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The Feasibility of the Advanced Practice Paramedic.

Anthony John Paquette

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The Feasibility of the Advanced Practice Paramedic

Anthony John Paquette

B.S., Charter Oak State College, 2003

A Thesis

Submitted in Partial fulfillment of the

Requirements for the Degree of

Master of Public Health

at the

University of Connecticut


2005

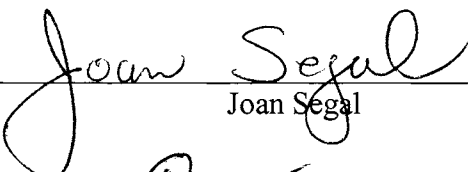
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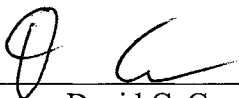
The Feasibility of the Advanced Practice Paramedic

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Introduction

Focus

In June of 2004, the National Highway Traffic Safety Administration (NHTSA) released for review a draft version of a *National EMS Scope of Practice Model*¹. The model Scope of Practice (SoP) describes four proposed levels of prehospital care providers and defines their capabilities. The SoP is, in part, an attempt by NHTSA to provide uniform titles and role descriptions for Emergency Medical Services (EMS) personnel. The four levels of provider described were:

1. Emergency Medical Responder (EMR)
2. Emergency Medical Technician (EMT)
3. Paramedic
4. Advanced Practice Paramedic (APP)

The role of EMR is essentially equivalent to the existing role of First Responder (NHTSA's title) or Medical Response Technician (Connecticut's title). As such, it represents the level of prehospital certification attained by public safety responders who do not typically work on ambulances but encounter medical emergencies, such as police officers and fire fighters.

The EMT role described by the SoP is a combination of many existing roles; variably known from state to state now as EMT-Basic, EMT-1, EMT- Intermediate, EMT-Enhanced, or other titles. It represents an advancement of the traditionally accepted "entry level" position for ambulance personnel in that it includes skills that in the past have required training above and beyond an "EMT" course in order to perform. Some examples include the initiation of intra-venous therapy and administration of a limited number of medications.

The paramedic role described in the SoP is essentially equivalent to the widely accepted definition of “paramedic” currently being used. The skill set described by the SoP for paramedics includes procedures such as twelve lead electrocardiogram (EKG) performance, cardiac rhythm interpretation, advanced airway management, and administration of a broad range of medications. Additionally, the SoP describes paramedics as needing a “complex” understanding of critical care, and a “fundamental” comprehension of emergent care¹. This too would be comparable to the current role of paramedic.

The proposed APP is a role that does not currently exist in EMS. The SoP introduces the APP in the following manner:

“This is a level that has no widely comparable status within current U.S. EMS systems. An academically prepared EMS level was described in the original *EMS Agenda for the Future*. The task force [that developed the SoP] felt that this position would be desirable within some EMS systems for operational purposes and on an individual basis for career development by some EMS personnel.”¹

There are a variety of factors that contribute to the perceived need for a role such as the APP. The modern EMS system was developed in response to a white paper published by the National Academy of Sciences in 1966, entitled “Accidental Death and Disability: The Neglected Disease of Modern Society,”² and later refined by NHTSA and others in response to the National Research Council’s release of its report titled “Injury in America: A Continuing Public Health Problem.”³ As such, the EMS system, by its very nature, focuses on the treatment and ultimate transport of acutely injured or ill patients to definitive care in the form of a hospital emergency department (ED). While the current system is fairly effective at meeting those goals, the *EMS Agenda for the Future* points out that “EMS, in general, meets these objectives in relative isolation from other health

care and community resources.”⁴ Because the overall goal of EMS systems has been viewed as transportation to the ED, EMS has had little need to integrate with, or even be aware of, other community health resources.

Today, the US healthcare system is under-funded and plagued by limited supplies and increasing demand for services. EMS is often touted as a “public health safety net,” a service to which the public can turn when they have no other option for immediate health care needs. Similarly, hospital emergency departments are increasingly called upon to provide primary care services for the growing portion of the public without adequate health insurance or primary care resources. At the same time, changes in health technology and reimbursement have led to decreased hospital lengths of stay and earlier discharge of patients. As a result, patients may be sent home while still at risk for post-surgical or post-event (medical) complications. In addition, patients are being sent home with technology that has, until now, been seen primarily in the hospital. Examples would include medication infusion devices such as IV pumps, patient controlled anesthesia (PCA) devices, ventilators, and CPAP devices, to mention a few. When complications arise, patients access the EMS system and are transported to the ED. This has added a higher volume of critically ill patients to EMS and ED patient loads. As both the EMS system and emergency departments struggle to accommodate these roles, it is important to note that neither was designed with these roles in mind. The result has been chronic overcrowding of emergency rooms, long wait times, and emergency department “diversions.”⁵

The APP was created to more thoroughly integrate the EMS system within the US healthcare system. By creating a level of EMS practitioner with a deeper comprehension of critical, emergent, and low acuity conditions, the SoP envisions an EMS system that could attain the described goals of the *EMS Agenda for the Future*.

EMS of the future will be community-based health management that is fully integrated with the overall health care system. It will have the ability to identify and modify illness and injury risks, provide acute illness and injury care and follow-up, and contribute to the treatment of chronic conditions and community health monitoring... It will improve community health and result in more appropriate use of acute health care resources.⁴

An APP, as envisioned in the SoP and the *Agenda*, would have the ability to assess patients accessing the EMS system, provide a higher level of care than a paramedic for acutely ill patients, and (perhaps most importantly) have the ability to either provide comprehensive care at the scene (treat and release) or triage patients to resources other than the emergency department (treat and refer). In doing so, it is envisioned that the APP will represent a more complete “public health safety net” by providing definitive services, utilizing other existing community health resources, and alleviating (or at least mitigating) ED overcrowding. In this way, the APP could fill an important role in any community. The SoP also proposes a significant role for the APP in areas where “little or no EMS system infrastructure is in place” such as “oil drilling platforms, expeditions into wilderness areas, care of refugees, commercial fishing vessels, wildland fires, and catastrophe / disaster locations.”¹

Objective

The objective of this research project is to provide some understanding of the feasibility of implementing the APP in the US EMS system. The SoP states “the

feasibility of this position will depend upon many factors such as EMS reimbursement, educational program evolution, physician participation and others.”¹ This research project hopes to take an important first step in describing the willingness of three populations to support the APP concept. This research project will attempt to assess support for the APP, as described in Version 1 of the SoP, in the following populations:

1. State EMS directors
2. EMS employers
3. Physician Medical directors

Hypothesis

“It is feasible to implement an Advanced Practice Paramedic, as described in the Model EMS Scope of Practice (version 1), based on the support of State EMS directors, Medical directors, and EMS employers.”

In order for the APP to become a valid, licensed profession in a state, the SoP would need to be adopted. Whereas few legislators have a comprehensive understanding of the EMS system, it is reasonable to assume that they will look to the state’s EMS Director for guidance as to the model SoP. If the State EMS director does not support the APP, it is likely that the legislature will heed his or her concerns and not adopt the SoP. A State EMS director may feel that the role of the APP is not required within his or her health care system, may feel it is appropriate for some geographic regions and not others, or may believe that the APP is a needed addition to EMS in his or her state. Certainly, the State EMS director could be influenced by the relative support or lack of support for the APP by EMS services within his or her state. If employers say that they are not willing to employ APPs, the Director would likely not pursue its implementation. Alternatively, if employers are eager to provide the service offered by the APP, the Director may be compelled to reconsider his or her hesitations and encourage the legislature to implement

the SoP. Likewise, if a State EMS director feels that medical directors within the state would not sponsor APPs, it would be fruitless for him or her to support the creation of an APP role. Advice from medical directors indicating that the APP presents an enormous opportunity to address health care delivery system problems would encourage the state EMS director to embrace the SoP.

EMS employers will need to consider a multitude of factors when weighing their support for the APP. Market analysis, payor mixes, unit deployment, and availability of qualified staff are all concerns for private employers. Municipal, fire department-based, and hospital-based employers will also need to consider these factors, but may have influences beyond pure economics. Many may feel that it is their department's mission to provide EMS to the community, and if the APP is a part of EMS, they will be obligated to provide the service, as long as their funding source (local government, hospital, etc.) is willing to support them. Others may feel that the APP represents a step "too far away" from "what we're here to do." It is possible that, in the face of redefining billing practices, unit deployment, and staffing patterns, their service's primary mission is "emergency" care, not to act as a referral agency. Any service that relies on patient billing as an income source will be inextricably linked to the position of their State EMS director. Since most state EMS directors' agencies (usually Public Health or Public Safety) regulate billing practices, it is prudent to expect that EMS employers will wait to see exactly what position the State takes prior to investing much energy in exploring the option of employing APPs. Employers will likewise be dependent upon the support of their Medical director to incorporate functional APPs among their staff.

EMS providers, including APPs, receive their authority to practice by being “physician extenders.” In other words, EMS providers have the authority to act only under the supervision of a physician. They are not independent practitioners. Physician oversight is provided in the forms of either indirect medical oversight (such as “standing orders,” education and training, and quality assurance activities), or in the form of direct medical oversight (through real-time communication with an emergency physician). The physician in a particular EMS system who oversees the practitioners and provides them authorization to act is referred to as the “medical director.”

Medical directors could effectively eliminate the APP, even if the role is defined by the legislature and described in regulation. Since APPs are not independent practitioners, they would not be able to perform to the level of their training if not sponsored by a Medical director. Even if a Medical director is inclined to support the APP, regulators or the State EMS director could obviously block implementation. Additionally, the level of support within the individual services sponsored by the Medical director could influence his or her level of support for the APP. If an employer is enthusiastic about hiring APPs, the employer would likely be willing to support the Medical director’s requirements for aggressive quality assurance and improvement. Employers would need to agree to fluent exchange of information, meticulous data collection, and scrupulous hiring practices. If an employer was not willing to provide such accommodation a Medical director may decide against implementation within his or her system despite his or her *conceptual* support for the APP.

Background and Significance

The Scope of Practice Model

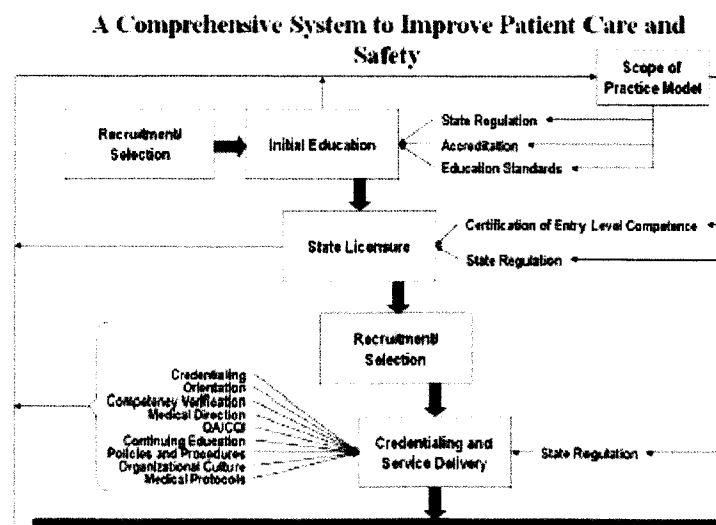
The *National EMS Scope of Practice Model* was developed for NHTSA by a committee of stakeholders. By forming this committee and proposing the SoP, NHTSA was embracing the recommendations of the 1998 Pew Health Professions Taskforce on Health Care Workforce Regulation found in “*Strengthening Consumer Protection: Priorities for Health Care Workforce Regulation*.”⁶ Specifically, the report recommended that national policy makers within health professions develop uniform scopes of practice, including model legislation. A scope of practice is “a description of what a licensed individual legally can, and cannot, do.”¹ A scope of practice differs from a “standard of care” in that it describes the full range of a professional’s capabilities; it does not dictate what should be done in a given circumstance.

“Scope of practice need not define every activity of a provider. In general, scopes of practice should focus on activities that are regulated by law. This includes technical skills that, if done improperly, represent a significant hazard to the patient and therefore must be kept out of the hands of the untrained.”¹

The SoP

reflects the vision of the future of EMS as described in the *EMS Agenda for the Future*. The introduction to this document (see

Figure 1. (NHTSA. 2004)¹



attachment 1) describes a comprehensive EMS system, fully integrated with the public health and healthcare system, staffed by providers with defined collegiate attainments. How the SoP fits into the overall vision of a comprehensive EMS system is graphically described in Figure 1. The SoP helps complete the collective vision for the future of EMS described in the *EMS Agenda for the Future*,⁴ the *EMS Education Agenda for the Future: A Systems Approach*,⁷ the *Trauma System Agenda for the Future*,⁸ and the *EMS Research Agenda*.⁹

The Advanced Practice Paramedic

The APP was created to address specific needs within the EMS system now and into the future. Generally, these needs can be summarized in two broad categories:

1. The need for more advanced critical capabilities.
2. The need for “treat and release” and/or “treat and refer” capabilities.

The specific skills suggested by the SoP for the APP above and beyond those encompassed by lower levels of care are:

- Rapid sequence intubation (RSI)
- Surgical cricothyrotomy
- Central venous access
- Blood product administration
- Local anesthesia
- Anterior packing for epistaxis
- Dislocation reduction
- Trephination of nails
- Wound closure
- Urinary catheterization
- Alternate disposition of patients

Currently, some EMS systems and state scopes of practice allow for some combinations of these skills to be performed by paramedics. Therefore, limited data are available to explore the efficacy of such interventions in the prehospital environment.

Among the most documented interventions encompassed by this list is rapid sequence intubation, or RSI. Recently published literature on the topic of paramedic utilization of RSI suggests a broad range of efficacy and success.^{10, 11, 12} A meta-analysis of prehospital use of surgical cricothyrotomy demonstrated that most paramedics can successfully perform the procedure, but questions the procedure's efficacy based on poor associated outcomes.¹³ This literature may call into question the need for such procedures in the prehospital environment; it may also be interpreted to support the restriction of such skills to a higher level of care, such as the APP.

Classically, the highest risk "skill" for a prehospital provider to perform is to obtain a refusal of transport from a patient. The risk of exposure to liability created when a provider evaluates and cares for a patient who eventually refuses follow up care at an emergency department is even greater when a provider "triages" the patient to follow up that is not immediate, such as a primary care physician or advice nurse. Cases of non-transport have been estimated to account for 50-90% of all litigation brought against EMS systems.¹⁴ Yet, a major focus of the described role of the APP is to do just that; triage patients to community health resources that do not provide immediate follow up care, or even further to release patients from the health care system altogether after rendering treatment.

Despite the reluctance of administrators, risk managers, and medical directors, there is growing support for the concept of prehospital triage. The National Association of EMS Physicians (NAEMSP) position paper on *EMS and Managed Care Organization*

Integration admits, “There is little question that dispatching a fully-equipped paramedic-staffed ambulance to every call, with subsequent transportation to the nearest emergency department, is not always justified.”¹⁵ In fact, that position paper, in response to insurers’ concerns over the cost of EMS care and its inextricable linkage to follow up ED care, clearly states, “Calls received by EMS that involve non-emergency health care advice may be directed to appropriate alternative resources.”¹⁵ In further discussion about how the EMS system might help combat the rising costs of acute care, Koenig et al. proposed the following options in 1998:

Examples of programs to reduce emergency health care costs might include: transport of patients to urgent care centers or physicians’ offices, on-scene treat and refer protocols, and interfacility transfers to hospitals affiliated with the patient’s health care network.¹⁵

These options bear striking similarity to the vision of future EMS systems offered in the *EMS Agenda for the Future*, which states in its “Where we want to be” section:

Out-of-facility EMS clinical care is optimal for patients’ circumstances, so that it positively impacts patient outcomes. In some cases, the care that is provided is intended to avoid the patient’s need for immediate transport to a hospital.⁴

Despite the vision described by both of these notable sources, literature assessing the efficacy of prehospital triage has consistently fallen short of anticipated goals. While no acceptable “under-triage” rate has been defined, studies have not met even the authors’ expectations. In January of 2003, NAEMSP convened the “*Neely Conference: Developing Research Criteria to Define Medical Necessity in EMS.*” A large part of these proceedings was dedicated to the discussion of prehospital triage research.^{16, 17, 18, 19, 20}

The literature that resulted from this conference collectively acknowledges the evidence

showing the efficacy of prehospital triage as “weak,” and strives to define criteria by which to develop and evaluate future field triage protocols.

In response to these and other concerns, the APP is described in the SoP as the “minimum” level of provider required in “systems that desire to release or refer patients.” The SoP acknowledges the significant breadth of knowledge that would be required for providers to release and refer patients with even minor complaints.²¹ While the *EMS Agenda for the Future* specifically describes the most advanced practitioners in EMS (described in the *Agenda* as a “Community Health Advanced Medical Practitioner”) as holding a bachelor’s degree, the SoP does not define the degree requirements of an APP so much as the required areas of knowledge. These include, beyond the knowledge of a paramedic, areas such as sheltering, injury prevention, risk assessment, and advanced pharmacology.

The SoP provides little in the way of direct reassurance or defined need for State EMS directors. Presumably, the “value” of the APP will be seen in its ability to alleviate stress on the health care system. The descriptions provided in both the SoP and the *Agenda* continuously reinforce the concept of the APP as a link to community health resources and the APP’s authority to release or refer patients. Yet, some evidence exists to suggest that even when patients are released by EMS, nearly half will present to EDs within 24 hours.²² This fact alone may be enough to discourage State EMS directors from attempting to adopt the SoP.

The SoP gives cursory mention to the expectations of employers for a “rapid return to service.” Since the role of APP does not currently exist, there are no available data from which to extrapolate how long the care described would require to be performed. It seems reasonable to suggest that the comprehensive assessment, treatment, and disposition of patients described in both the SoP and the *Agenda* would take significantly longer than traditional paramedic care. The required initial investment in training, as well as continuing education requirements, suggest that pay scales for APPs will be significantly higher than those of paramedics, maybe even on par with current administrators and high-level managers of EMS services. Likewise, no data exist to estimate the cost of equipment (initial or on-going), but it appears reasonable to speculate that these would be significant. As was the case with current EMS levels of care, it would take a significant investment in time, money, and research to determine the most effective deployment strategies for APPs. At best, the SoP suggests that APPs may not work for “traditional” EMS employers.

Nationally, NAEMSP continues to monitor the progress of field triage protocols, as well as the utilization of advanced skills by paramedics. Locally, individual medical directors continuously assess their EMS system and gauge its accomplishments against national and regional trends, as well as their personal comfort level. NAEMSP states: “Quality improvement and validation studies are necessary to ensure the safety of non-traditional triage, response, and destination algorithms.”¹⁵ With continued attention on the liability of treat and refer or treat and release programs, and the lack of validated triage algorithms, there is certainly reason for medical directors to take pause when considering the APP.

The conceptual model of the APP describes benefits to patients and the health care system. Implementation of the APP (and on a larger scale, the SoP) will first depend on its acceptance by state EMS directors, EMS employers, and medical directors. There is sufficient evidence in the literature to suggest that acceptance by these groups is not a forgone conclusion. This is at least in part due to the fact that the evidence questions whether or not the APP would alleviate the problems it is designed to address. The SoP presents the APP as a part of a larger process, to include changes in system reimbursement, advancing educational standards, and a growing body of clinical research. These factors may help dispel the concerns of EMS leaders at the local level.

