An Examination of Administrative Discretion in Emergency Medical Services

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Abstract

As a street-level profession, the field of emergency medical services (EMS) has remained largely unexplored by public management scholars. Though a substantial body of clinical and systems-level research has been amassed in the fields of medicine and operations research, there is still a conspicuous lack of research into the behavior of front-lines EMS providers, a gap that may be filled through empirical public management research. To begin the conversation on this core public service, two research questions are posed examining the interrelated concepts of rules, discretion, and influence: 1) what is the relative impact of conventional sources of influence on the discretionary behavior of street-level bureaucrats in EMS organizations?; and 2) in what ways do street-level bureaucrats in EMS organizations adhere to or deviate from written rules, policies, and procedures during service interactions?

A grounded theory approach is used to examine text generated by semi-structured interviews (n=30), and focus groups (n=3) of paramedics. Interviews collected individual-level data on influence and the exercise of discretion, and consisted of in-depth accounts extreme, challenging, or complex emergency incidents. Focus groups were used to examine group-level norms surrounding rule complexity, rule abidance, and rule deviation. Data were collected from May to October 2010, with interviews and focus groups evenly collected from three organizations with varying organizational arrangements (e.g., hospital-based, fire department-based, and police department-based).

Results indicate that the discretionary actions of paramedics are strongly influenced by occupational and organizational culture, and by both clinical presentation and non-clinical patient characteristics. Though rule abidance is the norm for very minor and very severe patients, instances of discretionary behavior and rule deviation were more frequent and likely to impact patients falling between these extremes, with variation in the resultant level of benefit to the patient. Substantial rule complexity was evident, with multiple, sometimes conflicting sets of clinical protocols that must be enacted in urgent, uncertain, and environmentally unstable situations.
INTRODUCTION

Understanding the factors that influence the behavior of front-line emergency medical services (EMS) providers is critical as these individuals can have a substantive impact on the health of the patients they treat. As the initial line of emergency treatment in a larger health care system, EMS providers are tasked with providing patient care in urgent, complex, and uncertain situations, and transportation of patients to definitive care. The potentially life-saving interventional and pain-reducing palliative treatments provided by EMS personnel are inarguably a vital social service, one that is “… a central component of the public health system” (David & Harrington, 2010, p. 604). Indeed, for patients in medically precarious situations, “… the decisions made and actions taken by EMS personnel may determine the outcome as much as the subsequent hospital-based care – and may mean the difference between life and death” (IOM, 2007, p. 1).

The Institute of Medicine of the National Academy of Sciences (IOM) estimates that of the 114 million visits to emergency departments (ED) every year, approximately 16 million of these patients arrive via ambulance (2007, pp. xiv). These patients can often present with significant illnesses, with approximately 43% of all hospital admissions arriving through the ED (IOM, 2007, p. xiv). This staggering volume of service is handled by EMS providers working for varying types of organizations, including local government as well as private nonprofit and for-profit agencies. The Bureau of Labor Statistics (2008) estimates that more than 207,000 of the most common types of EMS providers, emergency medical technicians (EMTs) and paramedics, are employed across the United States, while the American Ambulance Association estimates that there are more than 840,000 EMS providers in the United States when volunteer providers are included (2009). When considered together, the vital nature of this social service, the
substantial volume of services provided, and the palpably large body of individuals providing care, it is evident that EMS is worthy of scholarly attention through focused research.

Although a substantial body of empirical research on the topic of EMS has been amassed from the perspectives of clinical medicine, EMS provider education, and “systems” level research, there is a dearth of research into the behavior of EMS providers at the front lines. Specifically, there is a lack of understanding of the internal and external sources of influence that act on these service providers as they provide crucial public services and exercise discretionary latitude. Though previous research has contributed substantively to the discussion, these studies do not serve to fully illustrate this core public service. Missing from this body of empirical research is a specific focus on discretion at the front lines and the various sources of influence that have a salient impact on how EMS workers behave.

EMS providers can be analytically examined as “street-level bureaucrats” (Lipsky, 1980). Previous empirical research into the behavior of street-level bureaucrats has focused on several distinct occupational areas, including law enforcement, nursing, front-line welfare workers, and teachers (Lipsky, 1980; Maynard-Moody & Musheno, 2003; Riccucci, 2005; Vinzant & Crothers, 1998). This valuable empirical research has uncovered the substantial discretion found in many front-line jobs, varying sources of influence on front-line employees, issues of monitoring employee behavior and compliance with supervisory and organizational directives, the nature of legitimacy of the actions of street-level bureaucrats in a democratic context, and the social processes that shape collective actions of street-level bureaucrats. Many of these theories of discretion and influence are applicable to individual and group functioning in EMS organizations. Importantly, it has been shown that there is a relationship between the fundamental tasks of certain professions and the behavior of individuals fulfilling those roles.
(Hill & Hupe, 2003, p. 477). Thus, despite the large body of literature on street-level bureaucrats, it is important to examine EMS providers and not allow for the imposition of theories of behavior from other professions that may not be applicable.

Much of this research on street-level bureaucrats places the concept of discretion at the fore, thus situating it within one of the most important debates in the field of public administration, namely the exercise of administrative discretion in a democratic system of government (Finer, 1941; Freidrich, 1940). This study will focus on the exercise of discretion and the identification of those sources of influence that have an increasingly salient effect on EMS provider behavior. This research will specifically focus on experienced front-line paramedics providing prehospital emergency medical care in Pennsylvania. Serving a population of over 12 million (U.S. Census, 2000), EMS providers are prevalent in Pennsylvania with substantial numbers of both career and volunteer personnel responding to millions of calls for service every year. Taking a first step in filling gaps in knowledge surrounding EMS, this study employs qualitative data collection methods to study concepts of discretion and influence during service interactions.

LITERATURE REVIEW

Street-Level Public Service

As a class of public servants, individuals occupying front-line positions in social services organizations enjoy potentially substantial discretion as they perform necessary functions, often do so with relatively little managerial oversight, and respond to varying and potentially multiple types of influence. These “street-level bureaucrats,” as described in Lipsky’s (1980) seminal work, are those “… who interact directly with citizens in the course of their jobs, and who have
substantial discretion in the execution of their work…” (p. 3). Similar definitions offered by Vinzant and Crothers (1998) and Riccucci (2005) also point to direct service provision to the citizens and discretion or latitude as two defining components of street-level bureaucracy. Though discretion is not uncommon in government – administrative discretion exists to some degree at all levels of bureaucracy – it is the special nature of the combination of discretion, lack of direct managerial oversight, and face-to-face provision of services that makes street-level bureaucrats truly interesting and critical to the provision of public services (Dimock, 1936/1967).

Ideally, the function of modern street-level bureaucrats within the larger context of governance, according to Vinzant and Crothers (1998), is “. . . quite simple: such workers execute the rules, programs, and policies established by their agencies in accordance with the law” (p. 10). Prottas (1978) noted, “[t]hese bureaucrats do the ‘actual’ work of the agency – they interview clients, arrest suspects, treat patients, and so forth …” (p. 286). These individuals are, in the words of Maynard-Moody and Musheno (2003) the “… coal miners of policy: they do the hard, dirty and dangerous work of the state” (p. 157). Often the tasks with which street-level bureaucrats are tasked are of vital importance to individuals receiving the services, and in many cases represent core quality of life issues.

The cumulative actions of bureaucrats at the front-lines therefore constitute a critical area of interest not just for individual clients, but for analysis and evaluation of public programs. As Riccucci (2005) noted, “[i]t is at the street level where policy delivery may be most critical for social programs, because the actions of front-line workers have substantial and sometimes unexpected consequences for the actual direction and outcome of benefit programs” (emphasis in original, p. 5). The discretionary latitude held by street-level bureaucrats is of increasing interest in that it exists at this final step in the policy implementation process. Keiser (1999) noted
this exceptional nature of street-level bureaucrats, and specified that “… human service
bureaucracies must deal with especially complex inputs – they process people” (p. 88).

Though not unique to street-level work, discretion plays an especially important role in
the face-to-face interactions of street-level bureaucrats and citizens (Keiser, 1999; Lipsky, 1980;
Scott, 1997). For the purpose of this discussion, discretion can be defined as “… the making of a
choice, within certain constraints, regarding the task process or outcomes” (Vinzant & Crothers,
1998, p. 40; Davis, 1969; Handler, 1986). Though it is the subject of substantial debate and
academic research, discretion is also very much a reality of government. It is “… not primarily a
legal concept – it is the very stuff of the daily duties in all branches of government” (Dimock,
1936/1967, p. 65). The act of exercising discretionary behavior is one that combines the
fundamental functions of government – legislative, executive, and judicial – in the actions of an
individual (Dimock, 1936/1967).

Discretion is a necessity at the front lines, according to Lipsky, for three reasons. First,
street-level bureaucrats work in situations that are often “… too complicated to be reduced to
programmatic formats” (1980, p. 15; Prottas, 1978). The complexities of street-level work do not
allow for the promulgation of rules and regulations to cover every possible work situation, thus
requiring some amount of discretion. In those cases in which rules and regulations do not
sufficiently provide guidance for bureaucratic action, street-level workers may “… tend to
routinize them so as to eliminate the cost of thinking out what to do each time the same situation
recurs” (Downs, 1967, p. 63). Second, street-level work often results in situations that “. . .
require responses to the human dimensions of situations” (Lipsky, 1980, p. 15). Bureaucrats
working on the front-lines of public service are charged with the difficult and complex task of
working directly with people, a job characteristic that should not be diminished as trivial (Davis,
be more likely to consider the impact of their actions if the ramifications of their actions are proximal and if clients believe in the efficacy of the individuals with whom they are interacting.

Discretion is dependent to a great extent on varying types of constraints. Dworkin (1977) noted that “[d]iscretion, like the hole in a doughnut, does not exist except as an area left open by a surrounding belt of restriction. It is therefore a relative concept” (p. 31). Rules, however, are not the only types of constraints on discretionary action. Several types of discretion exist in the world of street-level bureaucrats, each of which is both created and constrained by the rules and norms created to shape the behavior of the front-line workers (Dworkin, 1977; Handler, 1986; Hupe & Hill, 2003; Lipsky, 1980; Scott, 1997). More generally, “… discretion is always about a tension between general and abstract rules, on one hand, and specific situations on the other – in other words, a flexibility versus uniformity dilemma” (Loyens & Maesschalck, 2010, p. 67).

