A survey of front-line paramedics examining the professional relationship between paramedics and physician medical oversight

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ABSTRACT

Objective: Paramedicine is often dependent on physician medical directors and their associated programs for direction and oversight. A positive relationship between paramedics and their oversight physicians promotes safety and quality care while a strained or ineffective one may threaten these goals. The objective of this study was to explore and understand the professional relationship between paramedics and physician medical oversight as viewed by front-line paramedics.

Methods: All active front-line paramedics from four municipal paramedic services involving three medical oversight groups in Ontario were invited to complete an online survey.

Results: Five hundred and four paramedics were invited to participate in the study, with 242 completing the survey (48% response rate); 66% male, 76% primary care paramedics with an average of 13 (*SD* = 9) years of experience. Paramedics had neutral or positive perceptions regarding their autonomy, opportunities to interact with their medical director, and medical director understanding of the prehospital setting. Paramedics perceived medical directives as rigid and ambiguous. A significant amount of respondents reported a perception of having provided suboptimal patient care due to fear of legal or disciplinary consequences. Issues of a lack of support for critical thinking and a lack of trust between paramedics and medical oversight groups were often raised.

Conclusions: Paramedic perceptions of physician medical oversight were mixed. Concerning areas identified were perceptions of ambiguous written directives and concerns related to the level of trust and support for critical thinking. These perceptions may have implications for the system of care and should be explored further.

RÉSUMÉ

Objectif: Dans bien des cas, la paramédecine relève de directeurs médicaux, eux-mêmes médecins, et dépend de programmes associés de direction et de surveillance. De bonnes relations entre ambulanciers paramédicaux et médecins chargés de la surveillance favorisent la sécurité et la prestation de soins de qualité, tandis que des relations tendues ou inefficaces peuvent mettre en péril l'atteinte de ces objectifs. L'étude visait donc à examiner et à comprendre les relations professionnelles qui existent entre les ambulanciers paramédicaux et les médecins chargés de la surveillance, telles qu'elles sont perçues par les ambulanciers paramédicaux de première ligne.

Méthode: Tous les ambulanciers paramédicaux de première ligne actifs, provenant de quatre services ambulanciers paramédicaux municipaux et relevant de trois groupes de surveillance médicale en Ontario ont été invités à répondre à une enquête en ligne.

Résultats: Cinq cent quatre ambulanciers paramédicaux ont été invités à participer à l'enquête et, sur ce nombre, 242 ont rempli le questionnaire (taux de réponse : 48 %); il y avait 66 % d'hommes, 76 % des répondants étaient ambulanciers paramédicaux en soins primaires et, tous ensemble, ils comptaient en moyenne 13 (écart type = 9) années d'expérience. Les ambulanciers paramédicaux avaient des perceptions neutres ou favorables quant à leur autonomie, aux possibilités d'interaction avec les directeurs médicaux et à la compréhension que les directeurs médicaux avaient du milieu préhospitalier. Toutefois, les ambulanciers paramédicaux percevaient les directives médicales comme rigides et ambiguës. Un nombre appréciable de répondants ont fait état de la perception de ne pas avoir donné les meilleurs soins possible par crainte de conséquences juridiques ou de mesures disciplinaires. En outre, les répondants ont souvent fait mention de problèmes concernant un manque de soutien à l'égard de la pensée critique et un manque de confiance entre les ambulanciers paramédicaux et les groupes de surveillance médicale.

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Conclusions: Les ambulanciers paramédicaux ont exprimé des perceptions ambivalentes à l'égard de la surveillance médicale assurée par des médecins. Les zones d'ombre ont trait à la perception de directives écrites ambiguës et au manque de confiance et de soutien à l'égard de la pensée critique. Ces perceptions peuvent influer sur le système de soins de santé et elles devraient faire l'objet d'un examen approfondi.

Keywords: medical direction, medical oversight, paramedicine, prehospital care

INTRODUCTION

In most settings, the ability of paramedics to provide a high level of out-of-hospital care is supported by a physician delegation and medical oversight model. A variety of delegation models and infrastructure of supporting organizations may exist, but common among them are physician medical directors (usually emergency medicine specialists) who oversee and direct paramedic practice. This is accomplished using, for example, medical directives or guidelines and, where these are limited, some form of live voice contact where appropriate. Ensuring the delivery of high-quality arms-length out-of-hospital care is therefore dependent on a functional relationship and an optimal culture of support and communication between paramedics and physician groups.

