EMS 10

INNOVATORS IN EMS

2010

A supplement to *JEMS* sponsored by Physio-Control Inc.

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EMS 10

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EMS 10: Innovators in EMS 2010 is a supplement sponsored by Physio-Control Inc. and published by Elsevier Public Safety, 525 B Street, Ste. 1800, San Diego, CA 92101-4495; 800/266-5367 (Fed ID # 13-1958712).

Subscription information: To subscribe to an Elsevier publication, visit www.jems.com. Advertising information: Rates are available on request. Contact Elsevier Public Safety, Advertising Department, 525 B Street, Ste. 1800, San Diego, CA 92101-4495; 800/266-536.

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Ride the Innovation Wave

Tap into the innovations of others to improve *your* EMS system

By A.J. Heightman, MPA, EMT-P

This is the third year of the EMS 10 Innovators in EMS program, jointly sponsored by Physio-Control and *JEMS*. The program has a simple mission but powerful objective: Find some of the best innovators in the EMS industry and alert the EMS community to their achievements of the previous year to help you and your patients in the future.

The 10 EMS Innovators selected are not the only great innovators in our business, but our selection committee judged their hard work, dedication and selfless efforts in 2010 to be best of the candidates submitted by their peers this year.

We profile each honoree in this special supplement to *JEMS* to not only inform and educate you on their innovative work in EMS, but to encourage you to ride on the wave of their innovations, use them to better develop your EMS system and inspire you and your colleagues to think outside the box, take some calculated risks and innovate in an area of EMS that you feel could make a difference for patients, EMS systems or your prehospital colleagues.

This year's honorees are listed below.

A.J. Heightman, MPA, EMT-P, is editor-in-chief of JEMS. Contact him at a.j.heightman@elsevier.com.

David Aber, NREMT-P ... Recognized for his efforts in obtaining a $420,000 grant for the purchase and distribution of carboxyhemoglobin monitors to first responders throughout Delaware.

Chief Jeffery Dumermuth, CMO, EMT-PS ... Recognized for efforts in creating the Iowa EMS Alliance.

Ray Fowler, MD, FACEP ... Recognized for his efforts in advocating that EMS be recognized as a medical subspecialty by the American Board of Medical Specialties.

Greg Friese, MS, NREMT-P ... Recognized for his efforts in creating the EMSEduCast, a weekly one-hour Internet broadcast for EMS educators and providers.

David Hiltz, NREMT-P ... Recognized for his efforts in campaigning for the formation of HEARTSafe Community Programs in Massachusetts and surrounding states.

Lt. James Logan, BPS, IC, EMT-P ... Recognized for his efforts in creating an innovative training program for responses to bombings and acts of terrorism.

Nicholas Miller, BS, CCEMT-P, I/C ... Recognized for his efforts in forming a training course to transition military medics to civilian NREMT paramedics.

Christopher Montera, EMT-P ... Recognized for his efforts in developing a community paramedic program in Colorado and helping raise more than $600,000 toward its implementation.

Daniel Patterson, PhD, MPH, EMT-B ... Recognized for his efforts in researching the effects of sleep deprivation on providers, identifying trends that will improve safety in the field.

Tawnya Silloway, EMT-P ... Recognized for her efforts in creating a handbook outlining procedures for handling line-of-duty deaths.

Eliminating Unrecognized CO Poisoning

David Aber spearheads efforts to make CO monitors available statewide

For most trade show conference-goers, a trip through the exhibit hall is a must-see, a highlight if you will. They collect brochures and marketing materials, talk with colleagues, and, of course, try out all the new, sometimes cutting-edge, tech tools. Sometimes that walk leads to exciting changes.

Two years ago, David Aber, NREMT-P, volunteer EMS supervisor for the Odessa (Del.) Fire Company and a full-time paramedic with New Castle County, was attending EMS Today in Baltimore when he came across a booth sponsored by Masimo Corp., a global medical technology company that develops and manufactures medical devices and sensors. What caught Aber's eye was Masimo's Rad-57 Pulse CO-Oximeter. The small, handheld device measures noninvasive carboxyhemoglobin (SpCO), methemoglobin (SpMet), SpO_2, pulse rate and perfusion index. In short, it was a portable, high-tech patient monitor for carbon monoxide, and Aber recognized the lifesaving opportunities the small handheld might offer.

David Aber

He stopped to talk to the Masimo representative about the device, and the state of Delaware has never been the same.

"This tool gives you the ability to read the level of carbon monoxide exposure simply by placing the probe on the finger of a patient or firefighter," Aber says. Carbon monoxide mimics symptoms of the flu. And although carbon monoxide poisonings happen year-round, EMS responders find more CO poisoning in the fall and winter months, when people are more readily using their home heaters and furnaces. "The monitor benefits not only firefighters, but also benefits any patient that has been exposed to carbon monoxide," says Aber.

The Birth of a Vision

The longer Aber stood in front of the Masimo booth and looked at the device, the more an idea began to percolate. A big geographic idea. These devices save lives—the lives of patients and the lives of first responders. And Aber wanted every firefighting district in the state of Delaware to have at least one of the $4,000 devices. Given that the numbers added up to around 100 agencies to be supplied statewide, including the University of Delaware and the Air National Guard, the project seemed daunting, and nearly impossible. It was just the kind of challenge Aber was looking for.

The more he thought about it, the more convinced he became that the New Castle County project could be funded by a grant through the Assistance to Firefighters Grant (AFG) and FEMA. But he began thinking on a bigger scale. "We decided to go for a regional grant that would cover all of Delaware," Aber says.

He thought he had a good chance of getting the grant funding, and the devices purchased and installed throughout Delaware, because carbon monoxide monitors had been added to EMS protocols in 2008 as an optional piece of equipment. "One of the guidelines calls for medical monitoring, including carbon monoxide levels," Aber says. It's just the kind of thing FEMA likes to help agencies achieve, and Aber thought it was a reachable goal.

So he began the process of researching data and filling out and submitting paperwork for the $420,000 grant in May 2009, a process that took several months to complete. He gathered information and statistics from as far back as 2007, which proved difficult, but not insurmountable. "It was a project that, initially, did not seem that big of an undertaking," says the 18-year EMS veteran. "We submitted it through the Odessa Fire Company as a regional grant for the whole state. With the simplicity of the device, and the benefit, it could save firefighter and patient lives. So I gave it a shot."

He heard back from FEMA in May 2010. It took 14 rounds of consideration before the money was awarded for the project. The award also came with a condition. Every department receiving the device had to pony up $700 of their own money for every device received. FEMA would foot the rest of the cost. All the participating Delaware agencies did just that.

The RAD-57s were ordered in June 2010 and delivered shortly after. But they came without labels and in several pieces. So Aber and members of the Odessa Fire Company assembled the devices. He also arranged for all participating agencies to undergo training, conducted by Masimo, in the maintenance and use of the devices.

Masimo flew two clinical specialists to Delaware, and more than 100 EMTs underwent the RAD-57 training, which was set up in a "Train the Trainer" format. Delaware Attorney General Beau Biden and Thomas Carper, U.S. senator for Delaware, attended the event.

"The goal was to have the EMTs take this training and then take the information back to their departments and do their own in-house training," Aber says.

The Program Goes Statewide

Through the awarding of the grant, Delaware is now the first state in the nation to have a 100% ability to monitor carbon monoxide levels in all firefighters and patients on almost every ambulance run.

"Anytime there is a working fire in the state, as long as an ambulance is dispatched, this device will be at that fire," Aber says. "They are not on every single ambulance, but they are at every single fire. If an ambulance goes on a call for a firefighter rehabilitation, the device goes with that ambulance. A few of the fire departments put them on their fire trucks."

Aber is passionate that these devices be used frequently because of the nature of carbon monoxide poisoning. "Carbon monoxide is odorless, colorless and tasteless, so you don't know it's around. And it's deadly," Aber emphasizes. "It's the No. 1 cause of unintentional poisoning in the U.S., and it's so easily missed."

Detecting Elusive Carbon Monoxide

Aber worries that EMS personnel and patients can be transported to the hospital with symptoms that mimic the flu or other illnesses, only to have unrecognized carbon monoxide poisoning be the real culprit.

"You don't know if it's been missed," he says. Aber is adamant about not letting that happen in Delaware. "While emergency rooms do a great job, the fact is they get overwhelmed at times. Some patients may be triaged to waiting rooms and left before ever being seen."

Every department in Delaware that received the RAD-57 paid $700 of their own money; FEMA paid the remainder.

The state of Delaware has shown great appreciation to Aber for all his efforts in keeping EMS personnel and patients aware of, and safe from, carbon monoxide exposure. His efforts were recognized at the Delaware EMS Association's 2010 state conference. A state resolution was crafted and read to Aber and the Odessa Fire Company at the association's dinner. The resolution highlighted his innovative thinking and devotion toward acquiring this special lifesaving device for all Delaware citizens.