Sources of Influence in Front Line Public Service

The nature of discretion and resolution of these difficult problems of street-level service can only be understood by examining sources of influence at the front lines. As Riccucci (2002) noted, “[t]here is a long tradition of research in the social sciences on the multiple interests that interact during implementation to influence and shape policies as they devolve down hierarchical lines” (p. 902). Similarly, Weatherly, a protégé of Lipsky, correctly noted that “[t]he pyramid-shaped organization chart depicting at the bottom the front-line worker as passively receiving and carrying out policies and procedures dispensed from above is a gross oversimplification. A more realistic model would place the front-line worker in the centre of an irregularly shaped sphere with vectors of differing size and directed inward” (1979, p. 9). Behavior, then, is as
much a product of rules as the “… result of habit, custom, or the influence of other social actors in the environment” (Handler, 1986, p. 210).

These pressures on street-level bureaucrats can be sorted into categories by their location relative to the organization, with several sources apparent both within and external to the organization. Sources of influence within the organization include coworkers, supervisors, formal organizational structure, and organizational culture (Vinzant & Crothers, 1998, pp. 12-14).

Perhaps the most obvious and expected type of influence is that of the managers supervising front-line public servants, though empirical research has shown varied amounts of influence from individuals in these positions. In a study of front-line welfare workers, Riccucci (2005) noted that managers can influence change through several different types of interactions with front-line workers, including formal and informal training, the provision of specific feedback on positive and negative street-level performance, through “administrative interventions” (e.g., encouraging desirable practices and discouraging negative practices), and through involvement in the decision-making process (Riccucci, 2005, p. 88). Managerial influence can also be exerted on street-level bureaucrats through performance measurement systems. Specifically, programs like the CompStat system in New York, used to evaluate police department functioning, can be used by managers to monitor and evaluate the performance of street-level bureaucrats on a continual basis (Moore, 2003).

Beyond managers, others have found peer public servants working in the same occupational category to be influential in shaping the behavior of coworkers. Oberfield (2010) examined two classes of new police officers and caseworkers working for a single municipality, empirically studying the rule-following tendencies for these two types of street-level workers as
they entered and progressed through their initial professional training. This longitudinal study examines bureaucratic rule-following as a function of formal organizational influences, including training and supervision, informal influences like peers, experienced employees, organizational culture, and demographics (Oberfield, 2010). The author found that individual rule-following identities were likely to stay relatively stable, though informal influences from both fellow trainees and from veteran bureaucrats did influence rule-following tendencies (Oberfield, 2010). Those who were not default rule-followers were more likely to be influenced by peers and experienced workers (Oberfield, 2010, p. 753).

Others have place organizational-level factors at the fore when considering influence at the front-lines, most frequently organizational culture. Kelly (1994) examined the effects of organizational norms on the street-level bureaucrat’s conceptions of justice and the exercise of discretion at the front lines. To cope with problematic situations, front-line workers may use their personally held conceptions of justice in the exercise of discretion. This exercise is, however, not without restrictions. Kelly added that “. . . the influence of [the street-level bureaucrat’s] beliefs on implementation depends in part on the organizational norms regarding the use of discretionary authority” (1994, p. 121). Through informal interviews with two different types of street-level bureaucrats, teachers and “employment development” officials (front-line workers engaging in unemployment eligibility determination and job placement services), Kelly found that the organizational culture of an agency, as well as the constraints of rules and relatively looseness of culture, shape the ability of front-line workers to exercise discretion in line with their conceptions of justice (1994, p. 138).

Occupational culture, conceptually similar to professional norms and values, also permeate the roles that individuals hold within organizations and have been found to be
potentially more influential than organizational culture. As Schein noted, “[a]s members of different occupations, we are aware that being a doctor, lawyer, engineer, accountant, or other professional involves not only the learning of technical skills but also the adoption of certain values and norms that define our occupation” (Schein, 2004, p. 10). These task-related norms, values, and beliefs can both emphasize or deemphasize the importance of formal rules, policies, and procedures, and also shape the use of discretionary action by individuals within a particular profession (Keiser, 1999).

Sandfort (2000), in an examination of the impact of managers and leaders on the behavior of front-line welfare workers in public welfare eligibility determination agencies and private, contracted welfare-to-work agencies, found that occupational culture is of great importance in shaping the behavior of street-level bureaucrats. Noting that managerial influence was less salient and in some cases did not function as intended, Sandfort noted that “… street-level bureaucrats themselves play an important role in shaping the norms, values, and beliefs about the nature of their work, the work context, about their relationships with coworkers, and about work-related issues. Sandfort wrote, “[s]treet-level workers in both contexts exert more agency than is conventionally recognized. Through daily experiences, staff generate collective schema that help them to understand their work and efficiently utilize organizational resources” (2000, p. 731). Riccucci (2005), in a study of the importance of management on street-level bureaucrats in welfare agencies, found that occupational culture is of great importance to understanding behavior at the front lines. Instead, “… workers at the front lines often pursue goals that are consistent with their work norms, familiar routines, professional standards, and socialization experiences (Riccucci, 2005, p. 2). Thus, behavior is often shaped not by direct managerial intervention, but by the salient experiences of workers as they struggle to simply do
their jobs. Thus, “… it is the work ethics, norms, professionalism, and occupational culture at the street level of bureaucracy that influence the behaviors of front-line staff, not management, leadership, and organizational factors” (Riccucci, 2005, p. 74, emphasis in original).

In a study of front-line health care providers, Isett, Morrissey, and Topping (2006) found that managerial changes to the policies at the macro-level are less important in the shaping the perspectives of healthcare providers. Specifically, they noted that “… the attitudes and perceptions of street-level bureaucrats, such as front-line health care workers in the managed care setting, are not likely affected by large-scale systems or regime changes because their day-to-day activities remain fairly constant” (Isett, Morrissey, & Topping, 2006, p. 223). Rather, providers’ perspectives are mainly shaped by the nature of their daily tasks. “In other words, what matters to street-level bureaucrats is how they do what they do, not the larger questions of what they are doing or some abstract paradigmatic explanations of why they are doing it (Isett, Morrissey, & Topping, p. 223).

Sources of influence external to the organization include situational variables, clients, individuals from other organizations, political principals, the media, and the community as a whole (Vinzant & Crothers, 1998, pp. 15-16).

Clients, and specifically the street-level bureaucrat’s perception of the client’s identity and need for services, have been found to significantly impact front-line worker behavior. Front-line workers provide a service, and in doing so must “... first reduce that citizen and his or her demands into a simple and patterned package of processable attributes” (Prottas, 1978). Street-level bureaucrats must assess the client’s needs and determine how the agency can or cannot assist the individual. Perceived client identity, then, can be linked to the street-level bureaucrat’s
evaluation of the client’s worthiness to receive certain types of service provided by the agency (Maynard-Moody & Musheno, 2003).

In a study of street-level workers in a police department, vocational rehabilitation center, and school counseling office, Maynard-Moody and Musheno (2003) found that four dimensions are important to shaping perceptions of client identity and worthiness. These dimensions – an evaluation of the client’s responsibility for their situation, actions taken to remedy the need, the virtuous or vicious intent of the request, and an overall evaluation of the resources needed to assist – are all related to the broader evaluation of worthiness (Maynard-Moody & Musheno, 2003, p. 104). Essentially, street-level bureaucrats are “… making normative judgments about who gets what from government: they are simultaneously fusing the performance of the state with the construction of the social order” (Maynard-Moody & Musheno, 2003, p. 106).

Likewise, the influence of clients on bureaucratic discretion at the front lines was found to be significant in the experimental study of welfare eligibility workers conducted by Scott (1997). The study used to multiple cases to depict clients with differing levels of need to evoke varying levels of compassion for the client’s situation. The results showed that, on average, those clients who evoked a higher need for compassion received higher levels of assistance (Scott, 1997).

Client identity has been found to shape treatment in other sectors of the healthcare system (Cain & Kington, 2003). In 2004 Todd, Samaroo, and Hoffman found ethnicity to be a strong predictor of the administration of pain medications to patients presenting with similar types of injuries. The authors found that 74% of non-Hispanic white patients received pain medication whereas only 45% of Hispanics with the same type of injury received pain medication (Todd, Samaroo, & Hoffman, 2004, p. 1538). In a similar study, Todd et al. (2000) found that 74% of Caucasians received pain medication whereas only 57% of African-American patients with the
same type of injury received pain medication. And, these disparities exist beyond the administration of pain medication. Indeed, empirical evidence suggests that “… patient sociodemographic characteristics have an impact on both physician behavior during medical encounters … and on the diagnosis and treatments patients receive (van Ryn & Burke, 2000, p. 813). In a study of 618 post-angiogram patients and their treating physicians, van Ryn and Burke (2000) found that patient race was associated with “… physician’s assessment of patient intelligence, feelings of affiliation toward the patient, and beliefs about the patient’s likelihood of risk behavior and adherence with medical advice; patient SES was associated with physician’s perceptions of patient’s personality, abilities, behavioral tendencies, and role demands” (p. 813).

Though many of the empirical studies described previously considered one or several of these sources of influence, a more complete understanding of the nature of street-level behavior and exercise of discretion must be open to multiple sources of influence (Meyers & Vorsanger, 2007).

**Empirical Research in EMS**

The National EMS Research Agenda, a prospective view of the research efforts needed in the EMS field, identified three “domains” of EMS research, including clinical, systems, and education (NHTSA, 2001, p. 17). Of note, questions of street-level discretion and influence span all three of these realms. A substantial amount of clinical research in EMS has been conducted, with the majority focusing on heart attacks, cardiac arrest, and trauma (see NHTSA, 2001, pp. 38–46). Educational research includes studies examining paramedic training and development, including those examining the volume of EMS skills performed, a form of experiential education, and improved patient outcomes (David & Brachet, 2009). Theoretical and empirical
research on interorganizational and system-level concerns in EMS is common, spanning several disparate scholarly disciplines including operations research, healthcare economics, community planning, and public administration (Brown et al., 2007; David and Harrington, 2010; Kamenetzky, Shuman, & Wolfe, 1982; Setzler, Saydam, & Park, 2009).