Research Design

Introduction

If key EMS stakeholders reject the concept of an APP, there would be little reason to pursue its creation. Some stakeholders whose lack of support could stone-wall the APP include, but are not limited to; state EMS directors, EMS employers, medical directors, health care payors, providers, the public and, more specifically, patients. As an initial attempt to begin to assess the level of support for the APP, this research aims to survey state EMS directors, EMS employers, and medical directors. While version 1 of the SoP was available for comment, many national, state, and local organizations reviewed the SoP and offered comments. When version 2 of the Model SoP was introduced in the spring of 2005,²³ the APP had been removed. According to Dan Manz, the principle investigator for the SoP project, the APP was removed due to the wide range of feedback received from individuals and organizations. Feedback on the APP ranged

from complete support and encouragement of a more progressive SoP to outright rejection of the concept. For this reason, the APP was removed from version 2; not because there was not a predicted “need” for the APP, but because the concept and design of the APP needed refinement and definition beyond the scope of the SoP project.²⁴

This project consisted of a mailed survey sent to state EMS directors, EMS employers, and medical directors. The survey instruments (Attachments 2-4) were designed to collect baseline demographic information as well as qualitative and quantitative data (Likert Scales) gauging support for the APP. Respondents were also asked, in an open-ended format, to describe what they would like to see added or deleted to the APP as described in the current version of the SoP.

Variables / Data Collection and Analysis

The survey instruments that were used are included as attachments 2-4 of this paper. Table 1 provides a summary of the questions asked by the surveys, and illustrates which questions are common to more than one sample population’s survey.

Table 1.

Question	State Director	Medical director	Employer
Do you feel there is a need for the APP in your service area?	X	X	X
Specifically, what geographic areas do you feel the APP would be most useful in?	X	X	X
If you do not see the need for APP, what do you feel is the most important reason?	X	X	X
Does your current SoP or system provide for (List of specific APP skills)	X	X	X
How strongly do you <i>personally</i> support the concept of the APP?	X	X	X
What would you <i>personally</i> change about	X	X	X

the APP as described in the SoP?			
Service area geography		X	X
Type of EMS service (Pvt, FD, Muni, Hosp)		X	X
Type of staff		X	X
Level of care currently provided		X	X
Do you bill for services?			X
What services described as the role of the APP would you like to provide?	X	X	X
If the APP was adopted in its current form, would you sponsor (or employ) APPs?	X	X	X

All respondents were asked if they feel there is a need for APPs in their respective service areas. Follow-up questions sought to clarify *why* or *why not* the respondent feels the APP role is needed. Perceived geographic concerns, public support, administrative or regulatory support, and Medical director support were assessed. These data were compared across populations for consistency, both in terms of identification of obstacles and accuracy of predicting the support of other sampled populations. This allows for reinforcement or re-characterization of the relationships described in the research model.

Respondents from each population were asked if paramedics in their service area currently perform any of the skills defined by the SoP as APP skills. The wording varied based on the sample population, with State EMS directors asked if their state's current SoP allows for the performance of the individual skills, Medical directors asked if they currently allow their sponsored paramedics to perform the skills, and employers asked if they currently provide the skills, and also which of the skills they would like to provide. This information will be used to assess the overall need for defining the APP. Additionally, information gathered by these questions can be used to compare current

level of services provided with a willingness to entertain the APP at the state, Medical director, and employer level.

All respondents were asked to give their recommendations for specific additions or deletions to the role of APP described by the SoP. The questions were open format, allowing respondents to make whatever comments they wished.

Service area geography was requested from both medical directors and EMS employers. Options provided included urban, suburban, rural, or any combination of those three. This data was used to describe relationships between perceived need for the APP and geography of the service area, and was also compared with the results of the respondents' self reported perception of where the APP role would be most useful.

Employers and medical directors were asked to provide some information about their organization and employees. Data was analyzed to determine if a particular type of organization (fire-based, municipal, hospital-based, etc) is more or less likely to support the introduction of APPs. The potential impact of types of employees (volunteer, paid, combined) was analyzed to determine if services are unwilling to support APPs based on the fact that they presume the APP will be a paid position and they do not currently have paid staff. Because it may not be safe to assume that current paramedic level services would be the only services willing to employ APPs, employers were asked what level of care they currently provide. The unique role provided by APPs could potentially be of more interest to community-based, rural, volunteer services that do not have an interest in providing paramedic care. Finally, employers were asked if they currently bill for their

services, in order to assess the amount of impact (presumed) future debates about reimbursement might be having on support for the APP.

Sampling Methods

Medical Directors

The National Association of EMS Physicians (NAEMSP) is a voluntary membership organization for physicians and other professionals with a particular interest in the medical oversight of EMS. As such, it likely represents the only national organization targeting EMS medical directors. Systematic randomization was performed of NAEMSP members who identify themselves as “medical directors” to that organization. Two members were selected from each state, where available. In states with multiple members, if the random process resulted in two recipients with mailing addresses in the same city, sampling was continued until two subjects were identified from different cities. In states with only one member meeting those criteria, the one member was surveyed. The sample size of 100 was maintained by over sampling states with a large amount of members meeting the criteria. NAEMSP member information was retrieved from the on-line members’ directory.

State EMS Directors

Names and addresses of the 50 state EMS directors were retrieved from the listing available from the National Association of State EMS directors (NASEMSD) web site. A survey was sent to each of them.

EMS Employers

The Journal of Emergency Medical Services (JEMS) provides an annual listing of EMS providers for the 200 most populous cities in the US. The transporting EMS service for the largest city in each state was identified from this listing. Addresses for these agencies were retrieved by searching the World Wide Web, first by entering the service name and location in switchboard.com. If the service did not have a mailing address available through switchboard.com, a search was attempted through google.com to find 1) a department or service website, or 2) a city government website, to retrieve mailing address information. A total of eight states did not have a city ranked among the 200 most populous cities in the US. These states were Maine, North Dakota, Montana, West Virginia, Vermont, New Hampshire, Wyoming, and Delaware. In these cases, the largest city in the state was identified from a Rand McNally Atlas, and provider information was attained using a web search protocol of: 1) Searching switchboard.com for “Ambulance Services” in the city, 2) searching switchboard.com for “Fire/Rescue Services” in the city, or 3) searching google.com for a city government website and identification of EMS provider information through that site.

Selecting the EMS provider from the largest city in each state created an over-sampling of urban providers, viewed in the context of all available EMS providers in a given state or in the nation as whole. However, this methodology was chosen to provide information from EMS providers who serve a greater percentage of the population. Collectively, sampling the EMS providers from the largest city in each state solicited information from the EMS providers for 12.4% of the total US population.²⁵

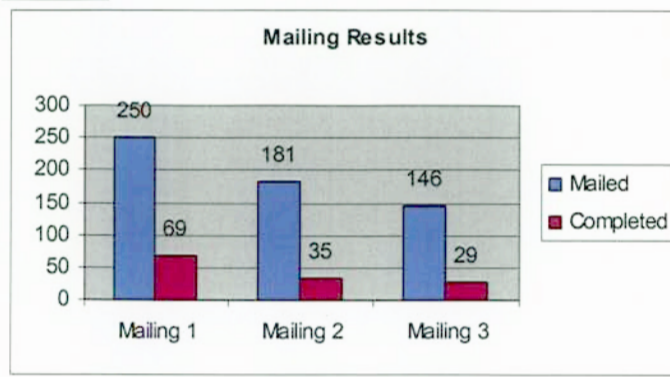
A second provider from each state was selected by randomly selecting a town or city from a map of each state. Provider information was elicited utilizing the web protocol described above. When no provider was identified for the randomly selected locale, the geographically closest provider (based on results provided by switchboard.com) was sampled.

Once the sample populations were identified, surveys were sent via the US mail. Surveys were anonymous, but database identifiers tracked responses on the return envelopes. An identifying number on the return envelope was used to remove the respondent from the follow-up mailing list. Envelopes (with the identifying number) were discarded before data was entered, preventing the researcher from associating responses with respondents. Follow-up mailings were sent to non-responders. Two follow-up mailings were performed at two and four weeks after the initial mailing.

Human Subjects

The research protocol and survey instruments were submitted to the University of Connecticut Health Center Institutional Review Board for approval. The project was approved as exempt on March 14, 2005. A copy

Table 2.



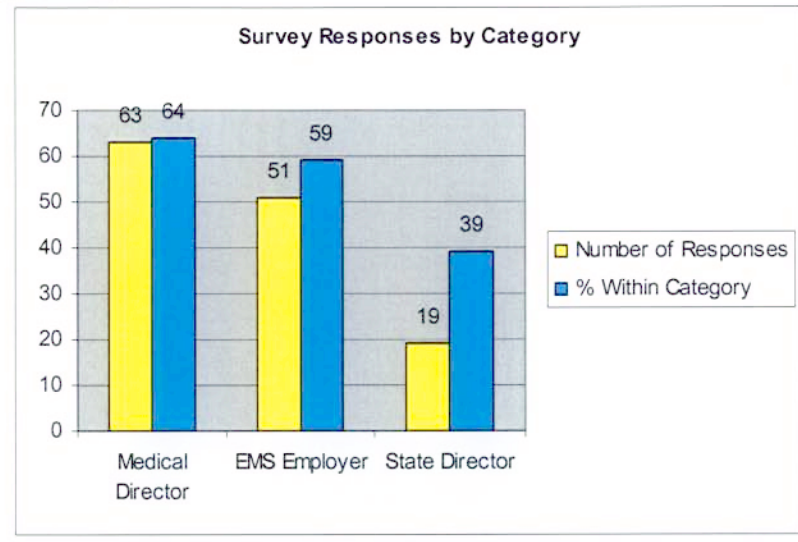
of the IRB approval is attached as attachment 5.

Results

Data were collected over a six-week period, entailing three successive mailings as described above. A total of 250 surveys were mailed in the first mailing. Completed

surveys returned for the six-week period totaled 133. Table 2 shows the number of completed surveys received from each mailing. In all, 13

Table 3.



surveys were returned by the postal service due to inaccurate addresses (Medical director, 1; State Director, 1; and EMS employer, 11). One Medical director returned the survey without filling anything out, and was presumed to be unwilling to participate. Two EMS employers returned surveys for other research projects. Due to the blinding process of address elimination before opening received envelopes, it was impossible to determine which employers had made these errors, and therefore two employers were considered unable to participate. After eliminating surveys returned for bad addresses and those unwilling or unable to participate, survey completion rates for each survey population were determined to be 64%, 59%, and 39% for Medical directors, EMS employers, and

State EMS directors, respectively. Table 3 shows the total completed surveys received by survey group, as well as the adjusted return rates (%).

Characteristics of Respondents

Employers

A total of 51 EMS employers completed the survey:

1 (2%) Basic Life

Support service, 2

(4%) EMT-

Intermediate services,

41 (80%) Paramedic

level providers, and 7

(14%) Critical Care

Paramedic services.

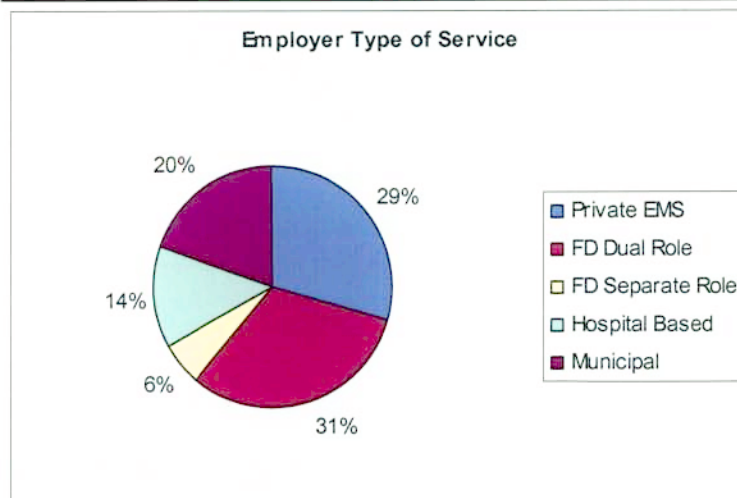
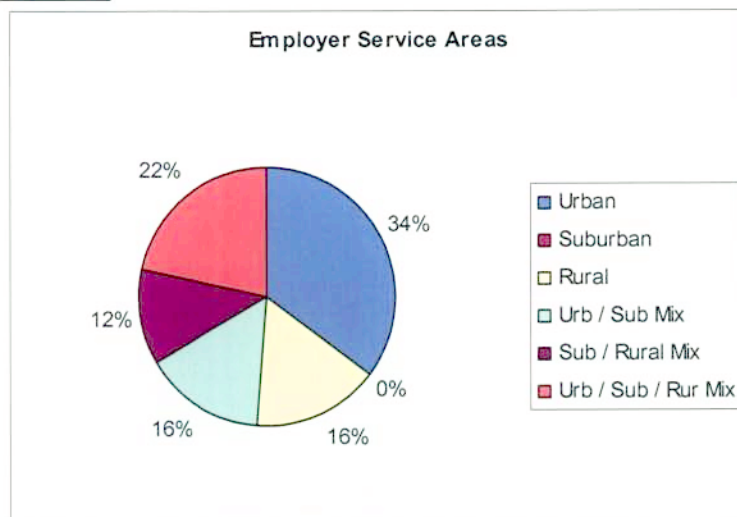
The vast majority of

employers that

responded currently

bill for their services

Chart 1.

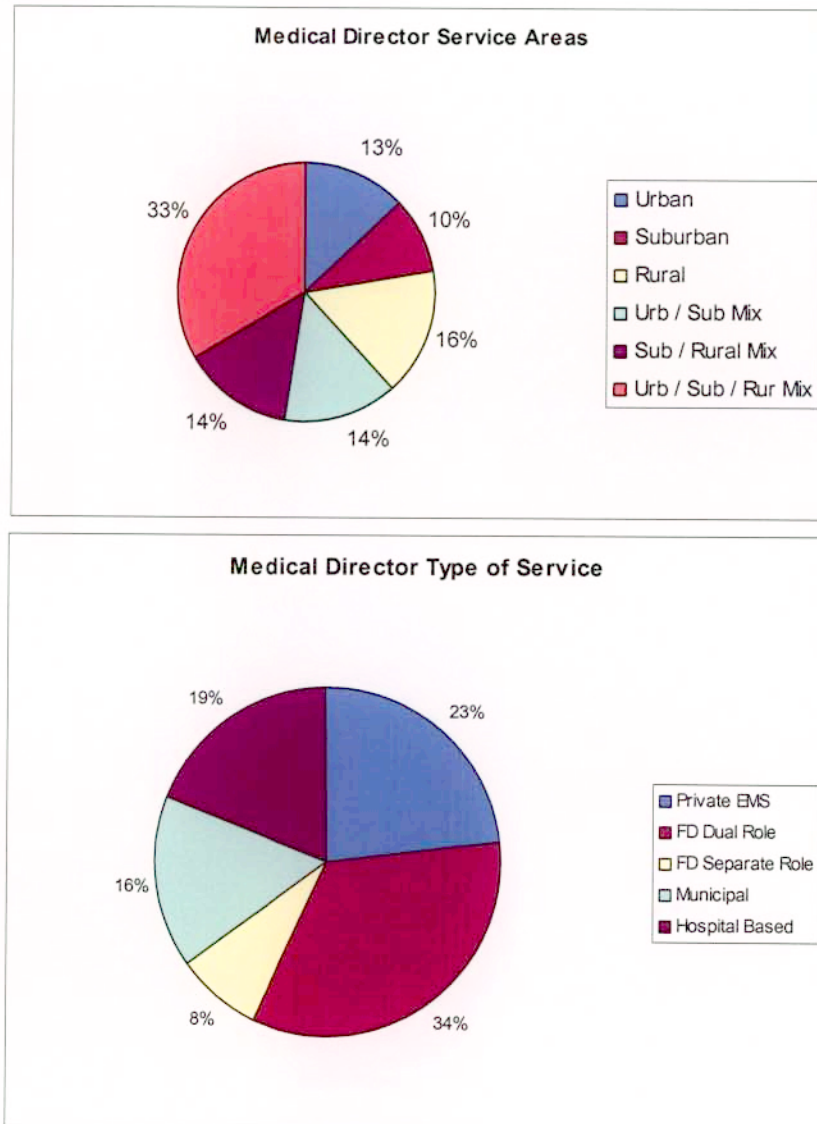


(82%). Most (80%) were staffed by paid personnel, with 14% staffed by a combination of paid and volunteer personnel, and 6% staffed completely by volunteers. Chart 1 illustrates the fairly broad spectrum of geographic service areas and types of organizations represented by the EMS employer respondents. Most frequently EMS

employers identified their service areas as primarily urban, a likely result of the sampling methodology. The next largest group described their service areas as a combination of urban, suburban, and rural. No employers described their service areas as exclusively suburban, but a total of 50% described their service areas as containing suburbs in combination with at least one other geographic subgroup. Sixteen percent of employers identified their service area as exclusively rural.

Chart 2

Fire departments that utilize cross-trained firefighter-paramedics (dual role FD) constituted the greatest percentage of respondents (31%). The remaining were private EMS services (29%), municipal EMS



agencies (20%), hospital-based services (14%), and separate role fire departments (6%).

Medical directors

Completed surveys were received from 63 Medical directors. They were asked to identify the number of services they sponsored, as well as what type of service organizations they sponsored. Additionally, medical directors were asked to describe the geographic areas their sponsored services provided EMS for. In all, the 63 medical directors responding indicate they provide medical oversight for a total of 1600 services. This seems to be an aggressive estimate, and may represent some physicians indicating the number of *personnel* they sponsor rather than *services*. However, several physicians indicated they were state medical directors, and may *de facto* sponsor large numbers of services. Medical directors described more of their services being staffed with combinations of volunteers and paid personnel (47%) than did employers. Medical directors reported 50% of their services being staffed by paid personnel, and only 3% staffed completely by volunteers. Chart 2 illustrates the service area and organization types sponsored by Medical directors responding to the survey. Representation among medical directors was similar to employers in both service area geography and organization type, with minor exceptions.

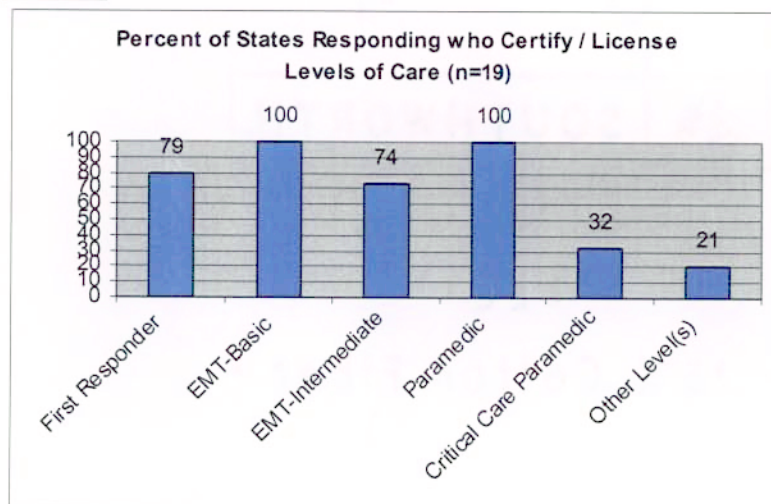
Medical directors described service area geography as a more heterogeneous combination of the options available, which probably reflects their sponsorship of multiple organizations in a region.