As a testament to the program and the effectiveness of the device, a family called 9-1-1 after they fell sick in their home. This incident occurred just two weeks after the training on and dissemination of the RAD-57 devices. An EMS crew was dispatched and arrived on scene with a room carbon monoxide detector attached to an oxygen bag. The monitor picked up carbon monoxide in the house, and the EMS crew quickly evacuated the family from the premises. "The family was immediately attached to the RAD-57s and all were found to have high levels of carbon monoxide exposure," Aber says. The family was treated and released.

> Recognized for his efforts in obtaining a $420,000 grant for carboxyhemoglobin monitors in Delaware.

Aber would like to see other states implement and deploy the same carbon monoxide monitoring protocols as Delaware. He acknowledges that the grant process can be time-consuming and somewhat arduous, but he believes that the end results justify all the time and expense it takes to get such a program up and running—especially when it comes to saving lives.

"Carbon monoxide is easily missed, and carbon monoxide monitors are versatile tools that can help firefighters throughout the state," Aber stresses. "Firefighters are the No. 1 frontline providers for the safety of our residents, but the devices would help every resident it was applied to."

Aber's short trip through an exhibit hall has resulted in a statewide impact for Delaware. More than $400,000 has been awarded to cover the costs of his idea, hundreds of EMTs have been trained in the use of carbon monoxide monitors, and lives have already been saved by the use of the small, handheld devices.

One wonders just what kind of idea David Aber will have the next time he walks through an exhibit hall and stops at a booth. One wonders how many people the idea will impact. It's certainly worth considering.

Forming a Unique Alliance

Jeff Dumermuth facilitates partnership between Iowa hospital & EMS systems

In an effort to improve EMS care in Iowa, Jeffery Dumermuth, CMO, EMT-PS, chief of Emergency Medical and Communications Services for the city of West Des Moines, Iowa, spearheaded one of the more unique partnerships within EMS.

Dumermuth combined private hospital interests with a municipal city EMS operation to form the Iowa EMS Alliance, one of the few, if any, partnerships of its kind in the nation.

"The city of West Des Moines EMS had a good relationship with our area hospitals, and we've tried to be on the edge of providing emergency medical care," Dumermuth says.

Some of the hospital's primary concerns were centered on their specialty transport teams. *Example:* The hospitals have created pediatric and neonatal specialty transport teams that respond to emergencies involving babies 1 month and older, children, and adults 18 years of age who are critically ill or injured. Specially trained nurses and paramedics staff these specialty teams. The surrounding hospitals in the area asked West Des Moines EMS to back up another EMS agency that supported their hospitals, and the agency agreed.

Jeff Dumermuth

"It didn't take the hospitals very long to like what they saw," says Dumermuth, who has been with the city of West Des Moines since 1983. "Our staff is highly professional and highly trained. We were already going out to the rural hospitals in the state with our specialty care and transferring it back to the hospitals."

The Need for a Better Answer

When the hospitals began having service issues, they considered starting their own ambulance service. Dumermuth saw a rare opportunity to provide a solution where everyone could win. "We sat down at the table and told them we have the expertise, management, and billing and purchasing operations it takes to run an ambulance service," he says. He asked if there might be a way to form a partnership, instead of providing separate services. And so the discussions began.

The city's EMS service had five 24-hour trucks serving the city and surrounding area, as well as the major hospital systems. It was more than equipped to provide the partnership service.

As the talks continued, the hospitals liked what they heard. Dumermuth outlined criteria that had to be met. *Example:* 9-1-1 response times could not suffer. "We had to take care of the citizens of West Des Moines and make sure they had a rapid and high quality response that they'd become accustomed to," he says.

A deal was struck. Four hospitals in the West Des Moines metro area signed agreements, resulting in a nearly statewide response.

"Our transport ambulances were in nearly two-thirds of the state of Iowa over the last year," says Dumermuth. The agreement allows others to join, but Dumermuth says the city hasn't aggressively pursued those opportunities at this time.

The participating hospitals essentially pay all the costs associated with running the ambulances out of their facilities, and administrative costs are shared between each hospital and the city of West Des Moines. "We share in the administrative costs, which is where the city got the biggest benefit," says Dumermuth. "Before the agreement, the city was paying 100% of costs. With the new agreement, the city pays about 40% of the costs. It saved our citizens $200,000 in the first year."

Rural Areas May Benefit the Most

Although the city of West Des Moines and the four area hospitals certainly benefit from the unique partnership, it is perhaps the rural communities who feel the advantage most. They are notoriously underserved, something that Dumermuth kept in mind while crafting the agreement.

"The specialty teams will transfer any patient to the hospital from the rural communities," he says. "So now the rural hospitals have an ambulance available."

Before the partnership, dispatching an ambulance in one of the surrounding rural communities, whether it was for 45 minutes or three hours, left the community uncovered, because most of these small communities have only one ambulance. "They are unwilling—for good reason—to leave their response district open. We fill that need by making those transfers," he says.

It's not just the city, hospitals and rural communities that benefit from the partnership. The EMS staff

and paramedics, 20 full-time and 50 part-time employees, also enjoy many advantages. The staff bids on, and rotates, shifts between units at EMS stations and the hospitals, which create more opportunities for exposure to advanced clinical situations than the 9-1-1 environment can provide.

"They are usually assigned to a station for six months, depending on where they bid," Dumermuth says. The agreement has created nine new full-time paramedic and three EMT basic jobs.

The bidding arrangement has resulted in attracting and keeping high-quality staff—professionals who tend to take their jobs seriously and stay for years.

"We get them trained and make sure the staff we send to the hospital is the highest quality staff out there," says Dumermuth. "Our full-time staff are critical care trained paramedics, and we are the only agency in central Iowa that requires a two-year degree to start full time with our department. Those extra things are what set us apart."

Enhancing Care While Strengthening Core Skills

In addition to traditional runs, paramedics assigned to the hospitals, and functioning in the specialty teams, also have the opportunity to assist within the hospital setting. "They are stationed at the hospital when they are assigned to their trucks," says Dumermuth. "If the hospital needs extra help in the ICU or the ER, the team has the ability to do that."

This has allowed many of the paramedics to not only be exposed to a variety of medical situations, but also to follow a patient through the whole spectrum of care, something the traditional 9-1-1 environment rarely allows.

"When they are in the hospital, they have the ability to use their skills in the ER, or elsewhere throughout the hospital, to keep their skills refined," Dumermuth says. "We have the advantage of exposing our staff to more situations in different environments, and they are presented with so many more training and educational opportunities."

The Iowa EMS Alliance has helped create specialty transport teams to respond to specific emergency scenes throughout the state.

The cross training and exposure has also provided paramedics with greater ease in acute situations.

"In EMS, one of the challenges we get presented with is taking care of kids, which is always a high stress time for paramedics or parents," Dumermuth says. "With our paramedics going out with these specialty teams and frequently being exposed to these sick kids, they are much more comfortable dealing with children when they come back into a 9-1-1 environment."

The agency also is committed to making sure the ambulances and equipment are of the highest quality and in good repair. "We portray a professional image," Dumermuth says. "Our high-quality equipment, high-quality staff, and our commitment are things we've worked hard to achieve, and it was important to the hospitals."

Extending Resources to Fortify Communities

Dumermuth is credited with creating the partnership vision and overseeing all the logistics to make it a reality, but he is quick to give accolades to all the people who helped him bring the idea into existence. "I'm very blessed to have some extremely talented staff," he says. "Taking care of patients is what we do, and we make sure we do a great job in that."

The program has given the city a way to effectively deploy scarce resources in a time of severe budget constraints, which assists all involved, especially the more rural towns within the state of Iowa.

"It gives us the ability to extend our arm and our professionalism and help out some of these smaller communities that are running out of resources," he says. "If we can share our resources and go out and make a difference, not only in our community but also in the state, I think that's a blessing."

Recognized for his efforts in creating the Iowa EMS Alliance.

Just sitting by and doing nothing would have been an option, but that's not part of Jeff Dumermuth's makeup, nor is it the makeup of the city he works for. "Thinking outside the box is what we do," he says. "It would be easy to keep things status quo with budgets and the economy the way it is. But being able to diversify services and look for revenue resources without getting stuck in the traditional 9-1-1 delivery of service has been a great benefit to our community."

The community would certainly second that.

Campaigning for Growing Recognition

Ray Fowler advocates to make EMS a subspecialty

After spending 20 years practicing emergency medicine as the medical director of an emergency department in his hometown of Douglasville, Ga., Ray Fowler, MD, FACEP, retired and immediately began looking for his next life opportunity.

His next adventure turned out to be right around the corner and involved Fowler's longtime friend, Paul Pepe, MD, chair of the Division of Emergency Medicine at the University of Texas Southwestern.