Of direct interest to this research is a retrospective study by Salerno, Wrenn, and Slovis (1991). The authors found that of 1,246 patients who required advanced life support services, found that EMS providers deviated from written clinical protocols in 199 (16%) of the cases (p. 1319). Deviations from protocols were categorized using a Medicare/Medicaid issues severity level system, with approximately 55% considered “minor,” 38% “serious,” and 7% categorized as “very serious” (Salerno et al., 1991, p. 1321). Slightly more than 6% of cases of deviations resulted in negative consequences for the patient, whereas in 5% of patients actually showed some improvement (Salerno et al., 1991, p. 1321).

EMS as a Street-Level Occupation

The essential tasks of front-line EMS providers share certain similarities and display important differences from those of police officers, welfare workers, teachers, and other street-level bureaucrats. As with other street-level jobs, EMS providers must follow a substantial body of rules and regulations, are faced with substantial situational complexity, uncertainty, and potential danger, are able to exercise some amount of discretion in their daily tasks, and are subject to influence from multiple sources. There are, however, some important differences between the primary tasks of street-level EMS providers, specifically due to both the temporal immediacy and differences in patient needs. EMS work is intrinsically urgent, generally for periods longer than other street-level functions, and in many of the more difficult cases the
patient’s need is unobservable. The needs of those requesting EMS services are primarily physiological, thus differentiating this street-level occupation from other commonly studied jobs in which client needs are primarily legal, economic, social, or psychological. EMS, then, both exhibits familiar qualities of street-level work while at the same time displaying fascinating differences.

The empirical research already conducted on EMS systems and front-line workers does much to advance our understanding of how this core public service works. An important perspective, however, is noticeably absent. Other foci and methods in EMS research neglect perhaps the most important individual in the emergency medical care process: the front-line EMS worker. Research that employs a specific focus on the subjective feelings of influence by street-level EMS providers and their subsequent decisions is not only important, it is vital. This study is aimed at initiating this line of research through a specific focus on EMS providers faced with actual emergencies, experiencing the impact of innumerable variables on their assessment and treatment of patients, and making decisions that have an immediate and potentially life-saving impact on their patients.

METHODS

The study of street-level bureaucracy has been, since the outset, characterized by methodological diversity (Goodsell, 1981). Past research in the behavior of front-line workers has used both qualitative (Gilboy, 1992; Maynard-Moody & Musheno, 2003; Newman, Guy, & Mastracci, 2009; Sandfort, 2000; Skolnick, 1966; Vinzant & Crothers, 1998), mixed methods (Oberfield, 2010; Riccucci, 2005), and quantitative experimental studies (Scott, 1997). This research employs both focus groups and semi-structured interviews to uncover the
interrelationship between street-level bureaucratic behavior and concepts of discretion and influence, each of which are inherently personal and subjective. As Salmon (1998) noted, “… it is sometimes said that any adequate understanding of human behavior must involve interpretation of meaning. The reason is that many acts are performed because of their meanings” (pp. 7–8). Meaning and understanding, concepts that are essential to all human behavior, become a firm foundation for understanding behavior (Bernstein, 1983, pp. 144–145). Thus, an interpretive / heuristic methodology is appropriate (Riccucci, 2010, p. 47).

Examining the intentions of this study more closely, several distinct reasons for the appropriateness of an interpretive methodology are evident. First, influence is subjectively experienced, and thus individuals may perceive the effect of different kinds of influence as being more or less powerful. Likewise, the exercise of discretion is subjectively experienced and individuals will assign meaning to, and cultivate beliefs about, their discretionary actions. Third, the decision-processes that are used in making patient care decisions are complex, and individual judgments are made that can only be viewed from the subjective perspectives of the front-line EMS providers. Fourth, the variables included in this research, including discretion, influence, authority, rules, and patient needs are all complex constructs. The challenges of uncovering the nature of these complex concepts and the subjectively held meaning and beliefs assigned to them make qualitative methods the most appropriate place to begin this avenue of research. Perhaps most important, the strength of using qualitative methods for the study of these phenomena comes from the ability to draw out the causal mechanisms that are at work among these interrelated constructs (George & Bennett, 2005, p. 137). This exploratory research asks several questions to begin to explore how rules, discretion, and influence are interrelated among street-level EMS providers.
1. What is the relative impact of conventional sources of influence on the behavior of street-level bureaucrats in EMS organizations?

2. In what ways do street-level bureaucrats in EMS organizations adhere to or deviate from written rules, policies, and procedures during service interactions?

*Research Design*

This research employs a case study method as outlined by George and Bennett (2005), which is purposefully “structured,” meaning the “… researcher writes general questions that reflect the research objective and that these questions are asked of each case under study to guide and standardize data collection …,” and “focused” in that it “… deals with only certain aspects of the historical cases examined” (2005, p. 67). In this study the unit of analysis is the individual street-level bureaucrat providing service during the course of an incident. These front-line workers providing services each constitute a “case” in and of themselves, allowing for the examination of different types of discretion, rule abidance and deviation, and influence as they are enacted by individuals. The use of a comparative case study method is appropriate in that this research is necessarily multi-level, and a case study approach allows for contextual influence from the state, community, organizational, and individual levels (Yin, 1994).

*Selection of Research Organizations and Sampling*

The three organizations examined in this study were selected from a single state in order to keep the political and regulatory context constant across organizations. Pennsylvania was chosen as the state of interest as it has a substantial number of career EMS providers, has the fourth highest concentration of EMTs and paramedics in the country as measured by total percent of state employment (DOL, 2009), and has a substantial call volume: approximately 1.8 million calls for service in 2008 (PA BEMS, 2009, p. 1).
To assemble a sample of EMS providers with substantial experience providing services, organizations that with a call volume high enough were selected. Data on Pennsylvania municipalities from the 2000 U.S. Census were used as a sampling frame to choose municipalities with a population large enough to produce a demand for service that would allow for this substantial level of front-line worker experience. Structured variation between organizations was incorporated by choosing cases that matched the most disparate organizational arrangements (e.g., fire department-based; hospital-based) (West, 2001). Three organizations were chosen, each displaying one of the following combinations: fire department-based “FDEMS”; police department-based (“PDEMS”); and hospital-based service (“HSEMS”). Detailed descriptions of these organizations are provided in Table 1.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Calls / Yr. (2009)</th>
<th>Total Emp.</th>
<th>Total Pop.</th>
<th>Area (sq. mi.)</th>
<th>Pop. Per Sq. Mi.</th>
<th>Pop. Per HU</th>
<th>Median HHI (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDEMS</td>
<td>10,000</td>
<td>20 FT, 30 PT</td>
<td>70,000</td>
<td>20</td>
<td>3700</td>
<td>2.54</td>
<td>36,000</td>
</tr>
<tr>
<td>HSEMS</td>
<td>11,000</td>
<td>20 FT, 14 PT</td>
<td>90,000</td>
<td>9</td>
<td>10500</td>
<td>2.52</td>
<td>39,000</td>
</tr>
<tr>
<td>PDEMS</td>
<td>15,000</td>
<td>29 FT, 20 PT</td>
<td>100,000</td>
<td>18</td>
<td>6000</td>
<td>2.54</td>
<td>32,000</td>
</tr>
</tbody>
</table>

*Source: U.S. Census, 2000, figures are rounded to avoid identifying participating organizations; FT denotes full time employees, PT denotes part time employees; HU denotes housing units; HHI denotes household income*

**Data Collection**

Semi-structured interviews were conducted to “… to obtain a rich, in-depth experiential account of an event or episode in the life of the respondent …” and to “… encompass the hows of people’s lives (the constructive work involved in producing order in everyday life) as well as the traditional whats (the activities of everyday life)” (emphasis in original, Fontana & Frey, 2005, pp. 698-699). This study uses an interview method in a manner similar to Maynard-Moody and Musheno (2003) and Kelly (1994). Participants were asked to relate stories about their
experiences working at the front-lines of EMS, with a specific focus on service interactions that were particularly memorable, complex, challenging, or involved a nonroutine situation. As Maynard-Moody and Musheno noted, questions that dealt with “… not how much or how many but rather how do people … comprehend and act in their work lives, then stories are perhaps our most powerful research instrument” (2003, p. 26). Stories serve to bring to life complex, emotional, and volatile incidents in which the consequences are substantial or dire.

Using storytelling as a method of social science research has several potentially unique strengths for the study of front-line work (Bailey & Tilley, 2002; Connelly & Clandinin, 2006; Kelly, 1994; Maynard-Moody & Musheno, 2003). First, the researchers’ working propositions are less obvious to the storyteller. Other research methods, such as surveys or more structured interviewing techniques, can provide cues to the participants about the variables at under consideration, thus potentially prompting them to provide socially or organizationally acceptable answers (Maynard-Moody & Musheno, 2003). Second, as noted before, stories can depict complex interactions between multiple variables, and localize these within certain situations. They can show “… what situations call for certain routines and how the specifics of a case do or do not fit standard practices” and can show the consequences of the actions of street-level EMS providers (Maynard-Moody & Musheno, 2003, p. 29). In essence, stories are “… cultural artifacts in compact form …,” and “… reveal the norms and beliefs that guide action” (Maynard-Moody & Musheno, 2003, p. 31). Perhaps most importantly, rigorous narrative research serves to elevate the position of those being studied from mere “research subject” to an individual sharing meaningful, tangible, and lived experiences. As Chase (2005) noted, “[t]o think of an interviewee as a narrator is to make a conceptual shift away from the idea that interviewees have
answers to researchers’ questions and toward the idea that interviewees are narrators with stories to tell and voices of their own” (p. 660).

This method of narrative analysis is, however, not without weaknesses. Maynard-Moody and Musheno (2003) noted that “[s]tories are not facts or evidence waiting for interpretation; from the moment they are conceived through the many telling and retellings, they are the embodiment of the story-tellers interpretation” (p. 26). And, importantly, stories that participants choose not to share will not be subject to analysis, thus “… perpetuat[ing] the conspiracy of silence” (Maynard-Moody & Musheno, 2003, p. 32).

Participants for the open-ended interviews were randomly chosen from a population of on-duty paramedics over a 2- to 3-day interview period at each location. Thirty semi-structured interviews were conducted in the three participating organizations. Of these interviewees, 26 were male, four were female, and all were Caucasian. The median age for these subjects was 35.5, with a range of 25 to 57. The median years of service as a paramedic was 10, with a range of 6 months to 31 years, and the median years of service to respective organization was 6 with a range of 6 months to 30 years.

