Emergency Medical Services Association of Colorado

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*EMSAC is a **non-partisan, not-for-profit** association of nearly 3,000 individuals and EMS agencies – public and private – that respond to and treat citizens' and visitors' injuries and medical emergencies and transport them to acute medical care.*

Our members are professionals affiliated with:

* Ambulance Services
* Air-Medical Services
* Hospital Emergency Departments
* Ski Patrols
* Industrial Safety/Rescue Teams
* U.S. Military
* Fire Departments
* EMS Training Institutions
* Search and Rescue Teams
* 9-1-1 Dispatch Centers
* Law Enforcement Agencies

Our members are:

* *Basic*-level Emergency Medical Technicians
* *Intermediate*-level Emergency Medical Technicians
* *Paramedic*-level Emergency Medical Technicians
* EMS *First Responders*
* Nurses and Physicians
* EMS Agency Administrators
* Researchers
* Educators

Our membership is:

* 47% urban residents
* 40% rural residents
* 12% frontier counties
* 61% paid emergency medical professionals
* 39% volunteer emergency medical professionals

We are a non-partisan organization whose sole focus is the **emergency medical care portion of public safety.** We:

Educate –we offer state-required continung education through the annual Colorado State EMS Conference, EMS-agency and EMS-system management training and low-cost rural EMS seminars and special topic seminars; we offer intial-training and continung eductaion scholarships.

Communicate –we keep members abreast of the news and ever-changing trends of this dynamic profession, especially specific to Colorado. This includes medical, legal, research, training and administrative topics.

Advocate –we serve as the voice of the profession, speaking to allied medical and emeregncy disciplines and state and federal regulators and legislators; we recognize outstanding professionals with the Colorado State EMS Awards.

EMS' Dirty Secret

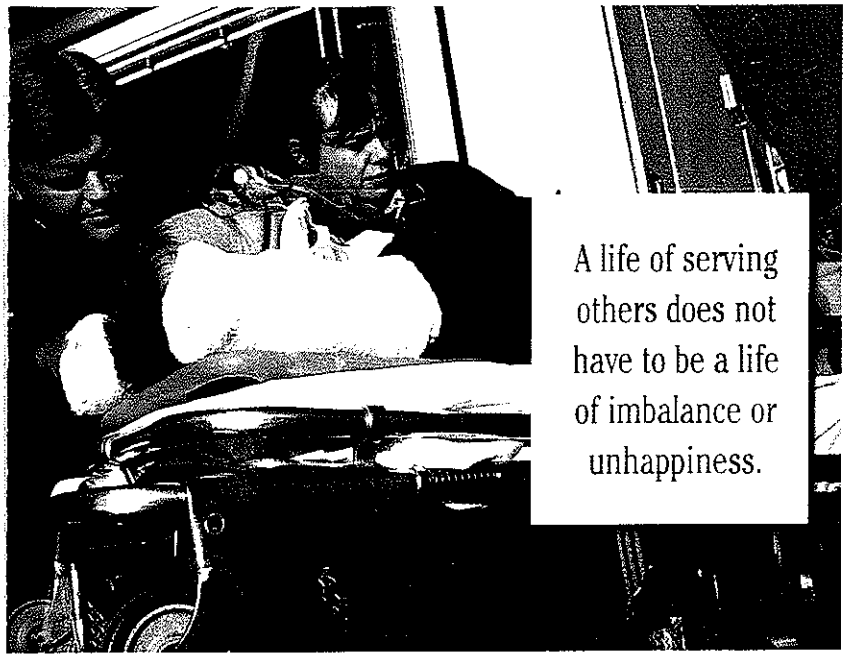
The dark side of an ancient gift

People who make EMS happen are big-time givers who too often don't take what they need out of life. They tend to care for others at the expense of those who love them most.

We got that message again and again from EMS providers who either contacted us in response to Nancy Perry's From the Editor column in the October 2007 issue or answered our calls since that article appeared.

Nancy's column was entitled *EMS' Dirty Secret: Are You Paying the Price for Being In EMS?* The editorial congratulated *EMS* Magazine's 2007 award winners, but noted that many of the nominees seemed to be volunteering in addition to working two or three jobs. It speculated about how difficult that must be for families and significant others. And it asked whether we should continue to congratulate ourselves for what appears to be an unhealthy lack of balance. The question was good, and the observation sound enough. Unfortunately, the answers are anything but simple.

Photo by Thom Dick



A life of serving others does not have to be a life of imbalance or unhappiness.

HEARTACHE IN THE HEARTLAND

Let's say you're a shift supervisor for a small emergency service in a large geographic area, and tomorrow morning one of your people calls in sick for a shift. You have no way to anticipate the call-in until it occurs—an hour before shift change. You and the offgoing crews are exhausted, and nobody wants to come in on short notice. But we're not talking about building somebody a deck, here—that could wait a day or two. Ambulances need to be staffed, period. What can you do?

No matter how well run they are, small services simply don't have the flexibility of their larger counterparts—especially when it's reduced to the finite whole numbers that make up every schedule. With a little luck, somebody will fill in for at least part of the shift. But when that doesn't happen, supervisors routinely subordinate the rest of their lives and run calls.

That would be bad enough, but there's much more. How do you stay balanced when, despite your limited (or nonexistent) clerical support, you are expected to cope with the endless meetings, public expectations, organizational priorities, inspections, recert deadlines, license renewals, safety issues, customer concerns and personnel matters that are all part of providing EMS? In a small agency, you have two options. You can blow off some of those obligations. Or, you can borrow even more time from the people who share your personal life and free up more time for work. (Of course, if you choose the latter option, you may still fail to meet some obligations.)

Now, imagine a complaint comes in. Or maybe one of your crews has a vehicle failure, collision or injury. Those are all surprise events that demand an immediate response and consume 100% of your attention until they're resolved. If you're blessed with great people, you don't get many surprises. But even the best people make some mistakes.

If you don't have great people, and you can't find or attract them, here's some really bad news: Protecting your own balance may mean relocating your family—or getting out of EMS altogether. The June 2006 Institute of Medicine *Crossroads* report on EMS acknowledged officially what American EMS practitioners and their leaders have been saying for years: This problem is much bigger than we are.[1] The role of EMS in the United States is underfunded, under-supported and underappreciated—at least until an incident occurs. According to that report, EMS has received precious little of the billions of WMD dollars allocated for our emergency responders since 9/11.[2] It's like we don't even exist. And there does not seem to be a great likelihood of increasing attention to EMS if we do not force the issue.

This is a time of opportunity for us to do precisely that. As this article is published, a political process is unfolding to elect a new president and impact the makeup of Congress. Considering their historical lack of participation in NAEMT or any political processes, EMTs have never been an active political force. That needs to change immediately.

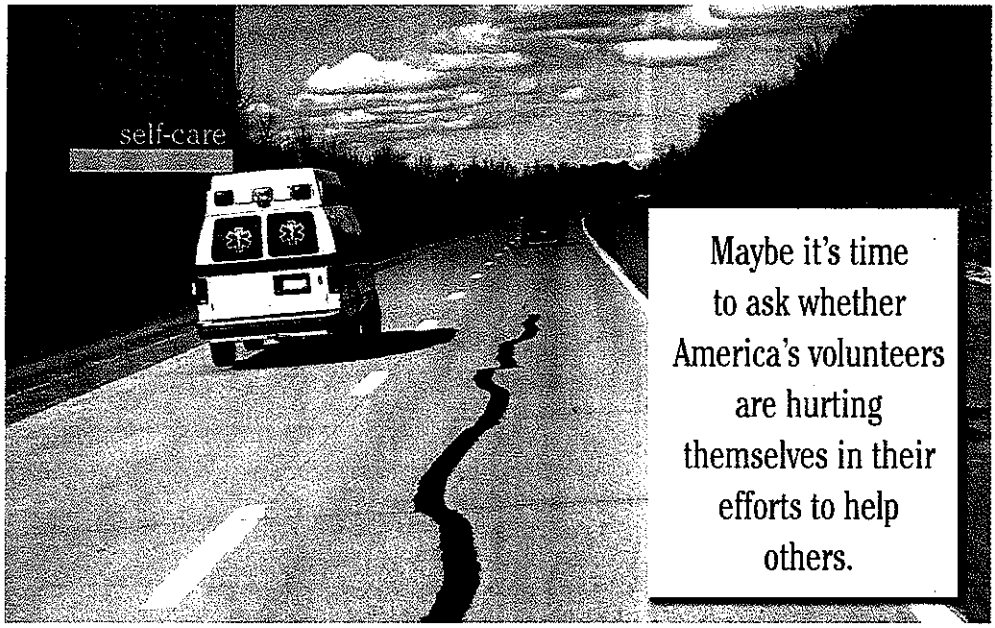
This article will illustrate a general lack of support for EMS in the United States. It will offer advice from seasoned EMS providers who somehow manage to keep their balance in an unbalanced world. And finally, it will advocate convincing our government's leaders to finally take us seriously—at least as seriously as we take our own responsibilities. It's time they realize that our responsibilities are their responsibilities. That we're serious about taking care of the public. That we're not the fire service's junior varsity, and that it's ludicrous to expect good, professional people to provide good, professional emergency medicine for free.

"If you must pursue a second job, do it anywhere but in EMS."

TROUBLE IN VOLUNTEER-LAND

Jon Montano is furious as he composes a letter to one of his state's legislators. Montano is one of Colorado's 11 regional state trauma coordinators. He's also a working EMT-I in his area, surrounded by 14,000-foot mountains that form the San Luis Valley. It's the highest alpine valley in the world, and its 8,200 square miles of summertime beauty will take your breath away. But during the winter, it's no place for a pileup.

Montano's region is home to 48,000 people in six counties, three of which he ranks as the second-, third- and fifth-poorest in the state. Its ambulance coverage comes from 10 agencies, nine of which are all-volunteer. Montano is frustrated over a delayed response to a collision this morning. The winter is mild so far, but the injured occupants of the vehicles still had to wait 44 minutes for help in 19°F temperatures prior to a 30-minute trip over icy roads to a Level 4 trauma center. A 9-1-1 dispatcher tried five times to page the



Maybe it's time to ask whether America's volunteers are hurting themselves in their efforts to help others.

ambulance responsible for this scene before a neighboring unit finally responded.