Ray Fowler, MD

"He invited me to come out to Dallas and take a look at the EMS system. Once I realized what was going on in that massive urban system, I joined them in 2001," says Fowler, who is now professor of emergency medicine at the University of Texas Southwestern and attending faculty in the Department of Emergency Medicine at Parkland Memorial Hospital.

Fowler, who's been a leading EMS educator and medical supervisor for more than three decades, has shifted roles somewhat and now finds himself on the forefront of resuscitation research and political advocacy. In his new role, he has become a co-principal investigator for the Resuscitation Outcomes Consortium (ROC) at the National Institutes of Health.

Examining the Issues

"I've been able to participate in the examination of frontline issues in the management of critical patients, such as the use of hypertonic saline for hemorrhagic shock and traumatic brain injury, and the use of the impedance threshold device to improve blood flow during cardiac arrest. These important treatments came to the forefront in studying the resuscitation industry and trying to determine what matters needed immediate attention," Fowler says. "These are just two examples of the many opportunities we've been given to study where our new subspecialty of emergency medical services is going to go."

Fowler emphasizes that much of the research done in the past few years, including that conducted by ROC, has led to the understanding that there are some very specific things that need to be done to optimize care in certain emergencies.

"For example," he says, "it's very apparent now that when we do CPR, we should not go too slow *or* too fast in applying cardiac compressions. The ideal compression rate appears to be between 100 and 120 compressions a minute, according to very recent data, and if the rate falls outside that range, survival diminishes."

Research from ROC has also shown that the number of seconds out of every minute during which compressions are done is critical. When the number of seconds out of every minute drops below 40, survival drops dramatically. "This gives us, in public health, professional and ethical imperatives," says Fowler. "With this knowledge, we can save tens of thousands of people. Imagine what that could mean to our country."

Going to Bat

Fowler has become one of the leading advocates for the establishment of emergency medical services as a medical subspecialty within the American Board of Medical Specialties. "It took collaboration among all of the advocates of EMS to prevail upon the Board to sponsor EMS as a subspecialty," Fowler says.

This advocacy has been a concerted effort for nearly a generation. Fowler credits the successful drive this time around with proving to the Board that EMS is, indeed, a practice of medicine.

"Emergency medical services is a principal participant in public service to the other members of the House of Medicine," he says. "Therefore, in all the ways that we can conceive of providing for optimal care for our citizens, EMS is a full partner."

Despite the three years of advocacy, Fowler says, "It wasn't so much that it was a tough sell, but rather, the assembly of the information that most adequately explained how EMS participated as a fellow member in the overall body of medicine did not become most adequately described until the last few years." He sees the Board's decision as simply taking advantage of a good idea that matured at the right time.

Rethinking Old Ideas

Thinking out of the box and driving for change is standard fare for Fowler. *Example:* He was talking with A.J. Heightman, editor-in-chief of *JEMS*, about ways to encourage more people to get CPR training. "What if we paid 100,000 people $50 each for the benefit of

having them perform CPR on a total stranger?" is the question they posed. "That would cost the country about $5 million a year, which is peanuts on a grand scale," says Fowler. Taking the concept further, Fowler calculated that if the 100,000 people saved an additional 10,000 lives of people who were in their mid-50s, more people could return to work and pay $100,000 in taxes over the rest of their working lives. The country would then reap $1 billion in taxes.

"So a $5 million investment would get you a billion dollar return on an average year," he says. "That's a 20,000% return on investment!" Such is the way Fowler's mind works.

Training for a New Century

Fowler is a senior editor of the new edition of *Prehospital Systems and Medical Oversight*, the recent textbook from the National Association of EMS Physicians, of which he was a founding member.

"To get there, we had to codify our body of knowledge, by drawing from the breadth of knowledge of the wonderful people that contributed to the text," Fowler says. "We had so many outstanding clinicians and researchers who literally gave thousands of hours to put the text together. It says so much about our field of medicine that it took four volumes to be able to adequately place in proper context the practice of EMS medicine."

Justifiably proud, Fowler feels the textbook speaks to what EMS does in the out-of-hospital environment. "The book also speaks to the training of EMS medical directors, to tactical medicine and to disaster preparedness," he says. "All of these issues make up EMS, and we laid that out in a series of texts that would provide for a new modern picture of our field."

Fowler is also a founding author of the National EMS Medical Director Training Course and Practicum, which delivers a comprehensive program for training medical directors of EMS systems. Such a training course was unavailable in 1988, so Fowler and other national EMS leaders set out to change that. The course is now in its 22nd year.

"We have trained well over a thousand EMS physicians with the course," he says. "I'd like to think that we've made a significant impact through this work in helping standardize what the training of the medical director of an EMS system, as well as an EMS subspecialty, should look like."

All of Fowler's work will culminate, he hopes, into EMS being fully accepted into the medical community as a subspecialty through comprehensive training of all EMS providers.

"Within a few short years, those EMTs and paramedics who may be reading this article will be reassured that the physician who will come to work with them as a medical director, by state statute and regulation, will have had to sit for a comprehensive examination, which will determine that physician's knowledge base in EMS systems according to nationally accepted standards," he says.

Through research, a four-volume textbook and a training practicum, Fowler aims to send a clear message about the level of excellence EMS can reach.

Fowler feels the research, the new four-volume EMS textbook, training practicum and the nod from the American Board of Medical Specialties sends a clear message. "Prehospital personnel have been fully, warmly, and widely accepted into the practice of medicine. "The challenge now is to act like a medical subspecialty," he says. "How we all will hold each other accountable for acting that way is going to be a true adventure, and it's going to be an adventure of the next decade or more."

Advocated for the recognition of EMS as a medical subspecialty by the American Board of Medical Specialties.

It is that future that Fowler looks to. He believes the addition of new research methodologies and medical technologies will not only enhance the field of EMS medicine, but will bolster the entire subspecialty of EMS. He also believes EMS will enjoy a new professionalism in the future.

"We know EMS plays a major role in public health, disaster preparedness and maintaining wellness," he says. "We are excited to be a part of this, and we all believe that the coming years will be exciting ones for us because there is so much neat new stuff coming."

Developing a Worldwide Learning Network

Greg Friese develops a program that changes the face of EMS continuing education

From the time he was a Boy Scout earning a merit badge in first aid, Greg Friese, MS, NREMT-P knew he was interested in healthcare. He took a job as a camp counselor at the Camp Manito-wish YMCA, where he was required to take CPR and wilderness first aid classes. It wasn't a big leap for him to realize that EMS might be a viable life path.

During his undergraduate work at the University of Wisconsin and his graduate work at the University of Idaho, he studied recreation, adult education and community programming. Still, the medical field called to him.

"In 1999, I was living in Boulder Junction, Wis., and wanted to join the fire department as an EMT, so I took an EMT basic class," says Friese. "I enjoyed my time with patients and seeing if my interventions would make a difference."

Greg Friese

By 2002, he knew he wanted to become a paramedic, and he made that a reality in 2005. "Because of my recreation and adult programming background, I got involved as an educator," he says. "I'm an action-oriented guy always looking for new things to do, and that background in teaching and writing opened up a lot of opportunities for me. I stepped right into them."

The seemingly disparate paths of medicine, adult programming and education neatly dovetailed into the career Friese now enjoys as director of education for CentreLearn Solutions LLC, based in Shrewsbury, Pa. The company specializes in meeting the training and continuing education needs of thousands of medical professionals, private companies, local and state government agencies and the military. Their learning management system is specially designed for EMTs, paramedics and firefighters.

"We have a library of continuing education lessons, many of which I have helped develop as a writer or editor working with other subject matter experts," says Friese. "A learning management system allows a fire department or EMS agency to put their training online. A learning management system also makes that content always available when the user is available to complete it, so personnel can train while on duty. And you can track who has completed the training."

The Power of an Idea

You would think that overseeing e-learning content for an organization like this would be enough for someone like Greg Friese, but you'd be wrong. Did we mention he's an action-oriented guy?

"I once had a position as the coordinator of the North Central Regional Trauma Advisory Council of Wisconsin, and part of my role was to do trauma-related education for EMS providers," Friese says. "I did 10 episodes of a podcast for that region, interviewing different trauma care experts, and made that available as an education piece for the EMTs and paramedics in that service area" Interestingly, the podcasts actually had more listeners out of state and around the world than in Wisconsin.

The power of podcasting specifically, and social media generally, stuck with Friese. He began experimenting with Twitter, Facebook, and blogging and making connections with others throughout the EMS community who also had interest—and actual programs—in the social media world. One such man was Chris Montera (profiled on p. 17), who already hosted a podcast called EMS Garage and was getting ready to launch another podcast called EMS Leadership, which would be aimed at EMS managers and supervisors. The two men struck up a friendship.