Focus groups were conducted to examine concepts of rule adherence and deviation and methods of referencing rules in EMS. Focus groups can be an effective method of primary or secondary data collection for striving to “… learn through discussion about conscious, semiconscious, and unconscious psychological and sociocultural characteristics and processes …” (Berg, 2007, p. 144). Focus groups allow for contact with numerous individuals in a relatively short period of time and allows the “… critical interactional dynamics that constitute much of social practice and collective meaning making” to emerge, something that is generally “stripped away” in one-on-one interviews (Kamberelis & Dimitriadis, 2005, p. 902). These
collective conversations carry some inherent risk associated with the shaping of responses by participants to match those of other respondents instead of their own individually held conceptions of the topic at hand, but such a risk is tolerable given the benefits of this data collection method. The focus group protocol consists of questions assessing the nature of rules, policies, and procedures that shape behavior in EMS organizations. Focus group participants totaled 19, with five representing FDEMS, six from HSEMS, and eight from PDEMS. Just over 26% of the participants were female, and all were Caucasian. The median number of years as a paramedic was 6 for both FDEMS and HSEMS participants, and 11 for PDEMS participants, and discussions ranged from 45 minutes to 70 minutes in length.

Data were analyzed using a grounded theory approach, which allows researchers to “…remain close to their studied worlds and to develop an integrated set of theoretical concepts from their empirical materials that not only synthesize and interpret them but also show processual relationship” (Charmaz, 2005, p. 508). Grounded theory is appropriate for this research in that it allows for exploration of the data in a manner that brings out the processes that, combined, create the total package of patient treatment. Interviews and focus groups were transcribed and coded with specific attention to people, actions, settings, and both “implicit concerns” and “explicit statements” (Charmaz, 2006, p. 50).

RESULTS

Matched Patient Needs and Clinical Rules: Strict Rule-Abideance in EMS

Throughout the in-depth interviews, a common theme emerged regarding the influence of rules on the behavior of paramedics. Regardless of patient presentation, situational factors, influence from organizational and environmental sources, or other variables, participants stated
in many cases that they followed rules, specifically clinical protocols, very closely. Relating a story about the successful resuscitation of a patient in cardiac arrest, a paramedic noted that they proceeded by “running the code” (see Story 1, appended). Though a seemingly simple statement, this phrase serves to outline a specific procedure, a prepackaged set of actions appropriate for treating patients meeting certain criteria under the protocols specified for several types of patients who lack cardiac functioning. In employing these rules to treat this cardiac arrest patient, the paramedic noted that there was not “… a whole lot of decision-making” that went into treating this patient. Thus, the rules serve as decision-making schema to guide behavior with little interpretation or judgment necessary.

When asked to clarify this statement about decision-making, the paramedic stated that “[i]t wasn’t anything really difficult, it was so cut and dry with what it was it was. … so you’re running with a v-tach code, and you start your CPR, you shock, you run down your protocol list for whatever you see. … [M]onitor said v-tach … so I’m going to treat it. See codes are so … there’s certain things that are just so protocol oriented that it’s not … there isn’t a whole lot of thinking involved.” Beyond the strict adherence to clinical rules for treating this specific type of patient, the subject goes on to note the cognitive ease with which he enacted these rules. Despite the critical nature of a patient in cardiac arrest, the paramedic found the situation to be relatively unchallenging given the rule-bound nature of the interventions required.

Discussing a similar incident, another paramedic noted the same, indicating that “… ultimately codes are not difficult calls because it has very little to do with clinical judgment. I think I could teach my 9 year-old son the decision-making on almost, on the vast majority of cardiac arrests ….” The skills noted as important come, in the words of another paramedic, from actually engaging the active provision of care. He notes that “… cardiac arrests are actually fairly
simple, straight-forward calls that, to me now, are much lower stress. That is because I have so many under my belt and I have just experienced so many that I know what to expect and I know how it goes.”

The same simplicity of diagnostic techniques and appropriateness of treatment is noted for traumatically injured patients. A paramedic noted that “… trauma is one of the easier things to deal with. Most of the time you can see where they’re injured. If they're bleeding, stop the bleeding, support their blood pressure with IV fluids. Trauma is kind of cut and dry.” Though this is a simple explanation of what may amount to terribly complex situations in which great skill is required to treat patients appropriately, the statement is telling. Traumatic injuries may indeed be more obvious to those treating in the field, and appropriate, comprehensive treatment for these injuries requires resources beyond those of the paramedic. Importantly, the seeming simplicity of rule enactment for these two types of extreme scenarios, cardiac arrest patients and those with traumatic injuries, was identified as experience-based. The frequency with which paramedics actually treated these types of patients, employing very specific rules, contributed to the ease and efficiency of treatment.

Experience with specific types of patients were also notably important in situations in which discretionary behavior was necessary. Though not in the context of a story one paramedic did note the importance of experience with particular decisions and patient presentations in the exercise of discretion. In discussing the administration of Epinephrine to patients in severe respiratory distress due to asthma, a last-line treatment for this condition, the paramedic noted that his decisions have much to do with “… previous patients that I have that are extremely critical …” Though not necessary in all asthma patients, those that are critically ill may benefit from epinephrine in addition to other treatments. But, determining the criteria that patients must
meet to require this medication is difficult. He went on to say that “[w]ithout previously seeing that, that is a very tough decision to make. How far do you go?… [I]s this presentation just ‘sick’ or is it close to death? Without seeing it before that is incredibly hard to do.” In essence, this paramedic is describing the establishment of norms of appropriate action for a particular patient presentation – cues derived from the patient’s condition that signal to the paramedic that a specific type of treatment is correct and necessary to achieve desired patient outcomes. Given his experiences with these types of patients, he noted that he “… probably give[s] Epi to asthma [patients] more easily now. I don’t give it all the time, but I quickly realize whether you are getting better from what I am doing or not, and if you are going the other way and you are very sick. That is a very easy thing for me to identify now.”

A second discretionary area deals with a decision to intubate a patient, a procedure that establishes a reliable and effective airway for a patient guaranteeing that respiration can occur. The process of intubation includes the insertion of a flexible plastic tube into a patient’s trachea, a procedure requiring knowledge of anatomy and physiology and skill in recognizing and removing potential barriers to effective placement. The same medic quoted previously noted that the experience of treating a patient requiring this skill serves to hone the recognition of when this procedure is necessary. “I think it is the same with the decision to intubate or not. That is a very difficult decision to make unless you have seen a bunch of patients that you have watched them get to the point where they need to be intubated.” These two examples indicate the clear link between patient need, experiences, and appropriateness of treatments, a connection that is consistent with the patient-centered nature of EMS work.
Peer and supervisory influence was also noted as an important part of the broader socialization into the field of EMS and implementation of rules. One paramedic noted the importance of the organizational mentoring program on the development of paramedic assessment and treatment skills. As part of this mentor program, new paramedics must “… run your course of treatment by your mentor, your senior people and we have clear standards. He added that “[w]e track new medics, we track for almost a year, … [a]ll this kind of stuff to make sure that you are gaining the clinical judgment that you need and that you’re progressing in your ability to run calls.” Peer interactions, in this case through formal mentoring during emergencies, contributed to more rapid development of clinical judgment. The experiences of more seasoned medics allowed newer paramedics to grasp the importance of condition-specific variables and assessment skills to recognize their presence.

State-certified medical command physicians are legally empowered in Pennsylvania to provide guidance to paramedics as they engage in patient assessment and treatment. These physicians may direct paramedics to act both in accordance with the statewide clinical protocols or may give providers orders deviating from the protocols with good cause. Several paramedics noted that they valued their interactions with medical command physicians and enjoy the trust they routinely felt. The discretionary latitude allowed by medical command physicians in these instances is specifically addressing those medications or procedures that require permission before they are deployed and not any type of deviation from a clinical protocol. This freedom, several interviewees noted, comes from the volume of interactions between medics and physicians. Stating this more specifically, a medic noted that “[w]hen they see you bringing the same thing with the appropriate treatment all the time, they’re, okay, these people know what they’re doing because we see them day in and day out ....” Speaking generally, one medic
hypothesized that these frequent interactions “… has a lot to do with it. I think maybe like confidence level, maybe. They don’t want to put everything they’ve worked for on the line for a medic they don’t know versus a medic they do know.” This carte blanche was not permanent and irrevocable. A medic urged caution, stating that “… there have been situations in [our city] where certain medics have fallen out of the group and it becomes known to the docs.”

In some cases the perceived trust of physicians served to embolden paramedics in their decision-making. An account of a decision to call for a helicopter for a patient in a rural area having a heart attack, something that explicitly requires permission from a medical command physician, was treated by one paramedic as pro forma. Though patient need played a part in his decision, the medic’s frequent interactions with the physician did as well. He noted shortly thereafter that he was a known entity to the medical command physicians as an employee of the ED. Adding further clarity, he noted that “[u]nless I asked for something totally off-the-wall, they will probably let me do it. So it was more-or-less a formality.”

Other incidents related by paramedics point to the influence of patient identity on discretionary behavior and concepts of worthiness of services. Describing a similar call for an unconscious person, a paramedic recounted the administration of Narcan, which successfully counteracted the effects of the opiates the patient had consumed. At the beginning of his story, the medic noted with specificity the location of the emergency. It was in “… one of housing developments, the housing projects here in the city ... we were accustomed to dealing with a lot of that sort of thing over there, there is a lot of heroin overdoses, a lot of drug overdoses, alcohol intoxication, things like that.” The location of the call – in an area in which drug and alcohol overdoses were common – in conjunction with the patient’s presentation signaled to the paramedic that this could be the cause.
Perhaps most interesting, though, is the paramedic’s subsequent description of the juxtaposition of the patient’s identity with the location of the call. He noted that “… she didn’t seem like the typical patient that we would find in the housing development. She was Caucasian, she was a younger female, she was well-dressed. She drove there. When I asked her where she lived, she gave me her home address, which was … in a very nice neighborhood.” He added that she “… just didn’t seem to fit the bill … we see a lot of people that have addiction and problems like that and she just wasn’t that type.” After treating the patient with Narcan, they crew transported the patient to the hospital. In the intervening time between departing the scene and arriving at the hospital, the medic exerted additional effort to help this particular patient. He stated he “… really reached out to her … I remember going out of my way to talk to her. To find out ‘What are you doing here? What happened? What’s going on? ... Is there something we can do to get you help?’” In this case the patient was seen as an individual worthy of extra attention, potentially as a result of her identity as someone who didn’t “fit the bill.” In this case, the patient’s identity was linked to her perceived worthiness to receive more than the standard services. Whether or not this paramedic would go to the same lengths to assist another individual experiencing a drug overdose in the same apartment in the same housing complex is not readily known. But, in this case his remarks on the seemingly mismatch of patient characteristics, condition, and incident location resulted in his added attempts to provide assistance.

