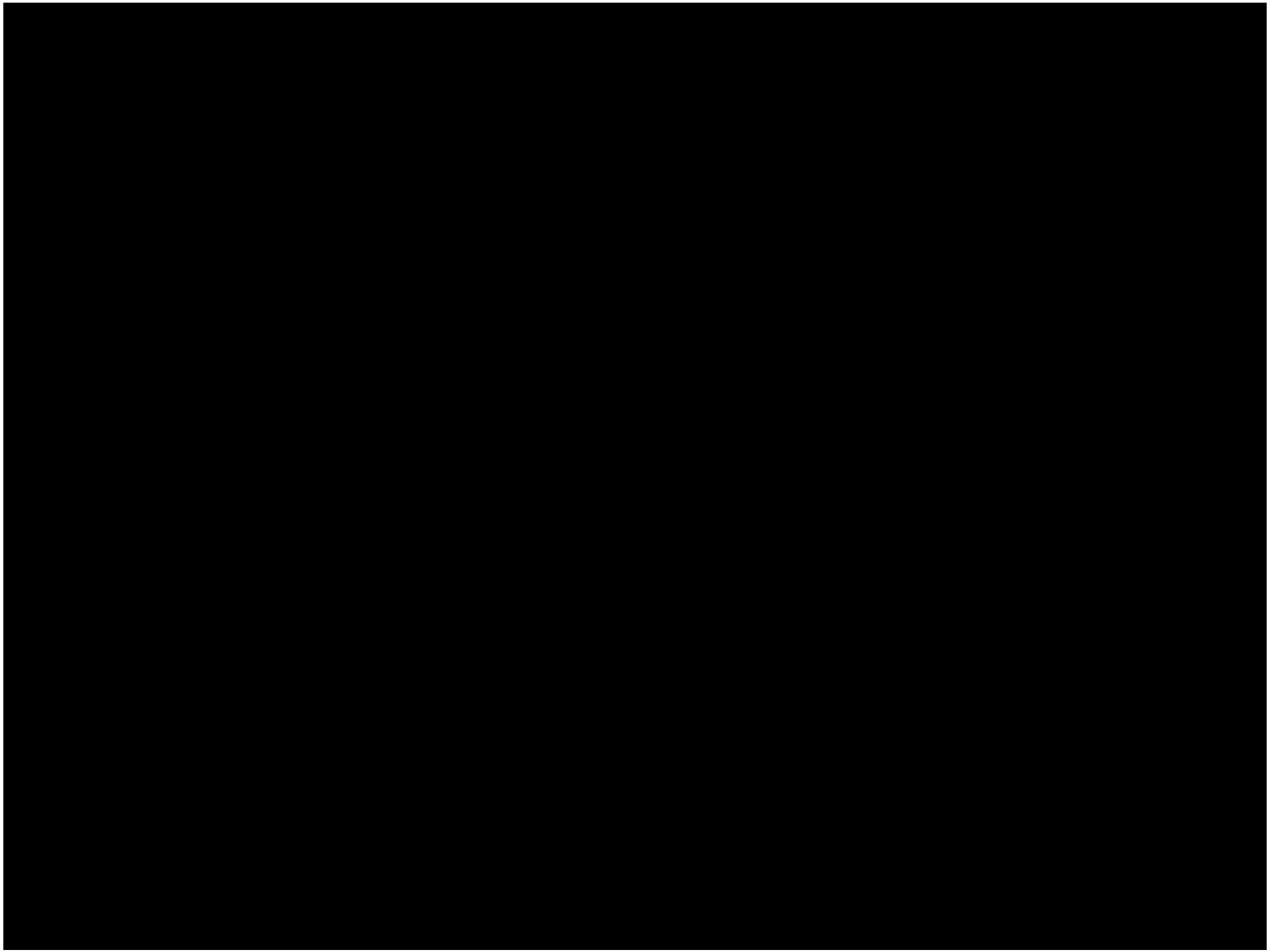
Illud Est Quod Est

It's time.