That would never happen in Beverly Hills or Laguna Beach, but Montano says it happens all the time here. And the truth is, it happens to plenty of ordinary working people all the time in places that aren't wealthy or famous. Nobody keeps national statistics, although the National EMS Information System may facilitate that in the future. But ask EMS providers anywhere in the United States, and they'll nod before you finish your question. The volunteer model is failing. And in rural America, that's the EMS system's lumbar spine. It needs to be fixed, and now.

There are probably no greater citizens than EMS volunteers. In large and small towns all over the world, they willingly set their lives aside and offer their hands and hearts to the folks in their communities anytime, day or night. Challenging the notion of volunteers in EMS is like saying bad things about somebody's mom—it's one of those things you just don't do.

But maybe it's time to ask whether America's volunteers are hurting themselves in their efforts to help others. Maybe they're hurting their own families. Maybe they're hurting others. Maybe...maybe they're even hurting us.

Let's say you're one of those volunteers. That means you depend on some form of income outside of EMS. How would you feel if the government came along one day and asked you to do your regular job for free? That would be a brief conversation. Now, imagine somebody from the government offered to pay you $10 an hour for all the time you've served as a volunteer during the past 10 years. Would you turn them down? Probably not.

Longtime paramedic, author and consultant Mike Taigman has another supposition. Imagine you're the only CPA in your little town. You don't get rich financially, but you do a good job for people and you have enough business to support your family. Now imagine somebody moves into a home across the street from you and puts up a sign that says *CPA: Accounting Services, Free.* Would that hurt you? Of course it would. It would put you right out of business.

Think about it. Diesel mechanics don't do what they do for free. Architects don't, and neither do plumbers or airline pilots. Nor do the people who drive those truckloads of oranges from Florida to Minnesota. Members of Congress wouldn't even dream of it. Why do we? The answer: because we always have. The basic emergency medicine in our rural communities we leave to volunteers. We haven't itched, so Congress hasn't scratched.

Long before Americans conceived the Internet, telephone, automobile or even a national identity, volunteers routinely stepped in to address the needs of their evolving communities. Even the fledgling Continental Army depended heavily on local volunteer militias. The option of using volunteers was a natural one in the early days of EMS. But EMS evolved in a time of relative prosperity, when most homes subsisted on single incomes. You resorted to a second income when you wanted to buy a boat or build an addition on your house or put your kids through college.

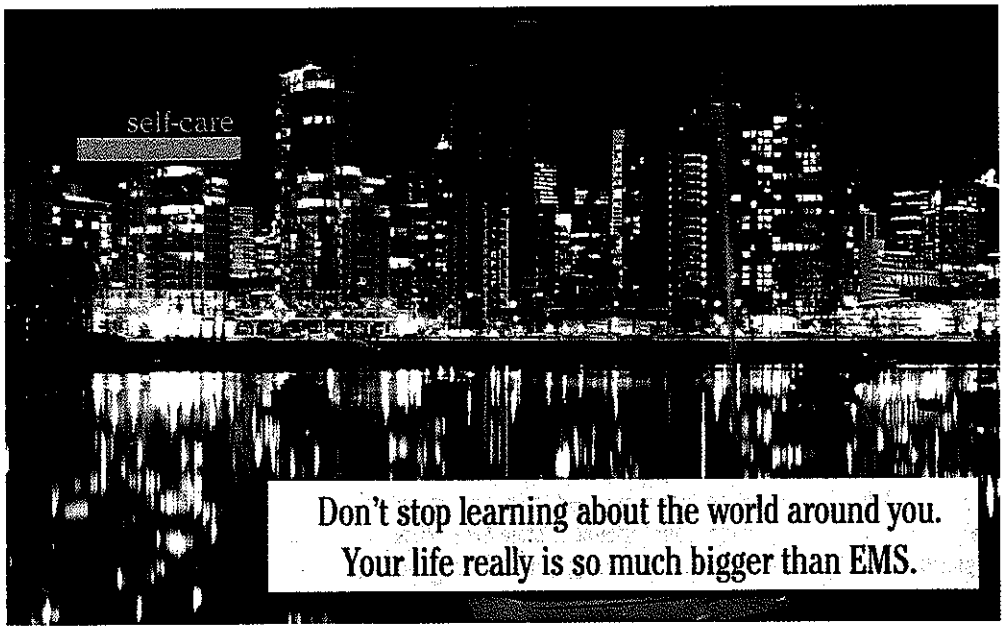
Those days are past. Having two incomes has become a necessity for most families, and multiple-occupancy homes have become a widespread phenomenon. Rank-and-file wage-earners lead a fragile existence today, one illness away from bankruptcy and insulated from life on the street by a scant couple of paychecks. For many of us, the American dream of earning our own permanent address in some nice little town is just a sweet notion from a time gone by.

It shouldn't be surprising that EMS agencies are having much more difficulty finding volunteers than they once did, despite many today providing their volunteers with some remuneration. Even those that do are having to settle for some people they'd rather not have.

Colorado EMS Director Randy Kuykendall has a systemic assessment of the problem of volunteerism. "From my perspective," he says, "EMS is without question the most pervasive healthcare system in America, with trained EMTs living and working in almost every community. However, as our culture and the demands on our personal time commitments change, it's highly questionable whether our rural and frontier communities will be able to maintain their volunteer EMS systems.

"It's incumbent on state, county and local leaders to identify priority solutions and resources to support their implementation. This is a national problem, and the National Association of State EMS Officials, the state EMS offices and the professional EMS community must be committed to working toward appropriate solutions."

It makes sense that in areas like the one Montano serves, if volunteer agencies were to pool their resources and share their infrastructure, they might be able to justify paid staffs using smaller numbers of people



overall. Consolidating a number of small departments, each with chief administrators, billing departments, dispatch centers, human-resources workers, supervisors, fleet managers and supply departments, might save a lot of overhead.

But plenty of those folks refuse to play nice. Maj. Jon Friesen, a paramedic instructor/coordinator and training manager for the Wichita-Sedgwick County EMS system in south-central Kansas, offers the following observation:

"I think we're a territorial lot. We say 'This is my jurisdiction, so don't come in here and run my calls. I'm going to run my calls.' And out of that, we fail to imagine the possibilities of working together. (We) can't envision what working collectively would look like, because (we) assume that would be a county service, and we don't want a county service."

Carl Craigle, chief paramedic at Platte Valley Ambulance Service in Brighton, Colo., and himself a 20-year paramedic from Philadelphia, sees tradition as a major source of contention. That's especially true in the East, he says, where volunteerism in some departments spans several generations of families. "It's a proud, longstanding tradition," he says, "and it would be a smack in the face to the volunteers today to say, 'We don't need you anymore. Thanks, but good-bye.'"

Knute Mlott, a full-time paramedic with Onslow County EMS in Jacksonville, NC, agrees with Craigle. Both say they think combining services might be the answer, although people from different agencies could be expected to fight over details like their preferences for vacuum splints vs. air splints. And those could be big fights.

Craigle identifies another barrier in administrators who might lose their roles to consolidation, even if it were clearly better for the public and crews. But that barrier could manifest in more than just our administrators.

Longtime Utah EMS Director Don Wood, MD, says that despite the difficulties it causes, some volunteer agencies paradoxically embrace their own understaffing. "Sometimes it's tough to get new people to join a service, because some of the existing ones don't want that new blood coming in," Wood says. "As much as they're overworked and underappreciated and undercompensated, it's their life. It's their whole being. That's what they're recognized as: volunteers for their communities. But I think the bigger question is, why aren't these rural people able to make full-time careers out of EMS?"

Wood agrees with Friesen about people not wanting to share their agency identities, even for the benefit of the public. "These people have status in their communities," he says. "They don't want to give that up."

No one we talked to advocated simply replacing the volunteers. Several thought they should receive more support, including salaries that would enable them to continue their involvement in EMS full-time. EMS pioneer Eugene Nagel, MD, notes that all of the early system designs (and textbooks) came from people with big-city perspectives. Those were the seeds from which EMS evolved. But plenty of people don't live in big cities. Five of the cities named in a major EMS journal's survey of EMS in America's 200 largest cities have populations of less than 100,000.[3]

CRACKS IN THE MIRROR

Who are we? Are we a transportation industry? Are we public safety? Or are we part of medicine? Nagel says he considers us a blend of the three, but in fact EMS today is a hodgepodge of community-based agencies, each with its own identity.

Maybe it's time we make up our minds about who we are and what we're here for. Private providers commonly conceptualize themselves as a medical transportation industry (witness the term *ambulance service*). Police and fire agencies tend to think of EMS as a form of public safety. Third services, especially hospital-based ones, are probably most answerable to medical direction and identify themselves most closely with medicine.

That kind of confusion probably isn't inspiring to a U.S. Senator when you're asking for support. It certainly hasn't helped us coerce the insurance industry into paying our bills. And using the analogy of oil and water, it may be the biggest reason why some of us can't seem to consolidate with other agencies for the public good.

According to EMS safety expert Nadine Levick, MD, it takes 3–5 years to become an EMT in Australia, and 5–7 years to become a paramedic. The reason? Our friends Down Under realize that the *M* in EMS stands for *medicine*. Some CEOs think of medicine as a fuzzy budgeting tool they can use to staff ladder trucks or build corporate offices. That's a mistake. When your whole job is to serve the public, you'd better serve the public. Cheat them, even a little, and sooner or later you shame yourself.

There is no hidden money here, and no latitude for voodoo medicine. When people get sick, they deserve

the knowledge and expertise of full-time professionals who live and breathe their medicine, who know what the hell they're doing and who answer to physician medical directors (not just "advisors"). Those kinds of people deserve to be paid for what they do, regardless of what kind of agency sponsors them or which areas they serve.

Maybe there's a very good reason you never hear about dual-role surgeons.