In Ontario, Canada, paramedicine requires that physician medical directors oversee paramedic practice and delegate controlled medical acts to paramedics. This delegation and physician medical oversight program occurs through a number of regional "base hospitals" supported by the Ontario Ministry of Health and Long Term Care, Emergency Health Services Branch.[1] Each base hospital includes one regional and multiple local medical directors, a number of educators, quality-assurance specialists, auditors, and other staff who, in addition to medical oversight, are responsible for entry to practice certification and recertification, monitoring of practice standards, and more (see the Ontario Ministry of Health Base Hospital Roles and Responsibilities[1] for a full summary and details). While some variation exists, a set of provincial medical directives, developed by all base hospitals in the province along with the Ministry of Health, define paramedic practice in the province.[2] Importantly, a distinction is seldom made between medical directors and base hospital programs, as both are inextricably linked in Ontario's system of physician medical oversight.

The interaction between paramedics and physician medical oversight is complex but also important for the provision of safe and effective care by paramedics.[3] Errors in paramedicine may be underreported,[4,5] and this is likely to be exacerbated should the professional relationships between paramedics and physician medical oversight be strained. For instance, as medical directors (and their associated programs) are in many ways responsible for the availability, delivery, and delegation of care in paramedic systems, paramedics may experience a tension between seeking additional guidance when needed (or revealing errors) and potential disciplinary action (even when base hospitals are explicit about eliminating or minimizing such action). Also, the arms-length model may pose a barrier for continued professional development by limiting contact with the expertise of physicians. Should these and other challenges exist, aims at optimizing delivery of care may be limited or at least threatened. However, high-functioning systems provide the opportunity for safety and advances in quality. Therefore, the objective of this study was to explore and understand the professional relationship between paramedics and physician medical oversight as viewed by front-line paramedics, as it exists as part of their daily work.

METHODS

Overview

Active front-line paramedics (including advanced and primary care paramedics [ACPs and PCPs]) from four municipal paramedic services representing rural and urban practice environments and three distinct base hospitals in Ontario were invited to complete an online survey. The survey targeted features of the professional relationship derived from common voluntary and obligatory interactions with medical directors and base hospitals. Our study was reviewed and approved by the Centennial College Research Ethics Board (REB #125) in Toronto, Ontario, Canada.

Survey

The survey was designed to investigate multiple aspects of paramedic perceptions of physician medical oversight in their daily work. The survey tool was authored

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by two of the investigators. Our content validation process focused on common aspects of the relationship, including interactions with the base hospital physicians when communicating directly with paramedics on the scene during patient contacts (referred to as “patching”), and the use of written medical directives, education, auditing, and personal interactions. This led to the inclusion of both quantitative (e.g., Likert-type scale statements) and qualitative (i.e., open-ended free-text questions) data facilitating a more in-depth, complementary, and complete data collection strategy.[6] The survey was pilot-tested with paramedics from a non-participating region and revised based on feedback received. A copy of the survey is included in Appendix A.

Participants

All participants were recruited from Ontario, were active paramedics (advanced or primary care paramedics), and to be included must have been in good standing with one of the regional base hospital systems in the province. As such, all were practicing under a set of medical directives and structures governed by the Ontario Ministry of Health, Emergency Health Services Branch. We recognized that, while participants may not have been aware of the intricacies of the medical oversight system, their ongoing interactions as they existed without further elaboration was precisely the group we were interested in surveying.

Data collection

Recruitment began by contacting paramedic service managers and sharing the study objective and supporting rationale. We then asked for permission to distribute the survey to paramedics using their email distribution lists. We used a modified Dillman[7] method for web-based surveys and included a total of five contacts via email. The first contact was from the paramedic service informing recipients of the upcoming survey. Three days after this initial contact, the invitation to participate in the survey was emailed to the paramedics using a communication prepared by the research team. At one, two, and four weeks after the initial contact, follow-up emails were sent to non-respondents. An option to opt out of follow-up messages was included in all communications. Informed consent was obtained electronically prior to data collection. The survey was prepared using SurveyGizmo (SurveyGizmo, Boulder, CO, USA) and included as a link in the email communication. All data were collected electronically and exported for analysis.