Ed Racht MD
Chief Medical Officer
AMR

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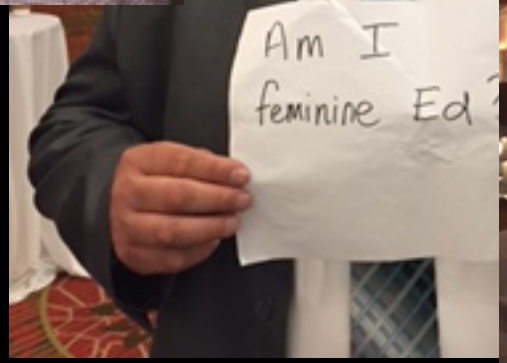
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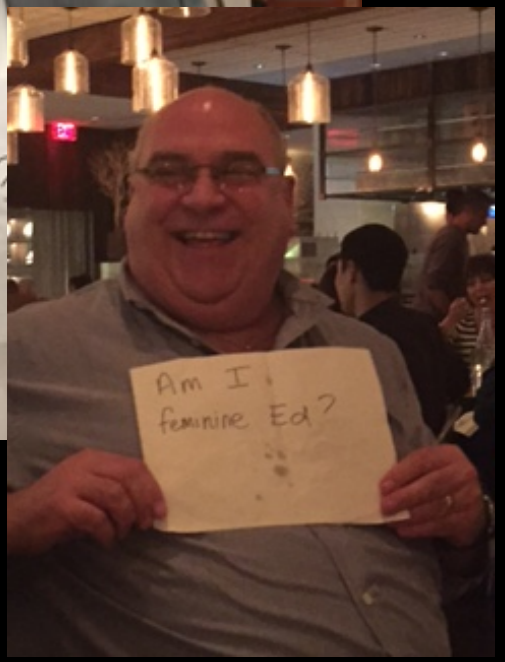
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GENDER-NEUTRAL
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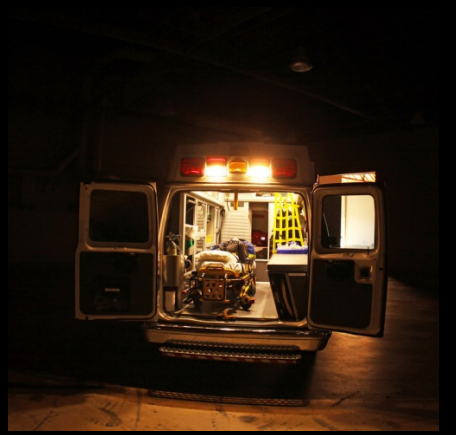
Remember…

- Ambulance Drivers & Emergency Room Doctors



Annals of Internal Medicine

EDITORIAL

Is Prehospital Advanced Life Support Harmful?

Each year in the United States, approximately 21 million persons call 911, are evaluated by emergency medical services (EMS), and are transported to emergency departments (EDs) for potential medical emergencies (1). Of these, approximately 35% are related to injuries or chest, respiratory, or neurologic symptoms and more than one third of all patients aged 65 years or older are transported to the ED by ambulance (1, 2). Ambulance transport to the hospital is a common and costly intervention.

At the time of a 911 call, the dispatcher must quickly determine if basic or advanced care is needed, often with little clinical information. Matching the appropriate level of care (that is, basic life support [BLS] or advanced life support [ALS]) to the undifferentiated patient in the prehospital setting is complex and requires both an understanding of the efficacy and effectiveness of prehospital interventions and the availability of EMS resources.

For potentially life-threatening conditions, many EMS agencies in urban settings deploy ALS services rather than BLS services; they assume ALS paramedics have more clinical training, a broader skillset, and larger therapeutic armamentarium. It is easy to believe ALS is more effective than BLS in the prehospital setting based on these assumptions. But the level of training, extent of quality assurance, and overall experience vary tremendously between individual paramedics and EMS systems, and the effectiveness of ALS remains uncertain in the prehospital setting. Further, there may also be an opportunity cost associated with using ALS transport when it is not needed.

In this issue, Sanghavi and colleagues (3) report the results of a well-conducted study examining the relationship between levels of care provided in the prehospital setting (ALS or BLS) and mortality for 4 time-sensitive conditions: acute myocardial infarction, respiratory failure, stroke, and trauma. The investigators used claims data from a random sample of Medicare beneficiaries living in nonrural U.S. counties. Given the retrospective observational design, prehospital care was not randomly assigned. As such, the authors performed multivariable analyses, including propensity score matching and instrumental variable analysis, to account for both measured and unmeasured characteristics that may confound the relationship between the level of prehospital care and mortality.