Shift work is another weak spot in our identity. Twenty-four-hour shifts have been standard in the fire service for many years. And they're good firefighting shifts. For years, they've worked fine for people who don't fight a lot of fires. But in fire-based EMS systems, firefighters and ambulance crews are very active by comparison. And despite their off-duty appeal to firefighters and EMTs alike, nothing about 24-hour shifts is good for the safety of a crew. Not one thing about them is good for the medical well-being of a patient. So why do we adhere to them?

It seems completely reasonable for us to employ work schedules that preserve our own safety and address what the public needs and deserves instead of what we want to do on our days off.

Is our commitment to EMS more than just a balance issue? Is it a compulsion for some of us? Worse than that, is it an addiction? An addiction is a recurring compulsion to engage in some specific activity, despite harmful consequences to an individual's health, mental state or social life.[4] Now think about what an addict does. An addict becomes obsessed with a thing (obsession), develops a constant urge to engage in it, even to his/her own detriment (compulsion), and becomes irritable, disoriented and possibly physically ill without it (withdrawal).[5] Does that sound familiar?

The compulsion is certainly real. We see it everywhere in EMS. "We struggle to cover our areas," Friesen says, "and in some cases families fall apart because providers are so dedicated to covering responses. I view that as a bit of a dependency issue. People live in a town and never leave it unless they're in an ambulance."

Twink Dalton, a renowned EMS educator/author and clinical coordinator for the Mountain View Fire Protection District in north-central Colorado, was not quite so diagnostic. "I think anyone who has a true passion for something tends to forfeit their personal life in favor of their passion," she says. "Why? Because it's easy to do, and our personal life seems to be expendable—it's easy to put off. Unfortunately, we (as EMS providers) need to develop a passion for living, not just a passion for a small part of what we do. Perhaps our identity ends up being tied to whatever our passion is, and therefore our devotion to our passion helps make us who we are. Who we are is bigger than what we do, but not to everyone. And that's the issue at heart.

"I think our personality (as a whole) also factors in. We tend to be perfectionists. We want to do a great job, not just a good one. We want that instant feedback, that gratification we get from a patient who smiles and thanks us. We certainly don't do it for the reception we get at the ED. We also like the camaraderie—it's really fun! So we tend to neglect our family and its mundane-ness for the excitement of the working family.

"At some level, those of us who are in EMS because we love it see ourselves as servants for the public in need. That is always a dicey place to be when there is little to no support, either in terms of money or people; little collective focus on the end goal; and little support for gaining or maintaining a healthy self-esteem. What support there is tends to be inconsistent, temporary or downright destructive.

"Are EMS providers paying a price? Of course we are!" Dalton concludes. "Why do you think so many EMTs and paramedics from the private sector seek out fire departments? There is decent pay, security in the job and retirement, regular schedules with days off, planned vacations and other choices within the job when you get tired."

"You have to strike that balance," says Gary Wiemokly, EMS section chief for the Connecticut Department of Health, "and it can be really hard to do. It doesn't matter if you're in EMS or the local librarian."

KEEPING YOUR BALANCE

What do you think? Are you having a tough time balancing the demands of EMS against your needs as a family member? Whether you're a leader or a street provider, the following are some practical suggestions from people who do what you do.

1. Shower the people you love with love. That pertains to the people at work as well as the people at home. You need them both, and they both need you. But juggle them carefully. Remember, the ones at home are the ones to whom you made your lifelong commitments.

2. Accept responsibility for your own situation and happiness. If you're not happy, make a change. If you don't make a change, fergoshsakes don't whine. Reserve the power to determine your circumstances, regardless of the actions of others.

3. Taking time away from EMS is key to healthy EMS and finding a balance. You may love EMS, but it cannot love you back. Only your family and friends can do that, and it's imperative that you allow them to love you. This is essential in keeping a healthy perspective and recharging your batteries. We are not Energizer bunnies, and we need to be renewed. (*Gary Wiemokly*)

4. Discipline yourself to think of every patient you meet as someone who's not as lucky as you are. Then, when you go home at the end of each shift, sit down over a cup of coffee with someone you love deeply and tell them about the people you met and the things you saw during your shift. Count your blessings. You'll never need to worry about burning out or growing to hate that ambulance.

5. Everybody in EMS needs to do an assessment on themselves, just the

"Maybe there's a good reason you never hear about dual-role surgeons."

same as we do needs assessments on our systems. You need to stand back and look at whether you're doing harm to your family or yourself by being so dedicated and motivated. (*Don Wood*)

6. Take advantage of your situational awareness—the skill you use when you walk into a strange place full of people you don't know and quickly notice everything that's important. At work, it's what keeps you alive. Throughout the rest of your life, it's what connects you to the beauty all around you. And it gets better and better with experience. (*Les Federoff*)

7. Look around you. Are all of your organization's leaders emergaholics? If so, that will eventually become the organization's norm. Are they all divorced? If so, expect them to consider your marriage expendable as well. A life of serving others does not have to be a life of imbalance or unhappiness. Make no mistake, organizations where that's the norm are sick organizations. You don't have to work there.

8. Especially if you're a leader, tell your family what to expect as soon as you know about it: parades, added commitments, extra shifts and so on. Discipline yourself to compensate for those events with added family time, planned in advance. (Make sure the two are about equal.) (*Carl Craigle*)

9. As far as balance is concerned, it takes a singular focus on taking care of the "living" part of life. There's time I build in for me, away from EMS. Time for hobbies that have nothing to do with EMS—quilting, reading, writing (OK, so that's related to EMS), vacations with family, etc. It's more time than some take and less time than others. (*Twink Dalton*)

10. Am I balanced? Well, I think the gold standard is, can I enter into a conversation with friends and not bring up work? I can do that. Can I enjoy an evening at home and not do EMS stuff? I just started to do that—I have to plan it, but I'm doing it. I must say, on occasion it wreaks havoc with stuff that needs to get done. But I'm at a point where I can tell my chief "No time." Bottom line: I've finally reached a point of being comfortable placing boundaries and sticking to them. It's taken 30 years. (*Twink Dalton*)

11. When you do spend time with family, discipline yourself to listen—don't just await your turn to interrupt. Encourage them to tell you what each of them is doing, what's happening while you're apart, and every single thing that's important to them.

12. When you leave home for work, be sure to kiss each member of your family good-bye. Former paramedic and California Highway Patrol officer Mark Mayo, who was permanently disabled by a drunk driver after he stopped another drunk, has said repeatedly how much he regretted not telling each of his family members on the day of his incident how much he loved them. Mark was unconscious for several weeks afterward, and very nearly died without regaining consciousness.

13. Next time you feel overwhelmed by the problems of EMS, take a sabbatical. Travel to a place where people are really poor and their medicine is primitive, and experience some *real* problems. San Diego County paramedic Devin Price has been going to El Salvador for years. You can reach Devin at dtprice@cox.net.

14. If you must pursue a second job, do it anywhere but in EMS. Do something completely unrelated to healthcare, so you don't come on duty already tired of hearing about other people's problems.

15. Whether you read, go to museums, browse the Web or just watch TV, don't stop learning about the world around you. Your life really is so much bigger than EMS.

> "When you leave home for work, be sure to kiss each member of your family goodbye."

CONCLUSION

Some people simply get things done. That's a price you pay for a choice you make, say, to get through medical school or raise a child. But hampered by a pathetic lack of political support, especially in rural America, today's EMS appears to be breaking the backs of its providers. We need to do a better job of balancing our needs, and those of our families, against those of the public. We clearly need to consolidate our smaller services and share our resources. And we need to bring EMS to the attention of our local, state and federal governments as an essential public service, no less important than law enforcement or fire protection. Our nation is in the midst of choosing its leaders. Late or not, we'd better get started now. ■

The author would like to thank the following people, without whose help this article would not have been possible: Scott Alexander, EMT-I, Saguache, CO; Kevin Binnall, EMT-P, Mansfield, MA; Capt. Harry Burch, Webster, NY; Steven L. Chait, BA, MICP, CCEMT-P, Newark, NJ; Chief Carl Craigle, NREMT-P, Brighton, CO; Chief Twink Dalton, MSN, NREMT-P, Longmont, CO; Chief Mark Edenfield, EMT-P, Bradenton, FL; Les Federoff, MICP, Santee, CA; Chief Jeff Forster, NREMT-P, Lafayette, CO; Jon Friesen, NREMT-P, Wichita, KS; Mary Greuel, EMT-I, Seymour, WI; Pam Gripp, NREMT-P, Crestone, CO; George Grover, EMT, MEd, Cincinnati, OH; Sue Hecks, Anchorage, AK; Randy Kuykendall, NREMT-P, Denver, CO; Knute Mlott, NREMT-P, Jacksonville, NC; Jon Montano, NREMT-I, Alamosa, CO; Eugene Nagel, MD, Winter Haven, FL; Chris Olson, MICP, Escondido, CA; Mike Taigman, EMT-P, PhD, Santa Barbara, CA; Dudley Wait, Schertz, TX; Stanley Wardrip, EMT-P, DMT, AAS, Wilmington, NC; Gary Wiemokly, MPH, EMT-P, RN, Amherst, MA; Donald Wood, MD, Salt Lake City, Utah; and Ken Young, EMT-P.

References

1. Institute of Medicine Committee on the Future of Emergency Care in the United States Health System. *Emergency Medical Services: At the Crossroads.* National Academies Press, 2006, pp. 28–29.
2. Ibid, p. 46.
3. Williams DM. 200-City Survey: EMS From All Angles. *JEMS*, Feb 2007, p. 42.
4. http://en.wikipedia.org/wiki/Addiction.
5. http://www.indiana.edu/~engs/rbook/readabd.htm.

Thom Dick has been involved in EMS for 37 years, 23 of them as a full-time EMT and paramedic in San Diego County. He is the quality care coordinator for Platte Valley Ambulance Service, a community-owned, hospital-based 9-1-1 provider in Brighton, CO. Thom is also a member of *EMS* Magazine's editorial advisory board.

International City/County ICMA Management Association
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IQ REPORT

VOLUME 37/NUMBER 5 2005

EMS IN CRITICAL CONDITION: MEETING THE CHALLENGE

The provision of emergency medical services (EMS) varies with tradition, funding, geography, politics, and level of need. One thing holds true, however, regardless of other differences: EMS systems are bending—and in some cases breaking—under the strain of rising costs, reduced subsidies, and increasing service expectations. The quest to improve performance while achieving savings usually involves complex financial, political, and medical issues, and scientific evidence to help guide the process is often scant. The good news is that in some communities, financial or medical crises have led to better public policy.

