape on their cheeks, so if I'm extubating to a nasal cannula, I tell the parents that we will get a brief moment with no tubes or tape (unless the patient has a feeding tube), and I coordinate with them to allow them to take a picture before I affix the patient's nasal cannula.

These little things really add up; even the smallest act of extra kindness can have a lasting impact on a patient's perception of the entire experience.

D'Aun Flesher is an outpatient RT with the Pediatric Multispecialty Clinic at Presbyterian Health System in Albuquerque, NM.

Editor's Note: Are you going the extra mile to ensure patient satisfaction in your hospital? Then share your experiences on the AARConnect discussion lists. The more everyone trades information on what works and what doesn't, the more value you can add to patient care at the bedside.



Caffeine Treatment Leads to Better Long-Term Outcomes

Studies have shown that caffeine reduces apnea of prematurity, shortens the time infants need to spend on breathing support, and cuts their risk of developing bronchopulmonary dysplasia. New research out of Australia suggests it improves lung function well into childhood as well.

The study was conducted among 142 children who had been part of the international Caffeine for Apnea of Prematurity randomized controlled trial. Slightly more than half the children were enrolled in the caffeine intervention. The others were given a placebo. At age 11, the investigators found expiratory flows were significantly better by approximately one-half a standard deviation for FEV1, FVC, and FEF25–75% for those in the caffeine group. FEV1/FVC was better by a lesser, but still statistically significant, amount.

According to the researchers, caffeine appeared to improve long-term breathing by reducing lung injury and abnormal development during the newborn period. They don't believe the caffeine molecule itself had any lasting effects. The study was published in a recent edition of the *American Journal of Respiratory and Critical Care Medicine*. ■

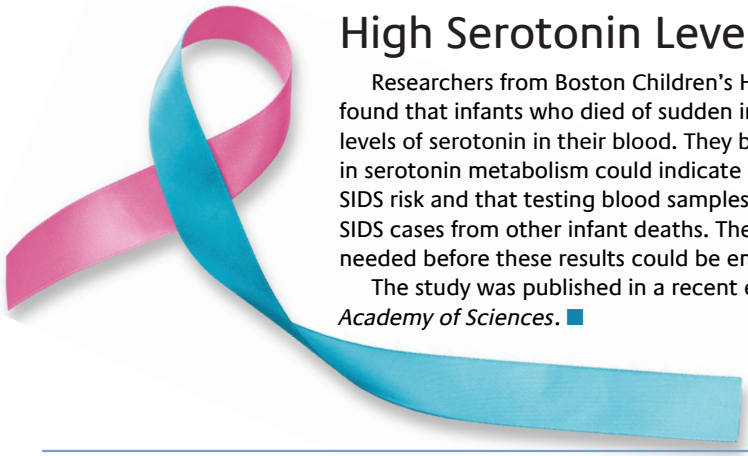
PG-13 Movies Contain More Incidences of Tobacco Use

According to the U.S. Surgeon General, kids who watch a lot of movies where people smoke cigarettes are two to three times more likely to begin smoking than those who watch fewer of these movies. Unfortunately, while the percentage of youth-rated movies featuring smoking declined from 31% in 2010 to 26% in 2016, the number of incidences featuring tobacco use in PG-13 movies actually increased by 43%, meaning PG-13 movies that did show tobacco showed it more often.

"Reducing tobacco incidents that appear in youth-related movies would prevent the initiation of tobacco use among young persons," write the authors in a recent edition of the *Morbidity and Mortality Weekly Report*. "An R rating for movies with tobacco use could potentially reduce the number of teen smokers by 18% and prevent their premature deaths from tobacco-related diseases." ■

FDA Moves To Increase Affordability of Medications

In an attempt to increase competition in the prescription drug market and facilitate the entry of lower-cost alternatives, the FDA has published a list of off-patent, off-exclusivity branded drugs without approved generics, and also implemented a new policy to expedite the review of generic drug applications where competition is limited. The actions are the first to be taken under the agency's Drug Competition Action Plan. These moves are expected to help make drugs more affordable for consumers. Visit fda.gov for more information. ■



High Serotonin Levels Seen in SIDS Babies

Researchers from Boston Children's Hospital and Harvard Medical School have found that infants who died of sudden infant death syndrome (SIDS) had high levels of serotonin in their blood. They believe the finding suggests an abnormality in serotonin metabolism could indicate an underlying vulnerability that increases SIDS risk and that testing blood samples for serotonin could distinguish certain SIDS cases from other infant deaths. They emphasize, however, that more study is needed before these results could be employed in the clinical setting.