Using propensity score matching, the authors found no benefit of ALS compared with BLS. In 3 of the 4 conditions (respiratory failure, stroke, and trauma), the estimates suggested potential harm when patients were transported by ALS providers. The 90-day survival rate was higher with BLS than ALS for respiratory failure (3.7 percentage points [95% CI, 2.5 to 4.8 percentage points]), stroke (7.0 percentage points [CI, 6.2 to 7.7 percentage points]), and trauma (6.1 percentage points [CI, 5.4 to 6.8 percentage points]). No survival difference was found for patients with acute myocardial infarction at 30 days (−0.3 percentage point [CI, −1.1 to 0.5 percentage points]), but patients had better survival with ALS at 90 days (1.0 percentage point [CI, 0.1% to 1.9 percentage points]). In instrumental variable analyses, the 90-day survival rate was significantly higher for BLS versus ALS for acute myocardial infarction (5.9% percentage points [CI, 2.2 to 9.6 percentage points]), stroke (4.3 percentage points [CI, 1.3 to 7.3 percentage points]), and trauma (4.1 percentage points [CI, 1.3 to 6.9 percentage points]) but not for respiratory failure (0.2 percentage point [CI, −4.7 to 5.1 percentage points]).

Further, ALS transport was associated with better survival in patients with chest pain. The American Heart Association guidelines for patients with ST-segment elevation myocardial infarction recommend percutaneous coronary intervention within 90 minutes from a patient's arrival at the ED (4). Prehospital activation of the catheterization laboratory decreases the time to percutaneous coronary intervention (5) and decreases mortality (6). The potential benefit of ALS care may be attributed to prehospital providers having more expertise to read electrocardiograms and activate the catheterization laboratory earlier.

This study raises important questions about the effectiveness of prehospital care, but the conclusions must be viewed with caution. First, prehospital care was determined using Medicare billing codes and not the actual prehospital care provided. The authors postulate iatrogenic injury or delayed care due to ALS providers staying on the scene longer, but none of this information was included. Second, although geographic distance from site to hospital was included, the actual response, scene, and transport times were unknown. Third, the only clinical information included in the analysis was adjustment for comorbidities (based on diagnosis codes) and injury severity score. Procedure codes for cardiopulmonary resuscitation, defibrillation, or intubation were not included. These codes may be important surrogates for the severity of illness and other potential confounders between prehospital care and mortality. Fourth, only Medicare beneficiaries were included, with a mean age of 80 years, which makes it difficult to generalize the results to the population at large. Finally, all patients were in nonrural settings in which prehospital care accounts for approximately 20 to 30 minutes of the entire timeline (from the 911 call to 2-year survival in this study).

Although the authors conclude that there may be harm with prehospital ALS, we believe that there may not be added benefit of ALS over BLS based on the study's limitations and prior research. Further, it is very unlikely that ALS is harmful. Prior prospective, implementation research by Stiell and colleagues (7, 8)

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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Advanced Cardiac Life Support in Out-of-Hospital Cardiac Arrest

Ian G. Stiell, M.D., George A. Wells, Ph.D., Brian Field, A.C.P., M.B.A., Daniel W. Spaite, M.D., Lisa P. Nesbitt, M.H.A., Valerie J. De Maio, M.D., Graham Nichol, M.D., M.P.H., Donna Cousineau, B.Sc.N., Josée Blackburn, B.Sc., Doug Munkley, M.D., Lorraine Luinstra-Toohey, B.Sc.N., M.H.A., Tony Campeau, M.Ed., Eugene Dagnone, M.D., and Marion Lyver, M.D., for the Ontario Prehospital Advanced Life Support Study Group

ABSTRACT

Procedures Performed by Emergency Medical Services in the United States

Jestin N. Carlson, MD, MS, Christopher Karns, DO, N. Clay Mann, PhD, MS, Karen E. Jacobson, BA, NREMT-P, Mengtao Dai, MS, Caroline Colleran, DO, Henry E. Wang, MD, MS