This report is designed to give community leaders insight into the challenges facing EMS providers. Benchmarks and examples included in the report can help communities evaluate policy decisions that may affect the care their citizens receive. The final section of the report introduces readers to key aspects of an effective procurement process for EMS.

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VOLUME 37/NUMBER 5
ITEM NO. E-43338

These reports are intended primarily to provide timely information on subjects of practical interest to local government administrators, department heads, budget and research analysts, administrative assistants, and others responsible for and concerned with operational aspects of local government.

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EMS in Critical Condition: Meeting the Challenge

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The provision of prehospital emergency medical care poses significant challenges. In urban areas, demand often overwhelms available services; in rural areas, shortage of trained staff and difficulty obtaining training are perennial problems.

There are many different ways to provide high-quality, cost-effective ambulance service (see Table 1). But because most providers believe that their approach is the best, successfully initiating change can be daunting. After all, these systems must be designed and operated to meet the most demanding clinical and operational standards. Understanding and appreciating the complexity of providing emergency medical services (EMS) is the first step in creating thoughtful solutions.

The most significant factors that contribute to the complexity of providing EMS are as follows:

- **Service levels and response times.** Service levels and response times are critical to patient outcomes and citizen satisfaction. In urban centers, citizens expect, at a minimum, paramedic-level service. But data on response times and service levels are sometimes misinterpreted by both officials and the press. The best practice is to set a defined target and then consistently measure and report the results. Data should be evaluated by the medical community to ensure appropriateness of service levels and response times.
- **Financial pressures.** Throughout North America, local governments are attempting to balance service expectations and limited fiscal resources. One result is that many ambulance services are using modern deployment plans and innovative operational strategies to increase their efficiency.
- **A variety of agencies.** Almost universally, the fire service provides first response (basic medical care) to critical calls. In addition, in urban areas, about 42 percent of overall EMS is provided by fire departments, followed closely by private organizations.[1] In rural areas, EMS is more likely to be provided by volunteers, and there are fewer private services than in urban areas. Because of conflicting interests among the fire service, private ambulance services, and volunteers, when lobbying is needed it is often ineffective; the result is that EMS often gets short shift when it comes to policy or funding at the local, state, and federal funding levels.
- **The changing labor environment.** Because of increasing competition from other job markets, paramedics are in short supply in many areas. Meanwhile, volunteerism continues to decline.
- **Increases in service hours.** As hospitals consolidate and hospital capacity decreases, ambulances must travel farther to reach an appropriate facility with space for incoming patients, which increases the hours when ambulances are in service. The authors of this report estimate that in 2005, there will be 30 million requests for service nationwide.
- **Abuse of the system.** Especially in poor urban areas, obtaining primary health care often means calling 9-1-1 and riding to the emergency department in an ambulance. And with an uninsured population of 45 million, this pattern is unlikely to change in the foreseeable future.
- **The added pressure of disaster preparedness and homeland security.** Homeland security has intensified

Table 1. Approaches to Service Delivery

Communities often get locked into the belief that their way of providing EMS is the only way. It simply isn't so. This table summarizes the advantages and disadvantages of common delivery models.

Approach to Service Provision	Characteristics	Advantages	Disadvantages
Fire service	Fire EMS agencies typically categorized as either single role (when ambulance workers operate as a separate division within the fire department) or dual role (when the same staff provide both fire protection and emergency medical transport).	• Public confidence in the fire department • Integrated command and control • Public officials in direct control of day-to-day operations • Use of capacity currently available within the fire department	• Primary reliance on twenty-four-hour shifts, which limits the ability to match resources with demand • Complexity of labor agreements • Higher labor costs • Requirements based on level of effort rather than on performance
Public utility model	A highly defined business structure in which a public agency provides oversight but contracts with a provider for day-to-day operations. Elected officials appoint the leadership of the agency and approve the agency's funding levels.	• Performance-based contracts • Public ownership of essential assets • Transparent transfer from one contactor to another during a bidding cycle • Flexibility to involve other jurisdictions and services in a regional approach	• Complexity of the business relationship • Elected officials may be reluctant to develop a separate oversight entity • Employees may be required to change employers when a contract cycle ends • A limited number of qualified bidders
Third government service	Considered a uniformed public safety service (like police and fire), but typically employs civilians in a separate department or ambulance district. The parent government provides finance, purchasing, vehicle maintenance, and other support functions.	• Use of a civilian workforce, which increases scheduling flexibility and lowers personnel costs • Single-service delivery focus • Local government in direct control of day-to-day operations • Public sector ownership	• Expenditure control dependent on the parent organization's budgetary and managerial processes • In general, no performance-based requirements • May be assigned less importance than other public safety departments
Private, for-profit agency	Service provided through an exclusive or nonexclusive contract with the local government that may or may not include rights to provide nonemergency services. Contracts may be based on level of effort or performance. Clinical performance, assets, capitalization, and day-to-day operations are managed wholly within the private sector.	• Little day-to-day involvement for the local government • Performance contracts generally define services provided, allowing for better evaluation and benchmarking • Labor costs generally lower than for public sector providers	• Accountability and transparency issues associated with the use of private firms • Little financial oversight • Unregulated competition, which may compromise quality of care • Higher turnover because of lack of opportunity for career development • Risk of sudden service withdrawal
Community-based and/or volunteer nonprofit agency	Service provided by volunteers, paid staff, or a combination of the two. The agency is independently governed. Service may be supported by donations, user fees, government subsidies, or a combination. Assets, while often donated by the community, are typically under the control of the agency board.	• Lower cost structure • Little day-to-day local government involvement • Service demands, rather than an established infrastructure, generally determine staffing model (e.g., use of paid staff in addition to volunteer workforce)	• Difficulty recruiting volunteers • Resistance to external demands for accountability and transparency • Leadership, clinical competencies, and tenure may vary widely, depending on the level of commitment of individual workers • Frequently undercapitalized; may require additional public funding to stay solvent
Hospital-based service	Service provided by a local hospital or by a stand-alone entity owned or controlled by a hospital. Contracts may be based on level of effort or performance. Services are frequently nonprofit and draw on the hospital's clinical and administrative resources.	• Public confidence in the health care institution providing the service • Robust opportunities for clinical improvements and career development • Capital usually provided by the hospital	• Low priority within the hospital's financial and operational structures • May be isolated from top leadership • EMS revenue-recovery efforts may be overshadowed by hospital revenue-recovery efforts

Six Signs of a Service in Distress

How do you know if your ambulance service is performing adequately? Be on the lookout for these six common indicators of a service in need of intervention:

1. **Media or council investigations.** An increase in inquiries because of service complaints, deaths, crashes, hospitals being unavailable, poor care, or poor response times.
2. **Response-time troubles.** A pattern of response-time inequities between different areas in a community; failure to properly monitor or report response times.
3. **Internal issues.** Labor strife, ineffective leadership and development, sexual harassment complaints, inequities in compensation or workload, or difficulty recruiting or retaining workers.
4. **Turf battles.** Frequent skirmishes between public and private agencies or with other jurisdictions, or scuffles between EMS, fire, police, and emergency communications.
5. **Lack of accountability and transparency.** Hidden processes and goals (financial or otherwise), or undue exertion of political influence.
6. **Financial distress.** Failure to analyze the true cost of services, inefficient bill collection, inability to respond to unfunded mandates, or decreased levels of reimbursement.

the need to expand readiness capability and training for EMS and other first responders. Nevertheless, EMS continues to be underfunded compared with fire and police services, largely because EMS systems lack a unified front for presenting their needs to legislators.

- **Expanding medical treatments and technologies.** The best services, which are still in the minority, have tightly monitored quality improvement processes that motivate emergency medical technicians (EMTs) and paramedics to achieve the highest possible levels of performance, from the perspective of both clinical care and customer service. As in other areas of health care, new technology is improving patient care but is also increasing the cost of equipment and training.

Assessing an EMS system's "vital signs" is a way to judge its overall health—to help the community determine if the system requires minor treatment or major surgery. Key aspects to consider are the system's clinical, operational, and financial health.

CLINICAL VITAL SIGNS

Chief clinical aspects of an EMS system include medical direction, services provided, training and certification, and quality issues.

Medical Direction

The core purpose of EMS is to serve patients' needs. EMS workers are the portal to both public health services and the medical community. EMTs and paramedics function within a range of approved protocols and procedures—and, to do their job effectively, must have the support and oversight of a dedicated and active physician medical director. Medical directors in the United States are predominantly part time and typically commit fewer than twenty hours per week to EMS;[2] in smaller services, four to eight hours per month is common. Medical directors' duties often include quality management, protocol development, and verification of proficiency. Unfortunately, time limitations often reduce a director's effectiveness.

Several approaches can improve the quality of oversight from a part-time medical director.

- Find a physician who is interested in EMS and willing to commit the time required for your particular community. A physician specializing in emergency medicine is preferred but not essential. The National Association of EMS Physicians offers a short program for new EMS medical directors (see "Additional Resources"). This program should be a minimum requirement for every medical director, no matter how small the community.
- Ensure that the EMS organization and the physician agree on the director's time commitment and responsibilities, and that each understands how to support the other.
- Make every effort to use the director's time efficiently and effectively. This may include having the organization do data gathering and preparation, reporting, and coordination.
- Establish clear guidelines for (1) what actions EMS workers may take within their delegated scope of practice, (2) how management will handle clinical questions or errors, and (3) under what circumstances the director must be notified of an error or must address personnel issues.

The more the relationship between a physician and the EMS organization is discussed and understood in advance, the more effective the director's oversight will be.

Services

Patients receive services directly from first responders and from transport providers.

First response First responders cover a designated service area and can respond quickly to emergency calls, initiating care while an ambulance is on the way. Typically, they are firefighters who are certified as first responders or as EMTs.

