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THANK YOU

First responders and those who became first responders.

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Another EMS World Expo is in the books. Las Vegas gave us a warm welcome and a gracious hosting. With the tragic events of October 1 on everyone’s minds, we remain dedicated to advancing the profession of EMS by educating providers to be their very best.

It is no secret that EMS providers excel at preparing and training for the “high-acuity, low-frequency” event, also known as “The Big One.” Despite this dedication, we can likely never predict the elements of an active shooter event and its aftermath. Each unique incident brings a unique set of lessons.

As a responder to the scene of the June 2017 Simpson Field shooting in Alexandria, Va., I learned my own set of lessons. Arriving as the last patient was being transported, I found myself in a unique position: as a witness to the immediate aftermath and more specifically, to the needs of the witnesses, bystanders and first responders.

After checking in with the incident commander, I was tasked with verifying patient information: where they went, how they got there and whom they were. In true form, the rapidly evolving nature of these incidents often precludes the establishment of a true triage system.

Shortly after, with a few bottles of cold water, I approached a group of police officers who were staffing the perimeter of the scene and asked them if they needed anything. One officer replied, “Sunscreen. We’re going to be out here for a while and I forgot my hat.”

Who knew? And what else don’t we know?

Have you been able to account for bystanders and witnesses who were not transported? In the Fort Lauderdale airport shooting, some hid in closets and small spaces for hours, not knowing that the scene had been made safe shortly after the incident started.

Are you ready for every potential weather scenario? If it is cold, can you set up a warming tent? If it is hot, as it was in June in Alexandria, do you have a place for people to cool down? These may be standard preparations for a structure fire, but consider the length of time an investigation may take; there may be long-term needs for which we haven’t planned.

Investigators in Alexandria asked witnesses to remain on the scene near the baseball field so they could be interviewed. We now had multiple older adults, recovering from witnessing a horrific trauma, crashing down from their adrenaline rushes, overheating in their long-sleeved polyester baseball uniforms in 90-degree heat. They needed water, shade, chairs, a kind ear, something to eat, reassurance and a medical assessment for the knee injuries and ankle sprains that began hurting once they had calmed down.

Who could anticipate that there would be not one additional agency, but up to five working the Simpson Field incident? U.S. Capitol Police, Alexandria Police, the FBI and the Secret Service all had a stake in assessing the threats and the nature of the response. The Pulse nightclub shooting in Orlando proved once again that our issues with communication have not been fully resolved: The police command post was on the opposite side of the nightclub from the fire/EMS incident command post, forcing the use of the radio instead of the much easier face-to-face method.
After the incident, responders will not only need time to perform routine duties such as unit restocking, cleaning and writing patient care reports (which may be subpoenaed), but also to compose witness statements, debrief, eat, hydrate, rest and check in with their loved ones.

Have you thought about the logistics of gathering extra inventory? Is it easily accessible? In Alexandria, we were temporarily without multiple EMS bags, EKG monitors, oxygen bottles, stretchers and even a department SUV as they were being processed within the taped-off crime scene of the baseball field. In a small agency with just six front-line ambulances, missing this equipment from two of our units meant a delay in getting back into service until we rounded up the extra inventory.

Have we prepared enough for the post-traumatic stress our providers will experience? Your agency may need to marshal the resources of multiple mental health experts. More than 100 EMS providers responded to the scene of the Route 91 incident; how long will it take to assess, evaluate and then treat these providers, perhaps for the long term?

While the Las Vegas shooter was located quickly, many inaccurate reports of multiple shooters complicated law enforcement efforts. Not only do we have our own internal communication hurdles, but we also may not have a perfect way to communicate with the public.

After police officers were shot in Dallas in July 2016, the police department’s medical director expressed frustration at the inability to clearly communicate with the public that the incident was over and the scene was safe. In addition, the Las Vegas shooting produced familiar stories of family members having difficulty tracking down their loved ones. With hospitals focusing on treating life threats, resources might not be immediately designated to identify patients or contact family members.

EMS has an enormous task on its shoulders in trying to mitigate all of these dangers. But we do have a wealth of resources and knowledge to bring to bear for these events. We know what works and what doesn’t.

The Las Vegas incident and others like it prove the value of the bystander: the untrained who controlled bleeding, the drivers who transported numerous patients in their own vehicles, the concert-goers who carried the injured away from the scene. The science doesn’t lie: Just as research proves the importance of bystander CPR, we know EMS cannot treat 500 instantaneous victims, and we must focus on time to definitive treatment.

This is a call to educate. EMS is the helping profession; we must help the public know they will make a difference in these terrifying events. Read Tracey Loscar’s column on the back page of this issue for her eloquent take on the power of the individual. Let’s teach them how to Stop the Bleed. Let’s teach every citizen hands-only CPR. We can’t just sit by and wait for “The Big One.” After all, we are a community who works together before, during and after a tragedy. We are in this together.

The Las Vegas incident and others prove the value of the bystander.
The benefits of system status management (SSM) have been hotly debated, with some extolling the virtues of efficient resource utilization as a hallmark of high-performance/high-value EMS. For others it’s a bane that leads to crew fatigue and delayed response times. Mecklenburg EMS Agency (Medic) in Charlotte, N.C., has mastered the art and science of SSM, achieving a balance between system performance and crew satisfaction. Here’s what it takes to use SSM effectively.

Basics of SSM
At its core SSM is exactly what the term implies: a process used to manage a system. Management is an active process of transforming inputs (people, resources) into outputs (patient care, response times). Every EMS system is managed, but they can be managed differently.

One way to manage a system is to use a static deployment model, producing the same number of resources throughout a 24-hour period placed in fixed locations. An alternative way to manage a system is to be flexible in your deployment strategy, producing the number of resources likely needed to meet anticipated demand during a given period over a given geography.

Jack Stout, the economist credited with first describing the concept of system status management in EMS, believed using resources effectively creates value in EMS. The term SSM is used to describe the process of refining EMS resource management and utilization to improve patient outcomes and reduce the cost of EMS delivery.

When managing a system, it’s important to understand what your organization produces. EMS agencies produce unit hours; a unit hour is composed of four ingredients: staff, supplies, equipment and a ready-to-deploy ambulance (or fire response unit, etc.). When considering flexible deployment of unit hours, there are essentially two components to consider: temporal and geospatial.

The temporal component addresses the “how many and at what time?” question. The development of a unit-hour production schedule should be based on anticipated demand. In high-volume EMS systems, there are often patterns to call volume. Call volume is generally higher when more people are moving about—morning and afternoon rush hours, lunchtimes and what we in EMS affectionately refer to as “bar-thirty,” when drinking establishments close. These times typically also have traffic congestion (often discussed as impedance) that makes it difficult to get anywhere quickly. If you analyze your community’s demand over time, you can plan your production strategy to produce more unit hours when the predicted...
volume is high and fewer when the predicted volume is low.

The geospatial component of flexible deployment addresses where to place available unit hours. Placing the produced unit hour in or within reach of an area of anticipated call volume enables you to improve response times. Think of it this way: You can dramatically reduce response times by starting your response closer to the call. It’s not cheating to use data to inform deployment decisions and thus be ready to respond where our patients need us. Again, based on the demand, call locations can be generally predictable, which lets you actively manage your deployment plans.

**Why Use SSM?**

Medic’s mission is “To save a life, hold a hand and be prepared to respond in our community when and where our patients need us.” We take that seriously. The largest expense to an EMS agency is the cost of readiness, and most of that cost is the people expense (wages, benefits, overtime, etc.). Being able to effectively manage this expense makes more money available for other things that make EMS systems great places to work and improve our care delivery: better pay for employees, the types of ambulances used, the equipment on those ambulances, employee-recognition programs. If you squander money doing a poor job at resource allocation (management), you have less available to do other important things.

SSM is a way to use scarce (and expensive) resources effectively. If you want to be a high performer, you need to understand what you’re producing—the unit hour—then use that product effectively. This is why

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If you think of an EMS system as a healthcare system, how many “beds” (ambulances) do you have available, and where are they?

many high-performance/high-value EMS systems can operate efficiently and have great results at a lower cost, resulting in reduced taxpayer subsidies and a sustainable funding model.

The idea of SSM has, to some extent, been vilified by some in EMS. This may not be fair. It takes a very robust skill set to effectively and efficiently manage an EMS system. Without that skill set, you run the risk of creating imbalance in the system.

SSM is implemented in three different ways:

• **Competence**—People who do it right: the correct skill set, paired with the tools, data and technology to match supply to demand, working collaboratively with the people who will be responsible for implementing and operating within the system.

• **Incompetence**—People who think they’re doing it right but lack appreciation for the complexities and human impact of deployment planning and execution. They’re not bad people or systems, they simply don’t know what they don’t know.

• **Malpractice**—People who know how to do it correctly but intentionally choose to push the limits too far, drive crews to the point of fatigue and cause systems to fail.

The two latter methods of implementation are most likely responsible for the vilification of SSM. The unintentional and intentional mismanagement of systems, to the detriment of employees and the community, results in poor system performance.

Instead of understanding how to work within the system and improve, we blame the methodology, even when it hasn’t been implemented correctly.

SSM does not abuse people—failure to correctly develop, implement and manage a system plan causes the abuse. Balance is achieved when people know how to manage the system based on understanding the needs of the employees and patients. Jack Stout often asked, “How long does a unit hour last?” The answer is just about an hour—no more, no less. Unit-hour production is almost the perfect example of just-in-time production: You want to build just as many hours as you need given your demand—no more, no less. If you build your plan with an expectation that you’ll produce a certain number of unit hours and fail to produce that number, the system will be challenged regardless of the operational controls you put in place.

### Keys to Implementation

To implement SSM, you first have to commit to developing your leaders, have clarity on process and be willing to test changes in your practice. Once that underlying structure is present, we’ve learned there are three keys to effective system management:

- **Predict**—Forecast the demand in the system, both time and space;
- **Produce**—Produce the resources needed based on the forecast and goals of your agency;
- **Observe**—Measure performance and process reliability; not just response times but all the pieces that go into creating the outcome that is response time.

We understand the gravity of the system management plan and its impact on our employees and customers, so we take the plan very seriously. Yes, we have all the tools, talent and resources to develop an effective plan, but we also realize we need balance in the plan to assure employee well-being and customer satisfaction.

We use a cross-representative team to refine our SSM plan to make sure it remains consistent with our mission. For example, we measure post-to-post moves and other daily activities and reduce unnecessary movement as much as possible.

These reviews have recently led us to an interesting discussion. EMS is still learning about call prioritization. Some would say we’ve created unrealistic community expectations for many of our low-acuity calls. If someone with a low-acuity medical need walks into an emergency department, how long would they wait to be seen? EDs queue patients based on acuity, and in some urban areas it may be hours before you see the inside of a treatment room.

Yet for some reason EMS agencies have set a community expectation that even low-acuity calls need a response in 15–20 minutes. Is that realistic when we know ambulance transport to a hospital emergency department will not speed up care for a low-acuity patient, and that ED may not even be the most efficient or effective resource to meet the patient’s need?

If we think of an EMS system as a healthcare system, how many “beds” (ambulances) do we have available, and where are they located? We’re starting to ask ourselves, “Is it OK to queue low-acuity calls to maintain resources for higher-acuity calls and decrease the stress and workload of our employees?”

### From Static to Flexible

When implementing SSM, first, realize you’re already doing it. Any EMS agency that responds to calls has a deployment model; some are just not doing it intentionally. Their structure may be historically based on what’s easy for the agency or desired by the employees.

Think about your resource allocation and all the things you could do with the money saved by making more effective use of unit hours. Who wants to work for an agency that squanders money on ineffective resource deployment when it could be better used to improve the well-being of the employees and the community?

Then, start measuring calls by number and location. One of the most interesting questions to start asking yourself is, “How many calls did we run yesterday?” Many EMS agencies struggle with a defini-
tive answer to that question. Requested responses, actual responses, those canceled en route or on scene, those with no patients or multiple patients—it’s a harder question to answer than you think.

Build and follow the data. Learn how to develop and implement effective plans from systems and people who do it well. Start slowly and learn as you go. Some agencies have 90% of their EMS units on static deployment, with 10% as “peak demand” units. If you take a hard look at the data, you could slowly and intentionally begin shifting those static resources to dynamic resources, becoming more effective and creating clinical and economic efficiencies in the system.

**Final Words of Wisdom**
EMS is healthcare. Healthcare is rapidly changing to a value-based economic model. Local taxpayers are beginning to focus on the same value-based models, and you’re seeing communities across the country begin to ask tough questions about the costs of service delivery and value.

Why should you become an expert in the production and placement of ambulance unit hours? Outside the benefits noted above, cost efficiency and the ability to pass those efficiencies on to our employees, unit-hour production is the core responsibility of EMS managers uniquely. No one is going to produce unit hours for us when and where we need them.