Abstract

Emergency medical services (EMS) must provide a wide range of care for patients in the out-of-hospital setting. Although previous work has detailed that EMS providers rarely perform certain procedures, (e.g., endotracheal intubation) there are limited data detailing the frequency of procedures across the breadth of EMS providers' scope of practice. We sought to characterize procedures performed by EMS in the United States. We conducted an analysis of the 2011 National Emergency Medical Services Information System (NEMSIS) research data set, encompassing EMS emergency response data from 40 states and two territories. From these data, we report the number and incidence of EMS procedures. We also characterize procedures performed. There were 14,371,941 submitted EMS responses, of which 7,680,559 had complete information on procedures performed on adults. Of these, 4,206,360 EMS responses had procedures performed totaling 11,407,396 procedures. The most common procedures performed were peripheral venous access (28.4%), cardiac monitoring (16.1%) pulse oximetry (13.5%), and blood glucose analysis (10.4%). Procedures were performed most often in patients with traumatic injury (20.0%) followed by chest pain/discomfort (14.0%). Critical procedures (cardioversion, defibrillation, endotracheal intubation, etc.) were infrequently performed ($n = 277{,}785$, 2.4%). These data highlight the frequency with which EMS providers perform procedures across the United States. This may help to guide future EMS training and education ef-

cal conditions for over 50 years.[1] Examples of essential skills include defibrillation and airway management.[2] Mastery of these skills requires sufficient initial training as well as ongoing education, especially if infrequently performed.[3–5] The clinical effectiveness of these interventions remains unclear. Although certain prehospital interventions such as intravenous catheter insertion are associated with a reduction in mortality, others have found that specific populations such as trauma patients are 2.63 times more likely to die for every procedure completed in the prehospital setting.[6,7] Given the conflicting data regarding the impact prehospital procedures have on patient outcomes we need to have a better understanding of national EMS patterns of procedures. Focusing the scope of practice and procedure training opportunities for prehospital responders may be further refined with a better knowledge of how often particular procedures are performed.

The disconnect between prehospital procedures and patient outcomes highlights the limited understanding of the scope and magnitude of procedures in the prehospital setting. Although data exists that examines specific providers in limited geographic areas, there are no national assessments of the frequency of procedures performed in prehospital environment.[8] This

EMS Procedures

- 2011 NEMSIS Data
- 40 States
- 14,371,941 Responses
- 7,680,559 Completed
- 11,407,376 Procedures

From Carlson et.al
Prehospital Emergency Care 2016;20:15–21

TABLE 2. Provider impression of patient condition on EMS responses where procedures were performed

Provider Impression	Number of Responses n = 4,206,360	Percent of Total Available
Abdominal pain	257,956	9.8
Airway obstruction	6,457	0.3
Allergic reaction	20,424	0.8
Altered level of consciousness	230,048	8.8
Behavioral/psychiatric disorder	87,994	3.4
Cardiac arrest	55,014	2.1
Cardiac rhythm disturbance	95,652	3.6
Chest pain/discomfort	368,168	14.0
Diabetic symptoms (hypoglycemia)	98,626	3.8
Electrocution	711	< 0.1
Hyperthermia	16,238	0.6
Hypothermia	2,437	0.1
Hypovolemia/shock	31,353	1.2
Inhalation injury (toxic gas)	1,329	0.1
Obvious death	8,973	0.3
Poisoning/drug ingestion	78,321	3.0
Pregnancy/OB delivery	20,050	0.8
Respiratory distress	332,861	12.7
Respiratory arrest	9,621	0.4
Seizure	107,522	4.1
Sexual assault/rape	1,063	< 0.1
Smoke inhalation	771	< 0.1
Stings/venomous bites	1,667	0.1
Stroke/CVA	83,362	3.2
Syncope/fainting	179,767	6.8
Traumatic injury	525,725	20.0
Vaginal hemorrhage	6,152	0.2
Not Available	1,578,098	

TABLE 3. Procedures performed including critical procedures (A), other procedures involving therapeutic interventions (B), and procedures related to patient monitoring (C)