Representative ranking of organization types from Medical directors nearly matched that of EMS employers. Hospital-based services accounted for slightly more services than municipal services. Otherwise, the ranking is similar to that of the EMS employer sample.

State EMS directors

Nineteen state EMS directors returned completed surveys. In order to describe the current levels of care currently offered by EMS, state directors were asked to identify at

Chart 3



what levels of care their state currently licenses or certifies providers. All states responding indicated that they certify or license providers as EMT-Basics and Paramedics. As seen

in Chart 3, other levels of care enjoy less consistency across states. Roughly three quarters of states certify or license both First Responders and EMT-Intermediates. Fewer states officially recognize Critical Care Paramedics, and four states indicate additional levels of care, such as EMT-Advanced or Prehospital RN.

Current Practice

Chart 4 displays the current practice of paramedics reported by each sample population.

Chart 4

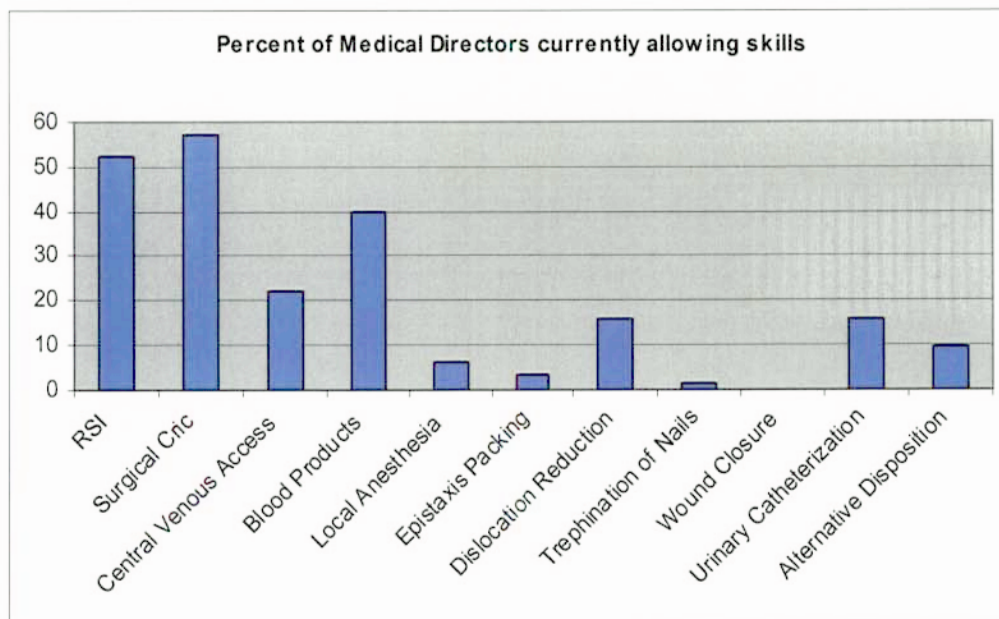
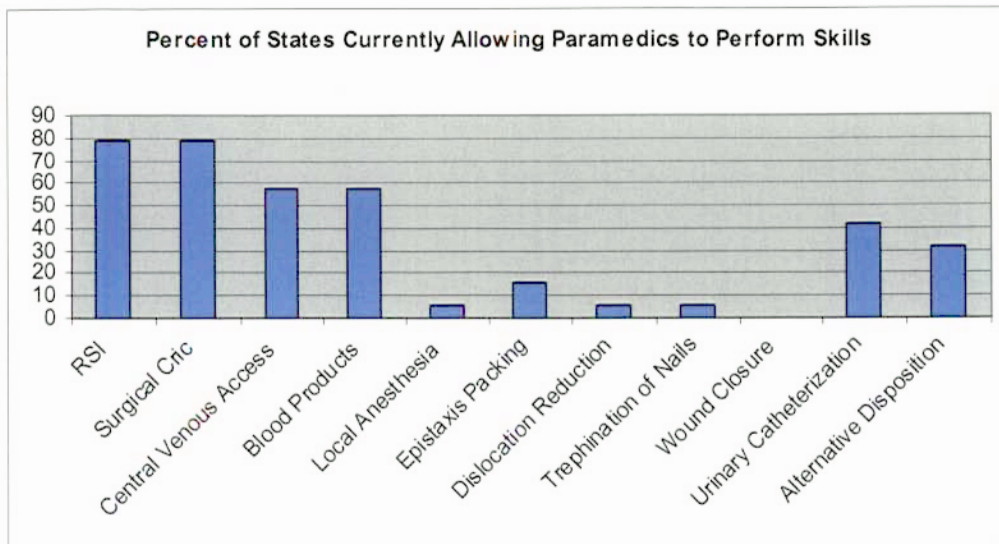
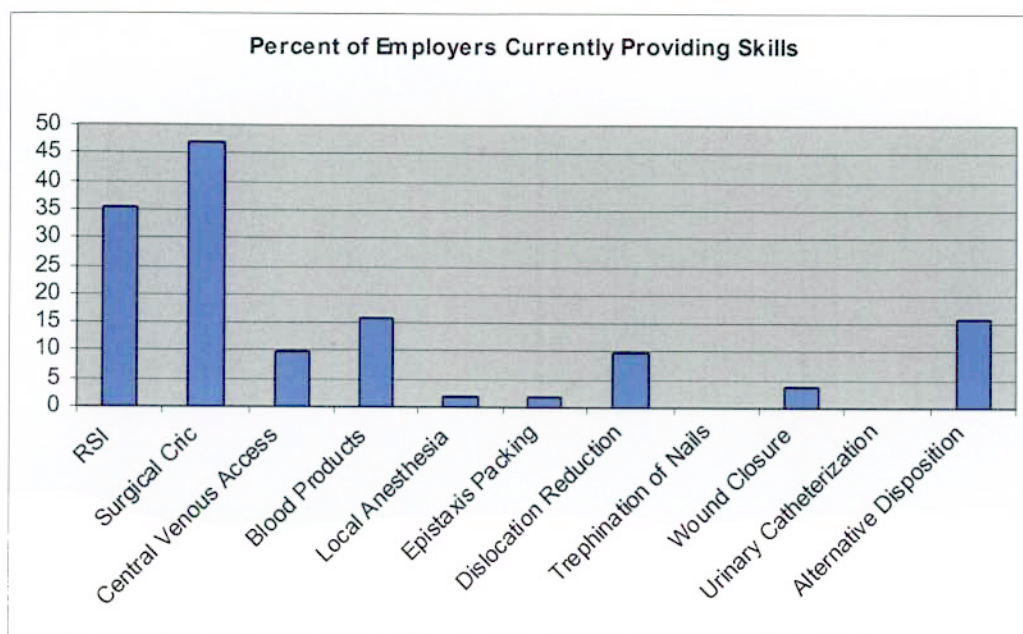


Chart 4 (cont)



State EMS directors indicated that the current paramedic scope of practice in more than half of the states responding allows RSI (79%), surgical cricothyrotomy (79%), central venous access (58%), and administration of blood products (58%). The other skills proposed as part of the APP SoP enjoy significantly less acceptance at the paramedic level; however, of all the skills described only wound closure was currently not allowed by any state. Local anesthesia, trephination of nails, and dislocation reduction were allowed only by 5% (n=1 each) of states responding. Nearly a third of states (32%) currently allow paramedics to dispose of patients to locations other than the ED, and almost half (42%) allow paramedics to place urinary catheters.

Even though a skill may be allowable according to the Scope of Practice, paramedics may not currently utilize the skill. This could result from restriction by the system Medical director, who in most states is allowed to restrict or expand regional paramedic practice within the SoP to meet system needs and medical necessity at their

discretion. Medical directors responding to the survey indicate a similar distribution of acceptance as the state EMS directors, but at significantly lower percentages. Widest acceptance was again seen for RSI (52%), surgical cricothyrotomy (57%), central venous access (22%), and administration of blood products (40%). Sixteen percent of medical directors allowed paramedics to place urinary catheters and reduce dislocations. One in ten currently allows paramedics to dispose patients to locations other than EDs. As with the State SoPs, no Medical directors reported currently allowing paramedics to perform wound closure.

Employers may provide skills in a more restrictive manner than allowed by the state Sop, as well. In some cases, this may represent specific restriction of skills by the services' medical director, and in other cases employers may choose not to offer skills allowed by both the SoP and the medical director because they feel there is no clinical or financial benefit within their service area (which may be more refined than the medical director's sponsorship area). Economically, employers may choose to limit skills because to provide them would cost more in equipment and start-up or on-going training than they would recover from actual skill-generated billing. Less than half of employers reported using any of the skills listed. The most broadly accepted was surgical cricothyrotomy, which 47% of employers said their paramedics provide. Just over one third (35%) reported their paramedics were able to utilize RSI. Sixteen percent of the respondents reported that their paramedics could utilize blood products. Of note, of the employers who reported that they provided blood products, many wrote in that these were blood-substitutes that were currently being used as part of a clinical trial. Only one in ten

employers reported that their paramedics currently initiate central lines, and the same amount reported that their paramedics are allowed to reduce dislocations. Despite the restrictions reported by state directors and medical directors, 4% of employers reported that their paramedics were capable of performing wound closure. Despite some acceptance among state directors and medical directors, not a single employer reported currently providing urinary catheterization or nail trephination.

Additional Training Requirements for proposed APP Skills

As seen above, the skills proposed as “Advanced Practice” skills by the SoP are currently viewed as acceptable paramedic skills in many systems, with an admittedly wide range depending on the specific skill. This may imply, at least for the skills enjoying the highest level of current acceptance (RSI, surgical cricothyrotomy, central venous access, and blood product administration), that the sample populations believe paramedics are sufficiently able to perform these skills. If that is true, restriction of those skills to a higher level of care may be inappropriate. However, the structure of EMS systems allows significant enhancement of paramedic practice at the local level. Medical directors are able, at their discretion, to allow paramedics under their sponsorship to perform skills not broadly utilized by other paramedics, either locally or nationally. In order to authorize additional skills, medical directors are typically required (either legally, ethically, or morally) to provide additional training to their paramedic staff before implementation of the new skill. For example, imagine that a medical director felt that paramedics working for one of his/her sponsored services should be able to place urinary catheters, perhaps due to extended transport times. If authorized by legislation or

regulation as part of the paramedic scope of practice, the medical director could allow his/her paramedics to perform the skill, even if no other services in the state did so. It would be reasonable to expect, however, that paramedic training in the state did not emphasize performance of urinary catheterization to a level of proficiency for all paramedic students, since instructors would be well aware that no services had (until now) allowed paramedics to perform the skill. Therefore, the medical director would be obligated to ensure that paramedics at this service underwent some amount of training in how to perform the skill, at least to a level of performance the medical director was comfortable with.

In order to explore whether the sample populations felt that paramedics could perform these skills routinely out of paramedic training, or if these skills typically required additional training, respondents were asked if paramedics were routinely required to complete additional training before being authorized to perform the skill. Chart 5 shows what percent of respondents who allow these skills to be performed require no additional training.

Chart 5

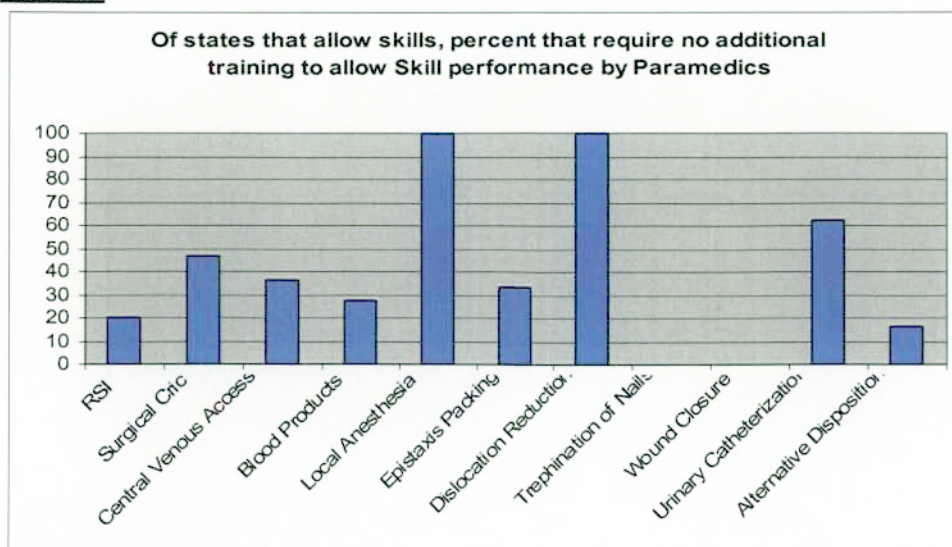
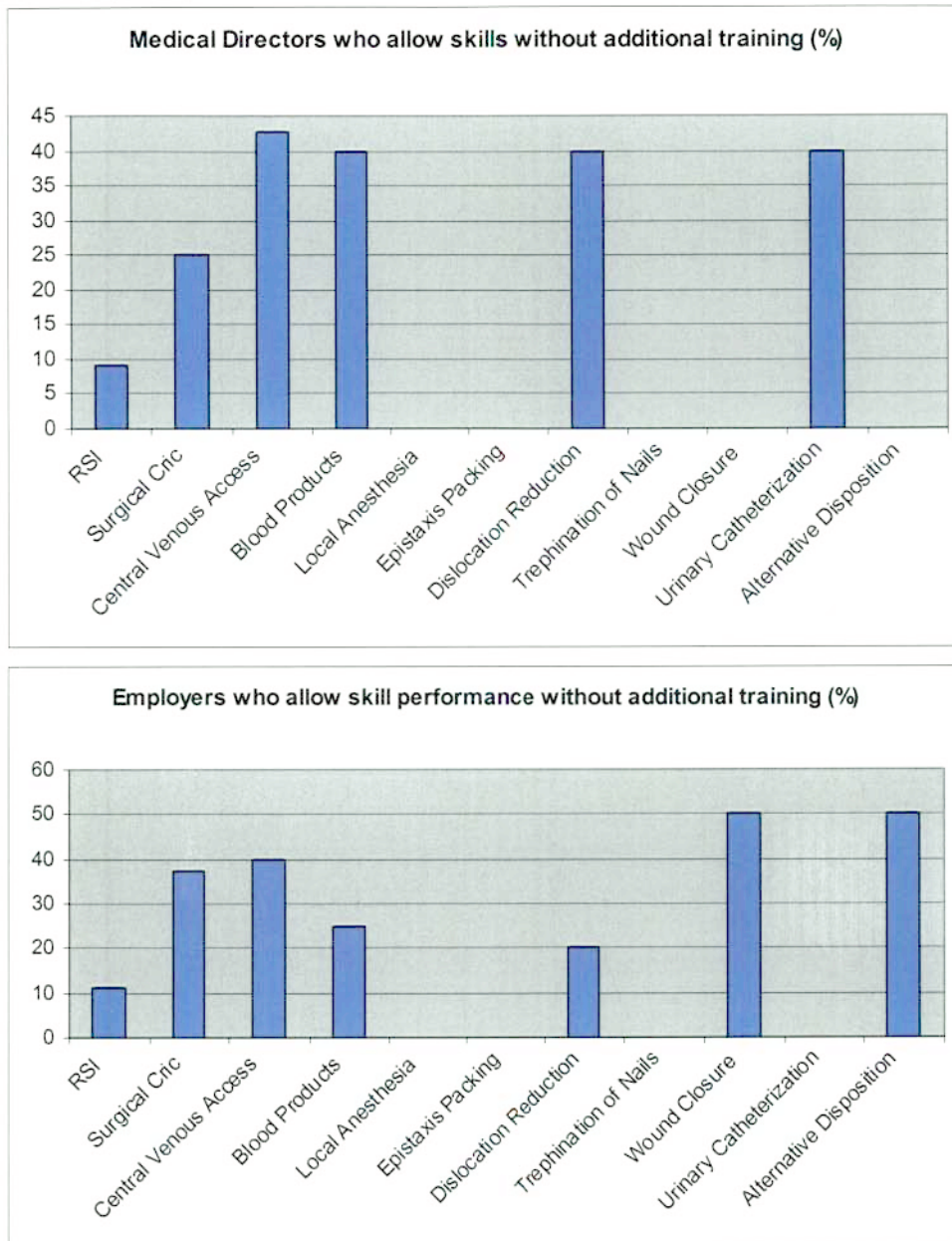


Chart 5 (cont)



No state EMS directors indicated they routinely require additional training before paramedics are allowed to perform dislocation reduction or local anesthesia. Performance of the remaining skills required at least some additional training in some states. No states allowed paramedics to perform trephination of nails without additional training. (Wound closure also shows 0% allowed without additional training, but no states said wound

closure was allowed under any circumstances.) Of the skills most widely used (RSI, surgical cricothyrotomy, central venous access, and blood products) additional training was required by 80%, 53%, 64%, and 73% of states, respectively.

Additional training was required by more than half of the medical directors for every skill listed. Fewer than one in ten medical directors (9%) allow paramedics to perform RSI without additional training. Only one quarter of medical directors surveyed allow paramedics to perform surgical cricothyrotomy without training above and beyond what they receive in paramedic school. Central venous access and blood product administration were more liberally allowed, with 43% and 40% of medical directors allowing paramedics to perform these skills without additional training, respectively. Similarly, of those medical directors who allow dislocation reduction and urinary catheterization, 40% do not require paramedics to undergo additional training. While no states require additional training for paramedics to perform local anesthesia, all of the medical directors who allow paramedics to perform this skill require that they have additional training. Of the 10% of Medical directors who allow alternative disposition of patients, all require paramedics to complete training specific to the skill. Similarly, of those who allowed paramedics to perform anterior packing for epistaxis or trephination of nails, all required additional training. No medical directors allowed their paramedics to perform wound closure under any circumstances.