If we can apply management and improvement theory to how we produce unit hours and improve our response-time reliability, we can also apply those methods to improving patient care. It’s about matching resources to need, whether the need is system coverage to meet demand, a defibrillator to convert ventricular fibrillation or a conversation with a patient who may not be best served by ambulance transport.

Effective resource utilization is paramount in this new environment and a major disruptor in the provision of EMS, regardless of the type of agency providing the service. We encourage the EMS profession to continue identifying innovative methods to manage systems and match the resources we create with the needs of our patients.

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On-Duty Injuries and Exposures

What sends EMS providers to emergency departments? A new study delves into causes

By Antonio R. Fernandez, PhD, NRP, FAHA

This month’s research review features a paper devoted to occupational injuries and exposures among EMS workers. This interesting study was conducted in response to an NHTSA consensus report that called for an injury and illness surveillance system for EMS providers.

NHTSA’s report noted there was limited literature detailing the extent to which injuries and illnesses are experienced by EMS providers. This is how a lot of really important research starts: A significant study or a group of subject matter experts identifies a topic that is not well researched and calls for scientists and researchers to publish studies that add to the topic’s body of literature. This study does an impressive job describing the challenges of remaining safe while working in EMS. It does this by surveying EMS providers who sought treatment in an ED for an injury, illness or exposure that occurred on duty.

The study collected data by having interviewers call EMS providers who were injured while working. These individuals were identified by the National Electronic Injury Surveillance System, which is used by NIOSH to estimate nonfatal occupational injuries and illnesses treated in EDs around the country. This study was a collaborative effort by NIOSH and the NHTSA Office of EMS. On each call the interviewers administered a 20-minute survey with questions ranging from characteristics of the event to the injury outcome. The study period was from July 2010 to June 2014. National estimates of EMS providers treated in EDs for occupational injuries and exposures were calculated based on the results of the telephone interviews.

In total, 572 interviews were completed. It is worth pausing here for a moment to emphasize that national estimates of EMS providers’ injuries were calculated based on results of interviews with 572 injured EMS providers. There were 196 individuals who declined to participate. Yes, getting 74% of those called to complete the survey was impressive; however, the more individuals who reply, the more accurate the estimates.

There may be folks reading this who decline to participate in phone surveys. In reality, 20 minutes is a long time to spend on the phone answering questions, but the next time you get a call asking you to participate in a survey, at least listen to the purpose before declining. It could be an opportunity to have a meaningful impact in improving EMS research.

To calculate national estimates based on a limited number of individuals, responses are weighted. Essentially what this means is that one individual’s answers are treated as responses from many individuals. In this study, the 572 interviews represented 89,100 EMS providers injured or exposed during the study period. Yes, that sounds like a pretty large jump; however, there are validated statistical methods that support the calculation of such estimates. It is beyond the scope of this review to dive into these methods, but this paper does a fantastic job describing the assumptions and adjustments used. I hope everyone who reads these columns follows up and reads the actual manuscripts behind them. This is especially true for those interested in the statistical methods behind the study results.

Findings

Let’s discuss what the authors found out. The most common injuries were described as body motion injuries. Forty-one percent of respondents indicated their injury was a sprain or strain, totaling an estimated 37,000 sprains/strains among EMS providers during the study period. The overwhelming majority (90%) of these injuries occurred when lifting patients. About half of those injured while lifting indicated the patient being lifted was heavy, overweight or obese.

Harmful exposures were next, representing 20% of the total diagnoses (17,400 estimated exposures nationally). Of these,
needle sticks (21%) were the most common. Other than needle sticks, most exposures occurred to the eyes. There were an estimated 5,600 harmful exposures to the eyes nationally. Many of those eye exposures occurred when no eye protection was worn.

Loss-of-balance injuries were the third most frequently reported diagnosis. The most common of these were falls from the same level (43%), representing an estimated 6,000 of these falls nationally during the study period. Other causes of loss-of-balance injuries included going up or down steps or a curb, getting in or out of the ambulance and slipping on wet surfaces. Patient-handling activities accounted for 56% of loss-of-balance injuries.

Motor vehicle incidents accounted for about 8% of the injuries evaluated in this study. This is a good time to remember that the injuries examined in this study were nonfatal. It is well known that ground and air ambulance crashes are the leading cause of death among EMS professionals. The 8% reported here are those lucky ones who lived after their crashes. Although these individuals lived, about 66% had to miss a day or more of work. This was the highest proportion of missed work days among all injury types evaluated. The 8% also represents a much higher injury rate when compared to all workers in the general population.

Finally there were approximately 6,400 injuries to EMS providers due to violence and assault. An estimated 3,300 involved physical violence. Seventy-one percent were directed at the EMS provider, and in all but an estimated 300 of these events, the patient was the perpetrator. Not surprisingly almost half involved a patient who appeared to be under the influence of alcohol. Police reports were made in only 42% of these events.

Conclusion
As we discuss each month, every study has limitations. The authors here did a nice job describing theirs. Most important was that these estimates are likely an underestimation of the true number of occupational injuries and illnesses experienced by EMS providers.

The only injuries, illnesses and exposures included in this study were those where the EMS provider went to the ED for treatment. In other words, it excluded all the times someone self-treated or had a colleague assist them. There were also some limitations caused by the assumptions and adjustments to the statistical and sampling methods; I encourage you to read this paper to fully put these results into context.

This study adds some very important data to the available literature on occupational injuries and illnesses experienced by EMS providers. These results are valuable not only to leadership and decision makers but can help all of us better understand how to keep ourselves safe on duty by increasing our understanding of the most prevalent dangers faced.

ABOUT THE AUTHOR
Antonio R. Fernandez, PhD, NRP, FAHA, is research director at the EMS Performance Improvement Center and an assistant professor in the Department of Emergency Medicine at the University of North Carolina—Chapel Hill. He has been a nationally certified paramedic since 2005 and completed the EMS Research Fellowship at the National Registry of Emergency Medical Technicians.
The HeartRescue Project’s ultimate goal is to save lives and improve public health through awareness and training.

Photos: SaveMIHeart

SAVING HEARTS IN THE HEARTLAND

By joining the HeartRescue Project, Michigan bolsters its efforts to improve SCA care

By Hilary Gates, MAEd, NRP
When a group of Michigan clinicians and researchers set a goal of doubling the state’s sudden cardiac arrest (SCA) survival rate over the next three years, they knew it would take a team of dedicated, enthusiastic individuals and the help of others like them around the country who’d already found ways to improve cardiac arrest systems of care.

That’s why the state recently partnered with the HeartRescue Project, a national collaborative focused on saving more lives from SCA. Coined in 2014 as “SaveMIHeart,” Michigan’s grassroots effort began with dedicated volunteers and very little funding. Before the state even became a HeartRescue partner, SaveMIHeart had brought together a team of leaders and volunteers committed to improving outcomes for victims of cardiac arrest.

There is Teri Shields, a nurse who audits the 6,000 or so out-of-hospital sudden cardiac arrests collected by the state of Michigan each year and also serves as SaveMIHeart’s executive director.

“We stress the importance of the simple things, like hands-only CPR for bystanders,” she says. “Calling 9-1-1 and starting hands-only CPR are two simple, lifesaving actions.”

There is Robert Neumar, MD, cochair of the initiative, who provides vision and direction for the team.

“Cardiac arrest is the most critical condition we treat,” Neumar says. “In addition, treating cardiac arrest requires the most complex system of care. I like a big challenge.”

There is Robert Dunne, MD, the emergency physician who oversees the EMS system in Detroit, the state’s largest metropolitan area, and who is out on the streets with paramedics and EMTs, teaching them the knowledge and skills necessary to achieve SaveMIHeart’s goal.

“As a leader, I must provide best practices for training and support for protocol changes,” says Dunne. “I focus on ways to get the latest knowledge about cardiac arrest out there to the patients who need it.”

And there are others, such as Brian O’Neil, MD, chair of the emergency department at Wayne State University, and Robert Swor, DO, an emergency medicine physician at Beaumont Health System. These two organizations, along with the University of Michigan, Emergent Health Partners and the Kellogg Family Foundation, have provided much of the funding that supports SaveMIHeart.

But the team extends even outside of Michigan’s borders, to the dozens of experts around the country who support their fellow HeartRescue Project members. Like Kim Harkins, program manager of Minnesota’s Resuscitation Consortium, who provides guidance to new partner states, like Michigan, by drawing on the vast repository of lessons learned by HeartRescue Project partners.

“Cardiac arrest,” says Harkins, “is a public health crisis screaming for national attention and recognition.”

Measure and Improve
The HeartRescue Project began in 2011 with a five-year grant from the Medtronic Foundation to support six states and one private ambulance partner, all renowned for their resuscitation excellence, in their efforts to measure and improve cardiac arrest outcomes.

The partnership emphasized the collection of process and outcome data because only by examining this information could HeartRescue members know whether their efforts were safe and effective. Within a few years the partners saw survival rates increase, thanks largely to improvements in evidence-based actions by bystanders, emergency responders and hospital personnel.

Those initial successes led to the expansion of the HeartRescue Project and its efforts to support measurement and improvement. Overseeing this new phase is one of the project’s founding partners, Thomas Rea, MD, who also serves as medical director for King County Medic One and is an associate professor of medicine at the University of Washington. Rea helps coordinate a team of HeartRescue partners who continue to collaborate by sharing best practices for treatment of cardiac arrest and researching new and innovative approaches.

The HeartRescue Project’s ultimate goal is simple: to save more lives and improve public health. Their work is cut out for them, as more than 350,000 people experience SCA in the United States every year, and fewer than 10% survive.

Creating Systems of Care
As a founding member and codirector of SaveMIHeart, Neumar has worked with his team to examine and improve four distinct aspects of cardiac arrest care: bystander CPR, 9-1-1 dispatch, EMS response and postarrest hospital treatment. These four components make up the all-important system of care.

Each of these important steps in some way relies on the others; none of them will succeed if they aren’t working in concert. Identifying best practices, performing quality improvement (QI) and providing guidance for individual communities within the state are ways Michigan can measure and improve outcomes, according to Neumar.

“We need to figure out how to best optimize the system of care to implement the science we know works,” he says. “Even if we design or discover new therapies, if we plug them into a system of care that’s not functioning optimally, we will not see improved outcomes.”

Improving the rate of bystander CPR. Shields uncovered noteworthy data on Michigan’s bystander CPR rates: Only about 40% of SCA victims get it, though research indicates it’s one of the most critical links in the chain of survival. Michigan wants to raise that rate to 50% or more.

Last year the state enacted legislation mandating CPR and AED education in high schools. In addition, SaveMIHeart created an award-winning public service video about hands-only CPR and showed it to more than 100,000 fans at two University of Michigan football games. The lighthearted video, which has also been viewed more than 150,000 times on social media, features a tailgate party where an SCA victim receives bystander CPR while the school’s marching band plays the University of Michigan fight song—which happens to be at the standard CPR rate of 100 beats a minute.

“SCA victims who receive immediate bystander CPR before EMS arrives have an increased chance for survival,” Shields says.

Within Dunne’s Detroit East Medical Control Authority, SCA survival rates had been some of the lowest in the nation. Dunne
The HeartRescue Project

The HeartRescue Project (HeartRescueProject.com) launched in 2011 with support from Medtronic Philanthropy. It brought together leading experts who all shared the belief that sudden cardiac arrest is a treatable condition and public health issue. Together these leaders from six states, as well as the communities served by American Medical Response (AMR), collaborated to share best practices and innovative approaches to achieving the project’s goal of dramatically increasing cardiac arrest survivor rates over five years.

With its recent expansion, the HeartRescue Project now includes both HeartRescue United States and HeartRescue International. With continued support from Medtronic Philanthropy, HeartRescue International is bringing some of the lessons learned from five years of the HeartRescue Project in the U.S. and applying them to communities in China, India and Brazil.

HeartRescue United States continues as a consortium of the original partners as well as several other states that have recently joined. These members have committed not only to collaborating but also to using the Cardiac Arrest Registry to Enhance Survival (CARES), a national database that allows them to measure and evaluate cardiac arrest processes and outcomes. Together these partners help support each other’s efforts to integrate their communities’ response to cardiac arrest, coordinate education of both the public and medical professionals, and introduce and apply best practices. In addition, many HeartRescue partners coordinate and support survivor groups—visit LifeAfterSCA.org to find out more.

HeartRescue United States partners include AMR and these member states:

![HeartRescue United States partners map]

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on disseminating the lessons they and others have learned to all corners of the state, from the rural forests of the Upper Peninsula to downtown Detroit.

For example, an increase in CPR quality happens when EMS agencies take advantage of tools such as real-time CPR quality feedback devices. Indeed, for EMTs or paramedics, a critical skill like CPR is considered “high-risk, low-frequency,” meaning it’s a potentially lifesaving technique but one that may not be applied often.

One EMS agency in Alpena received FEMA support as well as grant funding intended to help rural EMS systems implement CPR feedback devices and train providers in high-performance CPR. Shields would like to see other EMS agencies do the same.