Procedure	Total Number	Percent of Total Procedures $n = 11{,}407{,}396$	Number per 1000 responses (95% CI)
	A. Critical Procedures		
CPR	66,684	0.6	8.7(8.6–8.7)
Airway-Intubation	63,596	0.6	8.3(8.2–8.3)
Venous Access-IO	34,523	0.3	4.5*
Defibrillation-Placement for Monitoring	31,439	0.3	4.1(4–4.1)
Defibrillation-Manual	29,149	0.3	3.8*
Venous Access–Central Line	28,505	0.2	3.7*
Defibrillation-Automated (AED)	12,381	0.1	1.6*
Cardiac Pacing-External	5,411	< 0.1	0.7*
Chest Decompression	2,243	< 0.1	0.3*
Cardioversion	2,016	< 0.1	0.3*
Cardiac Pacing-Transvenous	885	< 0.1	0.1*
Airway-Cric/Trach	425	< 0.1	0.1*
Chest Tube Placement	410	< 0.1	0.1*
Pericardiocentesis	118	< 0.1	< 0.1*
Total for Critical Procedures	277,785	2.4	36.2(36–36.3)

B. Procedures involving therapeutic intervention			
Venous Access - Peripheral IV	3,241,534	28.4	422.0(421.7–422.4)
Spinal Immobilization	698,426	6.1	90.9(90.7–91.1)
Airway-Other	655,451	5.7	85.3(85.1–85.5)
Pain Measurement	424,112	3.7	55.2(55.1–55.4)
Wound Care	141,143	1.2	18.4(18.3–18.5)
Splinting—Basic or Traction	86,991	0.8	11.3(11.3–11.4)
Airway-BVM/Ventilation	55,035	0.5	7.2(7.1–7.2)
Rescue or Extrication	43,845	0.4	5.7(5.7–5.8)
Airway-CPAP/BiPAP	31,098	0.3	4 (4–4.1)
Restraints-Physical	28,242	0.2	3.7*
Airway-Supraglottic Airway	16,538	0.1	2.2(2.1–2.2)
Patient Cooling (Cold Pack, etc.)	15,560	0.1	2 (2–2.1)
Urinary Catheterization	12,059	0.1	1.6(1.5–1.6)
Injections-SQ/IM	9,054	0.1	1.2*
MAST	4,337	< 0.1	0.6(0.5–0.6)
Gastric Tube	3,335	< 0.1	0.4*
Patient Warming (Hot Pack, etc.)	3,323	< 0.1	0.4*
Arterial Line Maintenance	2,555	< 0.1	0.3*
Patient Cooling-Post Resuscitation	2,041	< 0.1	0.3*
Vagal Maneuvers	1,667	< 0.1	0.2*
CNS Catheter Management	1,569	< 0.1	0.2*
Arterial Access-Blood Draw	1,219	< 0.1	0.2*
Childbirth	1,162	< 0.1	0.1(0.1 – 0.2)
Restraints-Pharmacological	868	< 0.1	0.1*

Is "too many" worse?

Table 4
Survival by deployment type

	Uniform response	Targeted response	*P*-value
No. resuscitation attempts	24	181	
Return of spontaneous circulation	8 (33.3%)	101 (55.8%)	0.049
Survival to hospital admission	7 (29.2%)	92 (51.1%)*	0.05
Survival to hospital discharge	1 (4.2%)	43 (23.9%)*	0.03
Alive at 1 year	0	27 (15.0%)*	0.05

Table 2
Critical intervention rates by deployment type

	Uniform response	Targeted response	*P*- value
First shocks delivered by first responder	10 (41.7%)	51 (28.2%*)	0.23
First shocks delivered by paramedic	14 (58.3%)	123 (67.9%*)	0.36
Successful intubation	22 (91.7%)	174 (99.4%**)	0.04
Successful i.v.	20 (83.3%)	178 (98.3%)	0.004

Top 10 not-so-altruistic ways to improve EMS with a billion dollars

What if EMS won the $800M Powerball jackpot?

The Star of Life: a shining symbol of what it means to be in EMS

EMS NEWS IN FOCUS

with Arthur Hsieh

Staffing problems will be solved when EMS finds its identity

EMS must either master all of health care, or carve a niche to gain professional recognition and financial stability

Jun 17, 2014

By Arthur Hsieh

In a somewhat ironic twist, two recent stories on opposite geographical ends of the EMS spectrum address failed attempts to deal with staffing issues.