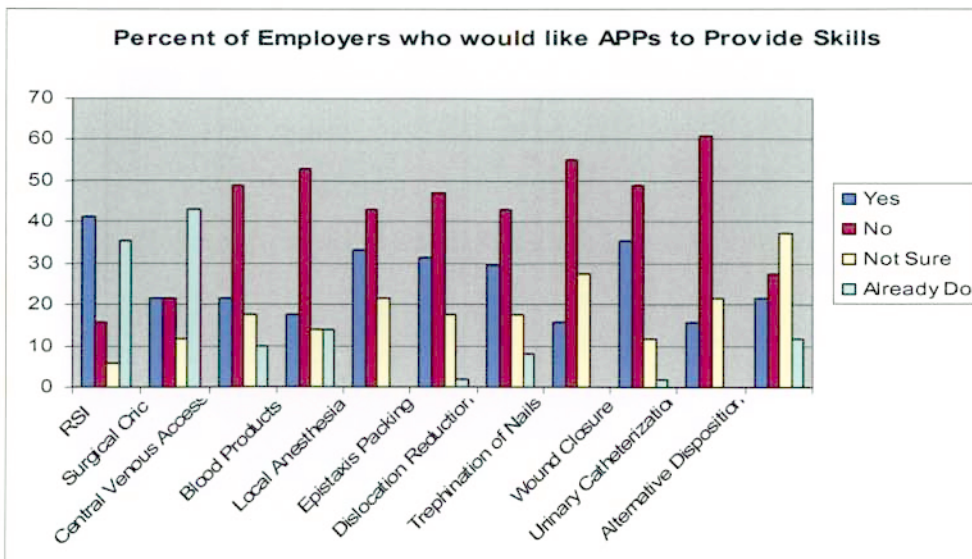
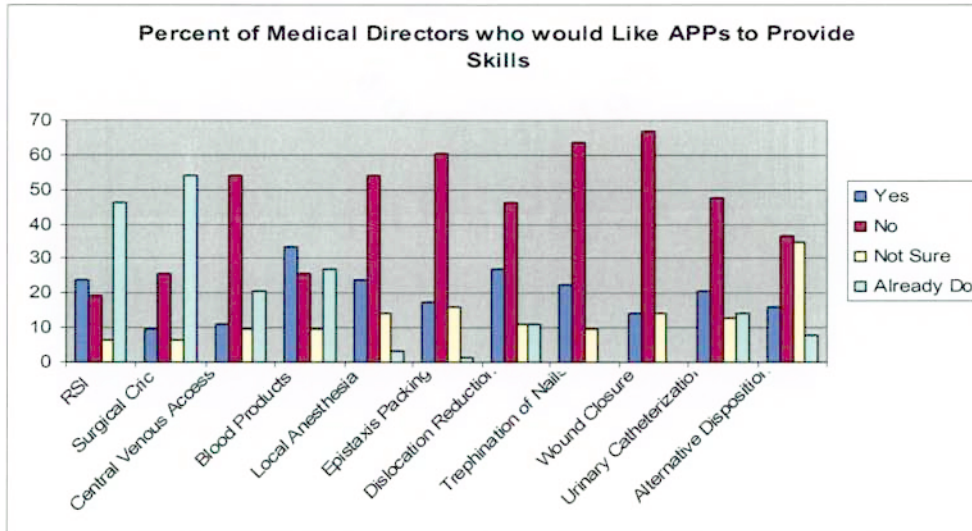
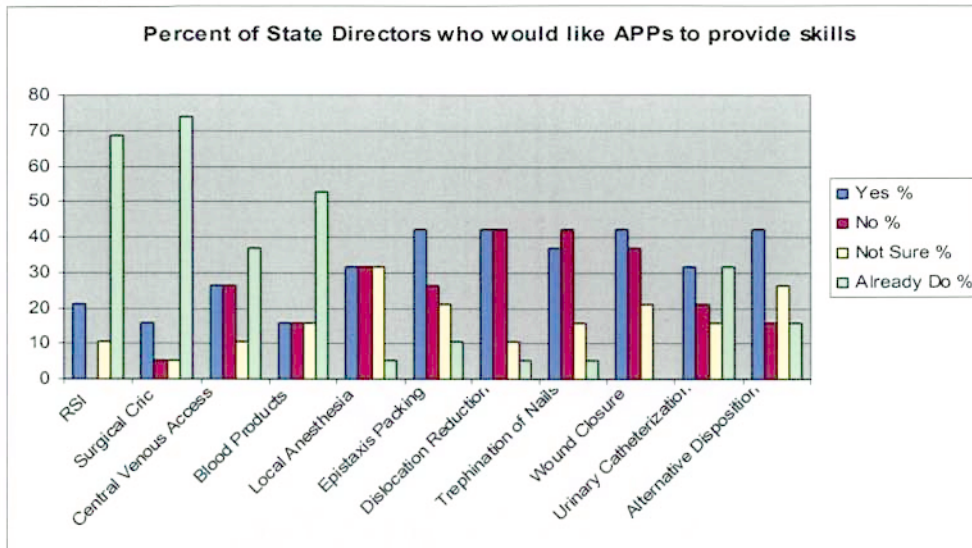
Of the employers who reported that their paramedics could perform the skills, all reported additional training requirements for local anesthesia and anterior packing for epistaxis. (None provided urinary catheterization or trephination of nails under any

training circumstances). Of employers who provided alternative disposition and wound closure, fully half said they did so with no requirement for additional training. Nearly nine out of ten (89%) of employers who provide RSI do so only after additional training. Similarly, most employers report that paramedics must undergo additional training before providing surgical cricothyrotomy (62%), central venous access (60%), or blood product administration (75%).

What the APP Should Do

Subjects were asked what skills, of those proposed by the SoP, they felt an APP should provide. The skills were listed, and respondents were allowed to indicate whether they thought APPs should provide the skill (“Yes”), should not provide the skill (“No”), if they were “not sure” if APPs should provide the skill, or whether their paramedics “already do” the skill in question. Results are shown in Chart 6, differentiated by survey population. It should be noted that all subjects were asked to provide this information, regardless of their personal support for the APP concept, whether or not they felt there was a need for APPs in their service area, or whether or not they would promote, hire, or sponsor APPs.

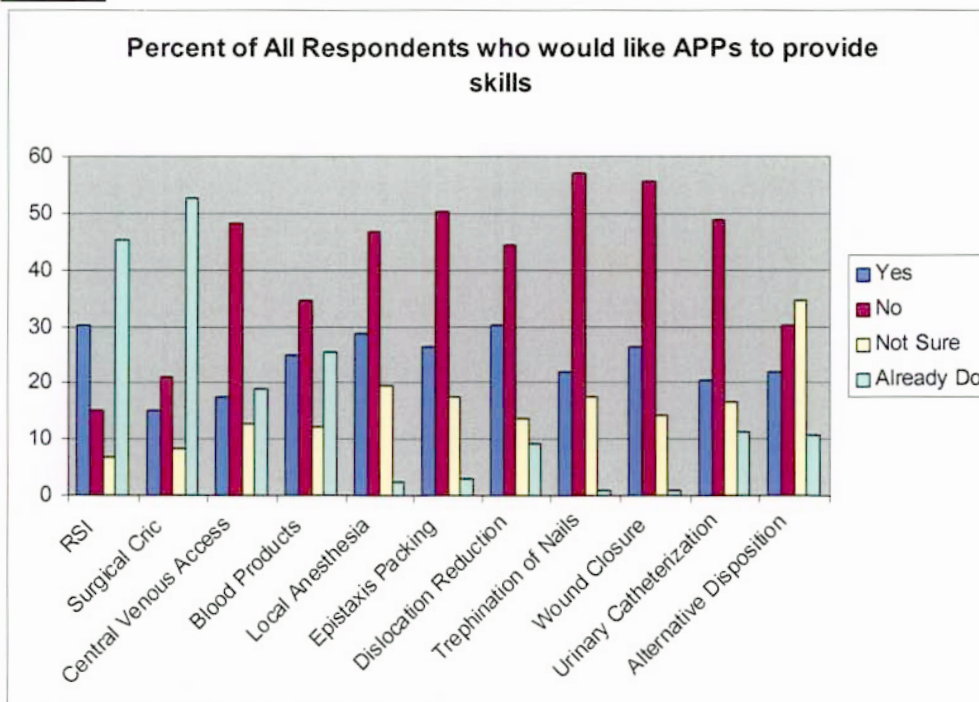
Chart 6



Across all of the sample populations, alternative disposition saw a consistently high level of ambiguity, with many respondents indicating “not sure.” In fact, the “not sure” was the most frequent response (37%) from employers concerning alternative disposition. Medical directors showed a similarly high level of uncertainty, with “not sure” (35%) only exceeded by “no” (37%) responses. Conversely, state EMS directors most often said “yes” (42%), followed by “not sure” (26%). This may reflect liability concerns on the part of EMS employers and medical directors, whereas state EMS directors may view alternative disposition as a way to alleviate systems issues, without as much concern for individual liability.

Chart 7 displays these results in aggregate from all subjects.

Chart 7



For eight of the eleven skills, “no” was the most frequent response when asked if APPs should provide them. More than half of all respondents did not feel there was a need for APPs to provide either trephination of nails or wound closure. This may also explain why so few of all respondents currently provide these skills (1% each). Three skills (RSI, surgical cricothyrotomy, and alternative disposition) did not receive “no” as their most frequent response. Similar to the breakdown by sample population, alternative disposition was most frequently answered with “not sure” (35%). Respondents most often said they already provided both RSI and surgical cricothyrotomy, indicating these skills have been widely embraced as paramedic level skills. The second most frequent response for RSI was “yes” (30%), and for surgical cricothyrotomy “no” (21%). Collectively, these results seem to indicate that of the 11 skills proposed for the APP, only RSI enjoys a high level of support from all of the survey groups, with three quarters (75%) of those surveyed indicating they already provide RSI or would like APPs to provide RSI.

The high rates of paramedics already providing RSI, surgical cricothyrotomy, central venous access, and blood products imply that when skills are viewed as appropriate for the EMS environment, they are already being performed by paramedics. For those skills that more than 40% of respondents indicated they would not want APPs to provide (central venous access, local anesthesia, anterior packing, dislocation reduction, trephination of nails, wound closure, and urinary catheterization), only central venous access and urinary catheterization are currently used in more than 10% of systems (19% and 11%, respectively). Just as skills that are currently being used by paramedics indicate no need to restrict them to the APP level, when paramedics are not currently

allowed to use skills, those skills are not widely regarded as necessary components to add to the EMS system with the APP.

Subjects were offered the opportunity to write in skills they felt should be provided by APPs that were not included in the SoP. Specific suggestions from EMS employers included:

- Immunizations
- PPD placement and reading
- Drug assisted intubation (in addition to RSI medications)
- Adult Intraosseous
- IV antibiotics
- IV Heparin
- Gastric Tubes
- Ventilator management
- Life saving amputation
- Nitrous oxide
- Fibrinolytic drugs

Many of the suggestions fronted by Medical directors centered on training and quality assurance initiatives that should be included with the implementation of the APP. Skills suggested included:

- Balloon pump monitoring
- Advanced ventilator management
- Silver nitrate cautery of epistaxis
- Home treatment with fluids and antibiotics/antivirals during declared epidemic
- Home medical equipment maintenance
- Procedural sedation
- Thoracotomy
- Cardiac medication infusions

State EMS directors made no specific suggestions for skill addition.

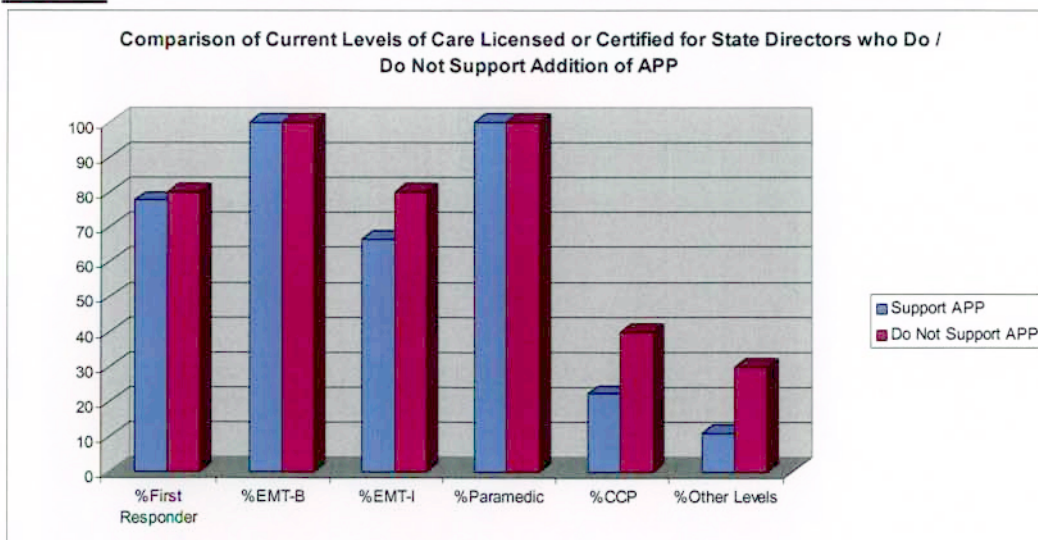
Perceived Need for the APP

There are many factors that could influence the perceived need for the APP for each sample population. As suggested above, subjects may first perceive a skill as appropriate or inappropriate for the prehospital environment in general. If a skill is viewed as appropriate for the prehospital setting, the next level of scrutiny would be whether the skill in question would be appropriate for paramedics to perform, or if it should be restricted to use by APPs.

State Directors

State directors may be influenced by a variety of factors when viewing the APP as proposed. Some may be hesitant to add an additional level of certification or licensure. The addition of another level of provider imparts expansion of administrative oversight, including but not limited to credentialing and testing processes, recertification or renewal

Chart 8

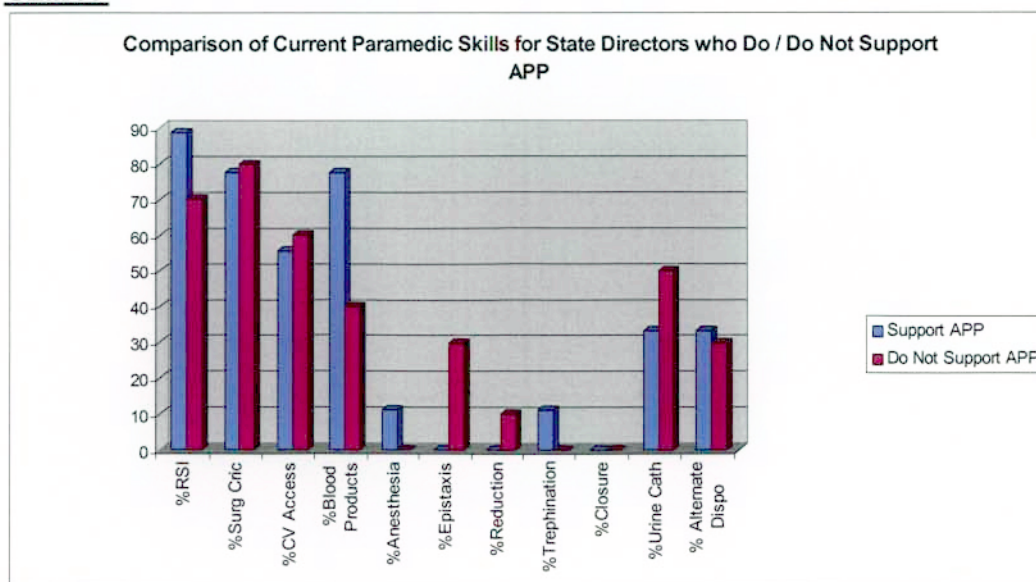


procedures, and training program validation. Chart 8 displays the current levels of care licensed or certified by states, based on the state director's perceived need for the APP.

As mentioned earlier, 100% of states responding currently certify or license providers at the EMT-B and paramedic level. As Chart 8 indicates, state directors who do not see a need for the APP consistently come from states that certify or license more levels of care than states that do see a need to add the APP. The pre-existence of multiple levels of care within a state may lead a state director to the conclusion that there is currently enough flexibility within defined levels of care to assume the skills prescribed for the APP.

If this assumption were true, it would be reasonable to suspect that state directors who do not support the addition of the APP may have already incorporated skills described by the SoP as those of the APP into their existing levels of care. Chart 9 shows the skills already allowed by each state with the state directors' perceived need for the APP.

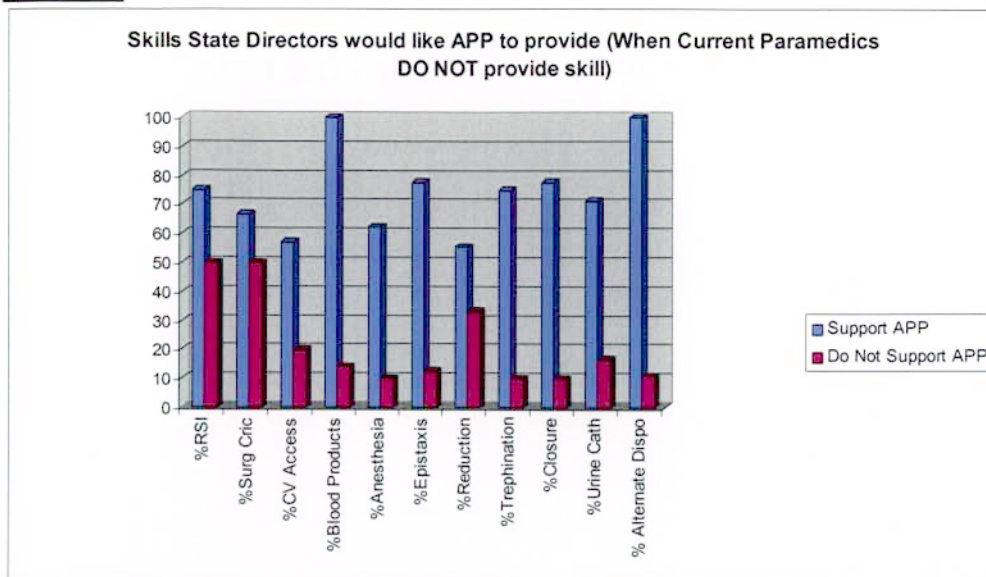
Chart 9



Of the ten APP skills already provided by some states (none currently provide wound closure), exactly half are more prevalent in states where State Directors perceive a need for APPs, leaving half more prevalent in states where no need for an APP is perceived. State Directors who felt there was a need for the APP came from states that more frequently allowed paramedics to perform RSI (89% vs 70%), administer blood products (78% vs 40%), provide local anesthesia (11% vs 0%), trephinate nails (11% vs 0%), and provide alternative disposition (33% vs 30%). States where EMS Directors did not perceive a need for the APP were more likely to allow paramedics to perform surgical cricothyrotomy (80% vs 78%), central venous access (60% vs 56%), anterior packing for epistaxis (30% vs 0%), closed reduction (10% vs 0%), and urinary catheterization (50% vs 33%).

In order to provide a clearer picture of exactly what skills State EMS directors would like to see APPs provide, Chart 10 was generated. Subjects were asked at separate points on the survey what skills paramedics were currently allowed to perform, what skills they would like to see APPs perform, and whether or not they perceived a need for the APP in their state. Chart 10 describes what skills State EMS directors would like APPs to provide, differentiated based on whether or not they individually saw a need for APPs in their state. Importantly, Chart 10 does not include respondents who indicated that their paramedics already provide the skill in question. Therefore, Chart 10 describes the percent of respondents who would like to see APPs provide the skill in question, when their current paramedics do not already provide the skill.

Chart 10



In states where paramedics do not currently provide them, all eleven skills proposed as APP skills were supported by more than half of the State Directors who felt there was a need for APPs. Of State Directors who felt there is a need for APPs, all supported APPs providing blood products and alternative disposition. Of State Directors who do not feel there is a need for APPs within their state, half felt APPs should provide RSI and surgical cricothyrotomy when current paramedics were not able to provide those skills.