“We need to download the CPR performance data and debrief after the call is over,” she says. “This will help ensure quality CPR is provided during a resuscitation. All providers need feedback about their performance to improve for the next patient.”

Dunne continues to work on certifying more than 1,300 firefighters in the Detroit area as emergency medical responders (EMRs). These firefighters were not traditionally trained as EMTs or EMRs, and cardiac arrest victims were sometimes treated by as few as two providers. Now that number is often closer to six.

“We’ve had two different cultures of providers in the past,” says Dunne. “These newly trained firefighters who are now medical first responders make our teamwork more seamless and integrated.”

To help promote evidence-based practices in EMS response to cardiac arrest, the HeartRescue Project ensures that new partners attend a “resuscitation academy.” The academy, which began in Seattle, is intended for EMS managers and medical directors to learn how to measure and
Improve cardiac arrest response and outcomes in their communities. After attending an academy, HeartRescue partners commit to offering resuscitation academies in their states. The leaders of SaveMIHeart also host a one-day conference to bring together EMS and hospital providers from across the state.

“The purpose of the annual conference is to come away with best practices we should be working on to achieve our goal of doubling survival by 2020,” Shields says. “We aim high. We set our goals high, and we reach for them.”

Improving in-hospital care of SCA patients. When an SCA victim arrives at the hospital after being successfully resuscitated, the short- and long-term treatment plans are critical to the patient’s outcome. While much has been studied about how to improve a cardiac arrest victim’s chance of meaningful survival, many unknowns remain. While others may be put off by this uncertainty, Dunne finds it energizing.

“I see how fast the science changes, even over the course of a few years of my initial training,” he says. “Cardiac arrest is a wide-open area of research that has a lot of possibilities for improvement.”

Shields’ data collection efforts are key to informing physicians such as Dunne about performance and effective treatments. Shields, who has a background in cardiac and critical care nursing, uses this training and experience when she shares data with hospital caregivers looking for ways to improve survival for patients who regain a pulse after SCA.

“Are we withdrawing care too soon? What are the outcomes for patients who receive targeted temperature management or cardiac stents?” Shields says, describing the questions she and others are trying to answer about the impact of in-hospital interventions. “What is our level of optimal care?”

The HeartRescue Project focuses on collaboration among its partners so they can analyze information about how, when and where SCA patients are transported. These data will help EMS agencies make determinations about medical protocols, the use of mechanical CPR devices and hospital destination requirements.

Conclusion
None of these initiatives would succeed in Michigan without the leadership of dedicated people such as Dunne, Neumar, O’Neil, Swor and Shields. Together they are tackling a public health problem in their state by taking universal best practices and tailoring implementation efforts to their communities. The HeartRescue Project has given these visionaries access to a network of like-minded leaders in systems with the same goal: increasing survival rates from sudden cardiac arrest.

The size and scope of an effort to double SCA survival rates may be daunting, but Michigan’s leaders are committed to success. Detroit happens to be one of the largest contributors to the CARES database in the country.

“If we are going to double the survival rate, a lot of the improvement has to come out of Detroit,” Dunne says.

With support from HeartRescue Project collaborators around the country, Michigan’s SaveMIHeart initiative can have a huge impact on residents’ lives by creating a system of cardiac arrest care that focuses on the ultimate outcome, Harkins says. “The big picture in our states is that we are seeing more SCA victims who are living instead of just surviving.”

ABOUT THE AUTHOR
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SaveMIHeart created an award-winning public service video about hands-only CPR and showed it to more than 100,000 fans at two University of Michigan football games. The lighthearted video has been viewed more than 150,000 times on social media, according to Teri Shields (4th from right).
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In the wake of back-to-back hurricanes Harvey and Irma, first responders and healthcare organizations scrambled to provide relief to those most impacted by the destruction of the storms. Search and rescue teams, physicians and nurses, EMTs, firefighters and law enforcement worked tirelessly to help ensure the safety of the displaced residents of Texas, Florida and the Caribbean islands.

EMS physician Benjamin Abo, DO, EMT-P, EMT-T for UF Health, a specialist in austere and international EMS and medical team manager for Miami-Dade Fire Rescue Urban Search and Rescue Florida Task Force 1, is one of many responders who participated in search and rescue operations after the hurricanes. His task force team had been home in Florida after helping with Hurricane Harvey rescue efforts in Texas for less than 48 hours when they were deployed again to the Florida Keys after Irma struck.

“We’re the tip of the spear for disaster rescue, so we’re the first to go in and do whatever we need to do,” says Abo. “The mission for this disaster was to seek out and identify surviving people and pets in the city of Marathon and identify needs for evacuation rescue.”

Abo and his 50-member team typically work from sunrise to sunset (or up to 24 hours, depending on the disaster), traveling through residential and commercial areas with the goal of clearing every single structure. They help transport or direct citizens to local hospitals and other resources for assistance. This disaster felt strangely familiar, though.

“We were doing full-mobilization exercises August 22–24 just outside of Houston, and then as soon as we got back, we then were deployed back to Houston for the hurricane,” Abo says. Not long after that they had to return to Florida because of Hurricane Irma.

Despite the time crunch, Abo believes the exercise was highly valuable. “It was very, very helpful,” he says. “It gives people hope that we can respond and helps us have a real
HELP YOUR NEIGHBORS, HELP YOURSELF

After disasters like major hurricanes, citizens can be instrumental in relief efforts, but they require instruction from EMS and other local officials about operating safely. What are the key messages we should emphasize?

First, listen to the experts.

“Whatever the local officials are advising is the best advice to follow,” says Brent Myers, MD, MPH, FAEMS, president of the National Association of EMS Physicians (NAEMSP). “Your local emergency management, EMS, fire, law enforcement and public safety personnel know better what needs to be done than anyone else.”

The NAEMSP provides educational materials and checklists based on best practices and lessons learned from previous hurricanes to ensure its members can efficiently plan and take action. For the NAEMSP’s most recent position papers on standard and clinical practices in disaster management, see www.naemsp.org/Pages/Standards-and-Clinical-Practices.aspx.

Also tell citizens not to call 9-1-1 unless it is an emergency. Dispatch centers are often overloaded with 9-1-1 calls for incidents that are not absolute emergencies, tying up emergency resources for situations that require immediate aid.

Most nonemergent 9-1-1 calls can be avoided since most injuries are preventable if people follow basic safety guidelines, Myers says. This includes wearing eye goggles and gloves while removing debris, bathing thoroughly after exposure to contaminated floodwaters and being cautious while using power tools.

Myers also strongly advises placing generators outdoors or in well-ventilated areas during prolonged power outages in order to avoid carbon monoxide poisoning.

Residents must also be mindful of their resting time and be patient waiting for services. “The recovery period is going to last longer than anybody anticipates,” Myers says. “Don’t work 14 hours the first day, because you may well be at this for several days clearing your property. Those who are affected have to just wait for those who are going to offer support.”

Héctor Alonso, MD, chief of emergency medicine at the VA Hospital in San Juan, Puerto Rico, notes the value of citizens preparing before disaster strikes.

“It’s important that people remain calm and have a personal plan to prepare to take shelter at home for three to four days so you don’t depend on the government and authorities while they get organized,” says Alonso. “Slowly, essential services are being restored, and people should look for instruction by local authorities on where to look for that information.”

“The most important lesson here,” adds Myers, “is that individuals will help their neighbor more than you ever anticipate. A lot of our role is to make sure that that is being done in a safe and appropriate manner.”

—Valerie Amato
EMS officer, notes part of the EMS system’s mission in the commonwealth is to support the VA with medical transportation. They provided 25 BLS and ALS ambulances to assist with transporting 180 patients with acute illnesses or injuries (122 of whom were dialysis patients) from the neighboring Virgin Islands, whose only hospital was destroyed in the hurricane. They have also received patients from non-U.S. territory islands in coordinated efforts with the U.S. Department of Health and Human Services.

“We have a multidisciplinary team here in San Juan International Airport with physicians, EMTs, intermediate care technicians—who are veterans with previous medical experience in the armed forces—nurses, and a team of logistics and planning we organized to help the patients,” Díaz says. “We do triage, we match patients’ needs to hospitals’ capabilities, talk with the hospital and send the patients to the hospital.”

**‘PRACTICE IS A PAYOFF’**

Gustavo Flores, MD, director of emergency and critical care training and crew member for REVA Air Ambulance in Puerto Rico, assisted with flying patients from the other islands to the airport in San Juan. “I’m involved in a volunteer fire-rescue team, and because many of our volunteers are also members of the different government agencies that were activated, we had to step up and cover for them and provide our share of care during the weekend operations,” says Flores, reflecting Abo’s view of the value of first responders’ different roles ensuring efficient patient care.

Florida Task Force 1 was not the only team that conducted an exercise oddly similar to Hurricane Irma’s impact. Cosme Torres, incident commander for the FCC, helped plan the exercise Tropical Journey 2017 in conjunction with the U.S. Department of Health and Human Services in April. The scenario involved a Category 5 hurricane hitting the U.S. Virgin Islands and the east coast of Puerto Rico, resulting in an influx of patients from the Virgin Islands in need of medical treatment.

“Lesson learned: Practice is a payoff,” says Torres. “Everybody who is supporting this mission right now participated in Tropical Journey in April. Since we started, the communications between the DOH, the NDMS and even the airport operations have been synchronized and constant without any complaints or concerns.”

While the training exercise was indeed beneficial, it didn’t quite prepare providers for the magnitude of Irma’s destruction. “When we do the exercises, we usually come to prepare for a 24-hour operation,” says Héctor Alonso, MD, chief of emergency medicine at the VA hospital. “We’ve been ongoing for one week nonstop…it takes double the effort…receiving a constant flow of patients over a week’s span.” Still, Alonso believes it was “an amazingly helpful scenario.”

Torres advises EMS personnel preparing for future disasters to “have some type of preplanning for this type of scenario,” like determining how quickly emergency operations centers can open and starting to pre-request support from health services, ambulance services and strike teams that can deploy quickly to areas needing emergency assistance.

Aside from a few phone calls the night before Irma struck suggesting the islands might need help, EMS officials in Puerto Rico weren’t necessarily expecting the operation, but due to their detailed preparations, they were ready for an expedited activation.

“We learned how valuable the EMS system is,” says Torres. “The competence of the EMS staff is highly valuable in order for us to use the right resources on the ground to transport patients. It’s important because that helps get the right patient with the right condition to the right discipline area to continue improving medical conditions after a disaster like this.”

**ABOUT THE AUTHOR**

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STROKE REGISTRIES: UTILIZING COMPREHENSIVE DATA TO IMPROVE OUTCOMES

Registries provide critical insight into clinical practice and disparities in healthcare delivery

By Maria A. Ciliberti-Vargas, MPH; and Ralph L. Sacco, MD, MS, FAHA, FAAN

Editor’s note: This is the third in a three-part special series on the pivotal and evolving role of EMS in stroke care. In the September issue, the authors discussed decision-making criteria informing the ideal destination to transport patients with stroke symptoms (www.emsworld.com/article/218589) and profiled novel partnerships between EMS systems and stroke centers (www.emsworld.com/article/218588). Last month, the authors compared new stroke scales for EMS (www.emsworld.com/article/218774)

Despite major advances in treatment and prevention, stroke remains a leading cause of death and disability in the U.S., impacting over 795,000 people annually.1,2 Stroke disproportionately affects race-ethnic minorities, with disparities existing in morbidity, mortality, risk-factor prevalence, healthcare access and quality of care.3 Blacks and Hispanics experience disproportionate stroke risk-factor burden and prevalence, higher stroke incidence and higher stroke mortality at younger ages compared to whites.4–11 Furthermore, race-ethnic disparities in acute stroke care are associated with increased mortality and rehospitalization rates.12 Race-ethnic minorities are expected to account for 40% of the U.S. population by 2030, making disparities in stroke care a growing concern.3

The causes of health disparities are complex and multifactorial. They include the interplay of socioeconomic, cultural and environmental components and contributors such as patients and healthcare systems. Age, race-ethnicity, sex and modifiable factors such as cultural and language barriers and low health literacy rates are known to contribute to inequalities in stroke care.3,13 Decreased EMS activation and limited access to quality healthcare services, mainly stroke center-certified hospitals, are also barriers to achieving health equity and favorable stroke outcomes.14–16 Addressing known disparities in stroke treatment and prevention may reduce the growing global burden of stroke.

Stroke registries provide critical insight into clinical practice and disparities in healthcare delivery and allow for the surveillance of trends in treatment and quality of care. They are also useful in evaluating clinical effectiveness and quality improvement (QI) as well as guideline implementation and adherence. Most national stroke registries were initiated in the mid-’00s and in the last decade have played important roles in accelerating stroke research that affects the advancement and delivery of effective, high-quality care.

