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# Best Practices

## IN EMERGENCY SERVICES

## A GATHERING OF EAGLES

**Debate and dialog reign at the annual gathering of EMS medical directors.**

By Michael Gerber

**Medical directors from some** of the largest EMS systems in the nation (and a few from overseas) came together in Texas earlier this year for the 16th annual Gathering of the Eagles conference. And one thing was clear—coming to a consensus in prehospital medicine is not easy.

In fact, one of the highlights of the conference was a debate between Ray Fowler, M.D., chief of EMS operations for the Dallas-area BioTel system, and Tucson Fire Department Medical Director Terry Valenzuela, M.D., over whether the long backboard should be routinely used for spinal immobilization. In between inside jokes and lighthearted personal digs at each other, the two veteran EMS physicians cited dozens of studies in defense of their arguments. Fowler argued in favor of reducing backboard use, while Valenzuela titled his talk “Keep the Backboard: Nothing Sensible Ever Goes Out of Fashion.” In the end, it was clear that even though two major national physician groups had recently published a position paper questioning the routine use of backboards, medical directors and EMS agencies still have to make a decision based on evidence that can be interpreted in many ways.



Brent Myers, M.D., who serves as both the department director and medical director of Wake County (N.C.) EMS, said that conducting any kind of rigorous clinical trial of backboarding would be nearly impossible because of the relatively small incidence of spinal cord injuries. So the debate likely won't end anytime soon.

These are some of the dilemmas faced by prehospital providers and their medical directors in an age of evidence-based medicine, a recurring theme during the conference. While EMS has made great strides in recent decades, research in the field is still very often difficult to conduct. But that isn't stopping some agencies from trying, as was clear at this year's conference.

### SCA SURVIVAL DOMINATES THE DISCUSSION

A few subjects dominated the agenda this year, while some were notably absent or rarely mentioned. For instance, although they were discussed by a few speakers, community paramedicine and mobile integrated healthcare were

not highlighted, and few lightning round questions touched on the subjects.

“I think that was a conscious decision,” says Marshal Isaacs, M.D., medical director for Dallas Fire-Rescue and a professor of emergency medicine at UT Southwestern Medical Center, which sponsors the conference. Privately, medical directors from several of the nation's largest agencies questioned whether the current focus on community paramedicine programs is encouraging agencies to rush to create new programs, without first determining what the needs of their communities are and whether they are capable of providing those services.

While the EMS topic *du jour* received only a small portion of the agenda, one of the most popular topics was one that has been debated since the earliest days of prehospital emergency medicine: how to improve cardiac arrest survival. These presentations drew some of the most questions from the audience and provided some of the more intriguing data.

The presentations included one from Joe Weber, M.D., a medical director for the Chicago EMS system, who discussed a major effort by the city to improve cardiac arrest survival rates. “You must measure in order to improve,” Weber said, an apt introduction to the following presentations. Even if the medical directors didn't always agree on the conclusions of each other's presentations, nearly all did agree that collecting data, analyzing it and making improvements based on that data are critical in any EMS system.

“People do [try to improve on] what you measure ...” said Paul Hinchey, M.D., medical director for Austin/

Travis County EMS in Texas. “But only if you tell them the results. Measure what matters, and give feedback.”

In Chicago, one of the changes they are trying to implement and measure involve simply training providers to stay on scene longer in order to avoid interruptions in chest compressions and delays in defibrillation.

Sabina Braithwaite, M.D., medical director for the Wichita-Sedgwick County (Kan.) EMS system, told the story of a system that was a little further along than Chicago’s in its efforts to improve cardiac arrest outcomes. Now that the pit-crew approach and high-performance CPR have become widespread across the country, systems like Wichita’s can share some of the pitfalls of implementing these methods—and ways they have tried to correct those problems.

For example, in Wichita, they saw immediate improvements to compression fraction after implementing the program, but they didn’t seem to last. “We thought, *This is great!*” Braithwaite said. “Then we started analyzing it and we started backsliding.”

As with any good quality improvement process, the team in Wichita delved into the data to try to figure out why the training hadn’t made as much of a difference as they’d hoped to see. Their first suspicion?

“Are they doing airway management that’s interfering [with compressions]?” Braithwaite said. But after further examination—using information from the CodeStat software and electronic patient care reports—airway management didn’t seem to be the culprit.

So the agency focused on the little things: pre-charging the defibrillator during every cycle of compressions, keeping a finger on the femoral pulse throughout the entire code, and more. After follow-up training, Wichita found its average length of pauses in compressions fell—and survival rates are now 11.3% for all cardiac arrests and 38.6% using the Utstein criteria (compared to

8% and 24.6% nationally).

The presentations on cardiac arrest resuscitation from the medical directors from Chicago and Wichita, as well as several other areas, elicited the most response from an audience clearly trying to tackle similar issues in their own agencies. In particular, the growing practice to work cardiac arrest resuscitations on scene and delay transport until a patient regains a pulse has led to a new dilemma: How long should paramedics attempt to resuscitate out-of-hospital cardiac arrests before giving up?

“Here’s the question we were getting all the time [from medics over the radio],” said Wake County’s Myers. “There’s no ROSC. What do we do next?”

In Wake County, they are trying to answer that question by looking at data. They have partnered with SAS, a statistical software company headquartered in Wake County, to help comb through years and years of cardiac arrests. In addition to presenting some fascinating new results, Myers also highlighted the importance of working with public health and other partners that have resources that might not be available internally in most agencies. For Wake County, that happens to be one of the world’s largest statistics companies—in other jurisdictions, it could be other organizations that are available and willing to help.