"I e-mailed [Montera] and told him he should think about doing an EMS-related podcast," Friese says. "He e-mailed me back and said, 'Why don't you do that? I'll work with you to launch it.' An opportunity arose and I went after it."

Friese then found Buck Feris, another paramedic educator, on Twitter. Together, Friese, Montera and Feris launched EMSEduCast (www.emseducast.com) in February 2009, a podcast by and for EMS educators. The program recently aired its 90th episode. Eventually, Montera, with a full plate of his own, asked to be replaced by Robert Theriault, another paramedic educator. The current team is Robert Theriault and William Toon.

The Podcast Goes Global

EMSEduCast has done programs on everything from deadly force encounters to tactical EMS education and the EMS educator certification exam to other current issues.

"Last fall there was quite a lot

in the media about bullying," says Friese. "Bullying is an issue across all workplaces and must exist in adult education, so we had an expert in workplace bullying on the show."

The podcast also features international programs because EMS happens all around the world. One show highlighted EMS in Sri Lanka. "After the tsunami, they had a tragic opportunity to restart all social institutions, including EMS," Friese says. "We talked to someone who is a part of EMS in Sri Lanka and asked them about the service model and education system."

Friese has interviewed EMS educators in Germany, Switzerland, the United Kingdom and Australia for the show. Getting international speakers, however, can be tough.

"The challenge is three-fold: first to find somebody, second to find somebody confident enough in their English skills to talk about EMS and their country, and third to find someone who is willing to get up in the middle of the night," says Friese. "We record at 7:30 p.m. Central here in the U.S. I admire the Europeans we've had on the show who are talking to us at 2 a.m. [their time]."

Friese says he gets a number of speaker recommendations from listeners and EMS experts requesting to be on the show. He thinks about topics he'd like to know more about and invites those expert speakers, or, he says, he invites the authors of articles he reads in *JEMS*.

The program has a worldwide listenership and has gained popularity through word of mouth. Many listeners talk about the programs with their colleagues. And, of course, other podcast programs promote each other's shows, including EMSEduCast.

Although it's difficult to pin down the exact number of listeners tuning in because someone can just click on a link to hear it, Friese does track the number of downloads each program receives. Since September 2009, EMSEduCast's 90 episodes have had more than 93,000 combined downloads, or an average of 1,000 downloads per episode. "Someone can go back today and download every episode for free," says Friese.

Bringing Education to the People

The real benefit in podcasting something like EMSEduCast is the ability to reach anyone in the world for free 24/7. A community college may offer classes to a small group of EMTs or paramedic instructors, but the EMSEduCast, and indeed the whole family of EMS podcasts mentioned, offers free access to a wide variety of expert instructors that listeners might never have the opportunity to hear in person. Podcasting breaks down geographic and economic barriers and allows everyone the same access to information, eliminating the need for people to be in the same space. It's the most democratic form of education, says Friese.

The benefit of podcasting is the ability to reach anyone in the world for free 24/7.

"EMSEduCast listeners tell us that it's valuable for them to hear other educators talk about issues and topics that are relevant, topics that provide ideas and opportunities," says Friese. "Our listeners seek out our experts at conferences, or contact them directly, so we're bringing educators a little bit closer together."

The EMSEduCast project reinvigorated Friese's own passion for EMS and education, allowing him to start connecting nationally and internationally with EMS educators. "We have [in essence] a license to call anyone all over the world that is involved with EMS education, tell them about the show, and ask them to join the conversation," he says. "We've done some amazing shows and brought them to the world."

> Recognized for his efforts in creating the EMSEduCast, an Internet broadcast for EMS educators and providers.

Friese is most pleased the podcast has expanded the network of EMS educators and professionals to people all over the world who share similar interests through the simple, yet powerful, means of social networking.

Whether listeners are focused on leadership, education, or field operations, EMSEduCast plays a role in moving the EMS profession forward, and that makes Friese proud. "The fact that we can communicate with each other regularly and encourage and share ideas is powerful," he says. "It keeps me motivated."

Beating Heart for Survival

David Hiltz campaigns to increase cardiac arrest awareness, response

You might say that David Hiltz, NREMT-P, has heart. A lot of heart. In fact, he played a significant role in conceiving, developing and promoting the HEARTSafe Communities program because he cares so much about other people's hearts.

"I consider myself to be the champion or steward of HEARTSafe Communities," says Hiltz, public safety account manager for the American Heart Association's National ECC Programs. "But there are countless HEARTSafe heroes out there."

David Hiltz

The HEARTSafe program is a population and criteria-based incentive program designed to advance systems change along the Chain of Survival, which has four critical steps: early access to emergency care, early CPR, early defibrillation, and early advanced care. The primary goal is to increase survival rates from out-of-hospital cardiac arrest. Individual communities are asked to develop and implement lifesaving strategies that focus on coordinating local resources to prevent sudden cardiac arrest from becoming sudden cardiac death.

Starting on a Shoestring to Influence a Nation

"We started with $3,000 in funding, and since that time, more than 50% of communities in Massachusetts are now HEARTSafe designated," says Hiltz. With Massachusetts holding the distinction of inaugural state, Maryland launched its own HEARTSafe program, followed by Maine, Connecticut, New York, New Hampshire and Rhode Island. "There are programs on the West Coast, as well," says Hiltz.

Each state is asked to design its own criteria on the basis of its population, system and geographic needs. Cities and towns get points for training certain numbers of residents in CPR. They get credit for having public access to defibrillation programs in schools and municipal buildings, and for having ALS response capability and other enhancements in the community.

"They also get points for having an ongoing plan for improving their chain of survival," says Hiltz, who's been in healthcare for more than 25 years.

Meeting the criteria and achieving a HEARTSafe designation signifies that the community has taken a comprehensive approach in ensuring it is HEARTSafe. Meeting the criteria also provides further opportunities to enhance community partnerships, resources and services to improve cardiovascular health and decrease deaths due to sudden cardiac arrest, heart attack and stroke.

The idea of HEARTSafe first came out of a group called the Public Information & Education Resource Committee, a group that works with the Emergency Medical Care Advisory Board in Massachusetts, which was charged with finding better ways for communities to improve response care and outcomes for patients having a heart attack or sudden cardiac event.

"The Commissioner of Public Health at the time asked us to design, develop and launch a program that would encourage citizen CPR and the development of early defibrillation strategies and improve survival in the cities and towns across Massachusetts," says Hiltz. "The group came up with criteria, designed some traffic grade road signs, put together a rudimentary packet of information and a letter signed by the Commissioner, and mailed it to all of the chief elected officials in 351 cities and towns in Massachusetts."

Communities around the state picked up the concept. Realtors began using the HEARTSafe designation as a selling point to potential buyers. The program is scaled so communities both large and small will have goals to work toward. "We adjusted the heartbeat points, so if you were in a community of 10,000, you'd have to train more people in CPR to get the required point threshold, in contrast to a community of 1,000," Hiltz says.

The response to HEARTSafe continues to be enthusiastic.

Connecticut, which launched its program in 2006, has had 64 communities achieve designation, covering a population of more than 1.5 million people. Massachusetts, which got started in 2002, has 183 designated cities and towns, covering 4.4 million people. "Maine has 261 communities, New Hampshire has covered 174,000 people, and Rhode Island has 110,000 people covered," says Hiltz.

Considering the Options

Those considering developing a HEARTSafe Community should

familiarize themselves with existing programs and look to these groups for guidance. The American Heart Association (www.heart.org/cpr) has a wide variety of policy and scientific statements, products and services to support the creation of HEARTSafe Communities. HEARTSafe can also be found on Facebook.

As much as a new community would like to cut and paste from another existing program, Hiltz says, "While there are a lot of commonalities, there are a lot of subtle nuances from state to state."

Hiltz encourages communities to specifically pinpoint what's getting in the way of people surviving sudden cardiac arrest and then come up with specific solutions that address those obstacles. "Then use that as your HEARTSafe criteria to help mobilize your community," he says.

"Local situations deserve local solutions. So do what's necessary to develop an optimal response and care strategy for your community. By sitting down and customizing a program and making it your own, you'll end up with a much better result."

Hiltz adds, "Evidence has demonstrated that primary and secondary prevention is incredibly important in helping people stay healthy. At the same time, EMS and the resuscitation community are responsible for building and maintaining the safety net that catches people who fall through the prevention cracks."

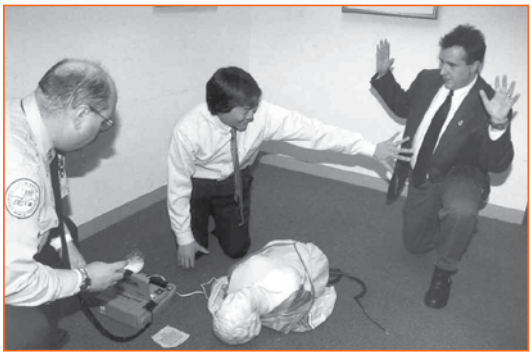
Campaigned for the formation of HEARTSafe Community Programs in Massachusetts & surrounding states.