In the U.S., two active national stroke registries exist, including the American Heart Association’s (AHA) performance improvement program Get With The Guidelines–Stroke (GWTG-S) and the Centers for Disease Control and Prevention-funded

Figure 1: FL-PR CReSD conceptual framework

NINDS U54 NS-081763
(Derived from socio-ecological theory, Brenfleur, ’79)
Paul Coverdell National Acute Stroke Registry

The GWTG-S program improves quality for in-hospital acute stroke care through the implementation of evidence-based guidelines. GWTG-S is the largest stroke registry and QI program for hospitalized stroke patients and since its inception in 2003, approximately 1,650 participating hospitals have entered millions of patient records. Data from this large QI registry have provided critical insight into race-ethnic and sex disparities in acute stroke care, showing lower quality of in-hospital care for blacks and women.17,18

Similarly the Coverdell program, established in 2001, was designed as a surveillance system to monitor, promote and improve the quality of stroke care in hospitals nationwide. Currently nine state health departments (California, Georgia, Massachusetts, Michigan, Minnesota, New York, Ohio, Washington and Wisconsin) are supported through the Coverdell program, partnering with hundreds of hospitals, EMS agencies and community service providers to develop high-quality stroke systems of care to improve care and reduce disparities in underserved populations. From 2005–2015, more than 620,000 patients benefited from hospital participation in this program.

The FL-PR CReSD Study

Participation in stroke registries has been associated with increased adherence to stroke performance measures, leading to marked improvements in the delivery of care.19,20 A few states have organized acute stroke registries focused on overall care monitoring and improvement, but no program has targeted race-ethnic disparities as a primary focus.

Awareness of disparities is a necessary first step toward changing behavior and creating interventions to effectively address them. While Florida is not currently a Coverdell-funded state, under the guidance of the University of Miami Miller School of Medicine, with the participation of the AHA, the University of Puerto Rico and Hospital HIMA (a Puerto Rican hospital consortium), the Florida-Puerto Rico Collaboration to Reduce Stroke Disparities (FL-PR CReSD) study was established in 2013 and funded by the National Institute of Neurological Disorders and Stroke.

The FL-PR CReSD is a multicenter initiative designed to address disparities in stroke care through the creation of a voluntary stroke registry with data from participating GWTG-S hospitals throughout Florida and Puerto Rico. The Florida Puerto Rico Stroke Registry aims to evaluate race-ethnic, sex and geographic disparities in acute stroke care, investigate the frequency of disparities in short- and longer-term outcomes, and develop and disseminate culturally tailored QI programs to address identified disparities.

The FL-PR CReSD conceptual framework (Figure 1) graphically describes its cyclic impact on stroke care QI. Data integrated from prehospital (Florida’s EMSTARS database), in-hospital (GWTG-S) and post-hospital (CMS database) settings are analyzed to track quality of care and identify disparities. Culturally tailored QI interventions based on recognized disparities may effect changes within levels of the stroke-care continuum (individual, healthcare system, community, policy makers) that interact and form multilevel determinants of health. Resulting changes in stroke care and outcomes are reflected in the data provided to the registry, at which point the cycle begins again.

As of June 2017, the Florida Puerto Rico StrokeRegistry consisted of 91 hospitals (76 in Florida, 15 in Puerto Rico) and over 150,000 stroke cases. Registry data has shown that stroke-care performance has improved over time for all race-ethnic groups with a similar trend also seen by sex.21,22 In Florida, overall stroke care as measured by defect-free care (compliance with all eligible GWTG-S performance metrics) was comparable across race-ethnic groups and sex, though disparities in IV tPA administration were observed.

While the percentage of patients receiving IV tPA by 4.5 hours when arriving to the hospital by 3.5 hours rose over time regardless of race-ethnicity, African-Americans in Florida were less likely to receive tPA in this later time window regardless of arrival during “on” or “off” hours compared to whites (Figure 2). No differences were observed for Hispanics. Additionally, despite increases in the annual rate of thrombolysis with no significant differences between sexes, women were less likely to receive IV tPA overall. Although EMS use is independently associated with more rapid stroke evaluation and treatment, we found that fewer than half of all patients arrived by EMS regardless of race-ethnicity and sex. Future analyses will focus on regional and prehospital disparities in Florida.

Addressing Disparities

To address identified disparities, the FL-PR CReSD has developed and disseminated various stakeholder interventions, includ-
ing a stroke disparities training program, disparities dashboards and a door-to-needle (DTN) interactive module. The training program informs a broad spectrum of stakeholders in the strategies needed to decrease stroke disparities in underserved groups.

The hospital disparities dashboards allow sites to benchmark their adherence to stroke metrics by race-ethnicity and sex and compare their performance to other hospitals in the region and state. Furthermore, regional stroke care advocacy groups have expressed interest in the development of regional dashboards to share best practices, improve regional stroke-care delivery and strengthen partnerships within existing stroke systems. Finally, the DTN module, an interactive, web-based tool designed for EMS, stroke and ED teams, emphasizes evidence-based best practices to effectively shorten DTN times.

The future of stroke registries includes efforts to improve patient transitions of care and data collection after acute stroke hospitalization, primarily targeting disparities in short- and long-term stroke outcomes (mortality, disability and readmission). In Florida, movement toward a statewide stroke registry standardizing data collection has also commenced. Findings from the FL-PR CReSD and other described registries highlight the need for continued investments in state- and nationwide QI programs targeting areas where stroke performance is suboptimal and disparities exist.

Collaborative partnerships promoting the sharing of data and best practices will support and strengthen comprehensive stroke systems across the care continuum, translating into lives saved and a substantial impact made on the burden of stroke.

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**ABOUT THE AUTHORS**

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EFFICIENT STROKE CARE
AT THE HOSPITAL

What can EMS do to help ensure timely help for these vulnerable patients?

By Jason M. Rhodes, MPA, AEMT-C; David M. Faunce, EMT-P; John H. Potvin, BS, NRP; Jason Umbenhauer, AEMT-C, EMS I/C; Nelson Pedro, NRP; Jeffrey Devine, RN; Mayank Goyal, MD, FRCPC; Mahesh V. Jayaraman, MD; and Ryan A. McTaggart, MD

For patients with emergent large-vessel occlusion (ELVO), the treatment effect of mechanical thrombectomy (MT)—the direct removal of the clot at a comprehensive stroke center (CSC)—is powerful and doubles the likelihood they’ll be independent at 90 days. In addition, the treatment effect is profoundly time-dependent, as for every minute faster EMS professionals usher ELVO patients to the cure (MT), the patients will enjoy one more week of disability-free survival.

While the previous articles in this series focus on enabling EMS professionals to recognize and transport suspected ELVO patients directly to CSCs, this article focuses on enabling EMS professionals to profoundly impact the efficiency of care delivered at the destination hospital, whether it is a CSC or another hospital that does not offer endovascular therapy, such as a primary stroke center (PSC).

Prehospital Notification

Prehospital notification by first responders (whether electronic or by phone) is critical for initial efficiency at the destination hospital. We have educated the first responders with whom we collaborate to notify the receiving hospital with the following information:

- Name, gender, and date of birth
- Family contact information
- Clinical severity score (we use the Los Angeles Motor Scale)
- Time last known normal
- Systolic blood pressure
- Blood glucose
- Oral anticoagulant use
- Estimated time of arrival (ETA)

Providing the name, gender, date of birth and family contact information is empowering to the receiving hospital team, as a pre-registration process can begin that would include any information in the EMR.

While we believe every stroke patient deserves CT angiography on arrival, alerting the receiving team of the severity score and last-known-normal time can have implications for what imaging is done and what teams are activated, and may perhaps even result in that destination diverting you to a more appropriate destination for your clinical circumstances. For example, a wake-up stroke patient with a LAMS score of 4 or 5 will likely obtain no benefit from transport to a center without endovascular capability.

Information about systolic blood pressure, blood glucose and use of oral anticoagulants can impact IV tPA decision making and door-to-needle efficiency. This information should always be included in the prehospital notification. It is important to note that not all these pieces of information are critical (patient demographics, blood glucose etc.), and their absence should not result in delay.

Finally, to be most effective, all this information, including the ETA, should be sent by page to all those expected to care for the patient on arrival so they are present on arrival to escort you and your patient directly to the open and prepared CT scanner.

This will allow correct treatment decisions to be made for the patient as quickly as possible. Initial hospital efficiency depends entirely on prehospital notification and its quality; EMS professionals are the most important link in the stroke chain of survival.

CTA Is to ELVO What EKG Is to STEMI

Once a patient has arrived at any hospital, the first and most important step is the imaging. ELVO is an acute vascular syndrome and a diagnosis that can only be made with CT angiography. Since recent publications have shown that no clinical scale can accurately exclude ELVO, we believe all patients with clinical suspicion for acute ischemic stroke should have a CT and CTA (head and neck) on their first trip to the scanner, regardless of severity and irrespective of the hospital’s capability (stroke designation). Attempting to exclude ELVO in a stroke patient with a clinical severity score alone seems to be impossible.

“Neurons over nephrons” should be the mantra. CTA should never be delayed for allergy or nephrotoxicity concerns. In fact, we don’t even ask! The risk of death from an ELVO can be as high as 40%, while the risk of a serious contrast reaction is only 0.01%, and no fatalities occurred in a study of 85,000 contrast injections. Recent studies have shown that intravenous contrast rarely if ever causes acute kidney injury, even in patients with poor renal function.

All treatment decisions in stroke hinge on the results of a CT scan. Until we figure out how to dialyze the dead brain and replace it with normal brain, concerns over IV contrast should not preclude CTA. Expect that your patient with suspected ELVO will be taken directly to the CT scanner and have a CT angiogram on that initial trip.

CSC Initial Processes

For ELVO patients brought to a CSC, the goal is to identify what our colleague Michael Hill at the University of Calgary calls the “good scan occlusion” (is there salvageable brain, and is there a blocked blood vessel?) and then get the vessel open as quickly as possible—within 60–90 minutes of arrival to the CSC.10

With effective prehospital notification as described above, the code stroke team should greet you on arrival and transport...
The PSC ELVO protocol workflow focused on early CSC notification (goal: <30 minutes), obtaining early vessel imaging (goal: <30 minutes) at the PSC and cloud-based image sharing. The “drip-and-go” strategy is most desirable if achievable.

your patient directly from the EMS entrance to the CT scanner. As discussed above, get the CTA on the first trip. While more effective for ELVO, endovascular therapy should complement and not replace IV administration of tPA in eligible patients.\(^1\)\(^,\)\(^2\)

Once an ELVO is suspected at the CSC, whether by prehospital triage, a clinical scoring system on arrival and/or CTA confirmation, the patient should be transported directly to an angiography suite, with a groin puncture time ideally less than 60 minutes.\(^3\)

As described above, imaging is the key step once the patient has arrived at the CSC. The noncontrast CT will determine if there is a hemorrhage, and the CTA will determine if there is an ELVO.

An additional benefit to making CTA the default on all patients as opposed to using a severity threshold is that this becomes one less decision that needs to be made, allowing the process to be further simplified. The use of additional imaging, such as CT perfusion, is common at some centers, but it is uncertain whether this is of benefit, and any additional imaging may delay treatment.\(^\text{10}^\)

The use of a multiphase CTA protocol, with two additional phases, may help detect ELVO better as well as also stratify those who are unlikely to benefit from MT.\(^\text{12}\) Additionally, collateral evaluation may allow for further confirmation of the ASPECTS reading on the noncontrast CT scan.

A key next step is making the treatment decision and notifying/mobilizing the neurointerventional team. In this regard we find a Bayesian approach is helpful.\(^\text{13}\)

Exact NIHSS values or whether the patient is on an angiotensin receptor blocker is, quite frankly, irrelevant to the treatment decision. An estimation of the degree of clinical deficit (e.g., dense right hemiplegia) in conjunction with the site of occlusion is usually sufficient to mobilize the neurointerventional team.

In mobilizing the team additional steps, such as identifying who is on call, can be time-consuming. As such, we prefer to have a “blast page” or notification system whereby a single number is called all the time and those who are not on service can simply turn off their notification.

Once the patient is deemed a candidate for MT, a standardized approach to cases will certainly shorten procedure times and decrease the cognitive load for the team, especially after hours.\(^\text{14}\)

**PSC Initial Processes**

While prehospital triage to the closest CSC may be the most efficient means to improve delivery of care to patients with suspected ELVO, effective systems of care must also be in place for ELVO patients who first arrive at a center without endovascular capability. We recently developed a standardized protocol for such patients who present to a PSC based on 1) early notification to the closest CSC; 2) CTA at the PSC on arrival; and 3) electronic image sharing.\(^\text{15}\) The shorter times to reperfusion at the CSC and improved outcomes were entirely driven by reductions in time spent at the PSC—the door-in, door-out (DIDO) time.