In rural Minnesota, lawmakers have approved a $500 annual stipend to help recruit volunteers. And in urban San Francisco, the city is seeking more medics and ambulances to meet 911 needs.

Unfortunately, both have proposed solutions that have failed in other areas of the country. Stipends for volunteers have not been able to recruit and retain staffing levels, while restricting an EMS budget within a traditional department will destine that system to perform in a substandard way.

RELATED ARTICLES

- Minn. approves stipend to recruit EMS volunteers
- S.F. lacks medics, ambulances to meet 911 needs

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These are temporary solutions to the serious issues surrounding EMS identity and mission. Despite the educational and vocational developments to prepare today's EMS providers, the systems in which they work often feel firmly stuck in the past.

People can no longer spend hundreds of hours a year helping out their community, and organizations that don't realize this and adapt will perish. The bottom line is this: field care has changed. It will continue to do so, as reimbursements dwindle and governments struggle to justify taxes and special assessments.

NATIONAL EMS SCOPE OF PRACTICE MODEL

THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

National Emergency Medical Services Education Standards

Who staffs today?

- Emergency Medical Responder
- Emergency Medical Technician
- Advanced EMT
- Paramedic

What do EMS practitioners do today?

- 911 emergencies
- IFT / CCT / SCT
- Mobile Integrated Health
- Tactical Medicine
- Occupational health
- Insurance physicals
- Telemetry technician
- ED Technician
- Mobile CT scanning
- Public immunizations
- Communications
- Public health surveillance officers
- Drive Hinchey around…