Analysis

For all Likert-type scale responses, we employed descriptive statistics to analyze and report results. For all open-ended questions or questions involving text, data were analyzed using inductive thematic analysis. Borrowing from descriptive qualitative research,[8] this method of analysis involves openly coding statements (while staying close to the data and limiting inferences) and then inductively grouping codes into categories or themes, which are then reported. Both data sets were then considered in relation to one another (where appropriate) to further explore the relationships between paramedics and their delegating base hospital medical directors and base hospitals. We allowed the data to present convergent or divergent ideas as appropriate.

RESULTS

A total of 504 paramedics were invited to participate, and 242 completed the survey (48% response rate). Most respondents were primary care paramedics (n = 184, 76%) and male (n = 159, 66%), with a mean amount of paramedic experience of 13 (SD = 9) years. See Table 1 for a summary of complete demographic results. When paramedics were asked about interactions with their base hospital by “patch” (telephone support during an active clinical case), 31% (n = 75) reported doing so on average once a year, 24% (n = 58) reported doing so on a monthly basis, and 27% (n = 66) reported having never patched (only paramedics who responded that they had participated in a patch were asked questions regarding these interactions with base hospital physicians). Some 41% (n = 100) of all respondents said that they had received an audit raising concerns regarding their patient care within the past year, requiring at least a written or verbal response. See Table 2 for a summary of their interactions with physician medical oversight.

Paramedics were asked about their relationship with physician medical oversight as it relates to autonomy, understanding of the challenges of working in and out of the hospital environment, and satisfaction regarding their opportunities to interact with the medical director.

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Table 1. Demographics

	Male			Female		
Gender	*n* = 159 (66%)			*n* = 83 (34%)		
Age (years)	18–24 *n* = 12 (5%)	25–34 *n* = 99 (41%)	35–44 *n* = 74 (31%)	45–54 *n* = 49 (20%)	55–64 *n* = 7 (3%)	65 and older *n* = 1 (<1%)
Clinical level	PCP *n* = 184 (76%)			ACP *n* = 58 (24%)		
Education (within or outside of EMS)	Certificate or some college (one year or less) 54 (22%)	College diploma (two or three year) 145 (60%)		Bachelor's degree 40 (17%)	Master's degree 3 (1%)	
Years of paramedic experience	Mean 13 (*SD* = 9)					

Table 2. Quantitative medical oversight interaction information

"How many times in a year do you interact with your medical director in person?"	Mode 0 (range 0–40)					
"On average, I patch to a Base Hospital Physician once every:"	Shift *n* = 1 (<1%)	Few shifts *n* = 26 (11%)	Month *n* = 58 (24%)	Year *n* = 75 (31%)	Few years *n* = 16 (6.6%)	Never patched *n* = 66 (27.3%)
"How many patient contacts do you have in a typical 12 hour shift?"	Mean 4 (*SD* 2)					
"Have you received any audits from the base hospital in the last year that required a written or verbal response?"	Yes *n* = 100 (41%)			No *n* = 142 (59%)		
"Have you ever been educationally or clinically deactivated or decertified by the base hospital?"	Yes *n* = 14 (6%)			No *n* = 228 (94%)		

These Likert-type question responses are presented in full in Table 3. The largest proportion of respondents (*n* = 104, 43%) agreed that they had an appropriate level of autonomy. Most (*n* = 92, 38%) agreed that their medical director understood the challenges of working in a prehospital environment, but most (*n* = 106, 44%) were neutral about their degree of satisfaction with their opportunities to interact with their medical director. The largest proportion of respondents (*n* = 93, 38%) disagreed that medical directives were clearly worded, and the largest proportion (*n* = 73, 30%) did not believe they would be supported by their medical director if they had to deviate from established medical directives. On the topic of optimizing care even if it meant deviating from existing medical directives, results were mixed with most paramedics (*n* = 91, 38%), indicating that a fear of legal or disciplinary consequences had not inhibited them from providing what they perceived as optimal patient care. However, 75 (31%) felt the opposite—that the care they provided (at one time or another) had been inhibited by these concerns.