A Personal Quest

More than just an organizational initiative, the HEARTSafe Communities program is a personal mission for Hiltz.

"We get mired in statistics, but however many people we are talking about, whether it's a million or 200,000, it's not just a number," he says. "We're talking about mothers, fathers, brothers, sisters, our children and valued members of our community." And he doesn't want them to die prematurely from something preventable.

"You read these stories about these adolescents who were previously healthy, four-season jocks, who collapse on the practice field in cardiac arrest," he says. "There are a significant number of people whose hearts are too young to die, and I think that's where HEARTSafe makes a huge difference. We help avert a preventable death from sudden cardiac arrest."



HEARTSafe communities aim to increase survival rates for out-of-hospital cardiac arrest patients.

Many of these people today fall into two categories, Hiltz says. One is the tragic category of a young person who is unable to be resuscitated. The other category, and one growing in size, is the story of triumph.

"That's the story of a young person whose heart was too young to die, and a community response was initiated, and everything went right, and that person was able to go back to their pre-event status and live a long and meaningful life," says Hiltz. This is the ultimate goal that HEARTSafe Communities aim for every time.

"Being in the presence of friends and family who have lost a young son or daughter tears the heart right out of your chest," he adds. "I'd do anything to help others avoid that tragic circumstance and story."

Hiltz acknowledges that heart health is a complicated issue with many moving parts. To fully understand its complexity requires education, teamwork, compassion and a continuing understanding of the many changing factors surrounding heart health in general.

"We used to think that heart disease was predominantly a male problem, but that's not true anymore," he says. "It's very much a woman's health problem, and it's been ignored." Hiltz hopes to see things like that change.

Being in the heart business, he's witnessed a lot of pain he'd like to see others avoid. He believes the HEARTSafe Communities program can offer such an avenue.

"We'd like to afford more people the maximum opportunity to survive such an event, particularly when we know they can survive," he says. "As grave as cardiac arrest may seem, in many cases, it's highly treatable, but it's time sensitive.

"Once you put your arm around somebody who was involved in a story of triumph, it's extremely rewarding," he says. "To know that a person who, for all intents and purposes was dead, is now alive and spending time with their families doing worthwhile things is absolutely priceless."

Rethinking Disaster Preparedness

James Logan masterminds interactive one-day simulation training program

Believing that the best way to train is through realism, Lt. James Logan, BPS, IC, EMT-P, has created one of the most innovative and true-to-life training programs that many EMS providers will ever experience.

Logan, who heads up EMS Consequence Management and Quality Improvement for the Memphis Fire Department, finds himself immersed in disaster preparedness and terrorism response daily. As part of EMS Special Operations, and as chair of the federal grant program for the Metropolitan Medical Response System (MMRS) in Shelby County, Tenn., Logan was part of a steering committee charged with developing and executing a conference for local EMS that would be funded by MMRS.

James Logan

"Conferences and lectures are great, but sometimes you can PowerPoint people to death," he says. "We are guilty of drilling our providers in an interactive setting, but often we don't focus on educating them on the objectives of the drill. So the idea emerged to do more interactive education." This has resulted in giving providers a more hands-on, "minds-on" approach to critical thinking and skills in the learning environment.

An Interactive Partnership

The idea that the steering committee eventually devised was to bring the Memphis community—private and public ambulance services, health departments and hospital communities—together to participate in a daylong multi-casualty incident (MCI) simulation exercise. The idea was that participants would work together in a building that would seem like it had been bombed by an improvised explosive device, or IED. Firefighters and paramedics from around Shelby County and Memphis would train together as if the simulation were a real bombing and MCI.

Logan, who has been in EMS since 1984 and with the Memphis Fire Department since 1991, says, "The Medical Education Research Institute [MERI] provides the cadavers, procedural cadaver lab, bomb simulation building and high-fidelity simulators. The MMRS community provides the instruction with subject matter experts, including EMS educators, physicians and nurses." The day begins with a 90-minute lecture covering various topics, including MCI management, terrorism and disaster preparedness. Speakers have included bombing specialists and FBI personnel.

"We take the education that the EMTs and paramedics already have and don't get to practice every day, and we twist it into an hour-and-a-half refresher," says Logan. "Then we go out and use it, and we critique each other."

Lest you think this sounds simple and fun, consider this: Participants in the event are in full PPE and turnouts. The true-to-life scenario includes a debris-strewn building simulated to appear as if it has been severely bombed. The environment is pitch black and filled with cold smoke. High-fidelity simulators, the most true-to-life interactive computer-operated manikins ever developed, are also placed across the room and exhibit symptoms of severe trauma.

"It's pitch black; you can't see your hand in front of your face," Logan says. "We use cold smoke, artificial flames and auditory distractions, like a jackhammer and a helicopter, during the triage of the patients. We also incorporate live actors from a nursing, EMT or paramedic school as victims." Clearly, this is no day at the beach.

The simulators talk, vomit, sweat and have pulses and blood pressures. "Students get so engaged that I've had to calm a couple of them down and tell them this is not the real thing," says Logan. Once triaged, the simulators and actors are tagged for severity of injury into green, yellow, red and black and transported to the treatment group for medical care.

In the treatment division, firefighters and paramedics practice airway management, vascular access and other high-risk skills on the simulators and live actors.

"Half of the day is spent with the students doing high-risk, low-frequency procedures across the street in the cadaver lab to become more comfortable with those tools," Logan says. "A lot of times at a conference you'll go by a vendor's booth and say, 'That's a cool toy,' and you'll play with it on a piece of plastic. Plastic is different than human tissue. We let students put these basic and advanced tools in their hands

and use them on human cadavers, which builds confidence in [such] skills [as] intubation, chest decompression and IO insertion."

Focus on Transport & Tracking

Most uniquely, this training is completed in an eight-hour period, which allows time for teaching, thinking, evaluating and, most importantly, correcting mistakes. "A lot of times, when we do drills for mass casualty incidents, we only have an hour-and-a-half to play together," Logan says. "Here we are able to slow down, make mistakes, stop, take a time out or work through something."

Logan adds, "Where we fail ourselves sometimes in EMS is that we go out and have big drills, but we set our participators up for failure because we have limited time."

Once the simulated patients leave the treatment division, they are transported across the street to a simulated emergency department and are received by a nursing contingent. "We transport patients every day to the hospital, so we simulate that transport piece," says Logan. "It's a continuum of care."

Since Hurricane Katrina, accountability in relation to transport has been given a greater emphasis. "What we learned in Katrina was accountability; we didn't track people well," Logan says. "Through MMRS, we have purchased electronic patient tracking software, which is used in the training. And we've gone to a standardized triage tag for both private and public EMS."

Students who participate are taught how to use the electronic patient tracking system. "They follow the patient from the scene to the hospital," Logan says.

Educating Many

Logan estimates the training has reached some 1,000 EMTs and paramedics. And, as a by-product of the training, professional relationships are being built across the spectrum of healthcare in Memphis.

Logan is interested in taking the training to surrounding states and, possibly, around the country.

The true-to-life scenario includes a mock-up disaster scene, complete with live patients and auditory distractions, to capture the intensity of an actual MCI.

Logan says his passion comes from his 27-year EMS background and involvement in FEMA's urban search and rescue program. He has deployed to multiple incidents across the U.S. as a medical specialist for more than a decade.

"It comes from the things I saw at the Pentagon during 9/11, and the things I saw on the first day I assisted in medical operations in New Orleans after the levees broke," he says. "That day, we triaged 368 people; I intubated a lady on the hood of a car. Most don't get to experience that intensity level of a mass casualty, and that's what I wanted to bring to this education: realism."

Because of the sometimes extreme conditions EMS providers face in the field and because an acute need for practical and interactive aspects to training exercises exists, Logan set out to create something people could take to work and use afterward. And he has succeeded.

> Created an innovative training program for responses to bombings & acts of terrorism.

"We've got the routine stuff down—I mean everything from my toe hurts to cardiac arrest," he says. "But you see a lot of mistakes being made, and people suffer from mistakes. And this training is where mistakes can be made.

"We are able to pull participants aside and ask, 'Do you think you made the right decision?' You don't just have a drill and send them home and then have an action report later. They want to know what they did right and wrong right then, and we talk about that."

Better Training Leads to Better Response

Logan considers himself either very unfortunate, or very blessed, to have been present at the largest man-made and largest natural disaster in our country's history: the 9/11 attacks on the Pentagon and World Trade Center and Hurricane Katrina. Bearing witness to these events has helped him see what still needs to be done to help the EMS community better respond to events of this magnitude.