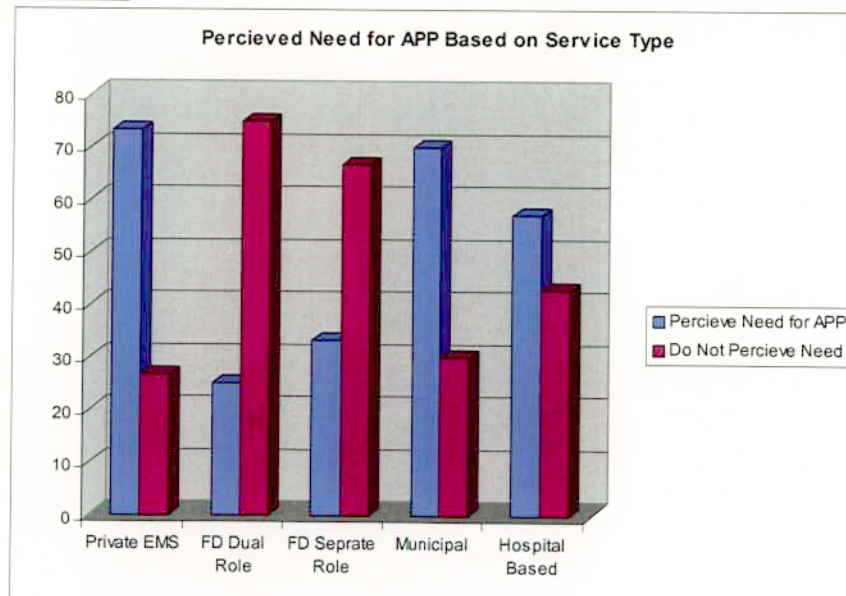
State directors were also asked whether they would support legislation, if it were introduced, that created an APP as described in the SoP. Of those that perceive a need for the APP within their state, only 78% indicated they would support such legislation. This may imply that even among those who see a need for the APP in their state, slightly more than one in five feel the role, as described in the SoP, is not sufficient. Of those who do not perceive a need for APPs in their state, 10% indicated they would still support

legislation to create the APP. This may indicate some willingness to authorize the level and let local authorities, such as medical directors or employers; determine whether or not the APP would be useful despite a lack of perceived need on a statewide level. Fully 80% of State EMS directors who did not support the introduction of the APP felt that there was no definable medical need for the APP.

EMS Employers

Employers were asked to offer their opinion as to whether or not they felt there was a need for APPs in their service area. It is reasonable to hypothesize that the type of EMS organization, (e.g., fire department, hospital-based, etc.) could influence whether or not a particular employer felt there was a need for the APP within their service. Chart 11 details the results of Employer-perceived need for the APP based on the type of service organization.

Chart 11

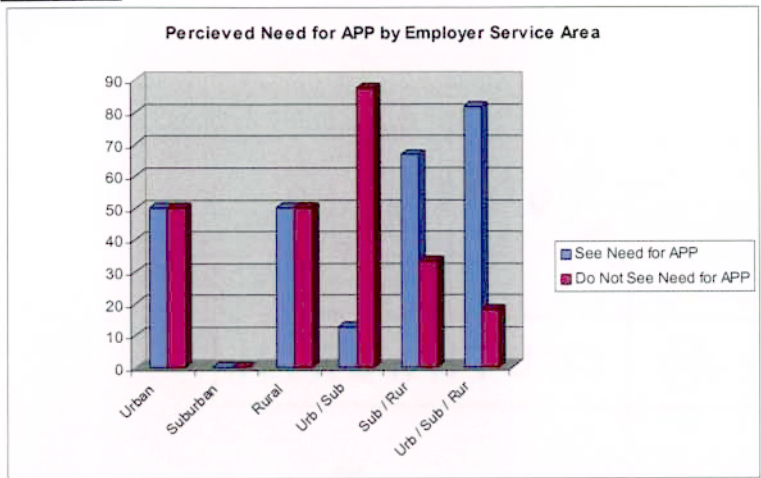


Nearly three quarters (71%) of private EMS providers felt there was a need for APPs in their area. Municipal organizations nearly matched private EMS organizations, with 70% indicating they felt there was a need for the APP. The majority of hospital-based employers also felt there was a need for the APP within their service area. In contrast, fire departments, both dual and separate role, consistently felt there was no need for the APP within their service area. There are several possible explanations for these results. Private EMS organizations, municipal providers, and hospital-based providers may rely more heavily on billable services than fire departments (FDs). While most employers who responded currently bill for their services (82%), including fire departments, fire departments are more likely to receive significant subsidy for equipment, apparatus, and operational costs. Therefore, rather than being reluctant to introduce new billing procedures and operational challenges associated with the APP, non-FD EMS employers may be eager to diversify their services and take advantage of new income opportunities. This is difficult to explore fully given the available data, since the motivation was not assessed and a billing structure for APPs has not been established. Another possible explanation for the difference in perceived need could be related to service area geography. The sampling method for EMS employers intentionally over-represented major cities. In most large cities, EMS is provided by fire departments. Therefore, it is possible that FDs do not perceive as much need for the APP as other types of providers because they do not feel the APP is appropriate for the urban setting.

In order to explore that possibility further, Chart 12 shows the reported need for APPs perceived by EMS employers based on their service area geography.

The greatest need for the APP was identified by services who described their service areas as including urban, suburban, and rural geography (82% see need, 18% do

Chart 12

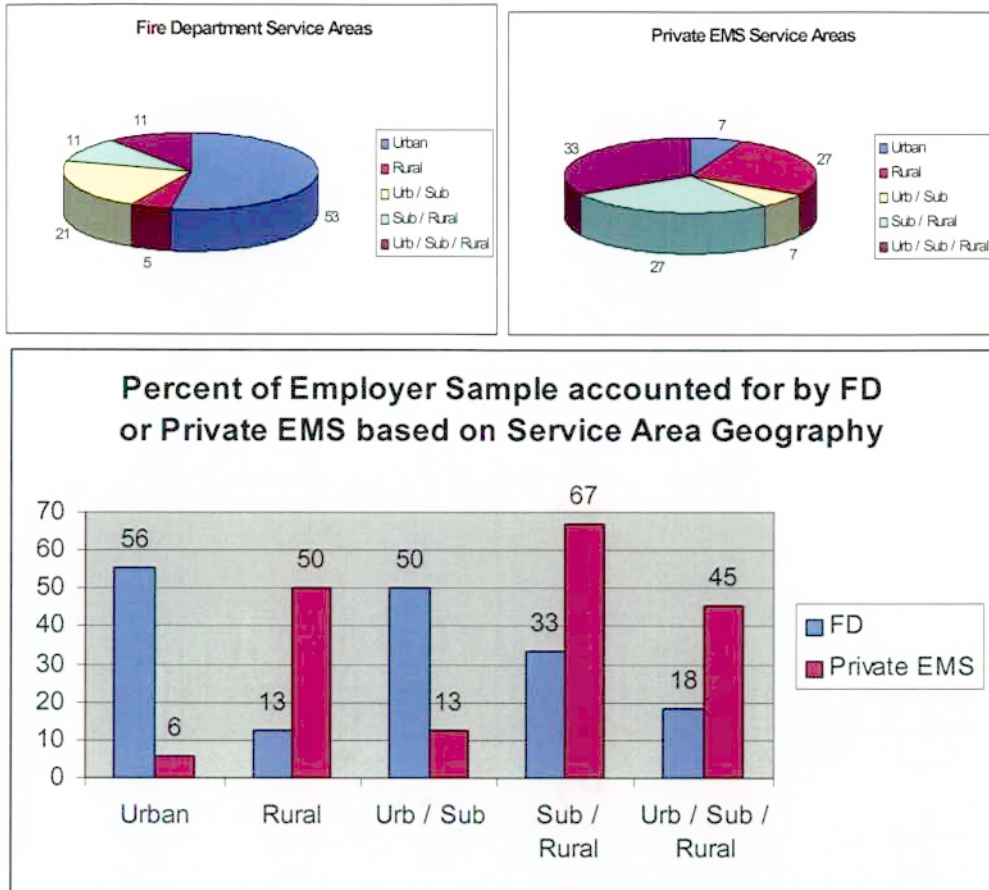


not). Employers who described their service areas as a combination of suburban and rural geography showed a similar trend, with two-thirds seeing a need for the APP. Those services

describing their service areas as exclusively either urban or rural were evenly split between seeing a need for the APP or not seeing a need. (Recall that no EMS employers described their service area as exclusively suburban.) Those reporting their service area as a combination of urban and suburban geography clearly did not see a need for the APP (88% saw no need, 13% did).

In order to explore whether a particular organization type was influencing the perceived need in a particular geographic area, the employer sample was analyzed to determine the geographic service area types reported by FDs (either type) and private EMS organizations. These two categories represented the employer types who showed the least and most perceived need for APPs, respectively. Chart 13 describes the service area types reported by FDs and private EMS organizations, and then illustrates the amount of the total sample accounted by those service types by geographic category.

Chart 13

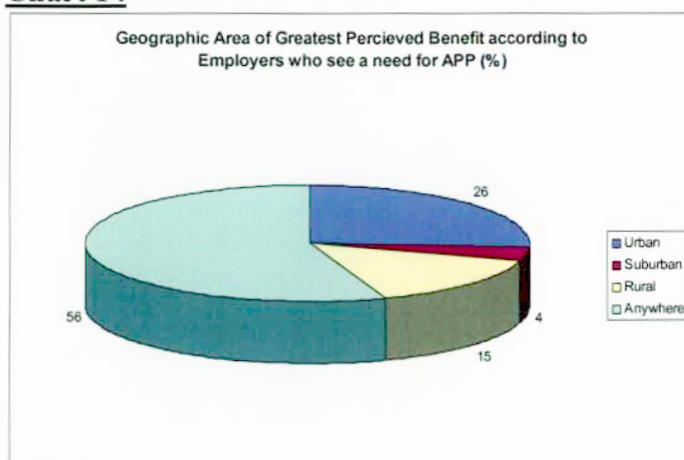


Employers who identified their service areas as combined urban and suburban reported the lowest perceived need for the APP (18%), and half of those employers were FDs. Employers who reported their services areas as combinations of all geographic types reported the highest need for the APP (82%), and 45% of those employers were private EMS organizations. This would seem to imply that perceived need for the APP is more likely to depend on the employer type rather than on the service area geography. This would explain the fact that private EMS providers account for two-thirds of the providers in suburban/rural geographic areas, and two-thirds of those employers feel there is a need for APPs. Yet this assertion does not account for the fact that half of urban

providers feel there is a need for the APP when 56% of urban providers are FDs. Looking closer, of the 10 FDs that reported their service areas as exclusively urban, only 2 (20%) felt there was a need for APPs. Therefore, FDs account for only 22% (2/9) of exclusively urban providers who feel there is a need for APPs. The largest percentage of exclusively urban providers who felt there was a need for APPs were hospital-based organizations (44%). Only one exclusively urban provider was a private EMS organization, and that one organization indicated a need for APPs.

Of those employers who felt there was a need for APPs, most felt the APP would be appropriate for any geographic area (56%). This is consistent with the fact that the majority of employers who provide service to all geographic areas perceive a need for APPs. This may refute the insinuation within the SoP that the APP would see its greatest opportunities in areas that are hard to reach with traditional EMS. In fact, only 15% of employers who saw a need for the APP felt it would be appropriate in rural settings only. Alternatively, this may speak to the impression that access to traditional health care is difficult in many environments, not just remote areas. Urban residents have difficulty

Chart 14



accessing health care for a variety of socioeconomic reasons, a fact that may be reflected by 26% of EMS employers indicating that the APP would be most useful in the urban setting. Chart 14

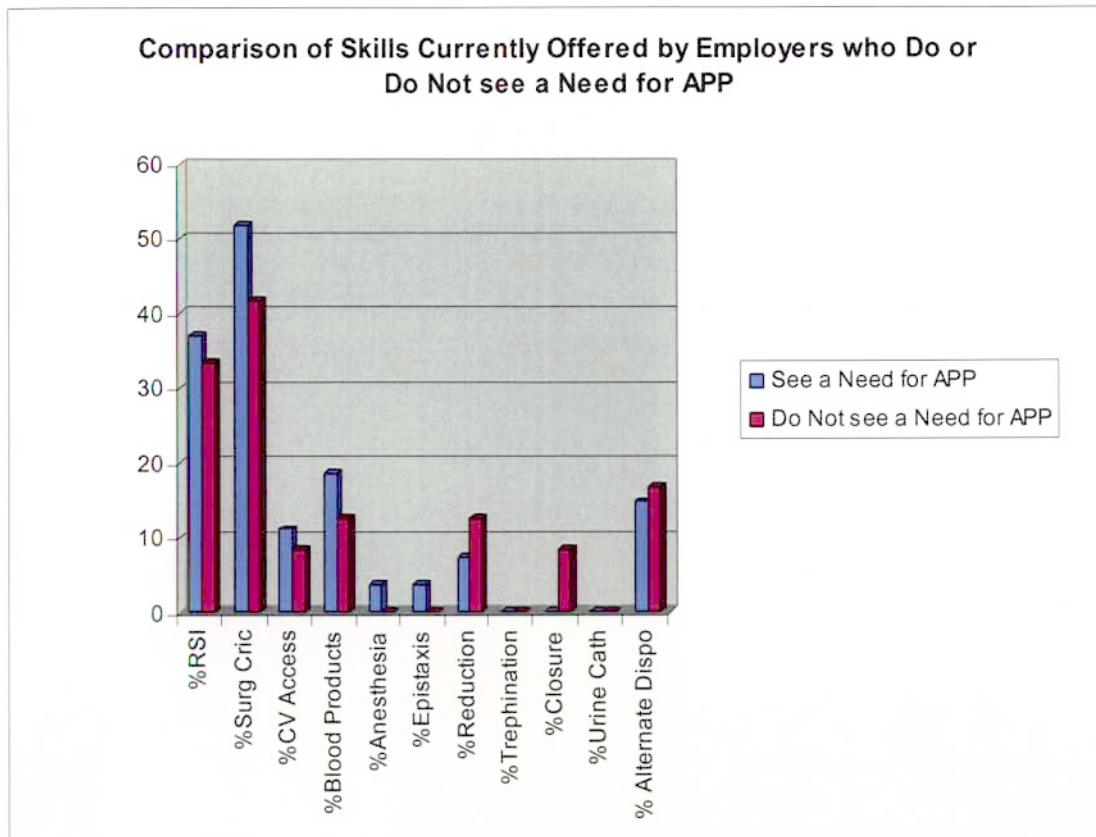
gives the complete breakdown of geographic areas most likely to benefit from the APP as identified by EMS employers who support the APP.

Similar to State EMS Directors, the majority of Employers who do not feel there is a need for the APP also felt there was no demonstrated medical need for the APP (83%). Eight percent of Employers felt their State oversight agency would not support the APP, and 4% felt their Medical director would not support the use of APPs.

Of Employers who see a need for the APP, only 83% said they would employ APPs within their organization. This implies that even when a need for the APP is identified, nearly 1 in 5 employers are not willing to employ the APP themselves. Alternatively, 29% of employers who did not see a need for APPs said they would still employ APPs as currently described by the SoP.

Employers who did not perceive a need for the APP were less likely to provide most of the skills described for the APP. Chart 15 displays a comparison of skills currently being provided by Employers who do or do not perceive a need for the APP.

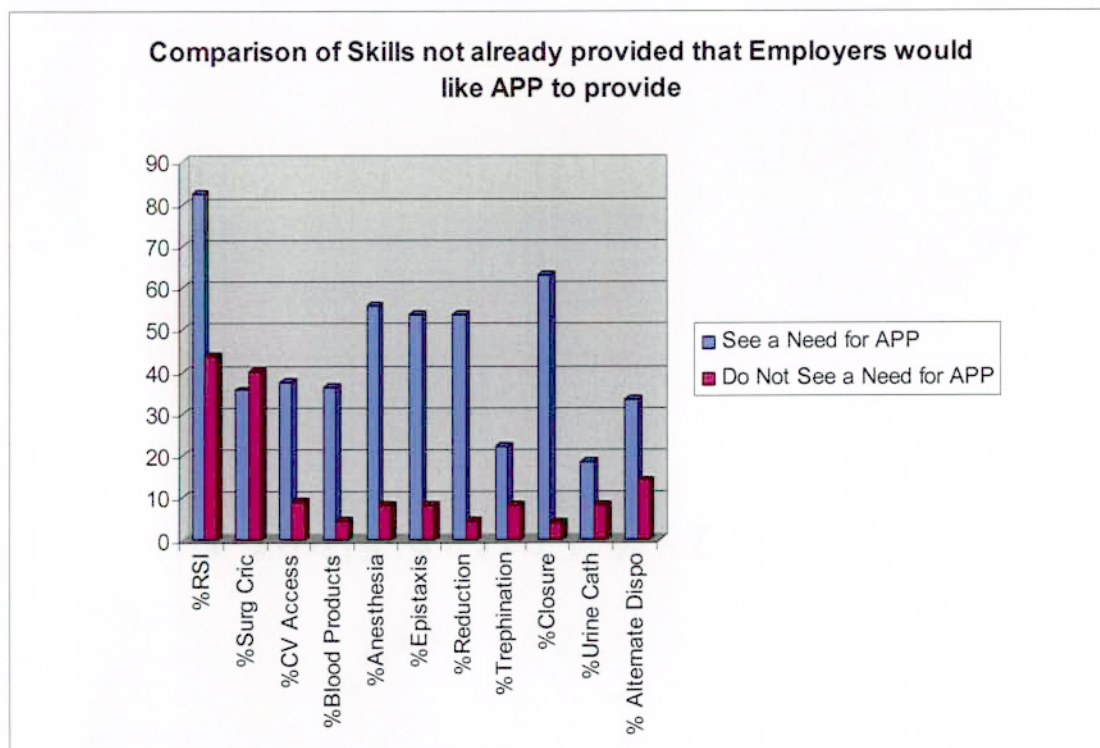
Chart 15



Employers who saw a need for APPs were more likely to provide eight of the 11 skills described as APP skills than those who did not see a need for the APP. This suggests that employers who perceive a need for the type of skills described by the SoP as APP skills are already providing many of those skills. As with state directors, this again indicates that where services are perceived as necessary, they are already being performed at the paramedic level. More than one third of those employers who did not see a need for APPs in their service area already offered RSI and surgical cricothyrotomy, slightly less than the number of employers offering those skills who felt there was a need for the APP.

Employers who felt there was a need for the APP reported a fair amount of support for all of the skills described by the SoP. Of those who did not already provide the specific skills, the skills that were least frequently described as a skill they would like the APP to provide were urinary catheterization (11%) and trephination of nails (22%). Among those who did not provide the skills but saw a need for APPs in their service area, at least a third supported every other skill described by the SoP. Chart 16 shows what skills not currently provided by EMS employers that Employers would like the APP to be able to provide.