Patient need, like identity, is related to concepts of patient worthiness. Several types of patients were noted by paramedics when identifying this relationship between medical condition or identified reason for calling an ambulance and ideas about how deserving of services these individuals were. The first includes those patients exhibiting or expressing a specific need that the paramedic felt was not generally worthy of EMS. These included individuals with clinically
minor conditions and others seeking preferential treatment through faster admission to a hospital emergency department and “drug-seekers” (e.g., individuals requesting pain medications under false pretenses).

Despite these varying perceptions of worthiness, each of the medics discussing patients they felt were not in need of EMS all noted with particular vigor that their perceptions of lack of need did not mean that they were going to deviate from rules, provide inferior service, withhold diagnostic efforts, or refrain from treating a patient. One medic made this point explicitly: “Is it going to change the way that I treat the patient? No. The patient still gets a blood pressure, the patient still get a pulse, still gets a respiration, still gets a [medical] history … I’m not gonna withhold treatment from anybody …” Essentially, the protocols guiding treatment for minor patients were broad enough that full compliance required little effort.

Difficult in Matching Patients and Rules: Information Gathering Processes in EMS

Although patient condition, situational factors, and clinical rules were aligned in some cases, other cases presented some amount of difficulty in determining appropriate courses of treatment. This difficulty is attributable to both the nature of EMS – with tasks based in less directly observable physiological or psychological needs of patients – and to other sources of influence that shaped paramedic perceptions of patient needs. In the former, paramedic communication skills are key in discovering important aspects of a patient’s past medical history, aspects of the current incident that give clues that may aid in sorting through differential diagnoses, and other contributing factors that may serve to make the process of selecting the right medications and procedures for a particular patient. In yet other cases, outside sources of influence may serve to make this process of determining patient need more difficult. Both of
these sources of difficulty figure prominently in gaining a better understanding of street-level EMS behavior due to their centrality in the key process of matching patient needs to appropriate treatment: the foundational act of patient processing.

A core function of any street-level role is that of determining client need, a process of variable complexity given the primary functions of the service in question or the particular citizen’s needs. In those cases in which patient need is not relatively obvious to responding paramedics, the process of collecting data about the patient may be dependent on the paramedic’s individual communication skills. The dyadic patient-paramedic communication that occurs during an EMS call includes both the initial patient assessment and determination of need as well as the continual reassessment of the patient after clinically appropriate medications and procedures have been performed.

Discussing an incident in which the patient was unable to effectively communicate the nature of her chief compliant, one medic noted that he overcame this obstacle not through changing the topic of this diagnostic questioning but by altering the wording of the questions he asked (see Story 2, appended). Though the standard set of questions he asked had been effective in previous patient assessment efforts, he found that he had to alter his approach to better communicate with the patient to determine need. After his initial examination, he noted a feeling that “[t]here’s gotta be something more to this.” Through persistent and variable questioning, the paramedic was able to determine the serious nature of the patient’s condition. He noted that “…it was all the standard questions I was asking, but some of it was…some of it’s in the way you have to reword your standard questions …” After making several attempts to gather pertinent information, the medic was able to ascertain that the patient had a recent history of a heart attack and interventional cardiac catheterization. This additional information, and the diagnostic testing
that was spurred by the information, allowed the paramedic to conduct a more focused
assessment and find that the patient was indeed having another heart attack. Additionally, the
field diagnosis of this condition allowed for more rapid treatment of the patient once she arrived
at the ED. Although in this incident the paramedic was successful in obtaining important
information, others were not as successful, noting cases the medic did not probe for specific
information from the patient that would have changed the course of his treatment.

When asked about what kind of paramedic is good at communicating with patients, a
medic described it as being “… able to engage somebody enough to be able to get the accurate
story out of them. Not just ask questions but … have follow-up questions to get the correct
answer to the question you are asking. When they don’t add up, explore enough so you know
you have gotten the correct answer.” Patient assessment skills, then, become important in
determining patient need and related appropriate treatments. Another medic noted that “… the
information gathering is the real art, which I think some people do well and some don’t. I think
that personally makes a good medic is the good listener, the person who knows what questions to
ask and listens to the answers.” And, interestingly, the medic who previously defined good
communication skills also noted pointedly that “[t]here is almost [no organization] that will hold
up somebody’s command because they can’t communicate with the patient.”

Communication skills in this example are linked directly to an assessment of a particular
patient’s specific needs. Thus, the importance of communication comes not only from the
synchronous and ongoing interactions, but from the paramedic’s abilities to determine the cause
of the patient’s condition and his or her need for specific types of clinical and nonclinical care.
However, in other instances paramedics derived information from other areas that influenced
their decisions. Specifically, paramedic assessments of patient identity served to communicate
information on probable patient condition and appropriateness of therapies. Although the accuracy of these more shallow judgments was potentially questionable, this type of guidance is important to discuss in considering the full range of influences on paramedic behavior.

Patient identity was also influential in shaping the information gathering process. An example of the influence of patient need on paramedic behavior comes in the form of a paramedic’s recognition of a particular patient’s identity. Patient identity in this case refers to the ascribed characteristics perceived by a paramedic as important during a service interaction, including some combination of race, gender, socioeconomic status, and potentially other variables. This package of variables, and the resulting assessment of the patient in light of perceived patient identity, serves to communicate to the paramedic the appropriateness or inappropriateness of specific therapies based on their conceptions of probable patient need. In essence, the translation of an identity into a set of possible causes for clinical presentation may result in differences in treatment options and paramedic behavior.

Describing a situation in which identity was a factor in patient assessment, one paramedic noted that the patient’s age was influential in causing him to rule out one specific potential cause of the patient’s condition (see Story 3, appended). Though the paramedic conducted an in-depth assessment of the patient and evaluated several potential causes for her unconscious state, the correct cause and appropriate treatment were ruled out due to the patient’s age. The treating paramedic’s initial impression of the patient’s condition was that it was potentially caused by a handful of clinical presentations, including holiday-induced excessive food intake resulting in low blood sugar, renal failure, or a stroke. A condition not considered, that of a drug overdose, was eventually identified as the cause upon arrival at the hospital. In relating the story, the paramedic was particularly disappointed with his diagnostic skills and lack of attention to all
possible causes of the patient’s condition. He noted that he “[f]orgot the basics …” and should have simply checked the patient’s pupillary response, and indicator of a possible overdose. The medic also notes, rather quickly, that he was a “younger medic,” thus potentially indicating that his assessment techniques were not as refined and his experience treating unconscious patients. His treatment should have been, in his words, to “… roll them all out,” meaning that he would have employed all possible skills and resources to treat the condition.

Perhaps the most important aspect of this story is the medic’s retrospective statement about how he would treat a much younger patient with the same clinical presentation. He states confidently that on the “… same call, [with a] 30-year-old, I would have dumped the Narcan second without thinking twice about it.” After assessing the patient’s blood sugar, a 30-year-old unconscious patient would have received Narcan regardless of other indicators. Instead, because the patient was of an advanced age, his considerations for the probable causes of unconsciousness were different. Thus, the patient’s age, and various assumptions about the patient’s identity wrapped up in the paramedic’s assessment of age, resulted in an inappropriate course of treatment.

Bystanders — family members, witnesses to an incident, or other individuals — were also found to be important in patient assessment and treatment decisions. The behavior, information, or reactions of these individuals may be influential on paramedics as they attempt to determine patient need and therapies best matched to the patient’s condition. Patient past medical history, accounts of the immediate situation and moments leading up to the request for EMS, and specialized knowledge or skills may aid paramedics as they assess patients or determine the appropriateness of treatments. An example of this type of influence was evident in a story about the rescue of a roofer experiencing a medical emergency on the roof of a four-story building (see
Story 4, appended). In this case, family members provided information about the patient’s past medical history of congestive heart failure (CHF) to responding paramedics, which then altered their perceptions about the possible causes of the patient’s distress.

From the outset, the narrator noted that this is a “complicated” call. Not only is the patient experiencing a serious medical condition, but the patient was also four stories above ground on a roof in the middle of the summer and surrounded by excited bystanders. Upon arriving on-scene, and after reaching the roof, the patient’s son made it clear that the patient has a medical history of CHF, and that he was recently released from the hospital after treatment for this condition. A rapid assessment of the patient’s lungs produces some evidence that this could indeed be the reason for his respiratory distress. The medic theorized that the respiratory distress is resulting in hypoxia, a systemic lack of oxygen, which could then be explaining the patient’s somewhat agitated interactions with medics. With this potential diagnosis in mind, the medics began to treat the patient according to the protocol for CHF. However, something was not “sitting right” with the more experienced paramedic on the crew.

Recognizing some dissonance between the patient’s exertion of energy to push the medics away during the assessment and the standard presentation of patients with CHF, the seasoned medic proposed an alternative diagnosis of a brain hemorrhage. Other signs, including poor response to questioning by paramedics and an inability to follow commands, leads the experienced medic to redirect the treatment toward this alternative diagnosis. Those therapies that were initially appropriate for a CHF patient but inappropriate for a potential brain bleed were discontinued, and other protocol-driven care for the new diagnosis were started.