Go to statesman.com/jobs

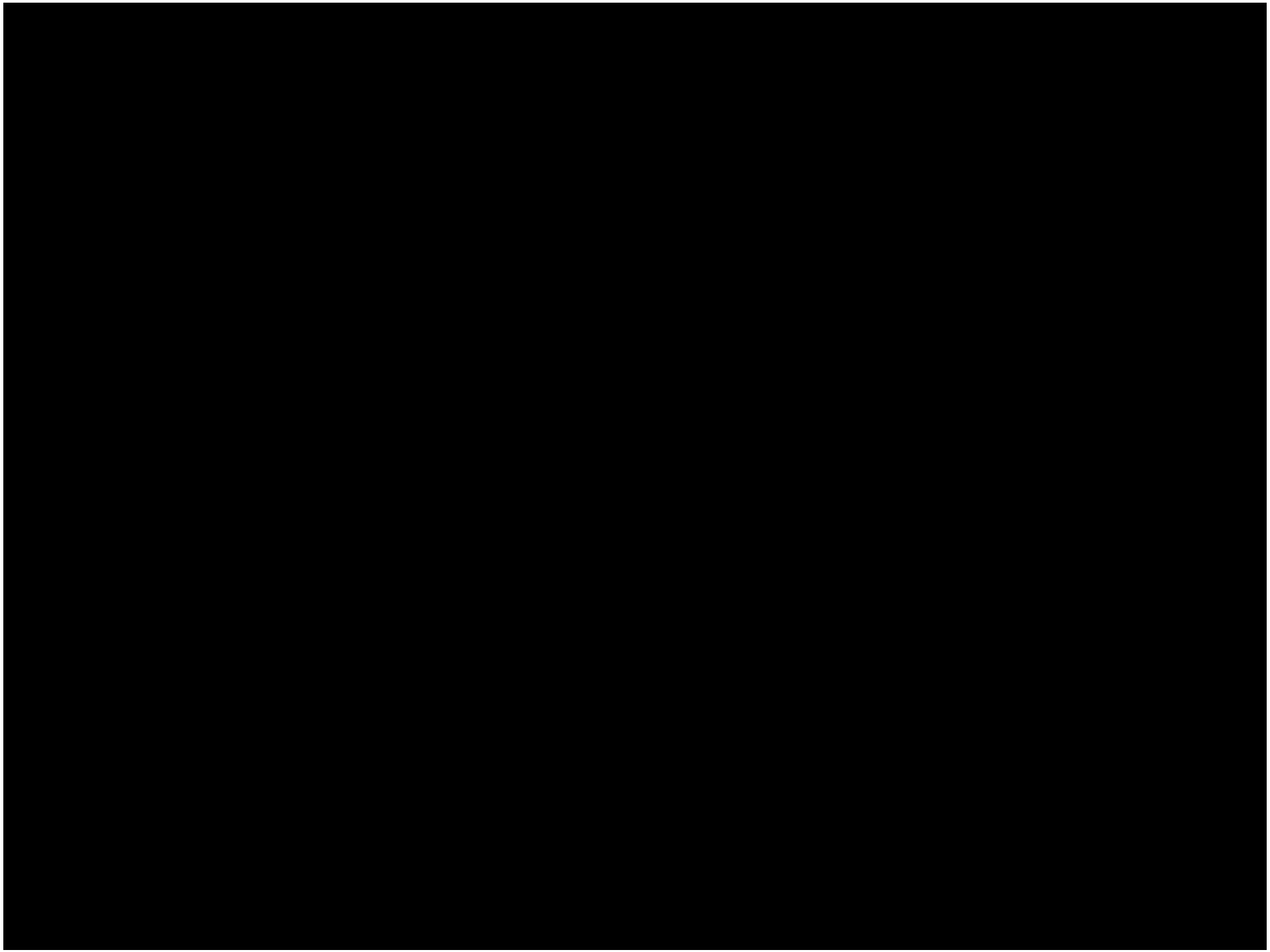
an

Paramedic responds to her role helping people

Who: Lisa "Kiwi" DeMayo
Occupation: Paramedic
Current Position: Paramedic – Special Operations Rescue Team for Austin-Travis County EMS.
Job Description: Public safety provider of advanced life support, responding to 911 emergency medical, trauma and rescue calls.
Education: Paramedic and Combat Firefighting Program, Palm Beach Community College. B.S.– Sports Medicine, Connecticut State University.
Why I chose this profession: As far back as I can remember, I've always wanted to help people in the worst of times. I never wanted to miss a trick. It's always been my nature to challenge myself. This, in conjunction with being an adrenalin junkie, makes chaotic situations an opportunity to make a difference.

Lisa DeMayo

Career path: I joined the fire department when I was 20 years old. Learning what to do along with basic EMT training started me down a long road with lots of scenery. I knew I was traveling in the right direction. After I graduated college, I continued on with the fire department and EMS. I had an opportunity to attend paramedic school so I jumped on it. When I had the opportunity to work for Austin – Travis County EMS and be on the rescue team, I jumped even higher.
Typical day: We work 24 hours on and then have 48 off. Shift-change is at 7 a.m. so we do a quick crew change, truck and equipment inspection, and have all the gear ready. You have to be prepared for anything by 7:01 a.m. We have to be available to the public for all 24 hours, so you eat and rest at the station whenever you can. There's no guarantee of time to get either, so sometimes it's a long, hungry, tired haul until 7 a.m. the next morning.
Favorite part of a day: Seeing relief on a patient's face.

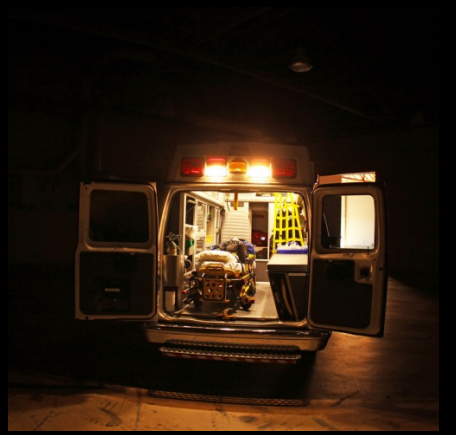


It's time to change.

- EMS Staffing provider types
  - Designated levels of care
  - Interprofessional practices
  - Credentialing for needed procedures / interventions
- ALS & BLS should sunset

ALS or BLS?