When asked specifically about perceptions regarding the degree to which base hospital support paramedics were thinking critically, that is, to deviate from medical directives when appropriate to optimize patient care, again, the responses were mixed, with some suggesting that there was such support and others articulating the opposite. Further, some discussed the presence of mixed messages where critical thinking was said to be supported but not so in practice.

When asked openly about relationships with medical directors or base hospitals, a number of themes emerged. First, paramedics suggested that the priorities of the base hospital when inquiring about patient care in quality-assurance audits were generally grounded in clarification requests regarding actions during patient contacts. However, while respondents suggested

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Table 3. Likert-type scale question survey responses

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total responses
Overall, I am satisfied with my current opportunities to interact with my medical director.	20 (8%)	43 (18%)	106 (44%)	61 (25%)	12 (5%)	242
My medical director understands the unique prehospital environment and the challenges that paramedics face while trying to treat patients according to the medical directives.	9 (4%)	47 (19%)	78 (32%)	92 (38%)	16 (7%)	242
Base hospital medical directives are clearly worded and unambiguous.	20 (8%)	93 (38%)	64 (27%)	61 (25%)	4 (2%)	242
Base hospital medical directives allow me to practice with an appropriate level of autonomy.	12 (5%)	50 (21%)	69 (29%)	104 (43%)	7 (3%)	242
On unique calls, where the patient may not perfectly fit with a medical directive, I am comfortable treating the patient appropriately knowing that I will be supported by my medical director.	34 (14%)	73 (30%)	71 (29%)	61 (25%)	3 (1%)	242
I am comfortable seeking support through patching to a base hospital physician in unique situations that may not entirely fit the written directives.	7 (3%)	28 (12%)	50 (21%)	125 (52%)	32 (13%)	242
I am generally satisfied with my interactions with the base hospital physician when patching.	2 (1%)	10 (6%)	42 (24%)	103 (59%)	18 (10%)	175
The messages from the base hospital educators, the base hospital physicians, and the written medical directives are always consistent.	16 (7%)	77 (32%)	90 (37%)	56 (23%)	3 (1%)	242
Fear of legal or disciplinary consequences has inhibited me from providing optimal care in an emergency setting.	18 (7%)	91 (38%)	58 (24%)	64 (27%)	11 (5%)	242

that the base hospital's interests in conducting these quality-assurance audits were attempts to ensure patient safety, concerns were expressed that these audits were overly focused on strict protocol adherence without much room for critical thinking. Further, the process of responding to audits was generally perceived as a punitive process.

We also asked respondents to share their thoughts on the amount and quality of education received each year from their respective base hospital. Responses were again mixed, with some suggesting that the education was adequate or sufficient, while others appeared to express an interest in or desire to have greater opportunities to learn more, especially as it related to patient interactions that might not align neatly with existing medical directives. Still others suggested that the quality of the education was problematic and that existing formats blurred teaching and learning with assessment of competence during the same session.

Finally, when asked to share any other thoughts on medical direction, medical directives, and base hospital education, two dominant themes emerged. First, some challenges regarding insufficient clarity or poor alignment with practice when considering rigid medical directives were again reported. Second, comments provided reflected a perceived lack of trust or poor working relationship for some (between the paramedics and the physician medical oversight system) as well as an effort to improve on this issue. See Table 4 for a summary of these findings and supportive quotes.

DISCUSSION

The field of paramedicine is advancing rapidly, with a health care community and public who demand more of the profession. In many settings, optimizing care by paramedics involves the delegation of controlled medical acts and medical oversight. This has led to a model where physician medical directors and their associated programs rely on and work closely with paramedics. A high-functioning relationship serves to optimize practice and perhaps provide a model for other jurisdictions, while a challenged or strained relationship may offer opportunities for problematic practice implications, especially if undetected. As such, this study explored the perceived relationship between

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Table 4. Major themes and supporting quotes