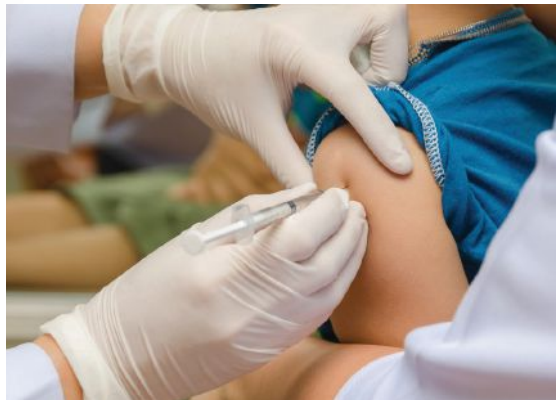
The study was published in a recent edition of the *Proceedings of the National Academy of Sciences*. ■

Social Support Really Helps COPD Patients

COPD patients who have more social support are more likely to be active participants in their own care. That's the key finding from Kaiser Permanente Southern California researchers who looked at moderate-to-severe COPD patients from two Veterans Administration hospitals and two academic medical centers. Ninety percent reported having a family caregiver and 75% lived with a family member or friends. Eighty percent were white males.

Results showed those who lived with others took 903 more steps each day and those who had a spouse or partner caregiver were 11 times more likely to participate in pulmonary rehabilitation. They also had higher scores on a social support questionnaire and were more likely to receive a pneumococcal vaccination. They were slightly less likely to be smokers. However, social support was not associated with higher levels of influenza vaccination or medication adherence.

The study appeared in a recent edition of the *Annals of the American Thoracic Society*. ■



Gene Variant May Increase the Risk for Severe Flu

Could genetics explain why some people suffer more severe infections with the flu than others? U.S. researchers believe the answer may be yes. In a study involving 393 influenza patients ranging in age from infancy to 70 years old they found those with an inherited variation in the *IFITM3* gene were more than twice as likely to develop severe, life-threatening flu symptoms as those who carried the protective version of the gene. Further study at the molecular level showed expression of the IFITM3 protein was reduced in killer T cells of patients with the high-risk variant compared to other patients. Patients with the protective variant had more killer T cells in their upper airways to help fight off the infection.

"A genetic marker of flu risk could make a life-saving difference, particularly during severe flu outbreaks, by helping prioritize high-risk patients for vaccination, drug therapy, and other interventions," study author Paul Thomas, PhD, from St. Jude Children's Research Hospital, was quoted as saying. "These results raise hopes that this newly identified *IFITM3* variant might provide such a marker." The study was published in a recent edition of *Nature Medicine*. ■

Corticosteroids Fail Some Patients with Severe Asthma

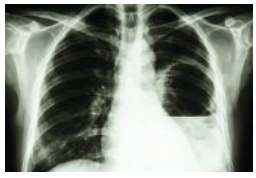
A new study out of the University of Pittsburgh suggests that treatment with corticosteroids may do more harm than good in some patients who have severe asthma. The research grew out of previous studies by the same group and showed that the inflammatory protein interferon-gamma is produced at increased levels in the airways of about half of severe asthma patients. Using a mouse model of severe asthma, the researchers also showed that interferon-gamma was responsible for poor lung function.

In the new study, they investigated whether interferon-gamma signaling is responsible for the poor response to corticosteroid therapy seen in some severe asthmatics. The work focused on CXCL10, an inflammatory protein that is induced by interferon-gamma and recruits the immune cells that produce it, perpetuating the cycle of inflammation.

CXCL10 was elevated in the lung cells of about half of severe asthma patients treated with high doses of corticosteroids, with higher levels seen in severe asthmatics than in patients with milder asthma whose symptoms were managed well by corticosteroids or other treatment modalities. When the researchers divided the patients into high and low CXCL10 groups, they found the high CXCL10 group had worse asthma control, as evidenced by more emergency department visits and asthma flares in the past year. Using cultured immune cells, they went on to show that corticosteroids fail to suppress CXCL10 gene expression in immune cells because they actually stabilize the signal from interferon-gamma that stimulates CXCL10 production.

"While corticosteroids are the mainstay asthma treatment, our findings suggest that these medications are of limited help to patients with high levels of interferon-gamma and CXCL10, and may even be harmful over time," explained study author Sally Wenzel, MD. The study appeared in a recent edition of *JCI Insight*. ■

Strange But True…



Repurposed bacteria: The bacterial genus *Burkholderia* thrives in the human lung, in part by producing antibiotics to ward off its competition. Now researchers have isolated an antibiotic from one species of *Burkholderia* taken from the sputum of a child with cystic fibrosis they believe could help in the fight against drug-resistant tuberculosis. Called gladiolin, it was able to block the growth of four drug-resistant strains.

Repurposed drug: Just 12 weeks of treatment with the asthma drug amlexanox led to a clinically significant reduction in blood glucose levels in a subset of patients with Type II diabetes, according to University of Michigan researchers. It worked by targeting two enzymes induced in obese mice, which caused energy expenditure to decrease. Mice who took the drug lost weight, and their sensitivity to insulin increased. Similar changes occurred in the human group that responded to the medication.