Because of the relatively short time needed to get to a scene, first responders can make a measurable difference in life-threatening situations but are not required on every 9-1-1 call. For example, a minor fall with no loss of consciousness or suspected fractures should not trigger a full response from all available resources (such as firefighters speeding on heavy fire apparatus) when an ambulance traveling "cold" will do.

First responders have the greatest effect in four areas: stopping bleeding; opening blocked airways; restarting a stopped heart with an automated defibrillator; and giving an injection of epinephrine, via a prefilled automated syringe, to a patient who is having an allergic reaction.[3] Standards vary by jurisdiction, but these actions generally can be undertaken by personnel at the EMT level or below.

Wanting to get the highest level of care to patients as quickly as possible, some communities use paramedics as their first responders. For a number of reasons, however, paramedic-level first response may not always be the best solution:

- The pool of available paramedics is shrinking because of low pay, the increasing costs of training and continuing education, and competition from other job markets.
- Most calls don't require advanced-level care.
- Because only a limited number of calls actually require advanced skills, the higher the number of paramedics, the less opportunity there is to become truly proficient. In fact, some members of the EMS community believe that having fewer paramedics *improves* care because it allows paramedics greater opportunity to hone their skills.

The right decision depends on the community's needs, but first responder or EMT certifications are appropriate in most areas. First responders should be certified as EMTs whenever possible.

Transport provider Most people who see two ambulances pulling out of a hospital driveway would assume that they both provide the same level of care and have the same staffing, but this is not always true. While many possible variables can affect quality, three will be discussed here: services provided, staffing, and tiered response.

Services provided In some communities, the same EMS organization delivers on-scene emergency care, nonemergency care, and transportation. This arrangement is common for private or community not-for-profit providers. In other places, one service (such as the fire department) will respond to calls from "emergent" patients, and other services (such as a private ambulance company) will serve "nonemergent" patients. However, one study of calls classified as nonemergent found that almost 12 percent required paramedic-level care. The study concluded that to ensure that no patient is missed, it is best not to classify calls into those categories.[4]

Ambulance staffing Staffing depends on the level of service provided. Basic life support (BLS) ambulances are traditionally staffed by two EMTs. Advanced life support (ALS) ambulances have a number of possible staffing combinations, including one EMT and one paramedic; one EMT-intermediate and one paramedic; and two paramedics. Each ALS option has its advantages, but all can satisfy the need for paramedic-level care.

Some communities use two paramedics because of the assumption that two advanced workers are better than one—and the belief that sharing the call volume will reduce burnout. But no study has shown that using two paramedics provides any advantage. Furthermore, a recent study sponsored by *USA Today* found that EMS systems with fewer paramedics actually save more lives.[5] The fact that most calls do not require paramedic-level care, coupled with the difficulty of recruitment, is leading more communities to consider staffing ALS ambulances with one EMT and one paramedic.

Tiered response There is much debate about all-paramedic versus tiered ambulance systems. An all-paramedic system provides one level of service for all calls. A tiered system attempts to identify paramedic-level calls through standardized protocols used in the 9-1-1 dispatch interrogation process. Most of the units in a tiered system are staffed at the BLS level and are supplemented by ALS ambulances or by a single paramedic in a specially equipped vehicle. No studies have demonstrated that one model is better than the other, and the right choice depends on a host of local factors.

Training and Certification

When it comes to initial training and certification, EMS personnel have more in common with health care workers than they do with public safety colleagues. While police officers and firefighters are commonly hired from the local community and then trained to do their jobs, EMS workers typically pursue training on their own before seeking employment with an ambulance service.

The EMS Division of the U.S. National Highway Traffic Safety Administration establishes minimum standards for the training and certification of EMS workers. Each state is responsible for ensuring that those standards are satisfied and for regulating the certification process.

Nationwide, the four most typical levels of EMS certification are as follows:

- First responder
- Emergency medical technician–basic (EMT-B)
- Emergency medical technician–intermediate (EMT-I)
- Emergency medical technician–paramedic (EMT-P).

EMS and Quality Management

Given EMS's strong connection to health care and the role of physicians in providing oversight, it is not surprising that performance assessment strategies used in hospitals have been adopted in EMS. Quality management (QM), which originated in the manufacturing sector, has been a part of health care, including EMS, for more than thirty years.

Early QM initiatives focused on quality assurance (QA), which involved reviewing events that had already happened to see whether EMS staff had met a defined expectation. Later efforts focused on continuous quality improvement (CQI), a more systemic approach. CQI relies on data analysis to evaluate the system as a whole, ensuring that the structure and processes are effective and efficient so that people are able to perform at their best. CQI works through team building and by reducing the "us versus them" mentality that can characterize relations between workers and managers. Although identifying what to measure and developing CQI processes is not easy, new technology can help by automating data collection and making data analysis easier. Real-time data—information that is provided as it happens—is essential to management decisions that will lead to dramatic and lasting effects.

EMT-Ps, commonly referred to as paramedics, have achieved the highest level of EMS certification: in addition to having the training and skills of providers certified at the first three levels, paramedics are also trained in advanced assessment, airway management, and the treatment of a range of medical emergencies that may require the use of medication or advanced monitoring devices or interventions. Certification at the EMT-P level includes approximately ten times the training hours as EMT-B training and involves extensive clinical rotations in a hospital emergency department or an ambulance.

Common Clinical Issues and Risks

The clinical component of EMS carries significant risk from a number of quarters. EMS systems are high profile, and a mistake can land an ambulance service in the next morning's headlines. However, most risks can be reduced or eliminated through thoughtful effort. The following discussion describes how to minimize the risks associated with refusal of care, patient-care documentation, airway management, medication errors, and the assessment of spinal cord injury. These areas represent just a few of the risks involved in prehospital clinical care.

Refusal of care The goal of any EMS system should be to assess, treat, and transport every patient who requires care, yet only about 57 percent of EMS calls result in transport to a hospital.[6] There are often good reasons for not transporting, such as false alarms and non-patient-related events, but it is estimated that 5 to 30 percent of patients who make contact with EMS workers *refuse* care, transport, or both.[7]

When a patient refuses treatment or transport, EMS personnel typically explain to the patient the results of their assessment and the risks of refusing treatment or transport; the goal is to ensure that the patient understands the significance of the decision.

Documentation of patient care The patient-care record documents each patient encounter and includes a description of what the patient said happened, the results of the assessment, and the treatment that was delivered. Effective documentation is critically important, not only to the patient but also to the organization providing the service. Failure to accurately document events leaves organizations vulnerable in the event of litigation; it may also reduce the potential for rightfully deserved reimbursement for services. Poor documentation of patient care is an avoidable risk for every system.

Airway management The first assessments performed by EMS workers involve checking that a patient's airway is open, that the patient is breathing, and that he or she has an adequate pulse. Intubation, in which a tube is inserted through the patient's mouth or nose into the trachea, is a key paramedic intervention used to facilitate breathing. While intubation is not difficult in routine cases, it does require an understanding of anatomy, and regular practice is needed to maintain competence. If done incorrectly, intubation can compromise the patient's oxygen supply and result in death.

The American Heart Association recommends that paramedics perform six to twelve intubations per year to maintain proficiency, but this is not possible in many communities.

Medication errors Paramedics are taught that before administering medication, they must check that they have the right patient, the right medication, and the right administration route. In addition, they learn to calculate dosage levels quickly and accurately in uncontrolled environments. Often, however, this initial introduction to medical mathematics may be the only instruction paramedics receive in how to make these important calculations; refresher training is rare, leaving many paramedics to figure things out as they go.

One study that gave a medical-calculation test to practicing paramedics found that only 50 percent of their answers were correct.[8] Responses to questions requiring simpler calculations were correct two-thirds of the time, but responses to more complicated questions, involving patient weight, were correct only one-third of the time. The participating paramedics said that limited exposure and little continuing education contributed to their poor performance.

The potential for medication errors—and resulting adverse effects—is a major concern for three reasons: (1) paramedics administer medication relatively infrequently,

(2) opportunities for continuing education are limited, and (3) providers' comfort level with complex math varies. Organizational commitment, active medical direction, and regular refresher training can ease the problem.

Spinal cord injury assessment and management Motor vehicle accidents and falls make up a significant percentage of traumatic injuries. Since these events carry the potential for spinal cord injury, proper assessment is key. Having to assess a patient for potential spinal injury is one of the most common scenarios for EMS workers.

For more than a decade, clinical researchers have been accumulating evidence on the value of specific assessment criteria in determining whether a patient has a potential spinal injury. Changing EMS procedures to be consistent with this growing body of research will reduce the risk of missing a potential injury, reduce the likelihood of overtreatment, relieve the workload of EMS personnel, and reduce hospital costs.

OPERATIONAL VITAL SIGNS

Key considerations when evaluating EMS operations include response times; communications services; recruitment, supervision, and development; and the effective use of technology.

Response Times

Because it has the appearance of objectivity, response time is the single key operational measure used to assess performance from the patient's perspective. Often, however, this seemingly straightforward measure is misunderstood, is calculated in ways that make benchmarking difficult, and is not independently validated.

Response time standards There is no universally accepted standard for response time. In urban areas, the most widely used standard is eight minutes and fifty-nine seconds (8:59), with 90 percent compliance (i.e., 90 percent of calls must be responded to within eight minutes and fifty-nine seconds).[9] When adjusted to include call-processing time, this target is consistent with the response time recommended by the National Fire Protection Association. In fact, a recent survey of the 200 most populous cities in America found that 77 percent of respondents report a target of 8:59 or less.[10]

In the absence of a regulatory standard, court proceedings provide some guidance. In litigation, experts often cite 8:59 as the standard of care. In suburban and rural areas, however, or for non-life-threatening calls, it is common to set a slightly longer target response time on the basis of geography and call-density patterns.

Reporting response times The method by which response times are measured may be as significant as the target. Historically, averages were used: for a designated period, all the response times were added, and the result was divided by the number of responses. Recently, however, the fractile method has become more widely accepted. This approach (1) sets a target response time for a particular type of call and (2) identifies a percentage that represents compliance for that goal. Thus, the target may be different for a response to a patient experiencing potential cardiac arrest than for a patient experiencing flulike symptoms.

Figure 1 outlines the anatomy of an EMS incident; Table 2 describes the subprocess components shown in Figure 1 and lists benchmark time intervals for each.