The narrator, who noted that he “… been a medic at that time not even 12 months … [and] was still relatively new,” reflected on those things that were initially influential and his
performance on the call. He emphasized several times throughout his telling of the story that the patient’s history of CHF thoroughly saturated the messages coming from family members and bystanders. This consistent exposure to this hypothesized reason for the patient’s distress, as well as some objective verification in this assessment of the patient’s lungs, was the primary reason that the medic did not consider other possible causes. Reflecting on this, he emphasized that sometimes you have to “step back” to get a better picture of the whole situation. Other signs that the first diagnosis was incorrect were initially ignored, minimized, or explained through other possible causal processes. Important in this case was the need to “… trust your clinical findings …” and incorporate those findings with information provided by bystanders. In the end, the patient did have a brain hemorrhage and, in the words of the narrator, “…made it. He walked out of the hospital.”

Deviation from Clinical Rules

Preceding chapters outlined instances in which clinical rules and patient needs are well matched, or instances in which some amount of difficulty is evident in the matching process. In contrast, other situations existed in which paramedics determined that some deviation from rules was necessary and appropriate in treating patients. The reasons for these deviations were often found a mismatch or discord at the intersection of rules, patient, and the specific situation in which rules are applied.

Patient need is based in the paramedic’s assessment of the patient’s psychological or physiological requirement for specific types of treatment. Although patient need may in some incidents signal nothing more than the appropriateness of following specific clinical protocols, other cases may require some deviation from rules and critically important abilities to employ
discretion. In one incident, a paramedic noted the severe physiological and psychological pain of a patient following an industrial accident that also took the life of the patient’s son (see Story 5, appended). The paramedic’s assessment of the patient resulted in a determination to provide extra treatment based on the severity of his injuries and the emotional toll of the event. The medic noted that he “… he actually went outside … the protocols, gave him a little extra narcotics than I’m actually supposed to. I did get the deviation form, but the guy was in so much pain, he knew his kid was dead.” The treating paramedic’s decision to deviate from the protocols that direct behavior on administration of pain management is evident. He notes both the physiologic pain from the severe burns and the emotional distress of a parent losing a child in a terrible accident. Additionally, he noted later that this call was particularly difficult for him as a father himself. His response to the patient’s pain was to provide more pain medication than the protocols allow for, serving both to ease the patient’s pain and provide comfort during an unimaginably difficult incident. While the medic received a notice from his organization outlining his deviation, later discussions with the service medical director were supportive of his decision to deviate from the rules. The patient’s need in this extreme case was deserving of additional care.

Another set of factors emerging from the data as influential were the norms, beliefs, and values rooted in the tasks of street-level EMS providers. An example provided by a paramedic treating a critical patient in near respiratory failure served to illustrate the importance of occupational culture on front-line behavior and, in this case, deviation from clinical rules (see Story 6, appended). The patient in this situation was exhibiting signs of a very serious medical condition, including associated side effects of the condition, which did not allow for the standard types of patient treatment based on clinical protocols. The decision faced by the paramedic, in
this case, was to treat the patient and ignore the clinical protocols or adhere strictly to those same rules.

The paramedic began by noting that the subject of the story is a critical patient, one who is in the advanced stages of respiratory decline and is struggling to breathe. Although this presentation of advanced congestive heart failure is frequently encountered and successfully treated in prehospital EMS, the patient’s low blood pressure — potentially an indication of poor cardiac function — complicated the treatment options available to the responding paramedics. As noted previously, the choice faced was to follow rules closely and not administer medications which could have helped the patient, or accept some risk administer the medications, thus potentially saving the patient’s life. Despite the complications created by the mismatch between the situation and rules, and the protests of another paramedic, the narrator administered nitroglycerin, a medication that could potentially lower the patient’s blood pressure to a dangerously low level.

In explaining the motivation to continue to give the medications despite risks to the patient, the medic noted that “I think we overlooked the number of the blood pressures because there was nothing that we could do for this man.” The primary complaints of the patient, severe respiratory distress and chest pain, are generally treated through use of these two medications. If the clinical protocols governing treatment of this type of patient had been followed strictly, the EMS providers would not have any available therapies with which to treat a critically sick patient. Given the potential lack of available treatments, the paramedics were faced with either deviating from a clinical protocol or simply transporting the patient without any type of clinical intervention. The treating medic noted that “… we all really knew that we had stuff that could help this guy, and that’s all our brain tuned in to really.” The medications available helped to
achieve the desired effects, despite the potential risks. Though the paramedics were aware of the patient’s low blood pressure, they opted to treat the patient because they believed it was “only choice” they had given the seriousness of the patient’s condition. The cultural norm of action was chosen in this case because the other option, inaction, was unacceptable. Seeing the patient struggle to breathe, the “essence of life” in the words of the paramedic, prompted the crew to deviate from the rules and treat the patient.

Influence from peer paramedics was also notable in stories of policy deviation. In an incident relayed by a paramedic, discussing a car accident in which the patient was seriously injured and displaying a substantial level of agitation due to the pain she was experiencing (see Story 7, appended). The narrator of the story was dispatched to assist another ambulance crew who was in need of a specific medication, a sedative, which in this particular geographical area was only carried by the narrator’s EMS agency. Upon arriving at the scene to assist the initial ambulance crew, the narrator found the other crew faced with a very agitated patient in a great deal of pain, entrapped in an overturned car. The patient had a “catastrophic” leg injury causing enough pain to result in significant agitation, potentially hindering treatment by paramedics, extrication efforts by the fire department, and possibly leading to potential injuries for any of the individuals working in her vicinity. Given her condition, the paramedic from the first responding ambulance decided that sedation-assisted intubation was the most appropriate treatment at the time, and requested a crew with those capabilities. The protocol for this specific procedure allows for the administration of etomidate, subsequently followed by intubation and continued airway management. The etomidate was then administered to the patient, however the paramedic from the other organization then decided not to proceed with the actual intubation. This, according to the narrator, created some “controversy.”
When prompted to discuss the exchange had with the other paramedic, he noted that there was not “… a whole lot of conversation.” The paramedic from the other responding agency “… had done the initial assessment, and obviously it was his patient. So him being the first one on scene, and him doing the initial assessment, having initial control over treatment regimen that we were going to do with her. I ended up deferring to his judgment on that …” The narrator noted several times that he deferred to the other paramedic’s judgment on whether to proceed with the protocol-specific intubation. His reason, simply, was that he was the “… first one on scene, … [did] the initial assessment, [and had] initial control over treatment regimen …” Although the narrator could have stepped in and intubated the patient after administering the sedative, he instead chose to rely on the judgment of his peer. Also contributing to his decision was the nature of the situation in which this story occurred. When considered in concert with the patient’s agitated state, the immediate environment placed additional stress on the treating paramedics. He noted that the “… whole adrenaline factor kind of kicks in… Everybody was I think wound up by her being wound up… [J]ust getting her under control to the fact where she was just flaccid, and not moving, and not causing us anxiety ourselves, it was just such a huge relief, I think, that it kind of put everybody back on their seat and took everybody’s guard down.”

At the conclusion of the incident, the narrator, his partner, the chief of his agency, and their clinical care director sat down to discuss the incident and any recommend changes to departmental policy. The final result of the discussion was a policy that placed the full burden of the myriad decisions acted out in this particular story in the hands of the paramedic from the organization carrying the specialized medication. The narrator noted that the organization is still very much willing to respond and assist other departments, but “… the airway control and the decisions for the airway management become ours. We make our own assessment at that point,
and decide whether or not were going to give etomidate, or whether or not the patients will get tubed or their airway is going to get managed some other way.” The difficulty of the immediate environment and agitated patient were exacerbated by the peer interactions in providing care. The narrator stated that “… having different protocols, different ways of doing things, different personalities, and the fact that we don’t always work together. We don’t know how the other person wants to deal with things … Whether it’s a matter of not wanting to step on each others' toes, or just being plain old hesitant, and I’m not sure what it is.” Thus, some of the key aspects of this story, including interactions with other paramedics in the enactment of the rules guiding clinical treatment, can illustrate how discretionary decisions can be shaped.

**DISCUSSION**

In agreement with the common conceptualizations of street-level bureaucrats, EMS providers work face-to-face with clients and are empowered with some amount of discretion as the engage in the primary tasks of their occupation (Lipsky, 1980; Maynard-Moody & Musheno, 2003; Riccucci, 2005; Vinzant & Crothers, 1998). The importance of rules, particularly clinical rules, was evident throughout the study. In cases in which patient need is obvious, the sorting process is accomplished with relative ease in accordance with rules, and rule-adherence becomes more a matter of skill. The incident relayed in Story 1 is a strong example of this. Though serious, the patient’s condition was relatively simple to treat, resulting close rule-following, notably easy decision-making, and positive patient outcomes. Other cases discussed by paramedics, specifically those patients presenting with severely traumatic injuries or cases in which patient need was clear, also noted the relatively straightforward decision-making and minimal conflict. The probability of strict rule abidance was also much more likely in treating
patients with minor injuries as rules are broader and compliance requires minimal effort. In both cases the probability that front-line EMS providers will abide by rules is substantially increased.

**Proposition 1:** The likelihood of strict rule-abidance by paramedics will be significantly increased when patients presenting with both very minor and very severe clinical conditions.

**Occupational Culture**

Through both training and experience street-level EMS providers familiarize themselves with the content of rules, critical cues that allow for recognition of patient need or appropriateness of care, and instances in which specific aspects of rules are inapplicable or may be harmful to a particular patient. This daily, almost routine interaction with rules and rule-application serves to support research that place occupational culture at the fore in terms of factors influencing street-level behavior (Isett, Morrissey, & Topping, 2006; Riccucci, 2005; Sandfort, 2000). These clinical protocols serve to delimit perhaps the most important function of street-level EMS, that of outlining the inclusion and exclusion criteria for patient “processing.” Experience, then, and the process of gaining knowledge about the tasks of a job become crucial in examining behavior. Experiences, then, were a key aspect of the development of clinical judgment surrounding issues of patient assessment and treatment.

**Proposition 2:** Experienced paramedics will display more substantively developed clinical judgment skills in areas of patient assessment and treatment.

Experience, however, was not always beneficial in shaping front-line behavior. Several paramedics noted that they encountered situations in which a diagnosis seemed relatively easy only to find out that they were incorrect in their clinical findings. When reviewing these cases they noted that they recognized cues or signs that one particular diagnosis might be correct and
may have ignored or missed others. Importantly, it is the recognition of specific cues that either prevented paramedics from recognizing the true nature of the call or alerted them to the fact that they may have been following in an inappropriate protocol. These cues, then, and the recognition of important aspects of patient condition become an important consideration when examining paramedic behavior.