We have set a DIDO goal with our PSC partners of 45 minutes with the expectation that they call and perform the CT and CTA (head and neck) on arrival (a feat made particularly easy with quality prehospital notification). Furthermore this less-than-45-minute DIDO goal is more achievable when the EMS unit transporting the patient with a clinical suspicion for ELVO remains with the patient until vessel imaging is performed. If the CTA confirms the ELVO, IV tPA can be initiated at that center, and the patient can continue on to the CSC—a process we call “drip and go.”

There are advantages to performing vessel imaging at the PSC for both hospitals. For the PSC, only confirmed ELVOS are transferred (CTA-negative patients are kept), and ER physicians report greater confidence giving IV tPA. For the CSC, the procedure can be planned prior to arrival, there are fewer false alarms for the angiography suite, and the patients can go straight to the angiography suite without a need to repeat imaging in most cases.

If you transport a patient with concerning stroke symptoms to a center without endovascular or other capabilities, consider staying with that patient until vessel imaging confirms or excludes a problem for which that patient must be transported to a higher level of care.

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While organizations may vest an enormous responsibility in their front-line supervisors, the ability of managers to coordinate activities, resolve conflicts and work across traditional boundaries is critical to agency growth and success. Unfortunately, certain common traps can ensnare even the most seasoned manager. Here’s how to navigate them.

1. Don’t Let Your Boss Get Blindsided

A famous political maxim is “Always be the bearer of your own bad news.” An important corollary to that is that you have to watch your boss’ back. Your boss has to trust you, as you are essentially acting as an arm of your chief officer(s) by managing functional areas and keeping their span of control reasonable. That trust is built on competence, consistency, integrity and, most of all, communications.

If you’re going to be successful in watching your boss’ back, you’ll have to develop your own trust relationships. If your staff trust you, they will come to you with issues before those issues become problems. They will share critical intelligence with you because they know you can keep something in confidence or will act when it’s appropriate. This trust goes all the way down the line to every employee and provider in the system, not just those who report directly to you.

The worst thing that can happen is that your boss finds out something that you knew about, or should have known about, via an external source. This demonstrates that you do not have the pulse of your organization, and it limits or removes the time you otherwise might have had to gather further information, develop a consistent message and, most important, for your boss to control the flow of information up to his or her boss!

Of course this does not mean you should inundate your boss with information. An essential part of your job involves triaging the stuff that gets up the chain of command—what can you act on immediately and not even bother the boss with; what can you handle but should let him or her know about right away; and what you need to get clearance on before you act.

Knowing these levels of authority and using them to effectively keep your boss in the loop is essential for a good manager.

2. No ‘Second Opinions’

One of the most common occurrences in EMS agencies, especially in larger departments, is that employees will shop around for an opinion. They will go to one supervisor or manager with an issue, and if they don’t like the answer they get, they’ll simply go to another one. If they don’t like what mom says, they just go ask dad!

Like in a family, this ends up being divisive. It creates conflict between mom and dad, and it can yield inconsistency that can damage operations and create human resources problems. In a family, it’s fairly easy to prevent this from happening. In an organization it’s much more challenging.

The solution to this is regular, ongoing and detailed communication between relevant personnel, but this is easier said than done. Communication should be both horizontal (for example, between different supervisors on other shifts or around parts of a larger system) and vertical (up and down the chain of command). There is no magic bullet for this, as each system has different structures and needs. You can use a daily operational huddle, where everyone on shift spends 15 or 30 minutes getting on the same page and
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raising any issues. You can use a reporting system that lets you track issues from shift to shift and makes a record for retrospective analysis. You can have regular meetings or conference calls among functional units to share information.

In the end this issue is best addressed by awareness and constant vigilance. Always be on the lookout for someone “playing” you in this way, and you can take a few steps personally to help prevent it from happening. First, slow down in your decision-making. We have a natural instinct to try to resolve issues as quickly as possible and move to the next fix, but in doing so we often skip steps and fail to get the best outcome. Ask why something is happening and if someone else has been involved in the process. Then take a few minutes to validate the information you have. Check the records, pick up a phone and call someone or send a quick e-mail inquiry. If you have to make a snap decision and it turns out you got played, don’t let that go unaddressed. Make sure you close that loop with the other supervisor or manager involved and go back to the employee and ensure it never happens again.

3. Lateralize Yourself
It’s extremely common for leaders to fall into the trap of staying in their own domains. They end up in a silo or get “ivory tower” syndrome. Maybe you’re overworked, so it’s all you can do just to get your own work done. Or perhaps you have a colleague who’s not pulling their weight, and if you look over the fence into their area, you’ll get sucked into doing their work in addition to yours.

The most successful managers work diligently to break down the silo walls and know what’s going on in other functional areas. This requires additional effort to work outside your comfort zone. If you share your toys, people are more likely to share theirs in return. Give information, look for collaborative solutions and remember that the goal is a department that excels.

4. Vary Your Communication
Everyone has their strengths and weaknesses, and that extends to their methods of communication. Some people excel at written communications, while others are skilled at public speaking. Some people prefer e-mail or telephone calls or memoranda. In fact, some people are terrible at communicating and prefer to keep their heads down and not be noticed. This is not, unfortunately, a recipe for long-term leadership success.

You should learn multiple ways of communicating, because your employees have different ways of consuming information. If you’re a verbal rock star, preferring to talk to people face to face or via telephone, you’re going to miss an entire segment of the population with whom you can’t make personal contact. Similarly, if your preference is to shoot off a quick e-mail, there are large numbers of people who skim those without really processing the information or just delete them without ever reading them.

Remember the marketing rule that people do not retain a message until they’ve heard it three times. If you’re concentrating on one form of communication over others, you’re not getting your message heard.

Finally, with written communications have a second person proofread every single thing you send out to both general and “important” audiences. Nothing destroys your credibility faster than having a spelling or grammatical error in your e-mail or letter. It’s also extremely helpful to have someone watch your back for tone and for sensitive topics you might have missed. Have a trusted source help you with this process—it will improve your communication, help break down those silos and prevent you from being embarrassed.

5. Learn How to Manage Time
In hiring employees I believe the single most important quality to look for is a strong work ethic. You can teach people the skills of a job, but you cannot reach them how to be a hard worker. Similarly, once you reach the manager level, the most important skill you can learn is time management. You can learn or develop the functional skills you need to do your job, but not if you don’t have enough time to get the job done.

The first part of time management is to learn how to budget time. Learn how long it takes to get things done, and make sure you have enough time to make them happen. Set deadlines knowing how long it will take to accomplish tasks. Calculate travel time and from meetings, including walking, so you’re not late. And be realistic about your expectations, as you’re only hurting yourself if you underbudget.

Next, develop a system for managing your calendar and ongoing tasks. There are countless systems for this, from pen and paper to extremely advanced electronic systems. Figure out what works for you and make sure it works with the technology in your system. Don’t keep a paper calendar nobody else can see if your department expects you to put all your appointments in Outlook so people can send you invites. The most important part of your system is that it has to be with you where you work. If you have a paper planner in your office, it’s not going to do you any good at a meeting out of the office. If you have Outlook on your desktop computer but cannot access it remotely, it presents similar issues. Look for interoperable solutions, but those you can use wherever you’re working.

Finally, protect your time as much as you can. There are constant, regular erosions of this precious resource in the workplace. People will invite you to meetings you don’t need to attend or schedule meetings where a phone call or e-mail might suffice. They will schedule meetings at times that interrupt your normal workflow and limit your productivity. But you can also have self-inflicted wounds when it comes to time management: Distractions to answer e-mails or telephone calls while working on a project will derail your activity, and it takes longer to get back on task than to keep working in the first place. Try to limit the periods where you answer e-mails and
only answer calls during productive periods when it is absolutely essential. And try not to let people interrupt you indiscriminately. An open-door policy is a must for an effective leader, but there’s nothing wrong with telling someone you’re in the middle of an activity and will get back to them at a specified time.

6. Never ‘Fire and Forget’

In our 24/7 work environment, as we try to protect our valuable time, get the job done and still manage to have a work-life balance, it’s easy to fire and forget. Part of this is related to being a good manager. We want to empower our employees to make good decisions within their authority, and we’re always cautioned against second-guessing or micromanaging.

A natural tendency of these combined factors is to give people tasks and assume they’ve accomplished them. It doesn’t always work this way. They have competing pressures and varying degrees of effectiveness, and sometimes they drop the proverbial ball. Part of being a manager is actually managing, and this involves staying on top of the people who work for you and making sure their jobs are actually getting done. Of course this itself is a balancing act, as you don’t want to overmaneg.

Try to use objective, definitive tools to accomplish this. When you delegate a task, establish clear goals and realistic deadlines for any waypoints you have to reach. This is another place where your time-management system must be utilized to make sure you don’t miss a deadline or let a critical task get pushed further and further off the priority list until it’s simply forgotten about.

E-mail is a double-edged sword for communications, but there are times when it can be very useful, and task management is one of them. Establishing responsibilities, goals and deadlines in an e-mail, distributing it and archiving it for later reference will help make sure everyone’s on the same page and give you something to refer back to should it become necessary.

The key point in managing, at every level, is accountability. Everyone in an organization, from top to bottom, should be held accountable for his or her actions and to some reasonable objective standard. Remember, you set an example in this area, and so do the people above you. If they’re not following up or are letting projects fall by the wayside, then the people down the chain of command will see this and model their behavior accordingly.

7. Manage Your Boss

The term “managing your boss” is fraught with danger, but it’s the final key to success. Each person has strengths and weaknesses, preferences for how they work and manage time, and their own special set of needs to be successful. As a manager you should pay special attention to all of these elements in the person to whom you directly report.

If you can anticipate your boss’ needs, imagine how much more successful he or she will be. If you know your boss is always late to meetings, help them manage their schedule so they can get out the door on time. If you know your boss hasn’t read their e-mails yet today but there’s something critical they need to know, pick up the phone and call them. This can extend to numerous other areas, even to the point of having a cup of coffee ready at a meeting to make sure your boss is fully engaged.

Now to the dangerous part: Never “play” your boss. You can’t even shield them from information you don’t want them to know. try to steer their decision-making or isolate them from what’s happening below them. This is extremely common; unfortunately so when your direct boss is less than effective in their role. But if you get caught doing this, your trust relationship will be irreparably harmed. Earlier we discussed how important this trust is.

If your boss finds out you’re trying to manipulate them, consider your trust bank balance reset to zero.

**Conclusion**

Information is your friend. In fact, the common thread in all these keys to success is that they require good information, and that the information be communicated where and when it’s most effective. Remember that one point, and you will dramatically improve your success.

Finally, consider that your role is to be the link between large areas of an organization and the top brass. One of the common titles used is “chief of staff,” and you have to decide how you want to emphasize these words. Are you going to be the chief of staff or the chief of staff? The most successful servant leaders focus on the staff, and the authority of being a chief comes naturally. If you focus on being the title of chief, you will never have the respect of your staff.

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Can an educational program increase providers’ comfort with these patients?

By Alicia Lutman, OTD, MS, OTR/L, ATC

You are dispatched for a domestic dispute and instructed to stage until law enforcement secures the scene, as this is an individual known to have behavioral issues associated with autism.

Once the scene is clear, you enter the home and notice locks high above an adult’s arm reach on all the doors, which seems like a fire hazard.

A 13-year-old male is in his underwear, bleeding from his arm after breaking a glass door during an argument with his mother. The boy is pacing to and fro.

An officer decides to restrain the boy so your team can provide care, but he only becomes more agitated and aggressive. He ends up breaking away from the officer and runs out the broken door.

**Defining the Need**

Compared to children without special needs, children with special needs are more likely to come into contact with first responders, more at risk for injury and more likely to be victims of violence.¹ Autism spectrum disorder (ASD) is a specific diagnosis for children with special needs that requires in-depth consideration because the social and behavioral challenges these children demonstrate put them at increased risk for injury and abuse.²

The CDC reports that one in 68 children is now diagnosed with ASD; in 2000 that rate was one in 150.³ Taking these numbers into consideration, it becomes clear that first responders need to have training about special-needs individuals and the specific needs of individuals with ASD.

It is critical that first responders understand that depression and anxiety often manifest as anger and aggression in men and boys.² Males experiencing a crisis may become aggressive and angry during times of high stress and distress, meaning there is an increased risk for injurious behaviors toward themselves and others.

Reports of negative encounters between first responders and individuals with autism have been in the news recently. Better under-
standing of the influences that impact negative encounters with individuals with autism in emergency situations can provide responders with the perspective needed to handle these calls safely for everyone.

First, the general population is constantly aging, meaning a 5-year-old with ASD is going to become a 21-year-old with ASD. If a young child on the autism spectrum does not receive the support services required to increase functional independence and social awareness, they have the potential to become an aggressive young adult who does not appear to have a physical disability, which increases the risk for conflict within society.

Second, it is important to understand that ASD and other mental health disorders do not cause individuals to commit heinous and violent crimes. All underlying conditions and risks (both environmental and biological) should be identified prior to attributing violent behavior to a specific diagnosis. An individual who is predisposed to mental health disorders through genetic makeup is more at risk of falling into self-destructive, self-medicated and risk-taking behaviors than an individual who has no family history of mental health disorders.