- Defibrillation
- CPAP
- Supraglottic airway
- IN / IM Narcan
- IN Fentanyl
- Nebulized albuterol
- EPI (how's that autoinjector?)
- Vascular access
- ECG acquisition / transmission
- ASA
- NTG

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GOD WANTS YOU
TO BE AN EMT

EMS AT THE HEALTHCARE TABLE

AS THE COMMUNITY PARAMEDICINE CONCEPT EVOLVES, EMS WILL PLAY AN INTEGRAL PART

>> BY DAVID K. TAN, M.D., FAAEM

A new paradigm for mobile healthcare emerged from a two-day meeting of EMS thought leaders held in Chicago in December. The group developed a framework to align the interests of patients, payors and providers as the first step in repositioning "community paramedicine" as one element in a more complex and comprehensive practice of medicine. The framework is intended to engage a wide spectrum of providers, including traditional EMS personnel as well as nurses, mid-level providers and physicians.

The group, which included representatives from private EMS, fire-based EMS, public utility EMS, third-service agencies, academic institutions, educational institutions and various national EMS organizations, was supported by an unrestricted educational grant from the Medtronic Foundation.

"The Medtronic Foundation recognizes the crucial role that frontline healthcare workers play worldwide in expanding access to care, including chronic disease care," says Joan Mellor, program manager for the Medtronic Foundation. "We believe a project like this will lead to stronger community health systems that will ultimately improve patient outcomes."

SEEKING DEFINITION

Although the concept of "community paramedicine" in North America is more than 20 years old, it has only recently gained momentum as the effects of healthcare reform have crystallized, such as penalties imposed on hospitals for patients who are readmitted within 30 days of discharge.[1] Many agencies are answering the call to integrate EMS into the complete spectrum of healthcare delivery (as outlined in *EMS Agenda for the Future*).[2] Ironically, however, many such initiatives are moving away from the "emergency" aspect of EMS, toward more general medical services that address specific community needs, such as managing high-frequency system users, helping hospital partners reduce 30-day readmission rates and offering appropriate alternative destinations for complaints that do not require transport to a hospital emergency department.[3]

Interest in community paramedicine has now grown to buzzword status, with Google search engine results for the term topping 12,000 and more than 15,000 hits for the term "community paramedic" as of December 10, 2012. However, these Internet search results also show that there's little consensus on what the terms actually mean. "Community paramedicine" is delivered and practiced in dozens of different ways.

These ambiguities and lack of common definitions has caused confusion and misunderstanding both within the EMS community and among outside observers. The lack of a standard taxonomy has meant that payors have been rightfully reluctant to reimburse providers for the care provided by EMS, a reluctance which now challenges the continued existence of many pilot programs. No common role definition, business model, competencies or metrics exist, and programs range from using on-duty paramedics in an alternative role without additional training to programs supported by college-level curricula, yielding practitioners who can bill for services provided.

Local, state and federal officials are beginning to explore the implications of a new provider role. Will this new role require expanded scopes of practice or simply an optimization of the current EMS provider role and skill set to better serve patients? This increasing dialogue is necessary and healthy, but it remains challenging to unify efforts and approaches at this early stage.

"This is an historic opportunity for EMS to take a prominent seat at the healthcare table," says Ed Racht, M.D., chief medical officer of American Medical Response (AMR). "It's critical for everyone involved in developing this new practice of medicine to work collaboratively and benefit from the substantial EMS and healthcare expertise around us."

SIX PRINCIPLES

The group that met in Chicago developed six basic principles that address the patient experience, quality and cost issues for the EMS industry to consider as it moves forward with community paramedicine.

1. **Identify the gaps in our current state of affairs.**

"A unifying framework and taxonomy to define this practice and its relationship to healthcare at large has been notably missing," says Eric Beck, M.D., medical director for the EMS system for the city of Chicago. "Community paramedicine has so many variations in practice that most people have only a vague concept of the term."

Across the country, community paramedicine practice ranges from simple diabetic patient follow-up to full preventive medicine services, including the administration of vaccinations. Jeff Goodloe, M.D., medical director of the EMS System for Metropolitan Tulsa and Oklahoma City, adds, "I'm not even sure if 'community paramedicine' is the most appropriate term. Basic EMT providers could accomplish many of our goals, so I like to think of this concept more broadly as 'mobile integrated healthcare practice.'"

It’s time.


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