Improving response times Historical analysis of where and when calls occur can help predict demand. Best practice in busy systems is to plan resources and support services around demand rather than to use a static, one-size-fits-all shift pattern. Best practice also calls for deployment and redeployment strategies that reflect the ebb and flow of calls throughout a shift.

"Chute time"—the time it takes to get a unit rolling to a call—is a critical component of response time. Equally important is "at hospital" time—the time it takes for a crew to become available again after it arrives at a hospital. In the past two years, Las Vegas and a number of other cities have reported that overcrowding in the emergency department and reduced bed capacity have increased at-hospital times. These two factors prevent crews from quickly transferring a patient to a hospital stretcher or bed and becoming available for the next assignment. In one system, reducing at-hospital time had the net effect of adding another ambulance—staffed on a twenty-four-hour basis—to the system.[11]

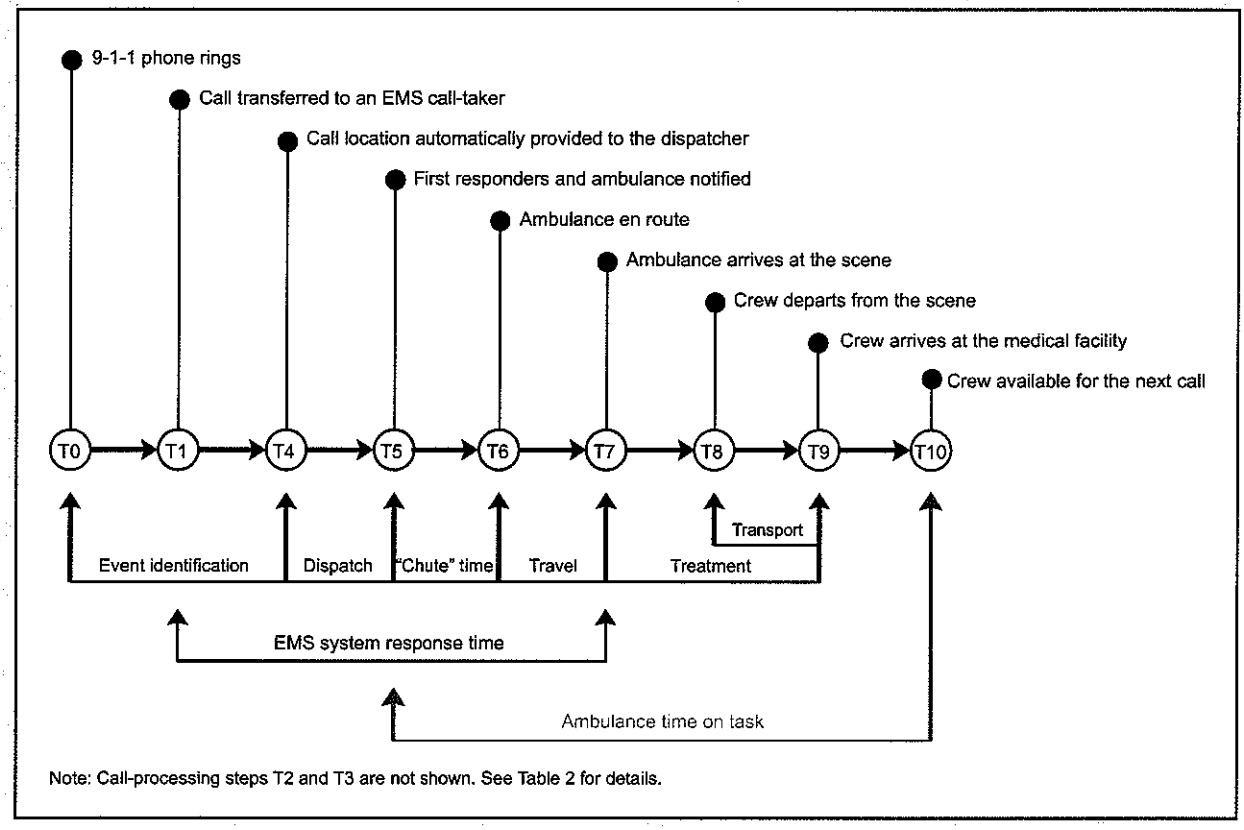
A number of steps can be taken to improve response times:

- Closely monitor subprocess component times (such as chute time and at-hospital time).
- Arrange for an objective third party to externally validate response times. Use an independent auditor to routinely check a random sample of response times against computer records and 9-1-1 tapes.
- Require reports (1) describing any exceptions to response times and the reasons that the exceptions occurred and (2) detailing any corrective actions taken.

9-1-1 Communications Services

A well-trained dispatcher can be the *first* first responder for the community and is critical to the smooth running of the EMS system. The goal of effective emergency medical dispatching (EMD) is to send the right EMS resources to the right person, at the right time, in the right way, and to provide the right instructions for patient care until help

Figure 1. Anatomy of an EMS Call



arrives. The five elements central to an effective EMD program are

- Use of medical dispatch protocols
- Provision of pre-arrival and post-dispatch instructions
- EMD training
- EMD certification
- EMD quality control and improvement processes.

At a minimum, effective provision of EMD requires (1) agreements on service levels between the 9-1-1 center and the provider and (2) problem-resolution procedures for the communications center. EMD staff should meet the training and certification standards established by the National Academies of Emergency Dispatch (NAED). Best-practice systems obtain NAED accreditation.[12]

Staff Recruitment, Supervision, and Development

The EMS workforce is changing. In some areas, volunteers provide much of EMS; yet it is increasingly difficult to recruit and retain volunteers. In other areas, paid staff are leaving the field at an alarming rate, often citing job stress, poor working conditions, lack of promotional opportunities, and poor compensation. These changes are significantly affecting the way EMS organizations recruit, retain, and supervise staff.

EMS workers typically operate in a decentralized station environment, so contact with management is often limited. In addition, supervision is often split between clinical and administrative supervisors, and differences in style between these personnel can cause confusion for workers. Crew members work in high-stress environments and form tight bonds within working groups, so close friendships are not uncommon. These factors require particular attention when developing policies, facilitating professional interactions, and ensuring fairness.

Managers are often promoted from within the profession without adequate preparation, and development opportunities have historically been limited. The U.S. Fire Academy and the American Ambulance Association (AAA) offer certification programs for EMS managers. The AAA Ambulance Service Managers Program identifies forty-one "career compass competencies" needed for the industry.

Table 2. EMS Time Intervals and Benchmarks

Time Interval	Description of Time Interval	Recommended Fractile Benchmark
T0–T1	Length of time between when the 9-1-1 call is received at the public safety answering point and when it is transferred to an EMS answering point	<30 seconds; 90% reliability
T1–T2	Length of time between when the phone rings at the EMS answering point and when the call-taker picks up	<5 seconds; 90% reliability
T2–T3	Length of time between when the call is picked up and when the incident type and location are verified	<25 seconds; 90% reliability
T3–T4	Length of time between verification of the incident location and transfer of the call details to the dispatcher's screen	<5 seconds; 90% reliability
T4–T4.1	Length of time between verification of the location and conclusion of emergency medical dispatch (may occur at any time between T4 and T7)	Establish benchmarks by call type
T4–T5	Length of time between when the call appears in the to-be-dispatched queue and when it is actually dispatched to a crew	<25 seconds; 90% reliability
T5–T6	Length of time between when the crew receives the call and when the crew is en route to the call (wheels turning)	<45 seconds; 90% reliability
T6–T7	Length of time between when the crew is en route and when it arrives at the incident scene	Actual travel time (assuming a total response time of 8:59, this component would be 434 seconds)
T7–T7.1	Length of time between when the crew arrives at the location and when it reaches the patient	Establish benchmarks for quality improvement purposes (e.g., for critical patients, patients in high-rise buildings, and inaccessible patients)
T7–T8	Length of time between when the crew arrives at the scene and when it departs for the destination	<15 minutes; 90% reliability (depending on protocols)
T8–T9	Length of time between when the crew departs from the scene and when it arrives at the destination	Actual travel time
T9–T10	Length of time between when the crew arrives at the destination and when the crew becomes available for further work	<15 minutes; 90% reliability (additional benchmarks may be required for incidents of varying severity)
T10–T11	Length of time between when the crew becomes available and when it departs from the destination	Establish internal benchmark
T11–T12	Length of time between when the crew departs from the destination and when it arrives at its designated post	Establish internal benchmark

Note: Response time is typically computed as the elapsed time between T2 and T7 for the first-arriving transport-capable ambulance. It is also appropriate to measure the same interval for first responders. However, to avoid confusion about reporting methods, response times for the first transport-capable ambulance and for first responders should be recorded and benchmarked separately.

Effective Use of Technology

In recent years, significant resources have been dedicated to technologies designed to improve medical documentation and productivity in the EMS environment. These technologies include clinical devices, communications devices, and computer-aided dispatch (CAD).

Clinical devices Before purchasing the latest technology, a community should seek guidance from physician medical directors and from articles published in peer-reviewed medical journals. In some cases, existing devices and pharmaceutical treatments provide the same results at a fraction of the cost of the latest gizmo on the market.

Computer-aided dispatch Police, fire, and EMS systems use and process incident information differently. For example, fire dispatching is less stressful at call reception than either police or EMS dispatching but is often more intense when it comes to on-scene incident management.

The deployment and staging methodologies used by different agencies also affect the level of CAD sophistication required. Geographic information systems are critical

when planning ambulance deployment and future capital infrastructure requirements.

Medical documentation technology Taking information that has been recorded by medics and transferring it to a format that meets the needs of receiving hospitals, quality improvement and research staff, billing departments, and myriad other users is a constant challenge. Current methods include entering handwritten reports into a database, scanning paper forms, and using laptop computers in ambulances. The advantages created by (1) rapid processing, (2) the ability to integrate data into separate billing systems, and (3) paperless medical-record retrieval are moving agencies toward scanned and laptop solutions.