However, an individual who lacks genetic risk factors but grows up in an abusive and unsafe environment may demonstrate similar self-destructive, self-medicated and risk-taking behaviors to escape their psychological environmental stressors. Overall, increased knowledge among first responders about individuals with ASD and other mental illnesses may help decrease the occurrence of negative encounters.

Designing a Program

To address the needs identified above, leaders in Shenandoah County, Va., in 2009 initiated an educational program for first responders interacting with individuals with autism. Shenandoah County is a rural community that relies on both paid and volunteer fire and rescue services.

Individuals who participated in the educational training were provided with pre- and post-surveys to determine their level of comfort working with individuals with autism and assess basic knowledge regarding the characteristics of the diagnosis. See a portion of the pre-survey in Table 1.

Table 1: First Responder Autism Education Program Pre-Survey Excerpt

True/false questions—circle correct response
1. You can tell someone has autism by looking at them. True False
2. There is a genetic test for diagnosing autism. True False
3. Individuals with autism often don’t understand danger or death, and some have decreased pain sensation. True False
4. There is a cure for autism. True False
5. Autism is a spectrum of disorders, and no two individuals with autism will have the same level of function. True False
6. Only children have autism. True False
7. Only males have autism. True False
8. Autism only affects Caucasians. True False

Multiple-choice question—circle all that apply
Circle the traits of autism/autistic tendencies:

<table>
<thead>
<tr>
<th>Limited eye contact</th>
<th>Decreased communication skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive movements</td>
<td>Poor social skills</td>
</tr>
<tr>
<td>Allergies</td>
<td>Physical aggression</td>
</tr>
<tr>
<td>Upset by change</td>
<td>Likes high places</td>
</tr>
<tr>
<td>Emotional outbursts</td>
<td>High intelligence</td>
</tr>
<tr>
<td>Dislikes touch</td>
<td>Poor impulse control</td>
</tr>
<tr>
<td>Poor safety awareness</td>
<td>Needs a schedule</td>
</tr>
<tr>
<td>Dislikes loud noise</td>
<td>Reacts to light</td>
</tr>
<tr>
<td>Dislikes food textures</td>
<td>Likes water</td>
</tr>
<tr>
<td>Doesn’t respond to name</td>
<td>Doesn’t respond when spoken to</td>
</tr>
</tbody>
</table>

Multiple-choice question—select the single best answer

You are called to the scene of a neighborhood disturbance. You arrive on location and find a 9-year-old boy who is not wearing any clothes and running back and forth across the street. You call out to the child to see if he needs help, and he ignores you. What should you do?

a) Call out louder.
b) Slowly approach the child, get to where he can see you and wait for him to look at you.
c) Wait a moment and give the child a chance to respond.
d) Tell the child he’s going to be in trouble if he doesn’t stop running.

Opinion questions—please rate the following statements

If you were called to an incident and told it involved a child with autism, how would you rate your comfort level? Mark on the scale below where you believe you would rate yourself.

[0 = very uncomfortable, not sure what to expect; 10 = very comfortable, no concerns]

0 1 2 3 4 5 6 7 8 9 10
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Table 2: Phase I Study Results

<table>
<thead>
<tr>
<th>Measured Component</th>
<th>Score</th>
</tr>
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<tr>
<td>Number of incorrect questions pretest</td>
<td>3.28</td>
</tr>
<tr>
<td>Number of incorrect questions post-test</td>
<td>1.82</td>
</tr>
<tr>
<td>Level of comfort pretest</td>
<td>4.41</td>
</tr>
<tr>
<td>Level of comfort post-test</td>
<td>6.67</td>
</tr>
</tbody>
</table>

Table 3: Phase II Study Results

<table>
<thead>
<tr>
<th>Measured Component</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest number correct</td>
<td>22.91</td>
</tr>
<tr>
<td>Post-test number correct</td>
<td>24.02</td>
</tr>
<tr>
<td>Pretest empathy, self-reported rating</td>
<td>3.78</td>
</tr>
<tr>
<td>Post-test empathy, self-reported rating</td>
<td>6.96</td>
</tr>
<tr>
<td>Pretest self-perceived ability to identify characteristics of autism</td>
<td>5.09</td>
</tr>
<tr>
<td>Post-test self-perceived ability to identify characteristics of autism</td>
<td>6.91</td>
</tr>
<tr>
<td>Pretest confidence, self-rated ability to perform job duties</td>
<td>5.98</td>
</tr>
<tr>
<td>Post-test confidence, self-rated ability to perform job duties</td>
<td>7.31</td>
</tr>
</tbody>
</table>

Following the initial training program, it became apparent that varying participant background education levels were a significant barrier. Some first responders had only high school educations, while others had master’s degrees.

Some individuals came to the class with a strong understanding of autism, while others were not as familiar with the diagnosis. The first responder autism training program was then modified to ensure a basic understanding at all levels of education for both fire and rescue personnel.

The instructor-driven program included the following components:

- General characteristics of the autism spectrum, including no real fear of danger; inappropriate laughing or giggling; not responding to his or her name; over- or undersensitivity to pain; may dislike physical touch; may avoid eye contact; echoing words and phrases; insisting on keeping routine/keeping things the same; challenges expressing needs; using gestures as opposed to words; difficulty interacting with others; preferring to be alone.

- How characteristics of ASD can increase the danger of an emergency situation: An individual who has no fear of danger may not realize safety limits, an individual who does not make eye contact may be perceived as avoiding something, and an individual who echoes words and phrases may be perceived as mimicking. Issues with social interactions and communication challenges that are part of autism can create a barrier for providing care during an emergency.

- Knowledge that autism is a spectrum disorder, meaning no two individuals will present the same characteristics. Every individual will demonstrate specific characteristics that may have more of an impact on function than others. Being a spectrum means some individuals will be highly independent while others depend totally on caregivers.

- Providing an understanding that the home environment of an individual with ASD—what parents go through to keep kids safe—isn’t always the safest option. Parents do the best they can to keep children safe; however, at times a first responder may see locks on exit doors that children cannot open in the home of a child who wanders—this would be a major safety concern and requires parent education to improve safety. First responders may be the key to helping parents connect with social and support services that can help improve safety within their environment.

- Steps to provide care while meeting needs of an individual with ASD. First responders may need to demonstrate what they’re going to do on another individual to help someone with autism understand what’s going to happen. Use of words such as take should be limited, as individuals with autism are quite literal and may believe something will be taken from them. Allowing caregivers to remain with the individual as long as possible may also help prevent increased behaviors and improve communication.

- Understanding risks for elopement and being drawn to water. Many individuals with autism will run when faced with a challenge or uncomfortable situation. Many children with autism have little fear of water but often lack the ability to swim, putting them at risk for drowning.

- Understanding how to best de-escalate a situation and keep a crisis from becoming confrontational while still providing care. Sometimes individuals on the spectrum will go into a behavioral mode that does not allow for de-escalation; these individuals may need to be provided space to experience their behaviors and ensure the safety of others. Although it may take time for the individual to calm, fatigue will set in, and the individual will then be able to be approached safely. Allowing individuals on the spectrum time to process the information/instructions provided will help prevent increased behaviors, as will allowing them to perform behaviors they find calming—for example, rocking, humming or hand motions. Permitting an individual to look away and not make eye contact will also help reduce stress and anxiety with the situation, along with allowing caregivers or an important object/toy to remain with the individual.

- How to help families connect with first responders before an emergency occurs. Encourage families to send an updated information page to the dispatch center with a recent picture, any allergies, likes and dislikes, and if they know they have a child prone to elopement. Also encourage the use of GPS tracking devices for individuals who are an elopement risk.

- Opportunities for community outreach. Encourage families to attend National Night Out and other community events where individuals with autism might be provided the opportunity to meet first responders and see equipment outside an emergency situation.

The original phase of this 2009 study focused on learned content with a pretest (including true/false, multiple-choice and problem-based learning questions) to demonstrate general knowledge about autism. Following completion of the presentation, participants were then provided the same questions in a post-test to assess any changes in the number of correct responses. In addition, participants were asked to rate their
level of comfort with the diagnosis of ASD using a Likert scale (0–10, with 0 being very uncomfortable and 10 being very comfortable with the diagnosis) in both the pre- and post-tests. Summary test results collected from 50 participants (fire and rescue personnel from Shenandoah County) are in Table 2.

While the results were not statistically significant due to the limited number of participants, the difference between pre- and post-test responses demonstrated a general improvement in knowledge and increase in responders’ comfort with the diagnosis of ASD. Although the sample was limited to individuals from one county and included both paid and volunteer staff, the gain in reported level of comfort and reduction in the number of incorrect questions demonstrates the benefits of training for first responders.

The Second Phase

Over a number of years, students from Shenandoah University have continued to assist in research around implementing this program to fire and rescue agencies to better identify learning needs and gaps within the program.

The second phase of the study, looking to measure changes in training participant empathy, was conducted in 2010 and 2011. It sought to identify an increase in knowledge measured through a pre- and post-test composed of multiple-choice, true/false and problem-based questions.

This phase of the study also looked at self-perceived empathy using a Likert scale (0–10 ranking) to allow participants to rate their own level of empathy for individuals with the ASD diagnosis. The third aspect investigated by the study was also participants’ self-perceived ability to identify an individual with autism, which was again measured using a Likert scale. The final measurement assessed was self-perceived ability to successfully perform job duties during a call for someone with autism. Participants demonstrated an increase in perceived confidence in this ability.

Participants in this second phase of the study included 45 paid fire and rescue personnel from Shenandoah County. Thirty-five participants were male and 10 were female. As with Phase I, the educational background of participants ranged from high school diploma to master’s degree.

The results for the second phase of the study looking at change scores can be found in Table 3. This study also considered changes in scores pre- and post-test. Although the generalizability of this research is limited due to the small sample size and because the study was limited to one county agency, the results demonstrate an increase in all target areas, including increased knowledge about autism, self-reported empathy, self-perceived ability to identify characteristics of autism and self-perceived confidence to perform job duties following completion of the training program. The results of this study then opened the door for a third study to identify ways to improve first responder interaction with individuals with ASD during emergency situations.

The Third Phase

In 2011 and 2012, a third study phase was conducted to determine whether adding role-play to the education training program would increase change scores demonstrating knowledge gained and improve understanding about individuals with autism.

First responders from Shenandoah County participated in the autism education course and were provided a pretest, an immediate post-test and a three-week follow-up post-test. Approximately half of the 23 participants were excused after the training program to take the post-test, while the other half took part in a role-play activity followed by a post-test.

The role-play activity involved an injured child with autism, a frantic parent and a three-person rescue team. Individuals from the class played the first responders, mother and child, and the remaining individuals in the class were in the audience and provided input into decision-making. As the results in Table 4 indicate, adding role-play did not result in a significant increase in change scores in relation to participant assessment scores.

As this was only one sample, it is impossible to make generalizations regarding this data. Further study is warranted to determine the true impact of role-play on adult learning for first responders in relation to this specific educational program. The unique job conditions and duties of fire and rescue personnel must be considered when designing and implementing an educational program.

### Table 4: Phase III Study Results

<table>
<thead>
<tr>
<th>Measured Component</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest control group assessment score</td>
<td>367</td>
</tr>
<tr>
<td>Pretest role-play group assessment score</td>
<td>331</td>
</tr>
<tr>
<td>Post-test control group assessment score</td>
<td>464</td>
</tr>
<tr>
<td>Post-test role-play group assessment score</td>
<td>425</td>
</tr>
<tr>
<td>Overall increase, control group</td>
<td>97</td>
</tr>
<tr>
<td>Overall increase, role-play group</td>
<td>94</td>
</tr>
</tbody>
</table>

### Conclusion

The use of didactic instruction from a structured lecture demonstrates the ability to increase the comfort level of fire and rescue personnel in assisting individuals with ASD. However, further study is warranted to better understand which teaching techniques provide the most beneficial learning experiences.

Consider again the scenario at the beginning of this article. Had officers allowed the boy to continue to pace, he would likely have been able to self-regulate through calming techniques and reduce his anxiety to a level where care could be provided. Looking even deeper, the officers might have found that the 13-year-old did not want to get dressed because the tag in the shirt his mother wanted him to wear was bothering him. Although this seems like a major overreaction to the outside observer, had the officers understood the patient’s triggers and calming techniques, they likely could have avoided this individual’s elopement.

### REFERENCES


### ABOUT THE AUTHOR

Alicia Lutman, OTD, MS, OTR/L, ATC, is an associate professor in the Division of Occupational Therapy at Shenandoah University in Winchester, Va. She has been educating first responders about providing care for individuals with autism and mental health conditions during emergency situations since 2009.
Sterile cockpit is a mandatory aviation procedure for all U.S. airlines. It has nothing to do with germs or viruses but is all about keeping the air crew’s environment free of distractions that might compromise safety.