He's confident that through trainings such as this, EMS providers will continue to be more prepared for the situations they will face in the future. And he's more heartened by the partnerships he now sees among individuals and agencies.

"We have to rely on every EMS agency and fire department within hundreds of miles of here," he says. "Hopefully we can get this kind of training out to a lot more people."

Bridging the Gap from Warfront to Homefront

Nicholas Miller creates a course to help transition veterans into civilian EMS

You could say that Nicholas Miller, BS, CCEMT-P, I/C, is a bit of a medical historian, but with a twist. The paramedic and EMS instructor has been teaching for the past seven years and saw the need to develop a modern transition program, a bridge, if you will, for experienced combat medics. His goal was to create a program that would allow them to bring their skills back to the states after discharge to pursue a career in EMS. But such a program didn't exist.

Nicholas Miller

So following the historic roots of the military medic, Miller, an education coordinator at the National EMS Academy (www.nationalemsacademy.com), set out to create a bridge program that would provide the additional skills and education necessary for these medics to capitalize on their superior military medical training in a civilian world.

"The EMS profession learned about EMS from the military; however, over time, the civilian EMS model and the military models diverged," says Miller. "The military model is more task focused, where the civilian paramedic model is broad and comprehensive. Military medics in each branch are NREMT Basic certified. After that, each branch of service provides their medics with limited advanced skills to address specific mission needs."

Because the military has such high training standards, it only stands to reason that they should form the foundation for such a program.

"The military is really the master of trauma management, so medics get a lot of advanced training, depending on what type of medics they are and their branch of service," says Miller. "And many of the advanced military medics, such as the Air Force independent duty medic technicians, are taught advanced physician assistant skills so they can run clinics independently in deployment areas. The problem is that because they are task focused, they don't get extensive training in such areas as cardiology or pediatrics. This means that when they return to the civilian world, they don't have all the training necessary to function as a paramedic."

Addressing the Gaps

Once in the civilian world, these medics find they have gaps in their education and clinical training that prevent them from finding gainful employment in the EMS field as a paramedic. Miller wanted to change that and set about creating a streamlined bridge program that would effectively fill in those gaps.

"These guys would come home with all this advanced training and combat trauma experience, but since they didn't have the rest of it, they were stuck," he says. "And most of them weren't about to go through another one- to two-year program to relearn a lot of what they already knew."

So the National EMS Academy pursued the idea of creating a model that would meet the standards of the Louisiana Bureau of EMS, the NSC curriculum and the U.S. military. With Miller driving the initiative, the Military Medic to Paramedic Transition course was born.

"The first thing we had to look at was who could be bridged, and what was the lowest level of military medics that were bridgeable, because there are several different medic designations." Miller says. "We decided that level was the Army's 68W."

The 68W, which is often pronounced 'sixty-eight whiskey,' is the military occupational specialty for combat medic. The 68W military training is rigorous, well-documented and high quality. In a combat zone, they're found at every stage of medical treatment.

It was determined that military medics with more training than this model would be eligible to be admitted into the bridge program; anyone with less training would not be eligible.

Constructing the Curriculum

Next came the decisions about classroom instruction. Given tight time frames and other logistics, the Academy had to determine what information could be left out.

"We got the curriculum for the 68W and looked at it hour by hour. We looked at what we could and couldn't transfer in," Miller says. "We determined there was approximately 400 hours of advanced level care, separate from the EMT level portion of the class that we could bridge in."

Miller and his team concluded that in order to include everything that was needed, in terms of

didactic and clinical skills, it would take students at least 14 weeks to qualify as a Nationally Registered paramedic. "It was the shortest time we could do it in," says Miller. "We divided it into eight weeks of didactic and five weeks of clinical study, six days a week, with one week of test prep."

The clinical curriculum also had to be determined. "Even though the medics have a lot of field experience, they may not have done any clinicals," Miller says. For example, a combat medic in an infantry unit may have seen a lot of trauma or worked in a mobile army surgical hospital (MASH), but they may have never worked in a civilian emergency department or for an ambulance service.

"We had to determine how much credit we could give them for their clinical experience," Miller notes. "They already knew how to do patient care, but they didn't get any pediatrics, so they have to do the entire pediatric round. They didn't get labor and delivery, so we're going to have to do the full L&D rotation."

Deciding what to leave in and what to cut out, while still maintaining the minimum focus on core areas, required almost laser-like precision. "We had to get them oriented to the ER and ambulance service, so we had some discussions with the Army about that," says Miller. "We decided to give 112 hours of credit, in lieu of two years of documented full-time experience as a military medic. The rest, 354 hours, they would still have to complete."

Then the timeline for the entire course was scrutinized. Most paramedic courses are a minimum of 1,000 hours. "We had to demonstrate that the hours of training we were providing were going to be the equivalent of a full paramedic course," says Miller. "So we went over the curriculum line by line, hour by hour, to create the lesson plans."

Student ability was also a factor. No matter how streamlined the curriculum, students still have differing learning styles and abilities. The program is designed to help strong and weak students succeed, and every effort is made to achieve that goal.

"We are bridging paramedics in three-and-a-half months," says Miller. "We knew some students would have trouble, and we had to be ready for that. Some of these students may not have been in school for several years, and this is very much a high-speed, low-drag class, so we had to build in a lot of student-individualized attention, or SIA," says Miller. SIA is built-in remediation for students who have trouble passing the block tests to make sure they're up to par. Each student has to have a score of 75% or better in each core section to pass.

The "bridge" program helps ease veterans back into the civilian EMS model, equipping them with the skills needed to be successful paramedics.

Piloting the Program to Success

The pilot program started last fall with 10 U.S. Air Force Independent Duty Medic Technician (IDMT) students. "We had to demonstrate that this program equals a complete paramedic class and that they can pass and be ready to roll … and they did," he says. "They were outstanding in their clinicals; they really showed their stuff."

All 10 students graduated from the pilot program, held at the National EMS Academy campus in Lafayette, La., and are now back at their respective bases. Miller has now set his sights on launching the next class.

"I'm trying to get this to the point where medics who are no longer in the military will have a chance to come and take this course," Miller says. "I get two phone calls a week from people in the military, and I've been in contact with a community college in Michigan that's working on a similar program."

Designing and implementing this first-of-its-kind program in the U.S., and the first to receive approval from the Army's Department of EMS is, indeed, gratifying for Miller. But his drive to take the idea from concept to execution is more born out of a compassion and desire to support the men and women who are putting their lives on the line every day.

"I've always been supportive of defending those who defend us, helping those who protect us," he says. "I am amazed at the level of commitment and sacrifice these people have for our nation, and I want to help them have a career when they get out so they can feed their families and move into a medical career. For me, it's definitely something worth doing."

Recognized for his efforts in forming a training course to transition military medics returning from service to civilian NREMT paramedics.

Mapping Out a Partnership

Christopher Montera works to foster a bond between EMS & public health

In 2003, Christopher Montera, EMT-P, now chief of the Western Eagle County Ambulance District in Eagle County, Colo., was working as a planner under a Centers for Disease Control and Prevention (CDC) grant in bioterrorism. At the time, he was the only planner under the grant who had any emergency medicine background in public health.

"I didn't have a good enough handle on, or respect for, what public health had done, until I did that job," he says. "After that time, I had an idea that we needed to take EMS and public health and somehow bring them together." He did some reading and thinking about how such a partnership might look, but he still didn't have a clear road map of how to proceed.

Christopher Montera

Five years later, while attending a national EMS conference, he heard a presentation that forever changed the way he thought about healthcare delivery in Eagle County. What's more, the presentation also spurred the idea of how he could finally approach the EMS/public health partnership and make it work.

"I saw this presentation on community paramedics and thought about the idea that they could be an answer for rural issues and rural healthcare in the U.S.," says Montera, who's been interested in EMS since his teens and a paramedic since 1999.

A Glimmer of an Idea Takes Hold

He took the idea back to his community in Eagle County, and as chief, started working with the local public health department, which he'd worked with while employed as a planner for the CDC. Still, the path of how to specifically make such a partnership a reality remained elusive.

"We had it simmering in the background, but we could never really make it take off," he says.

Then in February 2009, Montera found himself part of a consulting team helping to bring together 10 ambulance agencies in Colorado. As part of the process, he interviewed interested parties, such as the area's local service directors and county commissioners. He asked about their biggest challenges and noted their answers.

"A service director in one of the counties said he needed to pay people; he needed paramedics," Montera says. "Then, I was talking to a county commissioner one night, and she said, 'I have all this money from the state to do public health and primary care, but no one wants to move here.' That night it all came together."

Montera realized that he could deploy his paramedics, who were highly trained and already part of the healthcare system, into the area's rural communities. He could take his paramedics and, with the help of the public health department, make them community paramedics.