Repurposed concrete: The production of concrete is known to cause air pollution. But once concrete is set, the opposite occurs. According to Stony Brook University researchers, concrete actually soaks up and eliminates sulfur and nitrogen oxides from the air. The discovery suggests waste concrete from building demolitions could be used to absorb pollutants.

Repurposed chocolate: Smoke and tobacco shops are adding a new product to their inventory: snortable chocolate. The concept originated in Europe a few years ago and is now being marketed in the U.S. under the name "Coco Loko." It's being billed as a stimulant and stress reducer, but physicians believe it could have significant ill effects not only on the nasal passages, but on the lungs, too, should any of the stuff end up there. ■

Ear Device Helps ICU Patients Filter Out Alarms

Filtering out unnecessary alarms so that clinicians can focus on those that are necessary for patient care has received much attention of late. Researchers from Vanderbilt University are working on a new method to filter all of the alarms that typically sound in the ICU out of the patient experience entirely.

Noting that the constant sounding of alarms in the ICU disturbs patients' sleep and causes them anxiety, they are developing a device that's worn in the patient's ear and can eliminate alarm sounds from the patient's perspective by digitally subtracting sound waves without impacting the patient's ability to hear normal sounds. In fact, the device helps to preserve and improve speech comprehension.

They tested the device in a simulated ICU environment, with results showing clinical and statistical improvement in alarm filtering. The investigators presented their findings at the International Community for Auditory Display meeting earlier this year.

Calendar of Events

AARC & State Society Programs

September 19–20, 2017
Meredith, NH
VTNHSRC Education Conference
Contact: vtnhresp@gmail.com or http://www.vtnhsrc.org

September 29, 2017
Fredricksburg, VA
VSRC Neonatal & Pediatric Conference
Contact: sharkrt@gmail.com

October 19 2017
New Castle, DE
24th Annual Trends in Respiratory Care
Contact: dsrc.org@gmail.com or www.delawarelung.org

October 24–October 25, 2017
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An Unconventional Respiratory Care Career

Craig Black, PhD, RRT-NPS, FAARC

I have always felt that respiratory therapists are individuals who often do things in unconventional ways during their careers, and I would certainly fall into that category. I came to the University of Toledo (UT) in the fall of 1979 to serve as a faculty member in the biology department. I taught physiology, and my research interests were in the area of oxygen transport in birds and reptiles.

I have published studies on animals, running the gamut from bar-headed geese to Burmese pythons and cottonmouth snakes. However, by 1988 I was discouraged by my inability to generate funding for my research and decided to switch to human respiratory research, where I hoped funding would be better. I quickly discovered that I could not get anywhere near a bedside without some sort of credential.

At the time, I had two respiratory therapists in my human physiology class who were returning to earn bachelor's degrees so that they could then attend medical school. UT had a program in respiratory care, which I could attend for free, so I explored the idea with my two students. They both assured me that I would not like it. Fortunately, I did not listen to them, and at the ripe old age of 46 I found myself in a respiratory class with 26 other students, one of whom I had previously had in one of my biology classes. My intention was to pursue research, but then I discovered patient care, and I was hooked!

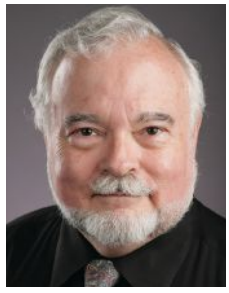
I completed the program in 1992 and, while continuing my role as a biology faculty member, I worked as a contingent respiratory therapist at St. Vincent Hospital in Toledo on weekends and during holidays and vacations. In 1999, I was fortunate enough to switch my faculty line from the biology department to the respiratory care program. I have served as a faculty member, as the director of clinical education, and since 2009 as the program director.

With the conclusion of the spring semester in 2017, I officially stepped down from my program director position. I have an 85-year-old house and a wood shop in my basement, both of which were calling my name.

I have also started volunteering at two different free clinics in Toledo, and I plan to do some of the mission trips that I have put off for many years. Finally, I decided to continue working as a therapist on a per diem basis at St. Vincent as well, and I may continue to do some part-time teaching in the program as well, so "retirement" is shaping up to be a lot of fun!

I consider myself incredibly blessed to have had two jobs, both of which I absolutely loved, for most of my working life. I have been blessed not only with fantastic students, but also with two incredible colleagues at UT, Christa Turley, MEd, RRT, and Nicole McKenzie, MHA, RRT, as well as with many others too numerous to mention at St. Vincent. In addition, I have had the privilege of several extraordinary mentors, particularly Margaret "Peg" Traband, MEd, RRT, FAARC, all of whom helped me keep my train on the track despite my own best efforts at times to derail it!

about the author...