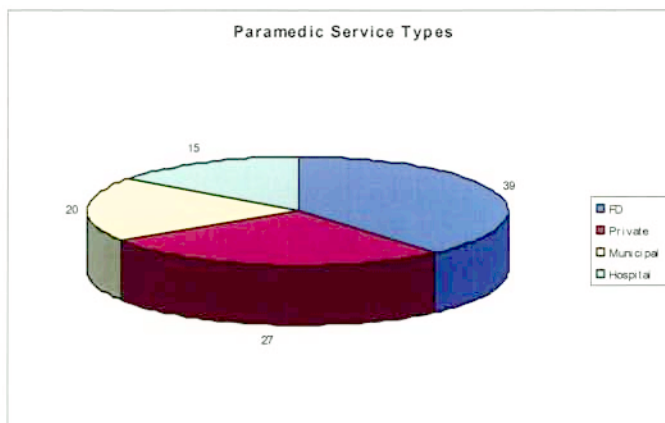
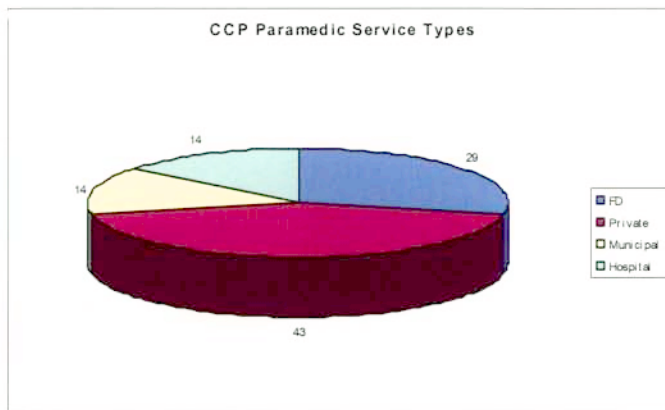
Chart 16



Of interest, support for the APP among EMS employers was 20% greater among those who described their current level of service as “Critical Care Paramedic” (71%) versus those who described their current level of care as “Paramedic” (51%). This implies

that services who currently train their paramedic staff to perform more advanced care are more likely to employ APPs, which seems logical. To see if this could account for the noted difference in support level between FDs and private EMS organizations, the type of service was assessed based on level of care. Chart 17 shows that private EMS services represented the highest percentage of CCP services (43%), followed by FDs (29%).

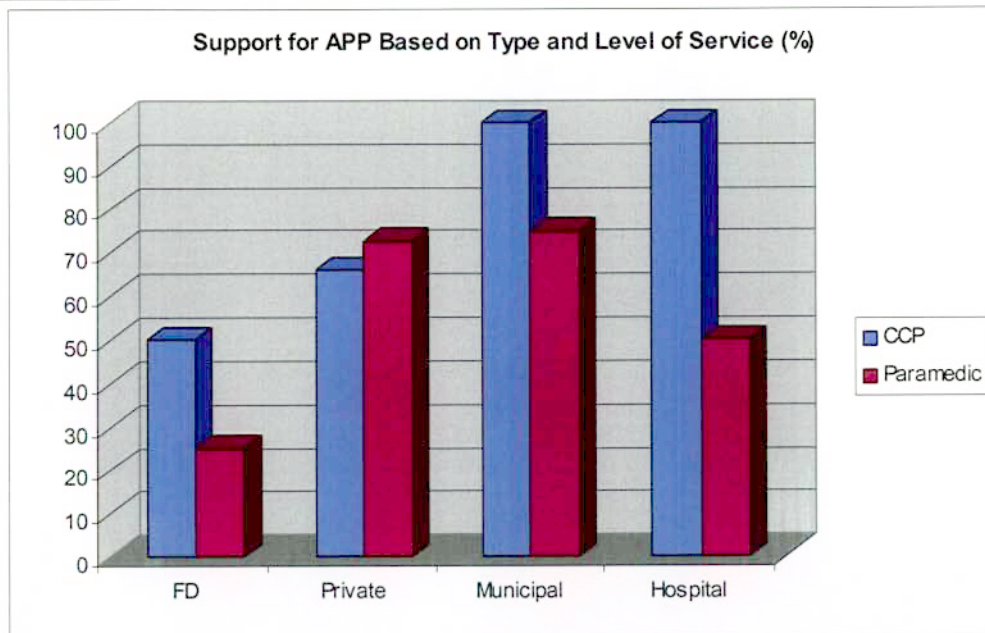
Chart 17



FDs were the most frequent type of paramedic service (33%), followed closely by private EMS services (27%). Chart 18 shows that among every organization type, support for the APP is consistently higher among those providing services at the CCP level versus the Paramedic level. The only exception to this is private EMS organizations,

for which there is stronger support for the APP among those currently operating at the paramedic level (73% vs 66%).

Chart 18

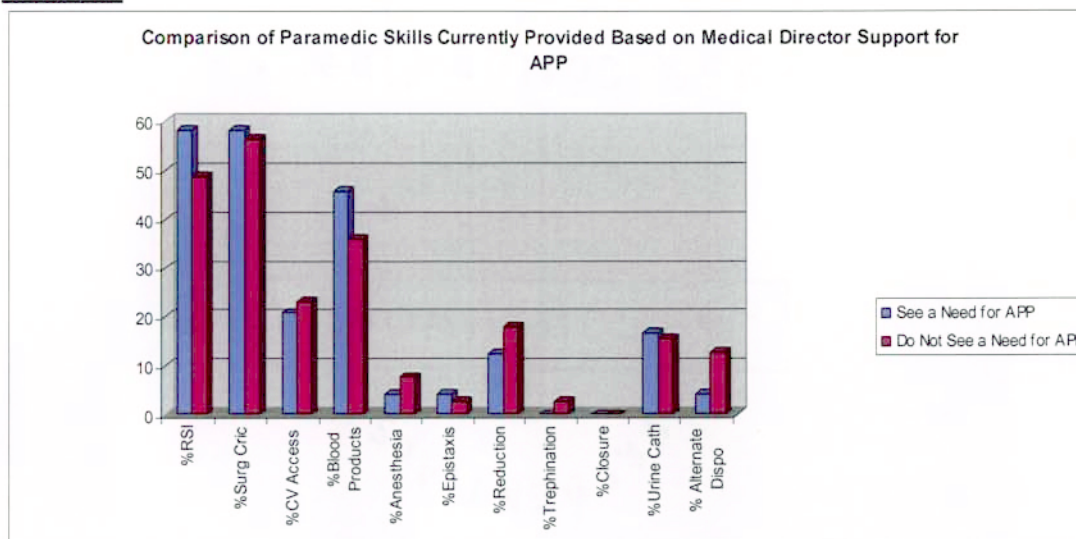


All (100%) of the municipal and hospital-based services that are currently CCP see a need for the APP. Among the CCP providers, the type least likely to see a need for the APP were FDs, of which half said they felt there was a need for the APP. Among paramedic level services, support for the APP was highest among the municipal services (75%), and lowest again among the FDs (25%). Because of the high percentage of CCP services accounted for by services other than FDs (cumulatively 71%) and the high level of support among those services for the APP, it seems possible that the difference between perceived need for the APP between CCP services and Paramedic services may be another reflection of the lack of perceived need among FDs.

Medical directors

At least half of the medical directors who responded to the survey already allowed their paramedics to perform both RSI and surgical cricothyrotomy, regardless of their perceived need for APPs. Chart 19 graphically depicts the skills already provided by paramedics sponsored by the medical directors who responded.

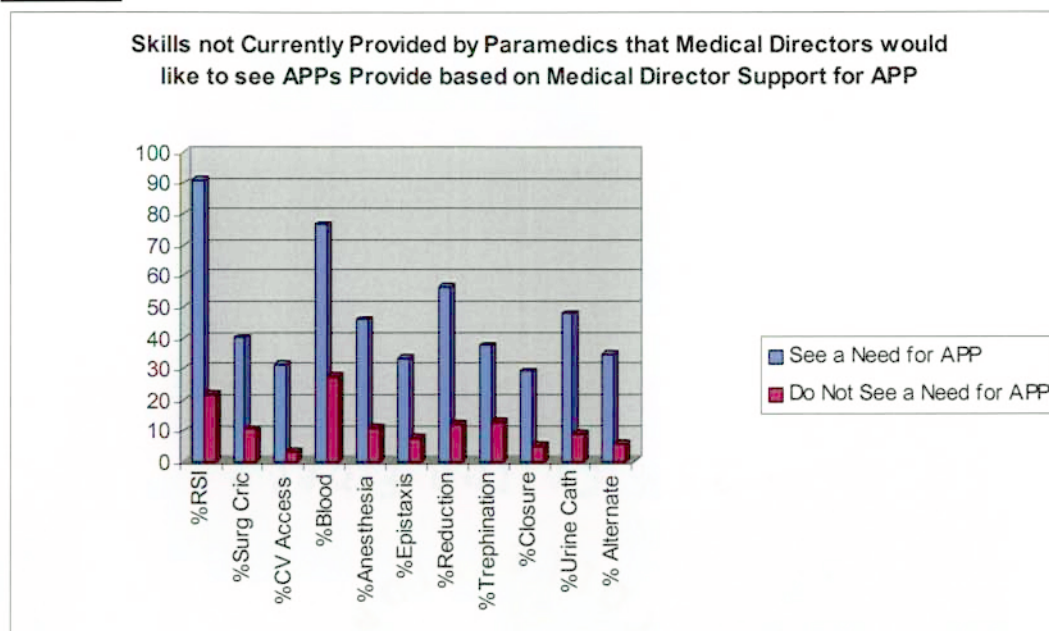
Chart 19



Blood product administration was also widely utilized, with a slight advantage to those medical directors who saw a need for the APP in their service areas (46% vs 36%). About one in five medical directors currently allow their paramedics to perform central venous access, again essentially regardless of their perceived need for the APP. Medical directors did not frequently allow the remaining seven skills. When asked what skills they thought would be most beneficial for the APP to offer, RSI and administration of blood products received the highest support among those who did or did not perceive a need for the APP, though the range between the two groups is notable. Chart 20 shows what skills

medical directors would most like to see the APP provide when their current paramedics could not perform those skills.

Chart 20

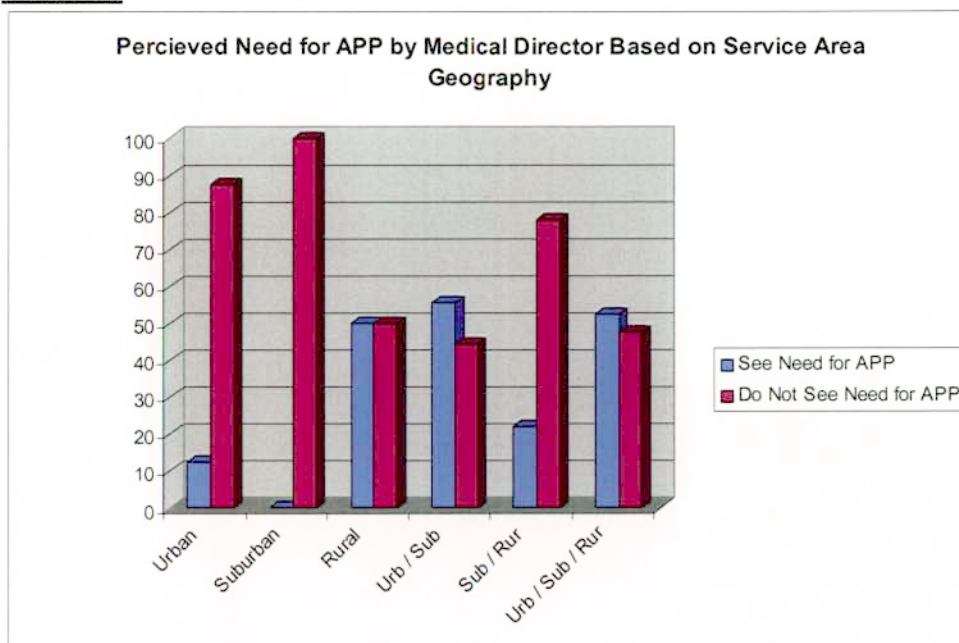


As expected, medical directors who perceive a need for APPs in their systems showed a much broader support for all of the skills offered by the APP, with no skill being requested by less than one quarter of the medical directors. Among those who did not perceive a need for APPs, less than one in five medical directors viewed most skills as valuable for the APP. This is further illustrated by the fact that 90% of the medical directors who did not see a need for the APP cited “No proven medical need” as the main obstacle against implementation.

Of those medical directors who did see a need for the APP, most (63%) felt the APP would be useful in any geographic area, 29% felt the APP would be most beneficial

in rural settings, and 8% felt the APP would be most useful in the suburban setting. In contrast to Employers, no Medical director cited urban areas (alone) as being the most beneficial geographic location for APPs. Chart 21 shows the perceived need for APPs by Medical directors based on their reported service area geography.

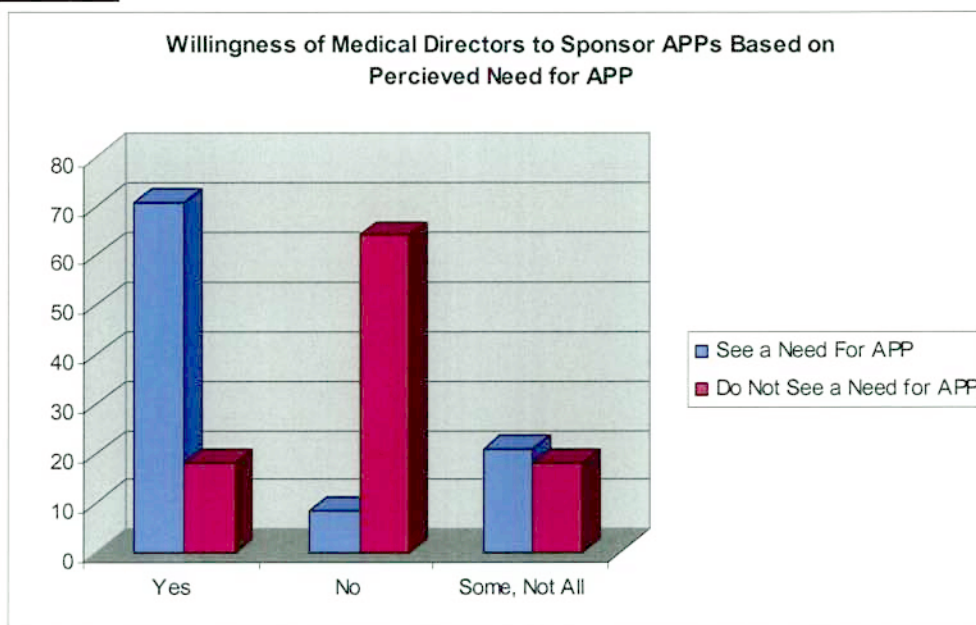
Chart 21



The large majority of medical directors (88%) who identified their service area as urban did not see a need for APPs. Every medical director who identified his or her service area as suburban did not feel there was a need for the APP in their service area. Those sponsoring exclusively urban areas were split exactly in half in their perception of need for the APP, and a large majority (78% vs 22%) of those sponsoring EMS in combined suburban/rural areas felt there was not a need for APPs. Those sponsoring EMS providers in service areas described as urban/suburban/rural were essentially evenly split (52% saw a need, 48% did not).

Medical directors were asked whether or not they perceived a need for the APP in their service area, if they would be willing to provide sponsorship for APPs if they were hired by their services. Chart 22 displays the responses, broken down by medical director perceived need for APPs.

Chart 22



Of those medical directors who did perceive a need for APPs in their service area, only 71% said they would personally be willing to sponsor APPs. 8% said they would not be willing to sponsor APPs, and roughly one in five (21%) said they would be willing to sponsor APPs under limited conditions.

Despite not seeing a need, nearly one in five (18%) Medical directors said they would still sponsor APPs. The same number of medical directors who said they did not see a need for APPs (18%) said they would sponsor APPs under certain circumstances. The majority, however, said they would not personally sponsor APPs (61%).

Analysis

Based on the results, it appeared that employer support for the APP was based, at least in part, on the type of employer. Specifically, it appears that fire departments were less likely to support the concept of the APP than were private EMS organizations. This impression was confirmed by chi square analysis ($p = 0.006$). Therefore, it can be asserted that fire department services are less likely to support the APP than private EMS organizations.

The results also suggest that employers who currently employ Critical Care Paramedics were more likely to support the APP. Chi square analysis was inaccurate due to the small sample size. Therefore, a Fisher's exact test (two-tailed) was used to analyze the data and found no difference ($p = 0.42$).

Chi square analysis revealed no difference in the level of support for the APP among the three survey populations ($p \geq .05$).

Within each surveyed population, some respondents indicated they would be willing to support APP (by employing them, sponsoring them, or promoting legislation to create them) despite their lack of perceived need for the APP. However, support for the APP was still significantly dependent on the respondent's perceived need for the APP based on chi square analysis (MD, $p < .01$; SEMSD, $p < .01$; EMS employers, $p < .01$).

It was also speculated that states that currently license CCPs or that certify multiple levels of care would be less likely to perceive a need for the APP. States that currently license CCP's were in fact no more likely to support the APP than those who did not (chi square $p \geq .05$). States that certified or licensed providers at four or more

levels of care were no less likely to see a need for the APP than states that credentialed three or fewer levels of care (Fisher's exact, two tailed $p=.62$).

State EMS directors appeared more likely to support alternative disposition than both medical directors and EMS employers. Chi square analysis showed this to be true for medical directors ($p=.015$) but not for employers ($p=.086$).

It was speculated that Medical directors who were willing to let current paramedics perform some of the skills associated with advanced practice might be more willing to sponsor an APP. Since RSI and surgical cricothyrotomy currently enjoyed the widest support from Medical directors, data were analyzed to see if those Medical directors who currently allow their paramedics to perform *both* RSI and surgical cricothyrotomy were more likely to support APPs in the future. Chi square analysis revealed no difference between these and Medical directors who did not currently allow both of these skills ($p=.647$).

Finally, it was speculated that support for the APP among all groups was likely related to the respondents' perceived need for the individual skills described as part of the APP SoP. Subjects were considered to perceive a need for a skill within their system if they responded that they 1) would like APPs to provide the skill, 2) already allowed paramedics to provide the skill, or 3) were "not sure" if they wanted the APP to provide the skill. These were compared with respondents that said "no" when asked if they would want APPs to provide the skill. Results were then separated based on the perceived need for the APP. Chi square analysis was then used to calculate a "p" value to determine dependence of the association. Table 4 shows that perceived need for each skill within a system was associated with support for the APP.

Table 4.