The idea has occasionally been applied to ambulance operations and has much that can benefit EMS. As a pilot for 40 years and a paramedic for 22 years, I know both sides of this story.

Few would argue that our EMS, fire and even aeromedical safety records (helicopters and fixed-wing) are satisfactory. Truth be told, our record of getting to and from scenes safely isn’t good. Can we do better? If we adopt a “sterile crew” concept, has it been proven? The answer to both is yes, and we are way past due.

Cockpits and Beyond
Sterile cockpit rules came about because many airline crashes had a common theme: pilot distractions. A pivotal incident was a 1974 Eastern Airlines flight into Charlotte that crashed during approach in low visibility. The National Traffic Safety Board (NTSB) found “the flight crew engaged in conversations not pertinent to the operation of the aircraft. These conversations covered a number of subjects, from politics to used cars.” Further, the discussion “continued throughout the remainder of the approach and which contributed to the accident.” This nonessential chatter directly contributed to the failure of the pilots to properly monitor the approach and altitude. Many died.

It was not until 1981 that the Federal Aviation Administration (FAA) published the sterile cockpit rule (14 CFR 121.542 and 135.100). This is not a casual suggestion for pilots; it is binding—fail to comply, and you stop flying. It has become an aviation fundamental, and as long as there are pilots at the controls, sterile cockpit procedures will likely be mandated.

Sterile cockpit is just not the right term for EMS and fire departments. What we do have are crews. The aviation industry developed the term CRM, which in the beginning stood for cockpit resource management.

Soon after it was put into effect, we realized CRM is not confined to the bubble of the cockpit but extends to the entire crew working and supporting the operation: the flight crew, ground crew, cabin crew, dispatchers, etc. CRM was broadened to crew resource management. So right here, right now, let’s not make
the same error: Let’s develop the same sterile crew concept for EMS, firefighters and aero-medical personnel.

Keep Your Head in the Game
There are four sections to 14 CFR 121.542. First: (a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft.

What does this mean for EMS or fire departments? Let’s change the wording to fit what we do.

EMTs and firefighters shall not perform any duties during a critical phase (e.g., lights-and-siren) of a call except those duties required for the safe operation of their vehicle. Dispatchers or management shall not engage in activities or make requests or directives after a crew has been dispatched that are not directly related to their call.

Here’s what this means: Once the tones drop for a call, the EMTs and firefighters in the vehicle will only engage in the duties needed for the safe conduct of the call. Personal phones are put away. No personal text messages by either person. No eating. No conversation not directly related to the call. Chit-chat is shut down—you keep your head in the game.

Dispatch shall not, for example, ask, “What is your off time?” This type of question is not directly related to the call. Personal phones are put away. No personal text messages by either person. No eating. No conversation not directly related to the call. Chit-chat is shut down—you keep your head in the game.

How does this work? Once the tones drop for a call, the EMTs and firefighters in the vehicle will only engage in the duties needed for the safe conduct of the call. Personal phones are put away. No personal text messages by either person. No eating. No conversation not directly related to the call. Chit-chat is shut down—you keep your head in the game.

Similarly, there have been occasions when the person driving the ambulance or fire truck has been doing everything: conducting radio calls, reading text messages, looking at the map, all while the person next to them is dis-engaged. Let’s be honest, four firefighters in a truck going lights-and-siren to a scene can get crazy. Are they reducing their driver’s workload, or are they a distraction—telling stories, the latest joke, complaining about somebody? How about EMS ride-alongs? Those days of others in the vehicle distracting the driver need to stop.

Now ask yourself, where is the radio handset located in your unit—next to the driver or the right seat of the cab? When we get a radio call from dispatch, there’s a powerful urge to answer it. Some really important information might be available. But here’s where you work together: Let the driver drive with both hands available while the other person answers the radio. You work as a crew.

How does a pilot handle a text message while taxiing a plane? The pilot monitoring would simply say, “I’m heads-down.” This tells the pilot flying that he will evaluate the message and be briefly unable to look out the right side for traffic. When he’s done, he’ll brief the pilot on the message. It is common to hear in the cockpit “heads-down” and “I’m back with you.” These are clear communications between two people. What about looking down at the map? Same thing: just announce it. Everyone is engaged, and no one is distracting.

Permission Denied
The next part of the aviation regulation is important.

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties.

What does this mean? The rule applies to everyone, including, for us, the firefighters in the back of the fire truck, the ride-along in the ambulance and even the dispatcher. But in any ambulance, fire or aeromedical call, there is someone in charge. In an airplane it’s the PIC (pilot-in-command). The person who is in charge shall not permit others to distract.

How do you handle this in the real world? If we were flying and about to begin our approach and a third pilot said, “I just realized we might be able to make the game tonight!” as the PIC (likely with a touch of irritation in my voice), I’d say, “Sterile cockpit reminder.” If it happened again, I would say “Sterile cockpit reminder.” followed by a meeting after the flight to decide what level of corrective action or training needed to be applied.

What should you do in this situation in EMS? In the beginning you will do well just

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A TOOL ANYONE CAN USE
When else are we sterile crew? Here’s the beautiful thing: Anybody can call it, any time.

If you see a situation developing in which you want everyone to pay attention and perhaps listen to some radio traffic from other units that need help, just call “sterile crew.” You’ve been working a tense cardiac arrest for 20 minutes and someone expresses some dark humor? Snap the focus back to the task with “sterile crew.” Sort out the problem later. Maybe the conversation has suddenly gone in the wrong direction with family members present. It’s a quick and easy way to call a halt to it.

Sterile crew can be very short duration. For example, your partner is outside helping you back up the unit at the hospital, and you are literally the only one in the truck. Don’t make calls to dispatch as you back up. Or perhaps you’re going to unload the patient from the back—stay in the game; sterile crew applies.

—Dick Blanchet
to say, “Sterile crew, please.” With the next lapse, “Sterile crew.” It doesn’t matter if you’re the person in charge. In fact, once I had a third pilot mention something not related to our duties during climb-out (“Hey, you guys want anything to eat from the back?”), and both the first officer and I turned around and said in unison, “Sterile cockpit!” Two of us laughed, and the other pilot later apologized. It was a bit of a smackdown.

Wheels Rolling

When are you a sterile crew? For airlines it’s pretty easy: In the air, when below 10,000 feet. When on the ground, if a tire is rolling.

For the purposes of this section, critical phases of flight include all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, except cruise flight.

This can’t just be cut and pasted for prehospital use, but neither is it that hard to adapt. Say the tones drop for a call as you’re driving. Let the other EMT or firefighter answer the radio and text message. How about when you’re arriving at the hospital and the driver is backing up?

Wait until you’re stopped to give the dispatcher your time and mileage. When you’re backing up, don’t multitask. We’ve all heard how hospitals will throw themselves at the backs of ambulances when drivers are a tiny bit distracted. I was amazed the first time I saw that. I have also had curbs relocate under my tire as if by magic.

Say while you’re traveling your dispatcher sends a text message advising that after your call, you are to go to your base for some vehicle maintenance. Here dispatch is in violation of multiple aspects of sterile crew! They know you’re on a call and contacted you with a non-safety-related message. If this was by radio, I’d suggest you simply reply, “Sterile crew.” If it was a text, don’t even answer. Either way, one pilot mention something not related to our duties during climb-out (“Hey, you guys want anything to eat from the back?”), and both the first officer and I turned around and said in unison, “Sterile cockpit!” Two of us laughed, and the other pilot later apologized. It was a bit of a smackdown.

Technology Troubles

Wireless communication can get out of control. Here’s the short version of the aviation standard: If it isn’t directly related to safe operations, you can’t use it. The individual in charge also has the responsibility to stop any activity unrelated to safety.

(d) During all flight time as defined in 14 CFR 1.1, no flight crewmember may use, nor may any pilot in command permit the use of, a personal wireless communications device (as defined in 49 U.S.C. 44732(d)) or laptop computer while at a flight crewmember duty station unless the purpose is directly related to operation of the aircraft, or for emergency, safety-related or employment-related communications, in accordance with air carrier procedures approved by the Administrator.

The fronts of ambulances and fire trucks are awash with computer screens, text displays, radios and at least one GPS. Personal computers and tablets get closed the moment sterile crew goes into effect. No phone calls to/from friends while en route to a call. If a tire is rolling, everyone focuses on the task.

Say while you’re traveling your dispatcher sends a text message advising that after your call, you are to go to your base for some vehicle maintenance. Here dispatch is in violation of multiple aspects of sterile crew! They know you’re on a call and contacted you with a non-safety-related message. If this was by radio, I’d suggest you simply reply, “Sterile crew.” If it was a text, don’t even answer. Either way,
after the call you should have a chat to resolve the distraction.

What about your computer-aided dispatch system? Again, the driver doesn’t engage it if the tire is rolling. The other person would announce “I’m heads-down” and take care of the message, then update the driver on any need-to-know-right-now items. If you’re the only one in front and get a company message, pull over—don’t text and drive. If the tire’s not moving, it’s hard to hit another stopped car. I’ve stopped planes while taxiing to work on problems many times.

Aeromedical

For this group use the term sterile cockpit—it’s understood in the aviation community. For EMS and firefighters cockpit just doesn’t fit. I submit that sterile cockpit rules for aeromedical, helicopter and fixed-wing need to be a little different. For one, many helicopters don’t have tires. And aeromedical does not fly under the Federal Aviation Regulation (FAR) rules airline pilots use (parts 121 and 135) but rather part 91. Part 91 rules govern general aviation and do not include federally mandated sterile cockpit restrictions. There is a long list of rules to follow, but sterile cockpit is not among them. Aeromedical pilots know they’re overdue for these rules. In the meantime, individual companies can require sterile cockpit rules as part of their flight operations.

For fixed-wing aeromedical operations, the same sterile cockpit procedures as airlines would apply as currently written. The medical crew in the back needs to be trained on sterile cockpit procedures so as to not cause problems. It takes training for the entire company to comply—that means the ground crew, flight crew, medical crew, dispatcher and boss.

For helicopter-based aeromedical, since there is no tire to roll, organizations need to decide when sterile cockpit will start and end. I suggest that if the rotor is turning even a tiny bit, sterile cockpit should be in effect. A moving rotor blade deserves respect.

Helicopters do not routinely fly above 10,000 feet but the current regulation allows for this with: “and all other flight operations conducted below 10,000 feet, except cruise flight.” It ends at the top of the climb and begins again at the top of the descent.

Conclusion

Take action. Talk to those you work with about sterile crew; maybe show them this article. Start putting it into effect. Look at your most recent accidents—could you have done more to prevent them?

Change can be difficult. It takes leadership from every level to make it happen, but you can start right now with yourself. Sterile crew is based on a concept that’s been proven in aviation and can be adapted by EMS, fire departments and aeromedical providers. Go ahead—change and adapt.

REFERENCES


ABOUT THE AUTHOR

Capt. Dick Blanchet (Ret.), BS, MBA, worked as a paramedic for Abbott EMS in St. Louis, MO, and Illinois for more than 22 years. He was also a captain with Atlas Air for 22 years on the Boeing 747 with more than 21,000 flight hours. As a USAF pilot, he flew the C-9 Nightingale aeromedical aircraft for five years.
A Safer Way to Lift

Back injuries have ended countless EMS careers and interrupted even more, and a lot of them came from lifting patients. EMS workers, researchers have found, have a risk of lifting-related injury that’s 21 times higher than the national average. The twisting and turning and hoisting required to get people out of their difficult positions poses a constant threat to career longevity.

A 30-day trial of the Binder Lift convinced leaders at Louisiana’s Lafourche Ambulance District #1 they’d found a way to minimize that threat.

“The Binder Lift website says it perfectly: Humans aren’t born with handles,” says Brady Daigle, the service’s operations manager. “This device puts handles on a human being for ease of lifting.

“Very often our patients who need lifting off the ground don’t have strong clothing on—they’ll have some type of gown or pajamas. Putting the Binder Lift on gives you something to grab onto, whereas without it you have to lift by their arms or legs.”

The Binder Lift is a torso wrap that can be applied even in confined spaces. It has 19–25 handles to help crews maneuver patients from floor to cot. The wrap design spreads the lifting forces, reducing the patient’s risk of skin tears, bruising and fractures. It comes in nylon and vinyl, in standard and bariatric sizes.

Lafourche trialed the Binder Lift under a program the company offers, equipping supervisors and letting everyone apply it and wear it for familiarity. Staff liked it so much, the service proceeded to outfit all its trucks.

“My first concern was that it might take too long to put it on and my medics wouldn’t use it,” says Daigle. “But once they tried it, they embraced it unbelievably. It’s so quick to apply and use, I don’t know of anybody who’s lifting anybody anymore without it.”

“Our main focus was to prevent preventable injuries to our employees—we try to be proactive and get whatever equipment we can that might benefit us in that way. The price you pay for the Binder Lift is very small compared to just one worker’s comp claim.”