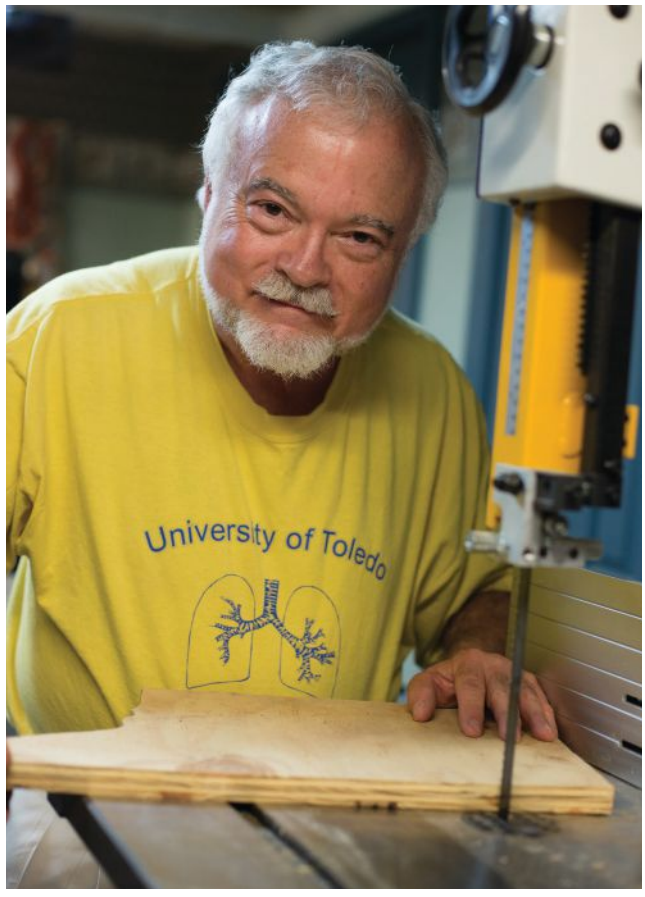


Craig Black, PhD, RRT-NPS, FAARC, is a long-time educator based in Toledo, OH.

At a crossroads

As a respiratory care educator, I cannot help but reflect on the state of our profession. When I entered the field in the early 1990s, the role of the respiratory therapist was beginning to morph from something of a "knob turner" to that of a colleague on an equal footing with other medical professionals. Today we have as-

One of Black's passions during retirement is volunteering at free clinics like this one.



For Craig Black, retirement has meant more time for fun projects in his workshop.

sumed many roles previously reserved for physicians, such as ventilator and extracorporeal membrane oxygenation management, as well as roles in discharge planning and postdischarge monitoring, to name just a few. Many of the competencies proposed for our profession by the AARC's second "2015 and Beyond" conference[1] have already been assumed by therapists.

Quite honestly, I believe our profession has risen magnificently to this challenge. The role of the respiratory therapist continues to expand in many directions beyond traditional hospital care. However, our profession is at a crossroads. Our educational enterprise has not kept up with our expanding roles in the medical community. I strongly believe we need to revamp how we educate our students.

First, we need to expand our curricula to encompass many of the new roles we are now assuming. I believe this means we must move from the associate degree level to at least the bachelor degree as the entry-level degree. Second, we need to add new curricular material to the content tested on the board exams. Third, we must develop specialty tracks in areas such as advanced clinical practice, discharge planning, rehabilitation, research, and education.

Finally, it is critical that we increase access to advanced degrees in our profession. Unlike other health professions, such as nursing, pharmacy, physical therapy, and physician assistant, our profession has only a handful of masters programs and not a single doctoral program. Without these programs, I believe we will never generate the number of respiratory faculty needed to meet our educational needs, nor the number of advanced practice RTs needed to fill our expanding roles. Numerous faculty positions are now being advertised, most of which seek individuals with a minimum of a masters degree and preferably a doctorate. My retirement was, in fact, delayed (I originally intended to be spending more time in my workshop by the end of the fall 2016 semester) because of our program's inability to attract such a person.

The AARC, CoARC, and the NBRC have all recognized this shortfall and have started to make needed changes. However, the pace is slow, and I fear that our profession could be blocked from developing to its full potential if that pace is not quickened.

Despite these issues, I believe the future holds great promise for us, and somehow, as we have always done in the past, RTs will continue to rise to the challenges placed before us. In many ways, I am envious of those entering our profession today. While I am ready for this new chapter in my life, there is a part of me that would like to have a role in shaping that future! ■

REFERENCE

1. Barnes TA, Gale DD, Kacmarek RM, Kageler WV. Competencies needed by graduate respiratory therapists in 2015 and beyond. Respir Care 2010;55(5):601–616.

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