**Proposition 3:** Paramedics with increased patient-treatment experience will be better able to recognize cues identifying patient condition and determine an appropriate treatment plan.

Occupational culture was also found to influence paramedics in cases of deviation from rules. Two stories, 5 and 6, note types of influence that were ultimately grounded in patient need. In both cases, the patient’s needs exceeded the immediately allowable treatment options available to paramedics. In both cases the intense desire of the paramedics to treat the patient with substantial and obvious needs outweighed the clinical rules created to treat that patient’s condition. Importantly, in both instances a cultural norm of action was favored over strict rule-abidance, providing additional support for the importance of occupational culture on the behavior of street-level bureaucrats (Riccucci, 2005; Sandfort, 2000) and front-line health care workers (Isett, Morrissey, & Topping, 2006).

**Peer Health Care Providers**

Importantly, these experiences were shaped to some extent by both peer paramedics and by policy governing mentorship in EMS agencies. Newly certified paramedics were in some cases subjected to a rigorous process of skill verification, gradually increasing responsibility for patient care, and tests of clinical judgment. In at least one organization, this process was
formalized in a mentoring program that became a part of the hiring process, whereas more informal training programs were also used, pairing more experienced paramedics with newer EMS providers. The salient experiences of peer providers and supervisors, who often come from the ranks of front-line providers, are important in passing on key information that will speed a newly certified paramedic’s abilities to accurately assess and treat patients.

**Proposition 4:** Paramedics working in EMS agencies with mentoring programs are likely to have more substantively developed clinical judgment.

Peers were also influential in decisions to deviate from rules. The incident recounted in Story 7 is illustrative of this, with a responding paramedic deferring to the judgment of another paramedic in a decision not to fulfill the dictates of the clinical protocol on sedation-assisted intubation for an agitated victim of a car accident.

*Managerial and Supervisory Influence*

Although not directly providing assistance at the scene with other street-level bureaucrats, medical command physicians were notably influential in paramedic behavior via consultations and orders for specific procedures or medications. A majority of focus group participants noted the generally trusting relationships created between physicians and front-line paramedics. This relationship served in some cases to ease the potentially over-restrictive rules that may require frequent confirmation from physicians of the appropriateness of therapies or other types of permission. The increased latitude and eased expectations for strict rule-adherence to those requirements for permission allow for more agency, giving paramedics an increased sense of self-efficacy and making their perception of individual contributions to patient outcomes more salient. Importantly, these eased restrictions do not allow for easier deviation from rules;
rather, they were addressing cases in which permission to continue a therapy or employ a protocol-specified treatment were necessary.

**Proposition 5:** Paramedics with substantial formal or informal interactions with medical command physicians will enjoy increased discretionary latitude.

*Patient Identity, Need, and Worthiness*

Patient identity was noted as influential in those cases in which rules did not specify behavior and paramedic judgment was key in determining treatment. An example provided recounted a call in which the treating paramedic exerted significantly extra effort to assist a patient suffering from a drug overdose because of her identity as a Caucasian, upper middle class female. Whether or not another patient would have received the same treatment from this paramedic is unknown, but these characteristics were mentioned as key aspects of the patient assessment in the example provided. The patient’s characteristics, then, qualified the patient as “worthy” from the perspective of the treating paramedic.

**Proposition 6:** Patients perceived by paramedics as worthy of emergency medical services are likely to receive more comprehensive assessment and treatment.

A paramedic’s impression of patient identity was also influential in another example, that of Story 3, in which identity muddled the information gathering process. The assessment of the patient’s identity led to the paramedic ruling out a specific diagnosis of a drug overdose, which delayed appropriate care. The paramedic’s assessment of the combination of patient presentation, information from family members, and their interpretation of ascribed characteristics formed, from their perspective, a cohesive causal illustration of the patient’s condition.
Although intertwined with the concept of patient identity, patient need was also a salient influence on paramedic behavior. In Story 5 the cause for deviation from the rules was directly noted as patient need. The story describes a patient in severe physiological and psychological pain who was given extra narcotics to provide some relief. Although the paramedics noted the importance of rules, however in both situations the benefit to the patient was more important than strict rule adherence.

Patient need, however, seemed to be less influential in shaping paramedic behavior for relatively minor cases. Several medics noted experiences with patients who were deemed to have less severe clinical conditions, mentioning in several cases that these individuals were provided a minimal level of assessment and transported to the hospital. Though protocols existed to address patient assessment for all patients regardless of presentation, other specific rules for more serious conditions were not applicable, thus greatly reducing the amount and types of rules that govern behavior in treating these patients. By following clinical rules for general patient assessment, paramedics were treating these patients “by the book.” When considering this finding with earlier discussion on close rule-following in very severe cases and the increased need for rule-bending or deviation in more complex, moderately ill patients, an inverted, U-shaped relationship emerges.

**Proposition 7:** The relationship between the amount of discretion available to street-level EMS providers and patient severity will take a curvilinear, inverted U-shaped form.

Both patient identity and direct assessments of need are tied conceptually to the broader concept of patient worthiness. Patients experiencing many of the more severe, life-threatening situations noted previously will, through the assessment of specific clinical needs, meet conceptual requirements for worthiness. Conversely, those patients with less severe conditions
may not meet the conceptual requirements to be considered a “worthy” patient. Although there was not palpable mismatch between patient needs and rules — most likely because rules were broadly drawn and compliance was simple — other restrictions may have been present in treating less clinically needy patients including those of occupational or cultural norms of "Paramedic Communication Skills and the Information Gathering Process"

The process of matching patients and rules was not, however, universally simple. Paramedics were, during some service interactions, faced with a challenging patient assessment made increasingly difficult by the abilities or inabilities of both medics and patients to communicate. Notable in Story 2, the paramedic’s recognition that the patient’s condition was serious and required additional assessment through in-depth questioning resulted in an appropriate treatment plan that may have saved the patient’s life. Given the same scenario, another patient who was not subjected to an intense line of questioning might not have a positive outcome. Thus, the importance of communication between patients and EMS providers may be crucial in providing assistance to specific types of patients.

**Proposition 8:** Paramedics who are better able to communicate with patients will be more likely to make accurate diagnoses and form appropriate treatment plans.

Those patients who are unable to communicate their past medical history or the essential characteristics of their current clinical situation may be at a distinct disadvantage when it comes to receiving care from EMS providers, especially given the urgent and time-constrained nature of prehospital emergency care. Addressing this, Fiscella (2004) stated that “[p]atient educational level and health literacy affect knowledge of risk factors, symptom recognition, and ability to navigate the healthcare system” (p. 940).
**Bystanders**

While conceptually similar to the situational factors noted previously, bystanders served to influence behavior through a specific mechanism. Friends or family members of the patient, or any individual with in-depth knowledge of a patient’s potential condition, shaped the information gathering process. The family members noted in Story 6 provided a plausible explanation for the patient’s condition which was adopted by the paramedics. It was only through additional assessment and inconsistencies between the suspected diagnosis and patient presentation that the paramedics eventually switched treatment plans. The example provided describing the importance of communication is also related to concepts of occupational culture and experience. To be influential the information provided by a bystander must not create any substantive dissonance with other information gathered by the paramedic through other means of skilled assessment. Data provided by the bystander will be most influential in those cases where it is unique in its nature and strength, and is not contradicted by these other subjective and objective means of patient assessment.

**Contributions to Theories of Street-Level Bureaucracy**

Results from this study both lend support to previously elicited theories of street-level bureaucracy and add insight from the unique perspective provided by an exploratory study of a different front-line function. Of notable importance, this study provides evidence in the saliency of rules, policies, and procedures in shaping street-level EMS worker behavior while simultaneously illustrating the impact of several areas of discretionary latitude open to these public servants. And, perhaps most importantly, this research adds to the literature outline those sources of influence affecting behavior of front-line workers. Though these influences may have
only been noted as affecting rule-adherence, difficult in matching patients to rules, or deviation, it is important to note that these may actually affect all three in contextually distinct ways. Sources of influence with a prominent impact include individual-level factors such as patients, bystanders, peers, supervisors, and physicians. Organizational-level influences like organizational and occupational culture were also notable throughout this study.

Of the results contained herein, those pertaining to the importance of patient need add insight into the difficulties of street-level work. As noted in the literature review, the majority of street-level occupations studied to-date are focused on serving clients with social, financial, or legal needs. EMS workers, however, provide services to of a primarily clinical nature, focusing on physiological and psychological needs, of which the latter can sometimes be less easily observed. When combined with the time-constrained and urgent nature of the emergency medical services provision, those sources of influence serving to reduce uncertainty about patient need become even more salient to street-level workers. Specifically, occupational culture, when conceptualized as the day-to-day practices related to the tasks that make up service provision (Sandfort, 2000), and assessments of patient identity both serve to provide cues to patient needs that may not be otherwise observable and palpable.

Contributions to EMS Literature

Perhaps the most glaring gap in EMS literature is that research into the nonclinical, non-rule-based influences on EMS provider behavior. This study begins to fill this gap by noting that these influences exist and have real, tangible effects on behavior. Concepts of occupational and organizational culture, peer and supervisory influence, and patient characteristics are potentially key variables in the decisions made by EMS workers. This study also points to important
considerations about units and levels of analysis in EMS research. A substantial body of scholarly work exists in EMS at the systems level, however this study highlights the importance of individual-level research on actual patient care and outcomes. There is, in essence, a need to become more granular in the examination of emergency medical services with a focus on street-level EMS workers.

This study does, however, highlight several concerns regarding the provision of emergency medical services. First, as noted in several instances, concepts of patient identity do have an impact on paramedic behavior. Ascribed characteristics such as race, gender, socioeconomic status, or other characteristics may impact assessment of possible clinical conditions as well as eliciting other judgments about patients. Identity, then, may cause some amount of error in diagnosis and treatment, which would have potentially devastating consequences for patients. Great care and attention must be paid to the ways in which concepts of identity, worthiness, and causality are tied up in paramedic assessments of patients.