Myers said they were surprised to discover that about 10% of their patients who survived cardiac arrest with good neurological outcomes were resuscitated for nearly 40 minutes. So now their paramedics are often working codes for nearly an hour if they feel it’s clinically appropriate, based on a number of factors, including end-tidal CO<sub>2</sub> levels and cardiac rhythm.

“If we have a PEA [with a rate] above 20 with an end-tidal [CO<sub>2</sub>] greater than 30 [mmHg], we are not terminating today,” Myers said.

The research presented by the Wake County medical director struck a chord with members of the audience, many of whom seemed surprised at the results,

which led to as many new questions as it did answers. Certainly other agencies will now be examining data and their protocols to see if perhaps there is a better way to predict survivability and know which patients should be resuscitated and for how long.

That’s the goal of the Gathering of the Eagles, say its organizers and veterans of the conference: To surprise people, to inspire further debate and more research, and to change how prehospital emergency medicine is provided.

That was the point made by Ed Racht, M.D., a long-time Eagle and national medical director for AMR, when he chose to abandon his slides and change topics at the last minute. Instead of discussing the latest research or a medical topic, he told the audience that the methods used to introduce new theories and new ways of practice are as important as the science itself.

“This is all well and good, the science is fabulous,” he said, “but if you don’t socialize it right, you’re dead in the water. If we don’t do that, it’s not going to change the practice of medicine in our communities.”

## MEDS A HOT TOPIC

Cardiac arrest wasn’t the only topic being discussed, and medical directors from around the country said that the growing use of ketamine in the prehospital setting was one of the big take-away messages from the weekend.

A majority of the big-city medical directors said their systems use ketamine, and while many reserve its use for sedation of patients with excited delirium, others are beginning to explore it as another option for pain management. “The pharmacology is different than any other drug we give,” said Melissa Costello, M.D., chair of the EMS Committee for the American College of Emergency Physicians.

Perhaps more fascinating than the rise of ketamine is the decline of morphine. During one of the lightning rounds, an audience member asked the medical directors gathered in front of

him to talk about their preference for pain management. Only a handful still use morphine as their go-to narcotic, while the rest all strongly prefer fentanyl.

“Morphine is not an EMS drug, end of story,” said Peter Antevy, M.D., a pediatrician and medical director for several agencies in Broward County, Fla. Surprisingly, no one disagreed, demonstrating just how much prehospital pain management has shifted in the past decade.

In addition to its use in pain management, ketamine is growing to be more popular among medical directors for managing agitated patients who could be a danger to themselves, the public and medical providers. In between jokes about legalized marijuana in his home state, Denver Paramedic Division and Denver Fire Department medical director Chris Colwell, M.D., gave a fascinating talk on the increased use of synthetic cannabis products, such as “black mamba.”

A trial of ketamine for these patients resulted in emergency department intubation rates lower than those associated with prehospital Versed, Colwell said.

## **MOBILE INTEGRATED HEALTHCARE TAKES A BACK SEAT**

While mobile integrated healthcare did not dominate the agenda like it does at many EMS conferences and meetings, a few presentations gave updates on some innovative programs aimed at reducing the number of unnecessary emergency calls and transports. Jeff Beeson, D.O., medical director at Fort Worth, Texas-based MedStar Mobile Healthcare, shared audio recordings of actual low-acuity 911 calls that were referred to his agency’s triage nurse. Even a skeptical patient eventually sounded satisfied once she realized that the nurse was going to help her find an appropriate place to receive care and, most important, transportation to get there.

“Patient satisfaction is high,” said Beeson, who is leaving MedStar to join Acadian Ambulance Service. Nearly 43% of patients referred to the nurse triage lines had “alternate dispositions,”

meaning they were not transported by an ambulance to the ED.

But Beeson ended the presentation with a key point. “A vision without resources is a delusion,” he said. The message was clear, especially to the hundreds of agencies across the country getting ready to dip their toes into the pool of mobile integrated healthcare: Don’t do it unless you have resources and a well-developed plan.

During a lunch with the Eagles, Austin’s Hinchey also expressed concern that too many people view community paramedics as a panacea for all of EMS’s problems. “Community paramedicine is not the answer if you don’t need it,” he said. Not only do the programs need to be specifically tailored to the needs of the community, he added, but they would create an even higher demand for good EMS providers. “Finding good medics is going to be even harder,” Hinchey said.



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But Fort Worth’s Beeson delivered a second presentation that showed another aspect of the MedStar mobile integrated healthcare system, one that appears to be succeeding and paying for itself. In the agency’s Hospice Revocation Prevention program, MedStar partners with hospice to try to prevent ED transports for hospice patients. So far, the hospice agency (which pays for the service) has been pleased with the results, Beeson said, adding that of the 10 911 calls for

patients enrolled in the program, there have only been five transports: three for reasons unrelated to their hospice status, and two direct-admits to hospice beds, which did not result in revocation of their hospice status.

A few other presentations touched on alternative destination programs, triage of mental health patients and recidivism, but even Wake County’s Myers questioned whether these presentations would make a significant impact. Myers, who presented on a new protocol that his agency is about to implement to try to reduce transports from psychiatric facilities to the ED, thought the main take-away from the conference would be the push for “coordinated, on-scene and longer” treatment for cardiac arrests.

The diversity of thought among the Eagles was reflected in the audience as well, with other attendees listing the discussions of response to active shooters and explosions, or the talks about evidence-based guidelines as the highlights of the weekend.

As Racht said, though, the point of the conference is not to come to an agreement—not on what the most innovative presentation is, whether community paramedics are the future of EMS, or even which pain medication to use.

“Arguing and disagreements are public here,” he said. “It’s an environment where you can say, ‘You’re smoking crack.’ We share our successes, and we share our failures. Eagles is a place where we get ‘what-ifs.’” 

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