Skill	See need within System n (%)	Do not see need within System n (%)	“p”
RSI			<.01
Support APP	59 (56)	1 (5)	
Do Not Support APP	46 (44)	19 (95)	
Surgical Cricothyrotomy			.043
Support APP	52 (52)	8 (30)	
Do Not Support APP	49 (48)	19 (70)	
Central Venous Access			.002
Support APP	39 (60)	21 (33)	
Do Not Support APP	26 (40)	43 (67)	
Blood Products			<.01
Support APP	50 (60)	10 (22)	
Do Not Support APP	33 (40)	36 (78)	
Local Anesthesia			<.01
Support APP	44 (66)	16 (26)	
Do Not Support APP	23 (34)	46 (74)	
Anterior Packing For Epistaxis			<.01
Support APP	41 (66)	19 (28)	
Do Not Support APP	21 (34)	48 (72)	
Closed Reduction			<.01
Support APP	43 (61)	17 (28)	
Do Not Support APP	27 (39)	44 (72)	
Trephination of Nails			<.01
Support APP	37 (70)	23 (30)	
Do Not Support APP	16 (30)	53 (70)	
Closed Reduction			<.01
Support APP	39 (71)	21 (28)	
Do Not Support APP	16 (29)	53 (72)	
Urinary Catheterization			<.01
Support APP	39 (61)	21 (32)	
Do Not Support APP	25 (39)	44 (68)	
Alternative Disposition			<.01
Support APP	52 (58)	8 (20)	
Do Not Support APP	37 (42)	32 (80)	

Discussion

As reported by the investigators of the Model SoP, there are a wide range of opinions about the utility of APPs in the EMS industry. Perhaps the most consistent finding of this research is that most respondents who do not feel there is a need for the APP in their service area report that they see no demonstrable medical need for the APP. This may be an indictment of the concept of the APP in general or, more specifically, of the skill set proposed by draft 1 of the SoP. This may also be a reflection of the attitudes and perceptions of certain types of EMS providers, given the apparent reluctance of fire department-based services to utilize APPs and the willingness of other service types to employ APPs. Whatever the cause, it is clear that if the APP is to enjoy broader acceptance in the EMS industry, more research needs to be conducted to define the role and skill set of the APP objectively.

Another notable result of this research is the perceived utility of an advanced practitioner in every geographic area. This would seem to imply that the APP could serve to fill gaps in our current health care system, though exactly what that hole is cannot be clearly defined at this time. Given the high amount of support for skills such as RSI, surgical cricothyrotomy, central venous access, and blood product administration, it is reasonable to speculate that these procedures are perceived as necessary additions to the prehospital spectrum. Additionally, the willingness to entertain further exploration of alternative disposition suggests that the APP may be viewed as a plausible remedy to health care system access and overcrowding issues. The greatest number of respondents

reported that they were “Not Sure” if they would like APPs to provide alternative disposition. If this can be viewed as a willingness of respondents to consider alternative disposition, these results provide a clear indication that more research is needed to identify circumstances in which alternative disposition would be clearly beneficial. Additionally, echoing the comments of the Neely Conference attendees, research needs to be done to determine acceptable undertriage rates, as well as to identify appropriate referral destinations. The high frequency of uncertainty among Medical directors and EMS employers indicates that not only does appropriate research need to be conducted to define this role more clearly, but it also has to provide some scientific defense for the liability incurred by practitioners utilizing this skill.

RSI and surgical cricothyrotomy are skills already frequently performed by paramedics. The high rate of utilization of these skills in the existing EMS system may indicate that it would be inappropriate to restrict these skills to a higher level of practitioner. As mentioned earlier, current literature questions the efficacy of RSI and surgical cricothyrotomy when based on patient outcomes. However, there is nearly universal agreement that paramedics can accurately perform the procedures themselves. This assertion is further supported by this data, which shows a willingness to allow paramedics to perform these procedures across all surveyed populations. Despite a lack of prehospital literature exploring the benefits of central venous access and blood product administration, these skills also enjoy a fair amount of support within the surveyed populations. While it would be beyond the range of this data to assume efficacy of these interventions (from a patient outcome perspective), it may be reasonable to conclude that

paramedics are able to perform these procedures in a manner satisfactory to their Medical directors and employers. Much research remains to be done in order to determine the appropriateness of these procedures in the prehospital setting, based on patient outcomes. However, should it be determined that these skills should be performed in the prehospital setting, this research indicates that they could be safely and effectively performed by paramedics and there would be little cause to restrict them to use by the APP.

Of the remaining skills described in version 1 of the Model SoP, the strongest group of supporters is state EMS directors. Even among state EMS directors, however, support is variable and seldom gains a wide margin of acceptance for any individual skill. EMS employers and medical directors are decidedly not in support of the remaining skills. There are likely a variety of reasons for their opinions, but most consistently it appears that there is no convincing evidence that the skills are required or even helpful in the prehospital setting. Certainly, more clinical research would help further define the utility of these skills in EMS.

Skills such as urinary catheterization, local anesthesia, and anterior packing of epistaxis hold little hope of showing a distinct impact on patient outcomes, other than subjective patient or clinician statements. The impact of dislocation reduction, wound closure, and nail trephination performed in the prehospital setting would likewise be difficult to quantify. Research could be utilized to show a lack of detriment when performed in the prehospital setting, but the lack of perceived need for these skills, demonstrated by this research, would appear to reinforce the common wisdom that there is (conversely) no detriment in waiting for these skills to be performed in the hospital.

Demonstrating the ability for a prehospital provider (at any level) to perform these skills safely and effectively would have the greatest benefit if they were to be performed by practitioners in anticipation of alternative triage. In that setting, it would be prudent to first demonstrate that APPs could perform these skills, and subsequently that there was little risk of significant complications if patients were not subsequently transported to and evaluated by a physician. While such scenarios could ultimately prove to be the value to authorizing these skills for APPs, it must first be determined if the conditions treated by the procedures are candidates for alternative triage. It is unlikely that Medical directors would be willing to release post-reduction patients without follow-up radiography. It may be more reasonable to suggest that patients undergoing wound closure or nail trephination could be released, but this would likely require a complex decision making scheme that would, at points, include chemoprophylaxis for infection- a skill not included in the description offered in version 1 of the SoP.

Even before demonstrating clinical efficacy and safety of alternative triage for specific conditions it would be necessary to reevaluate the goal of alternative triage scenarios. The SoP implies that these skills would be of greatest benefit in remote areas when access to healthcare is limited. Survey respondents, however, indicate that APPs would be beneficial in more traditional service areas. This indirectly implies that the APP is anticipated to alleviate some of the burden on the healthcare system; limited resources, overcrowding and long wait times essentially limit access to urgent or emergent care in our cities in the same way that distance limits access in rural or remote areas. Taken from this perspective, when one considers what skills the APP should be able to provide it

should first be determined what conditions, treated by APPs, would provide the greatest relief to EDs. Then the question could be posed as to whether or not those conditions could be safely and effectively treated by APPs. In other words, it would be a relatively simple task to prove that APPs could effectively close minor wounds. It would be more important to show that triaging minor suture cases away from EDs would have a systematic benefit to ED access, wait times, and patient flow.

A comprehensive review of the causes of ED overcrowding and treatment delay is beyond the scope of this paper, but a brief overview is warranted as it pertains to the applicability of the APP. ED overcrowding is a multifactorial problem, but there are some commonly cited reasons in the literature. Derlet²⁶ and McCabe²⁷ each point out several casual factors; following is a brief list of factors common to both works:

- Increasing complexity and acuity of ED patients
- General increase in ED volume
- Staff shortages: nursing, administrative, and ancillary
- Lack of hospital bed availability
- Managed care problems

Trzeciak and Rivers²⁸ found that the “main cause” of ED overcrowding was “inadequate inpatient capacity for a patient population with an increasing severity of illness.” Obviously, an APP practicing outside of the hospital could have little to no impact on issues relating to inpatient capacity. Even if the APPs were allowed to arrange for direct admission or otherwise bypass the ED, they would likely fall victim to the same forces plaguing the EDs. Within the context of treating and triaging patients with complex medical or post-surgical problems, the APP would need to be armed with more sophisticated skills and assessment capabilities than those outlined in the SoP.

The argument remains, however, that an APP as described by the SoP could help to lighten the load of EDs by removing patient populations comprised of less-than-acute patients. Agouridakis found that only 5.7% of patients presenting to the ED were critical. Fully 53.8% were “urgent but not critical,” 30% were non-urgent complaints, and 10.5% were “miscellaneous” cases that were “probably inappropriately visiting the emergency department.”²⁹ If the APP could divert even these last two groups, there could be a theoretical benefit of decreasing ED volume by close to 40%. Yet US research has challenged this assertion. McCabe states,

“Emergency Department overcrowding occurs primarily when sick patients, evaluated by the emergency physician and admitted to the hospital, have no place to go and remain in the emergency department. It is mainly a symptom of an overcrowded hospital, not a result of ‘inappropriate’ emergency department use.”²⁷

The American College of Emergency Physicians (ACEP) bluntly states, “Focusing on patients with non-urgent medical conditions cannot solve overcrowding.”³⁰ McCabe, Trzeciak, and Derlet describe the “solutions” to ED overcrowding with a focus on hospital teamwork, streamlining of admitting procedures, increased “surge capacity,” and increased availability of beds after ED disposition.

It is important to keep in mind, however, that ED physicians (as representatives of hospitals) potentially have a vested interest in bringing patients into the ED. Diverting patients due to ED overcrowding results in lost revenue, as well as delayed patient care. Therefore, ED overcrowding strategies focus on absorbing patient influx and avoiding ambulance diversion.^{31, 32, 33} Little research has been done to quantify the potential impact of pre-ED diversion of patients to other resources. One notable exception is a paper by

Washington et al, who describe alternate triage of patients with three symptom complexes the authors claim account for up to a third of ED visits.³⁴ The study allowed triage nurses at a level one trauma center in Los Angeles to offer patients next-day appointments at the health center's primary care center as an alternative to waiting for ED evaluation. Patients presenting with abdominal/pelvic pain, musculoskeletal pain (including low back pain), or respiratory infection symptoms were triaged using relatively simple algorithms, and when appropriate offered next-day care. Washington reports 95% of patients receiving follow-up physician evaluation and no patients being hospitalized or dying.

The implications of these data are important as EMS leaders attempt to shape the role of the APP. Clearly, skills such as wound closure and trephination of nails will not significantly alleviate ED overcrowding or workload. If patients are to be diverted to other health care resources in numbers large enough to significantly impact ED workload, triage schemes for complaints such as those suggested by Washington hold more promise. Yet, the triage protocols presented by Washington do not involve particularly sophisticated assessment regimes, and with the addition of thermometers to usual paramedic equipment, would be easily performed by paramedics. Therefore, the need to restrict such capability to the level of the APP is questionable. The greater obstacle to overcome, with regard to alternative disposition, is the development of a robust collection of literature sufficient to relieve the anxiety of Medical directors and EMS employers. Current literature, while sparse, seems to suggest that if alternative disposition can be safely and reliably performed at all, it can be done by paramedics.

The skills described for the APP by version 1 of the SoP are therefore broadly classifiable into two groups: First, they are either viewed as appropriate for prehospital use, and therefore already being performed by paramedics, or second, they are not viewed as needed in the prehospital setting and therefore not wanted as APP skills. This warrants an evaluation of the skills suggested by Medical directors and EMS employers as additions to the SoP.

Most of the skills that medical directors and/or EMS employers suggested be added to the APP SoP are actually part of most current paramedic SoPs. Therefore, the suggestion that they be added to the APP SoP either indicates that respondents were not aware that their paramedics could already perform these skills or that they wish to have these skills restricted for use by more advanced practitioners. By suggesting that the skills be part of the APP skill set, it can be presumed that the respondents did believe that these skills had a role in the prehospital environment. Due to the lack of research on these topics specifically, it is impossible to say for sure that respondents were acting to restrict their use because of a noted detriment, but this seems unlikely. Skills that were suggested by respondents that are probably within their paramedics' current SoP include:

- Drug assisted intubation (in addition to RSI medications)
- Adult intraosseous infusion
- IV heparin
- Gastric tubes
- Ventilator management
- Nitrous oxide
- Fibrinolytic drugs
- Balloon pump monitoring
- Procedural sedation
- Cardiac medication infusions

These skills enjoy variable amounts of attention in the current National Standard Curriculum for paramedics, and most likely warrant careful consideration (and probably specific additional training) before being utilized by paramedics, but they are not specifically restricted from use by paramedics. While there is no national standard curriculum for Critical Care Paramedics, many of these skills are routinely a part of CCP training.

Skills suggested by respondents that would represent care above and beyond the typical paramedic SoP include the following:

- Immunizations
- PPD placement and reading
- IV antibiotics
- Life saving amputation
- Silver nitrate cautery of epistaxis
- Home treatment with fluids and antibiotics/antivirals during declared epidemic
- Thoracotomy
- Home medical equipment maintenance

It could be argued that immunization and PPD placement are within the current SoP of paramedics, since the skills required to perform them (PO administration, IM, SQ, or TD injection) are part of traditional paramedic practice and training. They are not routinely part of “emergency care,” and could therefore be considered out of the current SoP. However, the “skill” required to add to traditional paramedic training would be simply familiarity with the specific medications. This probably does not warrant restriction of these skills to a higher level of care if a local Medical director deems the skills as appropriate. On a broader scale, the suggestion of these skills speaks to the potential applicability of the APP as an Industrial Health or Public Health practitioner. This is in keeping with the spirit suggested by the SoP and the *Agenda*. However, if the

APP is to fulfill a role in either or both of these arenas, there would need to be more skills added to complement immunization and PPD testing.

IV antibiotics represent a skill that would probably have marginal benefit in the absence of alternative triage. With very limited exception, delay of antibiotic delivery for up to an hour would not be likely to impact patient outcomes. Coupled with alternative triage, the utility of IV antibiotics would be limited to cases when they were required for a condition that did not need immediate ED follow up for further diagnostic evaluation and long-term disposition. This seems an unlikely scenario to encounter more often than rarely. On the other hand, it may be reasonable to suggest that APPs be allowed to distribute oral antibiotics while arranging for follow-up within a day or two. This presents a precarious situation, however, given concerns about overuse of antibiotics and the development of resistant organisms. While rapid screening and culture sampling could be skills taught to the APP, the reliability of patient follow-up and adherence to medication regimens could limit the willingness of medical and public health practitioners to support this function.

The suggestion of home treatment with fluids and antibiotics or antiviral medications during a declared epidemic seems of limited utility, and probably is not enough by itself to warrant an entirely new level of practitioner. By grouping IV antibiotics and antiviral medications in with home treatment, the idea may warrant further investigation for general application. There would be many significant issues to address should home care become a standard of APP practice, not the least of which would be the need for consistent nursing care. By limiting the use of this skill to “declared epidemics” the

utility of the skill becomes severely restricted. Further, it would seem that in the setting of a public health emergency (such as pandemic influenza or a bioterrorist attack) emergency authorization for paramedics (not APPs) to perform these interventions would be a plausible alternative. The infrequency of the event, the minimal intervention-specific training required, as well as the likely capacity (number of providers) needed, make home treatment during an epidemic a skill probably best left at the paramedic level.

Given the low level of perceived need for anterior packing of epistaxis, it is unlikely that silver nitrite cautery for epistaxis would gain wide acceptance. Its suggestion does reinforce the perception that an advantage to introducing the APP could potentially be the definitive treatment of minor emergencies outside of the ED.

The need for emergency amputations or thoracotomies in the prehospital environment is not clearly defined. To speculate, it seems unlikely that any prehospital provider would routinely encounter situations requiring these skills. While the complexity of the procedures could be addressed with proper training, the low frequency of use would make skill retention a major issue. Research would need to demonstrate clearly that such high morbidity interventions would be associated with significant decreases in mortality.

Maintenance of home medical equipment certainly represents an area where traditional EMS training is lacking. The usefulness of such knowledge is not limited to the APP, and would probably be more frequently called upon by responders who routinely see more patients (assuming a tiered-response system design). While home medical equipment can be complex, the skills required for routine care and maintenance

(beyond that which would require a manufacturer credentialed technician) are probably not of a nature that would require APP training. The implication could be drawn that APPs should routinely be “checking in” on patients who utilize home health equipment, thereby endorsing their role as public and preventative health professionals. In this case, knowledge of home medical equipment would be an important curriculum consideration for the APP, but the “skill” would be the ability and authority to conduct wellness visits.

In summary, there is a broad range of opinions concerning the perceived need for APPs in general, and even more diverse opinions concerning the specific skills APPs should offer. The inability to form a consensus opinion throughout the surveyed groups likely reflects the lack of a clearly defined role for the APP. This makes the implementation of APPs, as described by the Model SoP, version 1, not feasible on a national scale.

Limitations

The most obvious limitation of this research is the sample size. There are 50 state EMS directors, as well as directors for US territories such as Guam, and Puerto Rico. Of the 50 state EMS directors surveyed, fewer than 50% completed the survey. It is important to note that should a national Model SoP be created, there may be no compulsion for states to adopt any part of that SoP or the entire document. Since no consensus opinion is represented in the survey results, it is likely that states will act as individuals when considering the SoP. Therefore, these 19 opinions can be considered representative of only those 19 state EMS directors.

As of June 30, 2005, the National Association of State EMS Directors' web site (www.nasemsd.org) lists 25,324 EMS services nationwide. A random sample of 100 providers could not possibly be considered representative of all EMS employers, much less so the 51 EMS employers who actually responded to this survey. Of the EMS employers who did respond to the survey, the majority were already paramedic-level providers. The APP may be more appealing for services not already providing paramedic level care. Additionally, the APP may be more appropriately employed by local public health departments, VNA organizations, or other such non-EMS agencies. None of these potential employers were surveyed as part of this research.

To the knowledge of the principle investigator, a comprehensive national listing of Medical directors does not exist. The membership of the NAEMSP may constitute a group of Medical directors with certain pre-conceived notions about EMS care and the appropriateness of certain practices not shared by most Medical directors. It could be argued, of course, that NAEMSP members represent Medical directors most actively involved in current EMS system oversight and development, but this too could bring biases not consistent with Medical directors as a whole. Based on the number of sponsored services reported by Medical directors responding to this survey, the average Medical director sponsors 25 EMS services. That would result in, conservatively, over 1000 Medical directors nationally. The sample size of 63 attained during this research should not be considered representative of all Medical directors.

Another limitation of this research is the depth of questioning performed. Whereas consideration of an advanced practitioner is in its infancy, the questions

contained on this survey were designed to provide a general overview of attitudes and opinions concerning the APP. The scope of questions was limited to the APP as described in version 1 of the Model SoP, a role that has since been eliminated from the Model SoP. More research would clearly be needed to better define what role an advanced practitioner would play in the EMS system, as well as to identify the reasons for the opinions expressed.

Perhaps the most important factor in assessing the value of the results of this literature is that respondents were asked to offer opinions about skills and services not well defined or researched in the prehospital setting. A paucity of research plagues the EMS industry in general, and the skills described as part of the APP SoP represent (in general) skills only found on the periphery of current paramedic practice. Therefore, the utility of any particular skill or combination of skills represented herein represents merely the “best guess” of current medical directors, state EMS directors, and EMS employers.

Conclusion

Less than half of medical directors and state EMS directors (38% and 47%, respectively) and only a small majority of EMS employers (53%) feel there is a need for the APP as described in the Model SoP, version 1. Despite this fact, 57% of medical directors stated they would sponsor APPs in at least some of their services, and 59% of EMS employers said they would consider employing APPs at their services. Fewer (42%) of state EMS directors said they would encourage legislation in their state to adopt the APP. When assessing individual skills proposed to be part of the APP SoP, skills that are generally considered valuable in the prehospital setting (RSI, surgical cricothyrotomy,

central venous access, and administration of blood products) are generally already provided by paramedics. Skills that are not commonly provided by current paramedics (trephination of nails, wound closure, urinary catheterization, dislocation reduction, local anesthesia, and anterior packing for epistaxis) are not highly valued as skills for the APP. There appears to be sufficient interest in, but a lack of confidence in, alternative disposition to consider it as a potential skill for APPs. To create more confidence in alternative disposition, significant research will need to be conducted to define the circumstances and complication rates associated with its use.