Theme	Supporting quote(s)
Question 1: When questions are raised in audits from the base hospital what do you feel is the main priority of the base hospital?	
Perceived focus on strict protocol adherence without room for paramedic critical thinking	"It seems that only the exact words of the protocol is what auditors seem concerned with. They don't seem to be able to 'think outside the box,' or consider circumstance or variables."
Quality assurance perceived as a punitive process	"I believe this question [in an audit] was raised to invoke fear and demonstrate power and control and had absolutely zero value with regards to improving the quality of patient care or education." "You feel as if you're placed under a microscope and that they are trying to prove that you made a mistake. Definitely not a situation that allows for honest and open communication."
Recognition of the role of the physician medical oversight system in ensuring optimal patient care	"I feel the main priority of the base hospital is to ensure patient care standards are being met." "Ensuring that paramedics are following protocols and recognizing critical changes in patient condition."
Question 2: What are your thoughts on the amount and quality of education received each year from your base hospital?	
A feeling of not enough education being provided	"I don't think it's enough. We are trained to be able to act quickly and correctly in any situation, and many of the more serious situations we rarely see, I do not think we receive adequate training or training opportunities to provide optimum care at all times in all situations." "I do not think there is enough. There is a fair amount of things that are 'left out' of the protocol [medical directive] that we are just supposed to know. More education with them would make us more comfortable in situations that the patient does not fit our protocol exactly as written."
A perceived lack of depth to the education provided by the base hospital program	"Education is too generalized and not thorough enough." "Quality has improved over the years but still lacking usable substance."
A perceived focus on testing overshadowing training	"I believe that better adult learning can be obtained without the impending doom hovering over your head should you make an error in your training day you may be decertified, absolutely not a learning environment." "Need more education, 'fun to learn' not testing and fear of reprisal, deactivation, or loss of job."
Question 3: To what degree do the base hospital and your medical director support paramedics thinking critically to provide the best possible patient care?	
Support for critical thinking	"I feel confident that I can act through critical thinking as long as I can support my decisions."
Little support for critical thinking	"This is definitely an area where we are not given much room to make our own decisions. Some calls require serious critical thinking just to move or assess the patient properly, and the directives often make you second-guess the best option because it doesn't 'fit' within our given directives." "In the circumstances I'm aware of, in which my co-workers have dealt with base hospital more often than not, the critical thinking and decisions made as a result were very rarely supported. In fact from the point of view of a road medic the opinion is that medics who have used their critical thinking ability are treated more like 'cowboy medics' and heavily scrutinized."
Perceived mixed-messages on critical thinking	"They say they want you to 'think outside the box' and be critical thinkers, however when you do, you have a lot of explaining to do and feel as if you're being reprimanded." "I feel the base hospital waves the critical thinking flag, but doesn't interact with paramedics in a manner that actually supports that idea."

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Table 4. (Continued)

Theme	Supporting quote(s)
Question 4: Are there any other thoughts you would like to share on the medical direction, standing orders and base hospital education?	
Perceived lack of clarity in the written medical directives	"I think our standing orders [medical directives] should have some of the 'unwritten rules' printed in them. As we all know there are some things that we just assume/know that are not written in the protocol." "The new [medical] directives are very vague, but do not allow for critical thinking."
Perceived lack of trust or poor working relationship between the paramedics and the physician medical oversight system	"More trust should be put in the paramedics. [Medical] directives are too strict and exclude too many patients that could benefit from symptom relief [medication administration]." "No one is going to report errors to a [base hospital] program that wants to hang you out to dry!!" "I believe that as paramedics we are highly trained and well educated but not respected by base hospital physicians."
Perceptions of an improving situation	"They are moving in the right direction, but more work needs to be done in protecting us paramedics, not trying to find blame. If we could work without the fear of getting in trouble, I am sure the quality of care would improve." "I found that the recerts [base hospital teaching and testing] last year were very educational, and gave me more confidence with the changes to the protocols. It was a relaxed environment, and although it was challenging, it encouraged learning and questions. It was easy to gain clarification."

paramedics and physician medical directors, as reported by paramedics. Our results suggest that paramedics generally have a positive professional relationship with their medical directors and base hospitals but have difficulty with some facets of the delegation and medical oversight model. Specifically, limitations associated with the application of medical directives and concerns regarding support for actions when deviating from medical directives (which is perceived to be a barrier to optimizing care[9]). Further, opportunities to develop clinically could be improved.