Once he knew the idea had legs, he began moving forward. He went to Nova Scotia, Canada, to take a look at its system, which had been up and running for a while. He met with dozen of leaders of community organizations, primary care practices, physicians and nurses.

"If anyone would talk to me about it, I would talk to him or her," he says. "I got their ideas of what they thought healthcare could be and what they thought this program could do, for them and our community."

Community Paramedics Becomes a Reality

All of that groundwork helped solidify what the partnership could become. "Since July 2009, we've been working tirelessly at this thing called community paramedics," says Montera. More than $600,000 has been raised for the five-year pilot project. "Our most recent grant was $50,000 from a foundation in Colorado to buy a mobile I-stat lab and a vehicle for our community paramedics to travel in. People are coming on board with the idea."

The central theme of the community paramedic program is to take an Eagle County paramedic in his or her current role, and without changing the scope of practice, change what he or she does every day. This would include post-hospital discharge follow-up, fall prevention, blood draws and medication reconciliation.

Montera has engaged and aligned the local hospitals and medical providers, along with public health, into a new healthcare model. The program has allowed for increased access to healthcare, streamlined medical and public health services and decreased healthcare costs overall.

"All of this is provider driven," says Montera. If a physician thinks his or her patient might be a good candidate for the program, a standardized form is filled out, which the patient signs so their patient record can be accessed. "They fax all of that information to our office, and a coordinator sets an appointment with that patient," says Montera. "Then we send the community paramedic out."

Within the first 20 visits made by community paramedics, one life was saved and a hospitalization was averted.

"The community paramedic role has turned and become the eyes and ears of the physician at home," says Montera. "The physician orders it, the community paramedic goes out to the home and does the visit, the paramedic comes back, writes a report on what they did, and we get that report back to the physician within 24 hours." This process ensures continuity of care with the physician and the patient, and the patient keeps the physician as their primary care doctor. Patients who don't have primary care doctors are referred to one through Eagle County's health network.

Carrying the Program Forward

For other communities interested in starting a program of their own, Montera welcomes the opportunity to share what he knows.

"It's not cookie cutter, but we're going to give you the template and tools so that you can go back and find out what you need in your community so that you can do for your community," he says. "We want to make it replicable for other communities."

Recently, the state of Colorado has told Montera that his community paramedic program is required to hold a state-issued home health license, which Montera welcomes.

"As a home health agency, we will be able to tell Medicare, Medicaid and the insurance companies that we can see patients that they may have traditionally paid for in another setting," he says. "It's all making us focus on what healthcare is for Eagle County."

One life was saved and one hospitalization was averted during the first 20 visits made by community paramedics.

Currently, Eagle County employs 17 paramedics. This past summer, 12 were sent through the program for training. The county hired two of them to fill the role of community paramedic. "My goal is to have all of our paramedics doing it, and, someday, that it become the daily work for all paramedics," Montera says.

To document the program, Montera and his team have created a how-to manual. "We've also hired [someone who has] a Master's in Public Health to be our researcher and collect our data," he says. "We have measurable outcomes that we want to see after the five-year pilot is over, and from that standpoint, I think we want to make sure we have someone from the outside evaluating our process."

Montera knows all about collecting and evaluating data. A one-time chief of administration for an ambulance service, he was the state of Colorado EMS data specialist for the system that captured more than 1.5 million records for more than 120 ambulance services throughout the state. "When I started, we had zero records in the system," he says. "We started with nothing and developed this program by getting everyone on the same page. It was quite an accomplishment."

An Enthusiastic Response

As for the response to his community paramedic program, Montera couldn't be more pleased. "The response is better than I could have ever imagined," he says. "We have people that I didn't think would want to come alongside us to help us, and they have."

He's had help from the local fire department and the Health and Human Services Agency. He attributes this generosity to people's willingness to step up and take care of the community—Montera's goal all along.

> Recognized for his efforts in developing a community paramedic program in Colorado & helping raise more than $600,000 toward its implementation.

"It's about what's right for our community, what's right in taking care of people every day, and maybe lessening some of their suffering," he says. "Maybe we can support them in having a healthier life and to take ownership for their own healthcare."

Beyond that, Montera thinks this program is one way he and his generation can give to the community and make a real difference in people's lives. "It's not *my* thing; it's *our community* thing," he says. "I could have never envisioned what it's becoming."

Sharpening the Focus on Safety

Daniel Patterson delves into how teamwork and sleep deprivation affects provider proficiency and effectiveness

Many may see Daniel Patterson, PhD, MPH, EMT-B, as a professor with emergency medicine ties, but in truth, he's a detective. While this EMT with a doctorate doesn't carry a badge, he does have an instinct for following clues and posing questions that yield, sometimes, surprising results.

Patterson is a kind of research detective, and his methodologies have had fundamental effects on EMS. His most recent project, The EMS Agency Research Network for Quality and Safety Improvement, is just the latest in a long line of research initiatives he's developed that have had tremendous influence within the EMS community.

Daniel Patterson, PhD

"My uncle was a paramedic for a long time, and his stories captured my imagination and desire to do something about the challenges he described to me in EMS," says Patterson. "I discovered there was a huge gap in knowledge on safety and quality."

Focusing on the Methodology

Patterson, who's an assistant professor at the University of Pittsburgh, School of Medicine, Department of Emergency Medicine, and director of research for the Center for Emergency Medicine of Western Pennsylvania, was awarded a Society for Academic Emergency Patient Safety Fellowship shortly after arriving at the university. The fellowship sharpened his desire to focus on quality and safety within EMS.

In fact, Patterson's professional goal has been centered on becoming a stellar research methodologist, particularly where EMS is concerned. "If I had to be characterized by a phrase, I would want people to say, 'He's the guy that wants to make sure it's EMS tested and EMS approved,'" he says. "I want to make sure that everything we use as a measurement or indicator of safety, quality or performance has gone through sufficient rigor, so that we can say, 'Yes, we are confident that works for EMS.'"

Patterson's research has focused on partnerships within EMS, specifically the working relationships where providers are required to depend on each other in stressful situations. Patterson is familiar with EMS partnerships because he also works in the field as an EMT one day a week. "Partnerships have been studied intensely, and with great rigor, in the military and aviation fields, but EMS has been overlooked," he says. "The dynamic between you and your partner has a huge impact on how you behave, how you approach patients and how you approach your safety and your partner's safety."

The Effect of Teamwork and Sleep Deprivation

To collect the most effective data, Patterson has concentrated on coming up with rigorous measurement tools for evaluating teamwork within EMS. He hopes to provide the industry, managers and shift supervisors with the ability to diagnose, detect, and evaluate partnerships that actually improve safety and care, reduce conflict and prevent injury to EMS providers.

"If you're not on the same page as your partner, you have conflict, don't trust one another or come into the shift not even knowing who your partner is because it's your first time working together, then that opens a can of worms that no one has looked at," he says. "I think it's time we evaluate how we can prevent injury, and maximize performance and satisfaction on the job by putting people together who will work well together."

Patterson has also fixed his attention on the effects that disrupted sleep patterns and fatigue have on EMS providers.

"If you feel fatigued, your cognition is not at its best," he says. "Many of the shifts in EMS are 12–24 hours, and there's no doubt that sometime during that shift you are tired. When you're at greater risk of being tired, you're a little more complacent, which can threaten both you and your patient's safety."

Patterson has discovered that many EMS providers have poor sleep quality. This may not seem surprising, but he notes that the findings are concerning. "A large portion of those that we sampled reported severe fatigue at work," he says. "We knew the problem was there, but we've never really measured it with reliable and valid tools."

To underscore the severity, and possible repercussions, of sleep deprivation on EMS workers, Patterson highlights a recent call he and his partner were dispatched to that involved a suicidal young man. "He was nice enough, but if I [had

not been] of sound mind and cognition, I could have missed something very important, some subtle signs that he was showing me that could have put me and my partner at risk," Patterson says. "I could have done a poor assessment or overlooked places where he might have been hiding something that could have injured him or us."

Collecting Data from the Source

Much of Patterson's research is based on information collected using cross-sectional survey methods. "A lot of this is perception, and you can't lab test a perception," he says. "You have to use surveys to capture this stuff, but not just any survey. We want to make sure that the tools not only measure, say, trust in your partner, but do it every time we use that tool so that it's reliable. We fully test the tools' properties, so we're confident that we actually measure what we intend to measure."

Perhaps surprisingly, Patterson isn't so much interested in how a culture of safety is defined or improved, but in how it's measured.

"I'm not interested in how you go about trying to improve your culture of safety, because every agency is different; you do what works best for you," he says. "What I care about is that you are given a tool that actually measures what you think you are measuring. If it doesn't, you are potentially wasting your money and time and going down the wrong path. And that's not OK."

As an example, he points to the ED, a closely related sector to EMS, yet with disparate requirements.