Visit www.binderlift.com
Circle 12 on the Product Information Card

Protecting Providers’ Health

Caregiver injuries among EMS providers are a constant challenge, with patient transport leading the list of job-related dangers that can lead to lost duty time.

Shaun Curtis, risk and safety manager for MedStar Mobile Health-care, a Texas-based EMS provider covering advanced life support ambulance service to 436 square miles and more than 936,000 residents, oversees employee health and well-being among the company’s work force.

“We were noticing a high frequency of sprains and strains among our providers, and theorized that improved body mechanics could reduce these incidents,” recalls Curtis. In the summer of 2015, the safety team began a comprehensive review of available patient transfer equipment and trialed powered systems from leading manufacturers. After consulting with ergonomics professionals and seeking input from their field staff, MedStar settled on the Stryker Movement System.

“We wanted it to be their decision,” Curtis says of seeking buy-in from EMS staff. “They liked the ease of use, and it had all the features we were looking for.”

MedStar contracted with their remount team and phased in the system gradually, installing it on 2–3 ambulances at a time and training staff both on the new system and a revamped patient lifting protocol including stretching and proper body mechanics. MedStar staffs a fleet of 57 ambulances responding to over 140,000 calls per year.

“It was a smooth implementation and we heard nothing but positive feedback,” Curtis says. “If we heard any negatives, it was ‘why did this take so long?’

An objective cost-benefit analysis supported their choice with hard data—staff injuries went down drastically, from roughly 60 per year prior to implementation to just 2 in 2016. The company saved over $32,000 in the first year.

“Employees drive your success,” says Curtis. “While the cost savings are a plus, the primary benefit is improved staff morale. That transfers to your patients and enhances your reputation in the community.”

Visit www.ems.stryker.com/
Circle 11 on the Product Information Card
Transferring Patients in Hard-to-reach Areas

Without proper equipment, transporting patients can compromise the safety of both EMS providers and the patient. Graham Medical can ensure patient and provider safety with the MegaMover Transport Unit.

The MegaMover is a portable, compact and cost-effective transport unit designed for transferring, rescuing and transporting patients from inaccessible areas or difficult terrain to a stretcher. It features 14 handles, allowing for comfortable lifting and carrying, and can hold up to 1,000 lbs.

Glenn Watts of Henry Schein EMS, an ambulance product distributor, always recommends the MegaMover as the first choice to providers looking for quality patient transfer devices. It’s also always listed as the desired brand for patient transport units on customers’ product lists.

“It’s pretty much the industry standard. All of Graham’s products are high quality. I cannot recall any complaints with this,” says Watts. Watts and his team evaluated the MegaMover’s quality during a series of rigorous tests, concluding it was the most durable and ergonomic solution compared to competitors’ patient transport units.

“A product like this really does help you get down and navigate [difficult] terrain...They’re made out of a fairly light but incredibly strong material,” Watts says.

Watts points out the convenient design of shorter handles, allowing EMS providers to carry the patient closer to the hip to reduce strain on the back and prevent injury. The straps also feature handle grips, providing a more comfortable hold. These design elements make it much easier to transport patients from hard-to-reach areas, such as steep embankments off the side of a road.

“Graham has a great group of people that really care and are passionate about their products, and that helps them build a great product,” says Watts. 

Visit www.grahammedical.com
Circle 20 on the Product Information Card

Safer Passengers at Sea

During the summer, tourists and recreating mainlanders turn little Block Island into a big destination. The regular population of the Atlantic island, which sits 13 miles off Rhode Island and 14 from Long Island, is around 1,000; on busy summer days that can swell to 15,000–20,000.

The main way both tourists and residents come and go is by ferry. Such craft are required to have basic first aid equipment, but one local official worried their supplies were insufficient for graver modern threats. The island—which is served by a volunteer rescue squad and small medical center—has seen events like plane crashes and a fatal drug overdose in recent years.

Bill McCombe, the island’s codirector of emergency management and head of security for the ferries, wanted to supplement what the boats had on hand to help passengers help passengers.

“On any given day,” McCombe says, “we have doctors, nurses and police officers who are traveling for vacation or live on the island going back and forth. Our thought was that if something were to happen, we’d rather have more tools available than expertise than have too much expertise but no tools available.”

With grant funds from the state, McCombe collaborated with local responders and set about assembling the equipment they wanted, but then discovered the Curaplex line of prepackaged kits available from Bound Tree. The kits are designed to enable quick, targeted response to a variety of medical and traumatic situations—and they cost less than building the desired capacities piecemeal.

Each of the boats got kits for basic first aid, burns and active-shooter situations, oxygen and key medications such as epinephrine and naloxone, along with vests to help identify the caregivers using them. In emergency situations, crews will make the contents available to those qualified and willing to assist.

“The kits cover everything from OB situations to snakebites,” says McCombe. “There are so many things we spend money on that are only ever used if there’s a horrific accident, and you hope they never get used. These kits seemed much more practical—it won’t take a terror attack for these tools to be useful on multiple levels. It’s one of those things where, for short money, there’s a big return.”

Visit www.boundtree.com/curaplex
Circle 10 on the Product Information Card
Swifter and Safer Crew Belting System

When the EVS Ltd. design and engineering team set out to create a revolutionary belting system for better crew protection, they had a few primary objectives in mind: safety, speed and ease of use. No matter how much the company invested in perfecting the design and operation of its belting systems, they kept hearing the same thing—users simply didn’t wear them.

With that goal, the specialty manufacturer of industry-leading seating and belting options for the EMS industry developed its newest innovation: the 2160 series of seating, the most advanced crew seating option on the market.

The 2160 series removes all barriers preventing EMS professionals from maintaining their own safety while performing the dangerous work of emergency medical services. New features include an innovative six-point belting design with quick and easy seat belt access and a thinner profile to allow the seat to get closer to the wall, allowing more leg room. The seat unfolds flat to transport a second patient if necessary. The system is certified to meet all safety standards while providing maximum flexibility for the EMT.

“[Director of Operations] Adam [Hum-barger] and his team have been fantastic to work with,” says Ned Clifton, sales manager at American Response Vehicles, a leading dealer of new and used ambulances covering Kansas, Missouri, Illinois and Kentucky. “They’re very proactive and open to end-user input on features and requests.”

A key upgrade on the 2160 series is the BackPack restraint system, a six-point harness configuration that secures crew members by simply sliding one’s arms behind two straps, rather than buckling at 3–4 separate points. In addition to faster and easier application, the retractor mechanism is housed underneath the seat rather than behind it, saving critical cabin space.

Other benefits include a seat cushion that’s two inches shorter than the previous model, increasing leg room, and the ability to mount a car seat for child transport.

Clifton works with purchasers of ambulances and emergency crews to determine their needs and desired features, and finds EVS systems are often at the top of agency wish lists. They’re constantly evolving to meet new safety standards and user feedback. “Their customer service is outstanding,” says Clifton, adding that responsiveness to questions and requests is among the company’s strengths.

Since 1993, EVS Ltd. has created more safety seating products than anyone else in the EMS industry by investing in research and development and dynamic testing. Products include mobility tracking systems, safety seats for adults and children, flip-ups and captain’s chairs, integrated restraints and a full line of seating accessories.

Headquartered in South Bend, Ind., EVS Ltd. Is 100% employee-owned and a three-time winner of the EMS World Innovation Awards. Visit evsltd.com

Prepared for the Unexpected

As mass casualty incidents and natural disasters continue to significantly impact communities, it is vital that EMS providers have the sufficient training and knowledge to effectively respond to these events.

The National Association of Emergency Medical Technicians (NAEMT) designed the eight-hour long All Hazards Disaster Response (AHDR) course to teach participants how to deal with active shooter incidents, pandemics, fires, infrastructure failings and other large-scale events. AHDR instructs EMS providers of all levels how to analyze potential local threats and evaluate what resources are available to help save lives.

“There really is no other course like AHDR which really digs into the medical component of responding to a whole host of disasters,” says Faizan H. Arshad, MD, one of the course authors and EMS medical director of Healthquest Systems in Hudson Valley, N.Y.

Arshad says a disaster preparedness committee from ACEP identified the need for disaster management courses that focus on training medical prehospital providers and teamed up with NAEMT.

“In EMS, ‘All disasters are local.’ A first responder’s day is unpredictable,” says Arshad. “Because of that unpredictability, it’s incredibly important for providers to have a basic knowledge and some algorithms in their mind in regard to the medical component of the response…and how EMS can take the lead in an ICS framework.”

Rather than teaching participants general protocols, the course instructs prehospital providers how their specific roles will need to be executed in a disaster scenario so they know exactly what they will be expected to do. Examples of training scenarios include radiological or nuclear events, a wedding where many guests are fatally poisoned, and an active shooter. Arshad describes the course as “new age” in terms of its teaching methodology. Rather than being presented with multiple PowerPoints, students are led through modules and instructor-led group activities.

AHDR is one of many in a suite of NAEMT’s prehospital trauma life support courses, all of which Arshad recommends to enhance providers’ readiness. “This will arm providers with the medical knowledge necessary to respond to disasters and be highly effective in taking care of critically injured and potentially contaminated patients. It’s vitally important they take the knowledge that we give them in AHDR back to their agencies…to prepare for that eventuality which none of us want to happen but nevertheless we have to be prepared to respond to as providers.”

Visit www.naemt.org/education/ahdr

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Make It Better
By breaking complex calls down, you can more fully appreciate how you helped

By Tracey Loscar, BA, NRP, FP-C

“The world is a tragedy to those who feel but a comedy to those who think.”
—Horace Walpole

T here’s a game I play with my crews when debriefing after calls. It’s called “How do you make it worse?” We start with the core problem and then say, “How do you make it worse?”

You then add layers of issues that occurred on the call—those confounding factors that are completely outside anyone’s control and that forced the crew to adapt its plan repeatedly. After all, there is no such thing as a “regular” anything—every call, no matter how routine, has a story behind it. Here are some examples:

“So, what was wrong with him?” “He was in CHF and really short of breath.” “OK, how do you make it worse?” “He was 400 pounds and couldn’t hold himself up.” “How do you make it worse?” “He was deaf.” “How do you make it worse?” “His wife was deaf too.”

“What happened?” “The car rolled over.” “How do you make it worse?” “Three children were ejected, and one was killed instantly.” “How do you make it worse?” “It happened in front of their classmates coming back from a day trip.” “How do you make it worse?” “The grandfather of the deceased was the driver.”

“What was the call for?” “Man kicked in the head by an angry moose.” “How do you make it worse?” “The access point to where he was hunting was 20 miles out.” “How do you make it worse?” “He was disoriented, not sure where he was. There were no roads in, and the sun was going down.” “And…” “The moose was still there.”

Each round reaches a point where it becomes funny, even when dark. The sheer amount of detail becomes almost ludicrous in the retelling. The tragedy is often not in the event but the details.

When providers are feeling overwhelmed or hard on themselves about their performance, pull the threads out of the weave of the call and identify them, one by one. Giving voice to the things that made a call that much harder to work through takes away their power.

When the complexity of a call becomes laughable, learning from the experience shows providers that despite all of it, they managed to make some order out of the chaos and do the best job they could.

You can do this for any call you’re dispatched to. There is no such thing as a “normal” emergency. Details both great and small will go into your experience bank and make you better at scene assessment, patient care and situational awareness.

Lead crew members to their own conclusions: “So how did you make it better?” “I called for additional help.” “We worked up a communication relay involving lip reading and sign language.” “I had no choice—I climbed over the goat.” (That last one is a true story.)

Break it down and let them see their successes, even the small ones. When you can demonstrate how they solved each problem as it presented, then the whole becomes an integrated effort and not an isolated failure.

The nature of our job gives us front-row seats to the human experience, which is never boring or easy. The important things are to decide to act, formulate a plan and be willing to change that plan at least a dozen times before you get to the hospital.


Unravel each story you find yourself in. Look at the threads and see just how much you were really up against. Then either be satisfied with your performance or do it better next time.

“So what happened?” “There was an active shooter.” “How do you make it worse?” “He was heavily armed and firing hundreds of rounds a minute from an unknown vantage point.” “How do you make it worse?” “He was firing indiscriminately into a crowded concert venue filled with 22,000 unaware men, women and children.”

This one falls outside the rules of the game. The factors that made it worse were endless in both number and variety. The only thing that could have made this one worse would have been to diminish its significance in any way.

Part of that significance is the power of the individual—those countless acts of selflessness and bravery from civilians and service alike. Those who recognized, rose and responded.

To the first responders at the Las Vegas shooting, thank you.

You made it better.

ABOUT THE AUTHOR
Tracey Loscar, BA, NRP, FP-C, is a battalion chief for Matanuska-Susitna (Mat-Su) Borough EMS in Wasilla, Alaska. She spent 27 years serving as a paramedic, educator and supervisor in Newark, N.J. She is a member of the EMS World editorial advisory board. Contact her at taloscar@gmail.com or www.taloscar.com.
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