Biosurveillance First-generation integrated surveillance software systems have been installed by dozens of 9-1-1 centers in the United States, covering more than 17 million citizens. These systems poll 9-1-1 data in real time, searching for recorded symptoms that may be associated with a specific disease or event. These data are then compared with historical records to see if any significant trends occur; the system automatically triggers an alert when anomalies are found. These systems are designed so that an agency can switch on enhanced features as needed, as in the case of an elevated national alert or a local, regional, or statewide threat. When posted on a secure Web site, these data can be reported to, and monitored by, public safety agencies in an effort to discover trends that may signify a threat, such as an emerging epidemic or a bioterrorist attack.

FINANCE IN EMS SYSTEMS

Providing EMS at an appropriate level of responsiveness and quality requires a significant investment. Because EMS is a service industry, the majority of costs—between 55 and 80 percent—are allocated to personnel. (The wide variation is linked to the provider type and to whether the service is urban or rural.)

The most expensive aspect of EMS is ensuring that resources are adequate to achieve the targeted response times. In fact, target response times are the primary determinant of cost: similar systems will have significantly different costs if one is required to respond to 90 percent of life-threatening emergencies within eight minutes and the other is required to respond to 90 percent of such calls within ten minutes.

Funding Sources

Most EMS systems depend on multiple funding sources. Primary sources include fee-for-service reimbursement, tax subsidies, membership programs, and donations.

Most EMS systems derive the largest portion of their funding from fee-for-service reimbursement; for some systems, reimbursements are the sole funding source. The funds are collected from patients, Medicare, Medicaid, and insurance companies. Other EMS systems rely on a combination of reimbursements and local tax support. Many volunteer ambulance organizations depend on public donations or on the sale of memberships to support their operations. Hospitals that operate their own services may indirectly subsidize the cost of their EMS operations from other sources.

Many EMS systems are feeling the effects of decreased funding from both fee-for-service reimbursements and municipal support. This is happening for two principal reasons. First, payers for ambulance services—such as Medicare, Medicaid, and insurance companies—are limiting reimbursements for ambulance services. Second, in many municipalities, budgetary shortfalls have limited the amount of support available for EMS.

The decreases in insurance reimbursement and municipal support are endangering the financial viability of many ambulance services. In fact, many EMS systems have had to modify their design and performance requirements to increase efficiency, and a number have had to extend their response times to balance costs with available funds.

Reimbursement

This section examines a range of factors that can influence the level of reimbursement, including payer mix, subsidies, price increases, and billing processes.

Payer mix The payer mix, defined by the groups of primary payers for ambulance services, varies widely among EMS systems. Payers include Medicare, Medicaid, commercial insurance, private payers, and managed care organizations. An economically depressed community with a large portion of Medicaid recipients and indigent patients will have a significantly lower collection rate than a suburban community with a high percentage of patients covered by commercial insurance.

Medicare is the largest payer for ambulance services. Until 2002, Medicare based reimbursement for ambulance services on historical charges for the region and the type of service provided. As a result, EMS systems in some parts of the country received as much as 300 percent more than other systems for the same service. To address this disparity, in April 2002 Medicare began phasing in a national ambulance fee schedule. (The phasing-in process should be largely complete by January 2006.) Under the new schedule, reimbursements have increased for approximately half the ambulance services in the country and decreased for the other half—in some cases by as much as 50 percent.

One of the most significant effects of the new schedule is that emergency response, whether ALS or BLS, has been recognized as the most expensive aspect of providing ambulance services and is now reimbursed at a higher rate.

Medicaid is a state-managed program that generally provides for reimbursement for health care, including ambulance services. Each state determines what services are covered and the reimbursement levels. Although the rules and regulations vary widely by state, one thing is common to all states: Medicaid reimbursements for EMS typically are far below the costs of service provision.

Commercial insurance companies typically reimburse 80 to 100 percent of charges. Many EMS agencies set their rates to include the cost of unreimbursed care provided to Medicare, Medicaid, and uninsured clients. This cost shifting is common among hospitals and other health care providers, but the result is that commercial insurance pays a disproportionate share of the cost for services.

A large percentage of the U.S. population is not covered by health insurance, and these people are therefore responsible for paying their own costs for ambulance services. A very small percentage of fees (between 5 and 15 percent) is collected when patients without health insurance are transported by ambulance services.

The relationship between subsidies and price To recoup funding lost through reductions in subsidies, EMS organizations must increase prices by significantly more than the dollar amount of the lost subsidy. Whether an EMS organization will succeed in recouping lost funding depends on its collection rate and average patient charge. For example, if an EMS system collects only 50 percent of its fees for services, it will need to charge an additional $2 for every $1 lost in subsidies.

Thus, if the ambulance service must *collect*, on average, $270 per transport to fund its operations and if a subsidy of $270 per transport is provided, the rate that must be charged equals zero. But if no subsidy is provided, the average patient charge goes up to $500. Why is it that, in the absence of a subsidy, the average patient charge is so much higher? Because it is unlikely that the full $500 will be collected.

Raising prices Raising prices is one strategy EMS systems often use to fund increases in operating costs. But because payers such as Medicare and Medicaid reimburse a fixed amount, regardless of the rate charged, this approach may provide a limited increase in the amount collected.

Figure 2 illustrates how rate increases affect collections: since Medicare and Medicaid reimbursements are fixed, and since patients who lack insurance or who are in the self-pay category will also bring minimal increases in collections, the incremental increase in reimbursement that occurs when rates are raised will come from private insurance companies.

Community Defibrillation Programs

One indicator of a superior EMS system is community involvement, and community defibrillation programs are an example of such involvement. More than 250,000 people die each year of sudden cardiac arrest. Although most victims of heart attacks can be saved if they are treated with an electric shock within the first few minutes, most ambulances cannot get to the scene quickly enough. Because automated external defibrillators (AEDs), machines used to deliver the electric shocks, can be used by anyone with minimum training, others already at the scene can become first responders. Champions within ambulance services often bring together business, public safety, and public health leaders to create a comprehensive early defibrillation program in their communities to augment the efforts of the formal EMS system.

Billing process and benchmarks Because of variations in the mix of payers and service levels, it is difficult to compare reimbursement performance among services. Nevertheless, it is important to analyze four benchmarks internally as well as against similar services: the collection rate, the number of days in accounts receivable, the number of process days, and the denial rate.

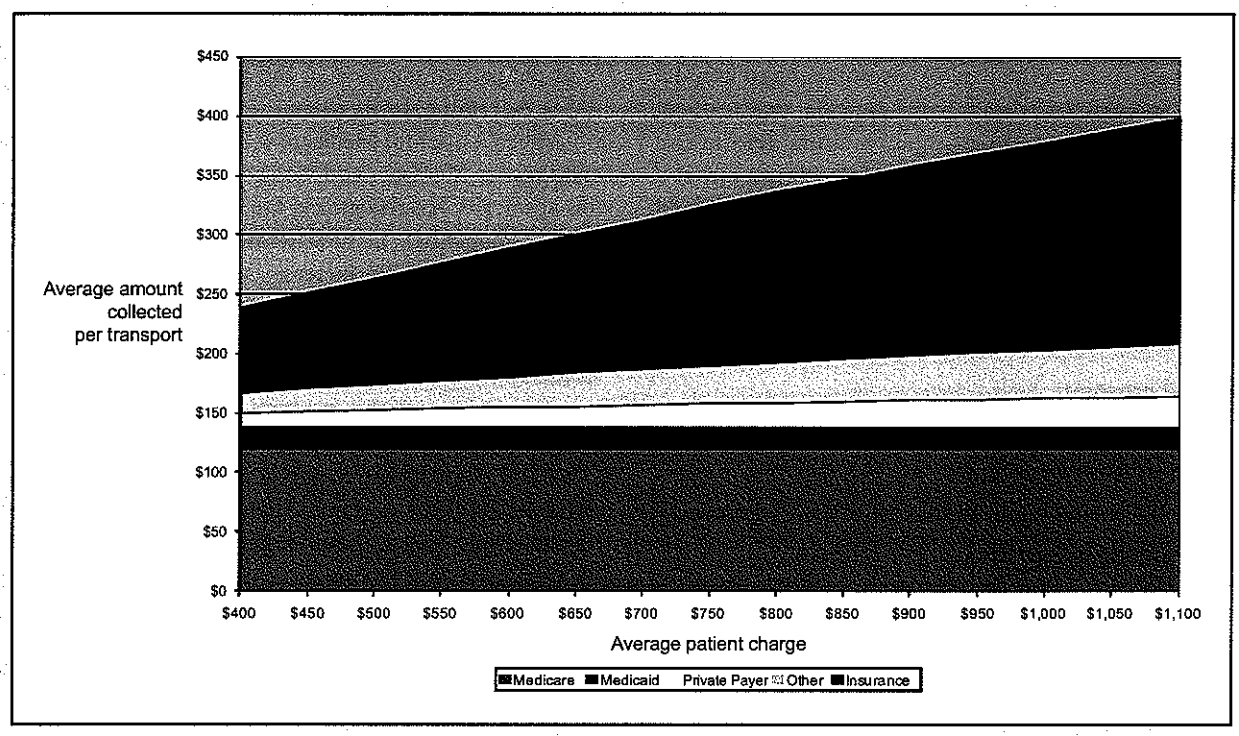
Collection rate Many services measure the collection rate by first eliminating contractual allowances—that is, those amounts that the service agrees to write off, as in the case of Medicare and Medicaid. Since EMS systems are obligated to accept what Medicare and Medicaid allow as payment in full, they may report a collection rate of 85 to 90 percent, but these figures do not reflect the prior adjustments and can be misleading.

A more accurate approach compares the gross charges (before contractual allowances and bad debt) to the actual cash receipts. Under this approach, a collection rate between 45 and 60 percent is a realistic expectation.

Days in accounts receivable The number of days in accounts receivable (AR) is calculated by taking the total amount owed to the service and dividing it by the average daily charges. The industry standard for reporting days in AR compares gross accounts receivable (prior to any write-offs of contractual allowances or bad debt) against average daily sales. Sixty to 90 days is an appropriate benchmark for days in AR.

Process days One important benchmark for billing processes is the timeliness of various activities, such as the filing of a claim for insurance reimbursement after the date of

Figure 2. How Rate Increases Affect Collections



service. Many services strive for a three-day turnaround between the date of service and the filing of claims.