Medical oversight programs have the difficult task of developing and implementing care programs that provide the highest level of care across a diverse set of clinicians and settings. This typically means finding a balance along a continuum between complete autonomy and overly prescriptive or restrictive structures. This complex clinical model seems to be a source of tension, with some having difficulty resolving the challenges of adhering to established medical directives and finding ways to optimize care. Further, this tension may be exacerbated when one considers issues of trust and support, as reported by our respondents, when deviations from established medical directives are considered. This suggests that there may be events when paramedics (we can assume at times correctly and others incorrectly) would argue that clinical care might have been optimized by deviating from (in this case) restrictive medical directives. The challenge for medical oversight groups is in establishing a system that can allow and even encourage such practices, while promoting or ensuring safety. In an effort to address this issue, medical oversight groups may consider and advocate for the role of clinical guidelines over more prescriptive medical directives. Emphasizing the need for greater clinical reasoning and decision making in paramedicine in terms of ability and autonomy has been highlighted elsewhere.[9] Transitioning in this way has obvious implications for practice, including the competence of the clinicians and some of the inherent limitations of applying guidelines.[10] Until these issues are resolved, there will be a perception that there is a barrier to optimizing care in an otherwise safe model.

Despite the significant efforts by medical oversight groups to promote an education-based culture, perceptions of a punitive quality-assurance system persist. This may have implications for the degree of error or near-miss reporting that exists (or does not exist) with

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medical oversight groups. The Institute of Medicine has previously identified error reporting as a key component of establishing a safety culture, saying that there is currently a lack of awareness of the extent of errors in health settings because "the vast majority of errors are not reported because personnel fear they will be punished."[11] Further, the Pan-Canadian Patient Safety in EMS Advisory Group advocate for a "culture of support and engagement of the providers without fear of punishment to focus attention on system issues rather than individuals."[9] Given the context of practice for paramedics and the persistence of this issue, careful attention to it should continue to be a priority.

This punitive culture seems to have some consistency with issues affecting clinical development. Paramedics viewed the medical directors and base hospitals as a source of continuing medical education. However, issues were raised regarding access to medical directors for this reason, inconsistencies in the educational program, difficulty finding clarity in medical directives, and a continuing medical education model that was often perceived as being focused on testing instead of educational value. For many paramedics, continued medical education is associated with base hospital programs, and, as such, some careful review of educational strategies or any unintended curriculum may be warranted.

LIMITATIONS

There are limitations associated with this study. The response rate was 48%, and as a result it is difficult to generalize our results to all settings. Further, it is possible that our respondents may be more engaged and perhaps more critical than non-respondents and/or had more negative interactions with physician medical oversight than non-respondents. Unfortunately, we are unable to compare our results (including demographics) with other similar studies (since none are available) or existing base hospital data (e.g., deactivation rates) since data of this kind are not publicly available. Therefore, we cannot entirely exclude the possibility of respondent bias. Of the paramedics who participated in this study, only three of the seven land regional base hospital programs in Ontario were represented. Our survey results may not be generalizable to other oversight models in other regions or nations. Our study was exploratory and therefore does not claim to capture all features of the paramedic/base hospital relationship, but it does draw on vital features related to development of expertise, patient care, and safety. We also employed pilot testing to refine our survey but did not engage in formal validation, though other exploratory studies have been successful in providing useful results with similar survey design conventions.[12] Further research should broaden these preliminary results to include other base hospital programs and medical oversight models. Finally, we must emphasize that this study examined paramedics' perceptions and not that of the physicians or medical oversight groups. Having both groups involved in future research will shed further light on this complicated practice model.

CONCLUSIONS

Paramedics' perceptions of medical oversight in their daily work were varied. Positive views were expressed in areas including autonomy, medical directors' understanding of prehospital care challenges, and interactions with medical oversight physicians during real-time medical support (i.e., patching). Areas of concern included the perception of ambiguous medical directives, a lack of support for critical thinking (specifically when deviating from medical directives might optimize care), and a mutual lack of trust between the physician medical oversight system and paramedics. Quality-assurance programs were viewed as necessary, but punitive. Continuing medical education offered from medical oversight physicians and programs was valued, but some respondents perceived a focus on testing that threatened the educational efforts. These perceptions may have implications for the system of care and should be explored further.

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Conflict of Interest: None to declare.

SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit http://dx.doi.org/10.1017/cem.2017.36

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