It can be concluded that sufficient ambiguity exists among medical directors, EMS employers, and state EMS directors to make implementation of the APP, as described in the Model SoP, version 1, not feasible at this time. While the APP has been removed from version 2 of the Model SoP, the concept of a prehospital advanced practitioner has not disappeared. To define the APP's need and role in the future of EMS, much more research will need to be conducted. In general, it may be worth leaving skills such as RSI and surgical cricothyrotomy within the paramedic SoP and eliminating skills such as nail trephination and wound closure out of the APP SoP. The role of alternative disposition warrants further exploration, as do skills that would be associated with alternative disposition such as antibiotic distribution and home treatment.

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Attachment 1
Introduction to the *EMS Agenda for the Future*. (NHTSA. 1996)

INTRODUCTION

The year is 2009 and it's a Thursday evening. Joe S. is a 60-year-old male who emigrated from Russia in 1995 to work for a software company. He does not speak English very well. He has several cardiac risk factors including hypertension, elevated cholesterol, a history of smoking (a pack a week), and he is 20% overweight. For the past two days he has had mild, intermittent chest discomfort unrelated to exercise. However, at 11:00 PM, the discomfort suddenly becomes more severe. Joe's wife, worried and anxious, instructs their computerized habitat monitor (CHM) to summon medical help. Through voice recognition technology, the CHM analyzes the command, interprets it as urgent, and establishes a linkage with the appropriate public safety answering center (PSAC). At the PSAC, a "smart map" identifies and displays the location of the call. Richard Petrillo, the emergency medical communicator (EMC) notes the type of linkage that has been established (not a telephone, personal communicator device, television, or personal computer). He also knows what sort of query can be conducted through this linkage. Petrillo commands the PSAC computer to instruct the CHM to identify the potential patient, report his chief complaint, and provide his medical database identifiers. In the meantime, the "smart map" has identified the closest acute care response vehicle and Petrillo instructs the computer to dispatch it. The CHM provides the requested information and responding personnel are automatically updated via their personal digital assistants (PDAs). Petrillo accesses the patient's health care database, obtaining his current health problem list, most recent electrocardiogram, current medications, allergies, and primary care physician data. This information automatically is copied to the responding personnel's PDAs and to the medical command center (MCC) computer. The PSAC computer also downloads pre-arrival instructions to the CHM which provides them to Joe's wife.

Staffing the acute care response vehicle are Nancy Quam, Community Health Advanced Medical Practitioner (CHAMP) and Ed Perez, Community Health Intermediate Practitioner (CHIP). Nancy became a CHAMP because she recognized a declining need for physicians. She was credentialed following a four-year college degree program. Many of her colleagues were previous paramedics and nurses who became credentialed through career-bridging programs. Ed Perez was credentialed as a CHIP after a one-year academic program. He cur-

rently goes to school part-time, on a scholarship, working toward becoming a CHAMP. As Quam and Perez proceed toward Joe's home, a transponder in their vehicle changes all traffic signals in their favor. Also, digital displays in all area vehicles are alerted that there is an emergency vehicle in their vicinity. The PSAC computer informs Quam and Perez that neither a personal risk analysis (PRA) nor a domicile risk analysis (DRA) has been performed in the past five years.

As Quam and Perez arrive at the home, four minutes after the initial linkage with CHM, they notice substandard lighting on the home's outside walkways and front-porch steps in need of repair. They also note that a maintenance light is illuminated on the CHM annunciator panel. As they greet the patient, they realize that he does not speak English well. Perez puts the translator module into his PDA, then he speaks to the PDA which translates his voice to Russian. The all-systems monitor is applied to the patient's arm and across his chest. Physiologic data is acquired by the monitor's computer chip, then it is analyzed on the scene and transmitted via burst technology to the medical command center 100 miles away. By communicating through their PDAs, Quam and Perez are able to acquire the patient's history. Through Quam's PDA video screen, she establishes a video connect with the MCC. The MCC EMS physician requests additional Level III monitoring which reveals the patient's carbon monoxide level to be 14%.

Analysis of all the data by the MCC computer and EMS physician suggests a 96% probability of acute myocardial ischemia. Quam and the EMS physician confer and the patient subsequently is administered short-acting thrombolytics and IV antioxidants. The nearest cardiac care center that is part of Joe's health network is identified and alerted by computer. Joe is transported there, even though other hospitals may be closer. He is examined very briefly in the emergency department and taken directly to the cardiac catheterization laboratory. There he undergoes complete laser debridement of his coronary arteries. Joe suffers no myocardial enzyme leak, there is no permanent cardiac damage, and he is discharged in two days.

Following Quam's and Perez's report, a PRA and a DRA are requested. Joe's health care network contracts with their agency to return to the home where

they learn that the family did not completely understand the CHM's operations. Thus, when its carbon monoxide sensor had failed they were unaware. The health care network subsequently offers a matching grant to repair an aging furnace, the CHM, and the other environmental hazards noted by Quam and Perez. In follow-up, it was determined that Joe had been noncompliant with his previous medication instructions due to lack of understanding. A new caseworker is assigned who ensures that Joe understands his health care instructions and begins to minimize all his risk factors.

Joe lives to 94 years old.

The roots of emergency medical services (EMS) are deep in history. The EMS chronology provides an overview of some important EMS developments (please refer to Appendix A for more detailed historical perspectives). During the past 30 years, EMS in the United States has experienced an explosive evolution. The predisposing factors for such development have been multifactorial, including an appreciation that better response might improve patient outcomes for some medical conditions. The

initial EMS growth spurt began with a lack of knowledge about what constituted the most efficient processes for delivering the ideal resources to the spectrum of situations addressed by today's EMS systems.

We are now able to examine what has been learned during the past three decades, in order to refine contemporary EMS. This opportunity comes at a time when EMS systems and agencies and individuals responsible for EMS structure, processes, and outcomes are evaluating their roles within a rapidly evolving health care system and during an era of fiscal restraint. Recognizing its need and potential impact, the National Highway Traffic Safety Administration (NHTSA) and the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA) provided funding to support completion of the *EMS Agenda for the Future*.

Attachment 2
State EMS Directors Survey

State EMS Director Survey

Section I: Demographics

1. Which of the following best describes the levels of EMS provider currently certified or licensed by your state? (Choose all that apply)

- ☐ First Responder (*Basic First Aid / CPR*)
 - ☐ EMT-Basic (*Basic Life Support, triage, transport, AED*)
 - ☐ EMT-Intermediate (*Limited invasive therapies such as Intravenous Fluids, Advanced Airways*)
 - ☐ Paramedic (*ECG monitoring and interpretation, manual defibrillation, ACLS medications, endotracheal intubation*)
 - ☐ Critical Care Paramedic (*Able to monitor chest tubes, manage infusion pumps, etc*)
 - ☐ Other (Please describe): _____
-
-
-

Section II: Current Practice

1. Are paramedics in your state currently allowed to perform the following skills:

<u>Task:</u>	<u>Yes</u>	<u>No</u>
Rapid Sequence Induction (Inc. NMB Agents or “paralytics”)	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Surgical Cricothyrotomy	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Central Venous Access	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		

Blood Product Administration	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Local Anesthesia	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Anterior Packing for Epistaxis	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Dislocation Reduction	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Trephination of Nails	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Wound Closure	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Urinary Catheterization	<input type="checkbox"/>	<input type="checkbox"/>
If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Depends on location /service		
Disposition to care other than Emergency Department (Aside from patient refusal of transport AMA)	<input type="checkbox"/>	<input type="checkbox"/>

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

Section III: Advanced Practice Paramedic

1. *Do you feel there is a need for the role of Advanced Practice Paramedic in your state?*

☐ **Yes** ☐ **No**

1a. If you **do**, in what geographic areas do you feel it would be best suited?

☐ Urban ☐ Sub-urban ☐ Rural ☐ Anywhere

1b. If you **do not**, which of the following best describes *the most important* reason you do not think there is a role for the Advanced Practice Paramedic in your service area?

- ☐ No demonstrated medical need
- ☐ Public would not accept the idea
- ☐ Legislature would not approve the Scope of Practice
- ☐ State EMS Office would not support development of the role.
- ☐ Oversight physicians would not support the role.

2. If the proposed Scope of Practice were presented to your legislature in its current form, would you advocate adopting the Advanced Practice Paramedic in your state?

☐ Yes ☐ No

3. Specifically, what skills described by the Advanced Practice Paramedic Scope of Practice would you like your state EMS services to provide?

- | | |
|---------------------------------------|--|
| Rapid Sequence Intubation | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Surgical Cricothyrotomy | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Central Venous Access | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Blood Product Administration | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Local Anesthesia | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Anterior Packing for Epistaxis | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |
| Dislocation Reduction | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/> We already do this |

Trephination of Nails	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not sure	<input type="checkbox"/> We already do this
Wound Closure	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not sure	<input type="checkbox"/> We already do this
Urinary Catheterization	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not sure	<input type="checkbox"/> We already do this
Disposition to other than ED	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not sure	<input type="checkbox"/> We already do this

Section IV: Personal Opinion

1. How strongly would you *personally* support the introduction of Advanced Practice Paramedics in your state?

Strongly Discourage	Discourage	Neutral	Encourage	Strongly Encourage
1	2	3	4	5

2. Given the opportunity, what would you *personally* add or delete from the Advanced Practice Paramedic Scope of Practice?

Add:

Remove:

Thank you for your time and participation!

Attachment 3
Medical Directors Survey

Medical Director Survey

Section I: Demographics

1. Which of the following best describes your service area? *(Choose one only)*

☐ Urban ☐ Suburban ☐ Rural

☐ Urban / Suburban Mix ☐ Suburban / Rural Mix ☐ Urban / Suburban / Rural Mixed

2. Which of the following best describes the types of EMS organizations you sponsor? *(Choose as many as apply)*

☐ Private EMS provider ☐ Fire Department (Dual role Fire / EMS)

☐ Fire Department (Separate Role Fire / EMS) ☐ Municipal ☐ Hospital Based

3. Which of the following best describes your sponsored EMS staff? *(Choose as many as apply)*

☐ Volunteer ☐ Paid ☐ Both

4. Which of the following best describes the highest level of care currently provided by your sponsored services? *(Please indicate number of services you sponsor at each level)*

☐ First Responder *(Basic First Aid / CPR)* **Number of services:** _____

☐ EMT-Basic *(Basic Life Support, triage, transport, AED)* **Number of services:** _____

☐ EMT-Intermediate *(Limited invasive therapies such as Intravenous Fluids, Advanced Airways)* **Number of services:** _____

☐ Paramedic *(ECG monitoring and interpretation, manual defibrillation, ACLS medications, endotracheal intubation)* **Number of services:** _____

☐ Critical Care Paramedic *(Able to monitor chest tubes, manage infusion pumps, etc)* **Number of services:** _____

Section II: Current Practice

2. Are providers with any of your sponsored services currently allowed to perform the following skills:

Task:	Yes	No
--------------	------------	-----------

Rapid Sequence Induction (Inc. NMB Agents or “paralytics”)	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------

If yes, are paramedics required to complete additional training (beyond paramedic school) before

being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Surgical Cricothyrotomy ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Central Venous Access ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Blood Product Administration ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Local Anesthesia ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Anterior Packing for Epistaxis ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Dislocation Reduction ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Trephination of Nails ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Wound Closure ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

Urinary Catheterization

☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

**Disposition to care other than Emergency Department
(Aside from patient refusal of transport AMA)**

☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

Section III: Advanced Practice Paramedic

1. Do you feel there is a need for the role of Advanced Practice Paramedic in your service area? ☒ **Yes** ☐ **No**

1a. If you **do**, in what geographic areas do you feel it would be suited?

☐ Urban ☐ Sub-urban ☐ Rural ☐ Anywhere

1b. If you **do not**, which of the following best describes *the most important* reason you do not think there is a role for the Advanced Practice Paramedic in your service area?

- ☐ No demonstrated medical need
- ☐ Public would not accept the idea
- ☐ Legislature would not approve the Scope of Practice
- ☐ State EMS Office would not support development of the role.
- ☐ Oversight physicians would not support the role.

2. If the proposed Scope of Practice were adopted by your state in its current form, would you consider sponsoring Advanced Practice Paramedics within your service(s)?

☐ Yes ☐ No ☐ Some Services, but not all (Please explain below)

Comments:

3. Specifically, what skills described by the Advanced Practice Paramedic Scope of Practice would you like your service(s) to provide?

- | | | | | |
|---------------------------------------|------------------------------|-----------------------------|-----------------------------------|---|
| Rapid Sequence Intubation | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Surgical Cricothyrotomy | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Central Venous Access | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Blood Product Administration | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Local Anesthesia | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Anterior Packing for Epistaxis | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Dislocation Reduction | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Trephination of Nails | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Wound Closure | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Urinary Catheterization | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Disposition to other than ED | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |

Section IV: Personal Opinion

How strongly would you *personally* support the introduction of Advanced Practice Paramedics in your state?

Strongly Discourage	Discourage	Neutral	Encourage	Strongly Encourage
1	2	3	4	5

2. Given the opportunity, what would you *personally* add or delete from the Advanced Practice Paramedic Scope of Practice?

Add:

Remove:

Attachment 4
EMS Employers Survey

EMS Employer Survey

Section I: Demographics

1. Which of the following best describes your service area? *(Choose one only)*

- ☐ Urban ☐ Suburban ☐ Rural
- ☐ Urban / Suburban Mix ☐ Suburban / Rural Mix ☐ Urban / Suburban / Rural Mixed

2. Which of the following best describes your service organization? *(Choose one only)*

- ☐ Private EMS provider ☐ Fire Department (Dual role Fire / EMS)
- ☐ Fire Department (Separate Role Fire / EMS) ☐ Municipal ☐ Hospital Based

3. Which of the following best describes your EMS staff? *(Choose one only)*

- ☐ Volunteer ☐ Paid ☐ Combined Volunteer / Paid

4. Which of the following best describes the highest level of care currently provided by your service? *(Choose one only)*

- ☐ First Responder *(Basic First Aid / CPR)*
- ☐ EMT-Basic *(Basic Life Support, triage, transport, AED)*
- ☐ EMT-Intermediate *(Limited invasive therapies such as Intravenous Fluids, Advanced Airways)*
- ☐ Paramedic *(ECG monitoring and interpretation, manual defibrillation, ACLS medications, endotracheal intubation)*
- ☐ Critical Care Paramedic *(Able to monitor chest tubes, manage infusion pumps, etc)*

5. Do you currently bill for your services? ☐ Yes ☐ No

Section II: Current Practice

3. Are providers with your service currently allowed to perform the following skills:

Task:	Yes	No
--------------	------------	-----------

Rapid Sequence Induction (Inc. NMB Agents or “paralytics”)	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------

If yes, are paramedics required to complete additional training (beyond paramedic school) before

being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Surgical Cricothyrotomy ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Central Venous Access ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Blood Product Administration ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Local Anesthesia ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Anterior Packing for Epistaxis ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Dislocation Reduction ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Trephination of Nails ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?
☐ Yes ☐ No ☐ Depends on location /service

Wound Closure ☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

Urinary Catheterization

☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

**Disposition to care other than Emergency Department
(Aside from patient refusal of transport AMA)**

☐ ☐

If yes, are paramedics required to complete additional training (beyond paramedic school) before being allowed to perform this skill?

☐ Yes ☐ No ☐ Depends on location /service

Section III: Advanced Practice Paramedic

1. Do you feel there is a need for the role of Advanced Practice Paramedic in your service area? ☒ Yes ☐ No

1a. If you **do**, in what geographic areas do you feel it would be suited?

☐ Urban ☐ Sub-urban ☐ Rural ☐ Anywhere

1b. If you **do not**, which of the following best describes *the most important* reason you do not think there is a role for the Advanced Practice Paramedic in your service area?

- ☐ No demonstrated medical need
- ☐ Public would not accept the idea
- ☐ Legislature would not approve the Scope of Practice
- ☐ State EMS Office would not support the role.
- ☐ Oversight physicians would not support the role.

2. If the proposed Scope of Practice were adopted by your state in its current form, would you consider employing Advanced Practice Paramedics within your service?

☐ Yes ☐ No

3. Specifically, what skills described by the Advanced Practice Paramedic Scope of Practice would you like your service to provide?

- | | | | | |
|---------------------------------------|------------------------------|-----------------------------|-----------------------------------|---|
| Rapid Sequence Intubation | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Surgical Cricothyrotomy | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Central Venous Access | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Blood Product Administration | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Local Anesthesia | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Anterior Packing for Epistaxis | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Dislocation Reduction | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Trephination of Nails | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Wound Closure | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Urinary Catheterization | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |
| Disposition to other than ED | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Not sure | <input type="checkbox"/> We already do this |

Section IV: Personal Opinion

1. How strongly would you *personally* support the introduction of Advanced Practice Paramedics in your state?

Strongly Discourage	Discourage	Neutral	Encourage	Strongly Encourage
1	2	3	4	5

2. Given the opportunity, what would you *personally* add or delete from the Advanced Practice Paramedic Scope of Practice?

Add:

Remove:

Attachment 5
IRB Approval



University of Connecticut Health Center
Institutional Review Board
Human Subjects Protection Office

To: David Gregorio
 Principal Investigator
 Department of Community Medicine & Health Care
 MC-3825

From: IRB Office
 MC 3926

Date: March 15, 2005

Re: Final Approval of Exempt Project

IRB Number: 05-202

IRB Panel: Panel 01

Project Title: The Feasibility of Implementing the Advanced Practice Paramedic

Approved Investigator: Gregorio, David-Good, David-

The study referenced above has received final approval from the University of Connecticut Health Center's Institutional Review Board. The OHS Federal Wide Assurance Number is 00006004.

The study was approved on 3/14/2005. The study was determined to qualify for exempt status in accordance with 45 CFR 46.101 under category 2. Please note that this study is subject to audit by the Research Compliance Monitor.

If applicable to your study, copies of the IRB stamped and dated informed consent form must be used when obtaining consent. The consent form must be signed and dated by both the participant and the individual obtaining consent.

It is the responsibility of the PI to ensure that all investigators and staff associated with this study follow the approved protocol, use the approved forms and comply with all IRB policies including the reporting policy for non-compliance (protocol deviations), unanticipated problems and adverse events. Policies are available from the web site: <http://research.uconn.edu/irb/>. In addition, should there be any modifications or changes contemplated, it is necessary that review and approval be obtained from the IRB prior to their implementation.

Address all correspondence to IRB Office, Bldg. 20, MC 3926. If you have questions, call the IRB Office at 679-1019 or 679-6129.

cc: Department Chair, Community Medicine & Health Care
 Anthony Paquette

260 Farmington Avenue
 Farmington, Connecticut 06030-3926
 Telephone: (860) 686-1019
 Web site: <http://research.uconn.edu/irb/>