Denial rate The Medicare denial rate represents the number of claims initially denied by Medicare. Often, denials are caused by poor documentation. Appropriate documentation and processing should limit the denial rate to less than 5 percent.

Billing Options

Because the rules and regulations for filing ambulance service claims, particularly with Medicare and Medicaid, are complex and change rapidly, many EMS systems outsource billing and collection to companies that specialize in these areas. These companies provide such services as proper coding (required for reimbursement), verification and data entry, and follow-up on delinquent accounts.

Organizations that outsource billing and collection can expect to pay between 6 and 10 percent of the net collections to the billing and collection company. Often, the expertise available from these companies increases collection rates, more than offsetting the cost of their services.

Organizations that retain billing and collection internally must allocate adequate resources to the function. It is also important to develop a comprehensive compliance program to ensure that billing and collection comply with the various payers' rules and regulations.

Comparing Private and Public Service Delivery Costs

Many communities find themselves needing to compare the cost of EMS provided by a private ambulance service with the cost of provision by a public entity or a hospital. This does not make for an easy "apples to apples" comparison.

Calculating the cost of a private service is generally straightforward. Under general accounting practices, all direct and indirect costs are typically available in the organization's financial statements. In certain circumstances, however, costs may not be clearly attributable to a specific service area; for example, when a private company serves a number of contiguous communities, it may be difficult to isolate the costs for one municipality within that area.

Cost allocations should be based on the number of staffed ambulance hours required to provide the necessary level of response and transport for the specific area. Allocations for activities such as training and dispatch should also be included. Whenever the costs of a private service are evaluated, it is important to identify any corporate allocations for overhead or other expenses, and for expected profit margins.

Most public agencies and hospital services intermingle the costs of EMS with those of other departmental activities, making it difficult to isolate costs. When attempting to compare costs, it is important to consider both direct and indirect costs. In the case of government and hospital services, indirect (overhead) costs include management and training expenses. For example, in a fire department, medical responses may account for 80 to 90 percent of a department's total response load, and overhead costs should be allocated accordingly.

Once *departmental* overhead costs have been identified, it is necessary to evaluate *municipal* overhead costs. Areas to examine include

- Legal expenses
- Liability risks and self-funded insurance
- Human resource expenses
- Benefits, including health insurance and retirement
- Accounting expenses
- Facility expenses
- Information technology costs.

Many public agencies attempt to identify the marginal or incremental cost of providing EMS. While this may be appropriate, activity-based costing processes must be used to ensure that *all* costs incurred in the provision of EMS are identified.

Comparing Urban and Rural Service Delivery Costs

As noted earlier, staffing ambulance crews is the most expensive aspect of emergency medical services. Even though the demand for service is significantly lower in rural areas, crews must be deployed over a wide geographic area, which drives up costs. In urban systems, where the number of transports is higher, overhead costs are distributed over a larger base, reducing the cost per transport. Also, because the time per call is typically less in urban areas, employee productivity is higher.

Table 3 compares costs per transport in urban and rural areas. The urban service transports one patient approximately every three hours of staffed ambulance time, while the rural service transports one patient every eight hours of staffed ambulance time. If each ambulance is staffed twenty-four hours a day, seven days a week, for the entire year (8,760 hours per year), the urban transport rate results in approximately 2,920 transports per year, while the rural transport rate results in 1,095 transports per year. Even though the overall costs of the urban service are higher, the cost per patient transport in the rural system is more than twice that in the urban system.

The Centers for Medicare & Medicaid Services, which administers Medicare and works in partnership with states on Medicaid, has recognized the dramatically higher costs of providing EMS in rural settings. In fact, legislation is being considered to increase Medicare reimbursement rates for rural areas.

KEYS TO EFFECTIVE PROCUREMENT

The goal of an EMS procurement process is to establish a level playing field in which different vendors' offers can be objectively evaluated. Qualified providers cannot be expected to participate in a procurement process without reasonable assurance that the award will be made fairly and objectively.

If a municipal EMS system wants to submit a proposal, common practice is to ensure that the process is conducted by a panel of knowledgeable, independent reviewers (often including individuals from outside the local area) who evaluate the proposal against a set of defined criteria and make a recommendation to the local governing body.

The American Ambulance Association recommends five steps in the selection process:

1. Use staff who are experienced in EMS design.
2. Determine the competitive variables (e.g., service levels or price) for the procurement.
3. Establish standards for reviewers to apply to bids.
4. Create an impartial evaluation team with objectively identified competencies.
5. Clearly outline the proposal process, including how many points will be awarded for each criterion and how the criteria will be weighted and totaled.[13]

When a competitive sealed proposal is used, an evaluation panel composed of technical, financial, legal, and purchasing experts selects the proposal that represents the best combination of cost, qualifications, technical approach,

Table 3. Cost Comparison for Hypothetical Urban and Rural EMS Systems

	Number of Transports per Staffed Ambulance Hour	Annual Hours of Coverage	Annual Number of Transports	Cost of Service Provision ($)	Cost per Transport ($)
Urban	0.33	8,760	2,891	650,000	222.60
Rural	0.125	8,760	1,095	500,000	456.62

performance commitments, past performance, and other factors described in the request for proposals.

CONCLUSION

Ambulance service is often one of the highest-profile services a community provides or contracts for on behalf of its citizens; lives literally depend on emergency medical services—every second, every day, everywhere. Yet in most communities, EMS is regularly being asked to do more with less and exists in an environment characterized by labor difficulties, funding and reimbursement struggles, increasing service demands, and other challenges. Even in systems where everything seems fine, an otherwise excellent service can suddenly find itself facing public outrage because of a high-profile medical mistake or a serious traffic accident involving an ambulance.

With so much at stake, prudent civic leaders can reduce their risk by educating themselves about how EMS works and by becoming involved in their local EMS system. The knowledge gained, like the EMS system itself, is something that no one ever wants to have to use—but it's comforting to know it's there.

ADDITIONAL RESOURCES

Web Resources

For more on the attributes of a sustainable system (e.g., accountability, transparency, and economic efficiency) and to learn how to evaluate whether a service has them, visit www.fitchassoc.com/icma for a free whitepaper. This site will also provide quick Web links to other resources cited in this report.

American Ambulance Association, "Community Guide to Ensure High-Performance Emergency Ambulance Service"

"EMS Agenda for the Future" (a collaborative effort among EMS organizations to develop goals for improving emergency care)

Organizations

Advocates for EMS (www.advocatesforems.org/)

American Ambulance Association (www.the-aaa.org/)

Centers for Medicare & Medicaid Services, Ambulance Services Information Resource (www.cms.hhs.gov/suppliers/ambulance/)

Commission on Accreditation of Ambulance Services (www.caas.org/)

International Association of Fire Chiefs (www.iafc.org)

International Association of Fire Fighters (www.iaff.org)

National Academies of Emergency Dispatch (www.emergencydispatch.org/)

National Association of EMS Physicians (www.naemsp.org/)

National Association of State EMS Directors (www.nasemsd.org/)

National Highway Traffic Safety Administration (www.nhtsa.dot.gov)

National Registry of Emergency Medical Technicians (www.nremt.org)

Supplementary Documents

Click here to see the 2004 Community Report from the Mecklenburg EMS Agency in North Carolina. This report details the characteristics and achievements of Medic, the Mecklenburg County (North Carolina) Emergency Services Agency, an exemplary EMS program.

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1 D. M. Williams, "2004 JEMS 200-City Survey: A Snap Shot of Facts and Trends to Allow You to Make Benchmarks for Your Service," *Journal of Emergency Medical Services* 30, no. 2 (February 2005): 42–60.

2 Ibid.

3 E. M. Racht, personal communication, March 31, 2005.

4 B. Wilson et al., "Unexpected ALS Procedures on Non-Emergency Ambulance Calls: The Value of a Single-Tier System," *Prehospital and Disaster Medicine* 7, no. 4 (October-December 1992): 380–382.

5 R. Davis, "Inverse Lifesaving Function? More Paramedics Does Not Equal More Lives Saved," *USA Today*, 2 March 2005, D-1.

6 Williams, "200-City Survey."

7 S. Knight et al., "Against All Advice: An Analysis of Out-of-Hospital Refusals of Care," *Annals of Emergency Medicine* 42, no. 5 (November 2003): 689-696; J. E. Hipskind, J. M. Gren, and D. J. Barr, "Patients Who Refuse Transportation by Ambulance: A Case Series," *Prehospital Disaster Medicine* 12, no. 4 (October–December 1997): 278–283.

8 M. W. Hubble, K. R. Paschal, and T. A. Sanders, "Medication Calculation Skills of Practicing Paramedics," *Prehospital Emergency Care* 4, no. 3 (July-September 2000): 253–260.

9 Defined on a fractile, not average, basis, and including all time intervals between the time the service received enough information to initiate a response and the time when a properly equipped and staffed unit arrives at the scene.

10 Williams, "200-City Survey."

11 KPMG/Fitch & Associates, *Emergency Response Department: Report to Council* (Edmonton, Canada: February 2000).

12 For additional information about communications, see Keith Griffiths and Greg Scott, "911 Center Operations," *IQ Report* 36, no. 6 (June 2004).

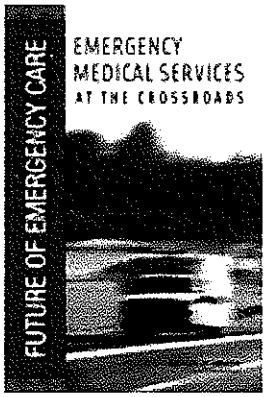
13 Standards for conducting a performance-based contracting process are outlined in Stephen B. Gordon, "Performance-Based Contracting," *IQ Report* 33, no. 6 (June 2001).

EMS in Critical Condition:
Meeting the Challenge

Volume 37/Number 5
2005

E-43338

06-015



Emergency Medical Services: At the Crossroads

Committee on the Future of Emergency Care in the United States Health System
ISBN: 0-309-66216-8, 304 pages, 6 x 9, (2006)
This PDF is available from the National Academies Press at: http://www.nap.edu/catalog/11629.html