"The ED is not mobile, not in the out-of-hospital environment, not in a patient's bedroom, and not on the side of the street with traffic running by," he says. "What may measure fatigue in the ED is probably not going to work 100% of the time in an EMS setting because it's a different world. We can't simply adopt a tool off the shelf. The context is different. The items are slightly different. We really have to think about measurement carefully."

Publishing the Findings

For the past few years, Patterson has been working on developing methodologies to study workplace safety culture. His first study, which was published in the *American Journal of Medical Quality* in 2010, was focused on testing the reliability and validity—the psychometric properties—of the EMS Safety Attitudes Questionnaire (EMS-SAQ) before widescale dissemination. "In this study, we confirmed that we had a good tool," says Patterson.

In his studies, Daniel Patterson used cross-sectional survey methods to collect data on how teamwork and sleep deprivation are affecting EMS providers' performance.

Patterson's second study, "Variation in Emergency Medical Services Workplace Safety Culture," published in 2010, aimed at developing workplace safety benchmarks in EMS agencies. The tool allowed agencies to compare themselves to a national benchmark with accompanying data. "We found wide variations in which agencies had a positive perception of the different components of workplace safety culture," he says. "Not every EMS agency has a positive workplace safety culture. We all had assumptions, but now we have the data that says it's true."

Although Patterson doesn't think those in EMS are surprised by his research findings, he does acknowledge that some of the results are eye opening. "We knew some of these negative perceptions of workplace safety culture were there," he says. "It's important for the industry that we now have some data to support our assumptions."

Ultimately, Patterson's goal is to give EMS the rigorous research methodologies that will lead to improvements and solutions that only come through a thorough understanding—and measurement—of the problems faced by EMS providers and their patients every day.

> Recognized for his research into the effects of sleep deprivation on providers, which identified trends that will improve safety in the field.

"My concern for all the research that I do is giving EMS managers confidence. They don't have time to be wrong, and I want all EMS managers to have the tools they need, free, so they can concentrate on improvement, whether it be performance, safety or quality," he says.

Patterson also reminds us of what is at stake: "EMS is probably the most overlooked profession where we impact people's lives, and people don't realize it," he says. "I think it's a great profession, and my aim is to give EMS the respect it deserves through my research."

Tawnya Silloway

Dedicating her energy to honor the fallen

Usually, taking a shower yields a clean body. But sometimes, it can yield an idea that influences a nation. Tawnya Silloway, EMT-P, took such a shower and had such an idea.

The idea had to do with death, specifically how to best honor EMS and first responders who die in the line of duty, or after retirement, and she just couldn't let the idea go.

"Someone mentioned wanting to do a line-of-duty-death handbook when we were talking about the National EMS Memorial Service," says Silloway, who is community relations coordinator for American Medical Response in El Paso County, Colorado Springs, Colo. "It was an idea that stuck with me and then floated around in my head for a year-and-a-half."

Tawnya Silloway

A death in the line of duty is arguably one of the more stressful events for first responders, especially those in EMS whose goal is to arrive on scene with the promise of bringing aid. And because many EMS agencies don't have set protocols and procedures in place for tasks like notifying co-workers and next of kin, and coordinating the logistics of the funeral, line-of-duty deaths are events that most EMS agencies are the least prepared to address.

Digging Deep for Clues

Silloway was determined to change all that by developing a line-of-duty death handbook to be shared by all EMS organizations. She thought the task of creating such a document would be challenging, but she didn't initially realize just how daunting it would be.

"I started working on it by searching online for all the different information out there," says the once middle-school teacher turned 20-year EMS veteran. Silloway's search took her all over the Internet to various fire department, law enforcement and EMS agency websites, to organizations outside the medical and emergency fields. She spoke to countless people in the field, separating the wheat from the chaff in usable data, ferreting out the information that would ultimately add substance and value to her handbook.

"I discovered that while there was a lot of information for fire departments and law enforcement agencies, there wasn't a lot of information for EMS as a separate entity," she says. She also discovered that the information she did find was more geared to public EMS agencies tied to fire service than to smaller, private and nonprofit EMS and ambulance companies.

The lack of EMS information on this topic didn't stop Silloway. In fact, it spurred her to dig deeper. She continued searching and talking to people, gleaning facts and information where she could, piecing together her handbook one section at a time. And one day this past year, she completed it.

The 40-plus page comprehensive manual is dedicated "to all of the everyday heroes who provide air and ground emergency medical services to their communities: the first responders, search and rescue personnel, emergency medical technicians, paramedics, nurses and pilots."

An Idea Becomes Reality

The handbook promises it will give standards and resources that agencies will need to have on hand if a line-of-duty death occurs—and it delivers with a wallop.

Some of the topics covered include pre-incident planning; investigative issues; family assistance; notifications; funeral and memorial service coordination and considerations; on-duty, off-duty and retiree deaths; and survivor benefits. The guide also features a robust appendix, complete with line-of-duty-death checklists, forms and sample memos to notify co-workers. Diagrams for funeral ceremony and cemetery seating, and vehicle and walking processions also are included. The handbook concludes with a detailed Public Safety Officers Benefit Act (PSOB) fact sheet.

The information Silloway chose to include in the book not only had to inform, but it also had to resonate with readers. The concerns of families are at the cornerstone of the book. "I tried to include everything that pertains to supporting the family," she says. "While we need tradition and ceremony, it's the family that has had the death that matters most."

The guide addresses the sensitivities of a family's wishes and offers options in honoring a loved one in large and small, public and private ceremonies. "Whatever the family

wants is what should take place," Silloway says. "I put myself in their shoes."

With her labor of love now completed, she wondered how to best disseminate it to EMS and first responder agencies across the nation. She submitted it to her own organization's annual contest for great ideas.

"American Medical Response (AMR) does not have a line-of-duty-death handbook, and we have 250 operations," Silloway says. "I submitted it for our contest, but it didn't win."

Once again, that didn't deter her. "I thought, 'we need this; we really need this,'" she says. AMR agreed. "I asked AMR if it was OK if I approached the American Ambulance Association (AAA) to see if they wanted to work with me get it out to a wider audience and make it more available to all of their membership," she says. They thought it was a great idea.

AAA rolled out the handbook at its annual meeting in November 2010. The guide was a hit, and from there, it was disseminated to all of AAA's board members. Silloway thought, 'Now it's on its way.'

Silloway is quick to acknowledge that the handbook is not a cut-and-dried document that has to be followed to the letter. Rather, it's a guide that offers agencies a variety of ideas and suggestions in creating and executing a specialized service for a fallen colleague. "Take the parts that you need, the parts that pertain to your agency, and make it your own," Silloway stresses.

Responders Respond

The response to the project has been enthusiastic to say the least—and a little surprising to Silloway. The handbook is now available in soft cover and will soon be available for free download on the websites of American Medical Response (www.amr.net) and the American Ambulance Association (www.the-aaa.org). The National EMS Memorial Service has already posted it (http://nemsms.org/handbook.htm).

When first learning about the handbook, some may be surprised that such a guide hasn't been widely available for EMS agencies until now. Silloway is less surprised by this fact, attributing the lack of such a document to the still-developing nature of the field.

"EMS is still young and not quite grown," she says. "It's still in the teenage years, all gangly and full of potential, but not quite put together yet."

The line-of-duty-death handbook is now available on the National EMS Memorial Service website at http://nemsms.org/handbook.htm and will soon be offered online by American Medical Response and the American Ambulance Association.

This handbook is mainly an effort to help families in need during a tragedy, while perhaps also helping EMS grow just a little bit more complete.

Some may wonder about the root of Silloway's drive to undertake such a daunting project and see it through to fruition. She hasn't been greatly affected by such a death in her own family, but yet she feels for all the families who have gone through—or will sadly go through—such a tragedy. She is intent on helping agencies make that colleague's final goodbye one born from a deep respect for the fallen and an even deeper reverence for their family and friends.

"When an EMS provider dies in the line of duty, then they died serving their community," Silloway emphasizes. "While that's the job they chose, it's special for people who choose to serve their community." And Silloway wants that sacrifice to be especially acknowledged.

She also wants agencies to create the kind of respectful—and memorable—ceremony that will allow friends and family to express their gratitude for a job well done. "We tend not to say 'thank you' often enough when people are alive," Silloway says. "At least in this way, their family can know that the person was very appreciated."

> Recognized for her efforts in creating a handbook outlining procedures for handling line-of-duty deaths.

Despite all the challenges of creating and disseminating the handbook, Silloway stepped up and persevered until her germ of an idea became a much-needed reality. And it was all because of a little soap and water, and some elbow grease.

"Most good ideas come to me in the shower, must be the scalp massage," she quips.

Those families, friends and agencies affected by line-of-duty deaths, now and in the future, will always be grateful that Tawnya Silloway uses her shower time to do much more than just get clean.

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