Implications for Practice

Several findings from this study may be applicable to practice through translation and refinement to fit the specific context of individual organizations. Perhaps most importantly, organizations may benefit from the recognition and purposeful discussion of discretionary behavior. Not only can newer paramedics learn from the judgment of more seasoned paramedics, organizations and state regulatory bodies may find such information useful in crafting or revising rules and procedures. The importance of occupational culture and the saliency of experience in both absorbing rule content and recognizing anomalous situations points to the importance of training plans that incorporate scenarios or simulations. In many cases, scenario-driven training
plans are incorporated as part of initial and ongoing EMS training, and the learning experience may be improved greatly by not only the completion of patient care routines but the conscious and explicit discussion of key aspects of these experiences. Focusing on those specific aspects of patient presentation, procedural skills, or other fine details may allow paramedics to gain a more thorough grasp of the appropriateness or inappropriateness of specific therapies for varying types of patients. Finally, recognition of patient-specific characteristics and their impact on decision-making will be crucial in providing appropriate levels of services. There were many cases in which patient worthiness was not an issue, especially those patients with an obvious clinical need for services; however, other cases in which patients were less likely to be viewed as legitimately requiring EMS were obvious.

Limitations of the Research

Several limitations of this research are evident. First, the primary research method, using primary accounts of service provision, relies entirely on participant’s self-reported behavior. The narratives of critical incidents were accounts of subjectively experienced events and may have been incomplete accounts of incidents. Additionally, paramedics related only stories that they wanted to relate, thus controlling the characterization of both their own actions and of the profession that were relayed to the PI. Incidents that were controversial, created a negative image of the paramedic or of the profession, or were unacceptable for another reason may have been excluded by the interviewee. Though this research served to identify several key themes, it is important to recognize for the reasons noted that the primary data collection method does not constitute a complete picture. A related limitation is evident in considering analysis of the qualitative data. Coding for both interviews and focus groups was conducted by the PI, and
additional analytical rigor could be achieved through the use of multiple coders and assessments of interrater reliability.

Given the nature of the main research methods and sampling, generalization to larger populations is not possible. The small sample size and purposeful selection of participating organizations on the basis of structured variation in organizational characteristics does not allow for the maintenance of representativeness of any larger population. Further reducing generalizability, this study does not account for potentially significant state-based variation among the rules created to govern EMS provider behavior, variations in service delivery and target population, and any number of other differences that may be important to the study of this type of service.

FUTURE RESEARCH AND CONCLUSIONS

Future research emerging from this study can focus on the individual-, organizational-, and systems-levels of analysis. At the individual-level, research could also focus on the cognitive bases of paramedic behavior, examining their decision-making with added depth and generating insight into assessment and use of rules. Likewise, patient worthiness, and related areas of patient identity and patient need, should be subject to further examination and conceptual unpacking. The importance of the methods and effectiveness of communication between paramedics and patients is critical in establishing accurate diagnoses and determining appropriate clinical interventions. Studies of representativeness of EMS providers would also be a worthy next step, especially given the impact of patient identity on behavior. Finally, concepts of occupational culture should be studied with particular vigor as the daily activities and routines of
paramedics, especially the continually reified causal relationships that are created in these routines, play a substantial role in shaping rule-adherence and deviation.

Street-level bureaucrats working in EMS organizations provide invaluable services to a substantial body of citizens. In doing so, they enact complex rules in difficult situations, responding often to both uncertainty and severe time-constraints during these incidents. In many situations, the rules created to guide behavior are well matched to patient needs, resulting in a negligible amount of conflict or difficulty. Patients are treated in accordance with rules, and the necessity for any amount of deviation from rules, policies and procedures is eliminated. In other cases, the matching of rules and behavior may not be easy or uncomplicated due to changing situations, other public servants or health care professionals, or patient characteristics. These sources of influence that exist outside of formally promulgated rules can shape discretionary behavior. And, on occasion, rules and patients are poorly matched, creating impetus for deviation from rules with the interests of patients in mind. This exploratory research serves to begin a discussion on the nature of these services, while also shedding light on new avenues of exploring this key public service.
REFERENCES


APPENDICES

Story 1: “Cut and Dry Cardiac Arrest”

[T]he stars were aligned for that dude, we were like around the corner when it came in. We had shift change at 6:45 in the a.m. [His] girlfriend … was saying, “I don’t know what just happened. I thought he was joking, coughing, whatever, and just went out.” And she called right away, and we happened to be right around the corner.

So we start running the code… and get spontaneous pulses back, starts breathing again…So we start running our new hypothermia protocol, just to see. I guess his downtime was probably 15 minutes, so we started the hypothermia [protocol], just started flooding him with the cold saline and just packing him everywhere else with it. And he walked out five or six days later. Had a massive MI but he came down to thank us … that was pretty cool. Not a whole lot of decision-making, just running the gamut of an asystolic code. I guess it was a v-tach code, then it was asystolic, and then we fixed it.

He had a downtime of under four minutes… we got pulses back within seven or eight, long enough to get him one round of meds in, and intubated and shocked once. So we had pulses back, and we never lost him again. So [he] went up … to the ICU. Did the rest of the cold fluid stuff there, so I guess he was down for probably 24-48 hours, and I was talking to him in the ICU two or three days later. Went up to … say hi to him, and reached up and then shook my hand. And that was cool, that was the first that had ever happened. Warm fuzzy feeling about this job, I guess. And he [had] like 99% blockage across every major artery in his heart, and still managed to come away from it.

Story 2: “There’s Gotta Be More To This”

… [T]his was a call, it was an old lady. And it was one that made you think. And it was actually one comment that made me put my ear up, because she’s complaining of all non-specific stuff, and this and that. And you’re going through, and you’re like , “What’s going on? … There’s gotta be something more to this. What’s going on?” And you go through and she’s going “I feel washed out, and I feel this, and I feel that.” And she’s just complaining, “I just feel weak, I just … I’m washed out. This is that.” And it’s just one that you’re sitting there going, “There’s got to be something going on.” “And this is what I felt like when I was in the hospital before.” “When’s before?” “Well before, it was like last week. They did one of those things on me, where they go in though your vein.” She had an MI [myocardial infarction]. She was in the middle of another one, again. But it … just didn’t show up in a 12 lead, it wasn’t a STEMI, but you call in and you say to the doc, “This is what she’s telling me, and she’s telling me this is how she felt last week, and this is what you wound up doing.” And the doc met us at the back of the ambulance and said,
“is this Miss so and so? Because that was bad last week.” And it was one of those where you had to just keep digging. They just don’t present themselves…

Yeah, it was all the standard questions I was asking, but some of it was…some of it’s in the way you have to reword your standard questions. I can ask anybody, “How don’t you feel well today?” And I’ll get an answer from “Well, I’m having pain in my chest” to “I just don’t feel good” to “I don’t know, something’s not right.” Depending on the answers they’re giving you, you have to try to … sometimes you have to phrase something in a different way. Like I probably asked seven or eight times about trying to figure out why she was weak. “What did they tell you the last time?” Until I finally said it in a way that it dawned on her that that’s what she should tell me. But some guys would have just wrote it off as “Well, she doesn’t feel good.”

**Story 3: “Never in My Wildest Imagination”**

[We had] a lady who was in her 60s who was unresponsive. I remember it was a holiday, because I remember the fact that the whole family was in the house, and everyone was really upset about essentially grandma. And the family’s frantic. It was in the holidays, so we did an unresponsive check of sugar … And we ran the call for the unresponsive, we bagged her, did all of the stuff that you would do for unresponsive. The family said she went to the bathroom and collapsed.

And I remember getting to the hospital, and the nurse - who was very good - looks at her, and runs through it all and goes, “Did you try Narcan?” And [the patient is] 65 years old … Two [milligrams] of Narcan, she sits up in the bed. It was a heroin overdose. Never in my wildest imagination. Tunneled vision’d on the problem has to be from the diabetic, renal, something, that line, [maybe a] stroke. Forgot the basics … open her eyes, and take a really decent look. You probably would have saw it. I was fairly young when that happened.

She probably shot the heroin in the bathroom, family cleaned it up before we got there. They knew it. People tend to be extremely secretive on that kind of stuff, especially in here. We get a lot of people that just “pass out in the bathroom,” … they’ll clean everything up before you get there.

Just feeling [foolish] when that was all done. Stick to your basics, do what you should have done, which was to roll them all out. Had I really thought a little bit more about it, the fact that she had a liver problem from Hep C, which was probably from the habit. I just didn’t draw all of the dots together. Probably same call, 30 year old, I would have dumped the Narcan second without thinking twice about it. Instead, I’m thinking old lady with a lot of problems. Could be an ammonia level, could be all kinds of stuff. None of the above, it was the easiest thing.

**Story 4: “He Can’t Breathe, He’s Got CHF.”**
I remember one that was really complicated … We got called for respiratory distress … We had to get the fire department there because this guy is up on the roof. He was a big, big guy and he was roofer and he was tarring this roof or something … [H]is son is there with him working on the roof and … [he’s] is yelling down, “He can’t breathe, he’s got CHF.” … So a ladder truck gets there and sets up a ladder and we go up to the top of this four-story building. This guy is pale, diaphoretic. He is breathing very labored but at the same time, he is not following our commands. He is just kind of flailing and pushing us away and not cooperating at all. It is hot … up there. It is like 90 degrees with the sun coming down, much less what is radiating off the roof that they were just tarring. It was so uncomfortable. You have a bunch of us up there. … Everyone is screaming that he was just seen for CHF in the hospital last week and all this sort of stuff. Everything is just like, CHF, CHF, CHF, respiratory distress. That is all that is in my brain. I am trying to listen to this guy’s lungs in this hectic atmosphere. He is a big guy. He is moving around. He is pushing away from me. He breathes out and I can hear some crackling in his lungs kind of but in retrospect it probably was not a very accurate. I probably did hear crackling but it was not as big of a deal as I made it out to be. I was like “he is acting this way because he is hypoxic and he can’t breathe so that is why he is like flailing.”

His breathing is all labored so we slap on an oxygen mask and we try to take his blood pressure but he is uncooperative. It comes up kind of high, like 200s, something like that. Automatically I was thinking he is in respiratory distress and hypoxia and all this stuff. Let’s put some nitro paste on him and we try to get IV access to give him captopril and ace inhibitors. His blood pressure is up, his respiratory rate is up and labored. He has some crackles in his bases. But, something just wasn’t sitting right. We started down the CHF route and we started treating him for respiratory… trying to get the fluid off of his lungs and get his work of breathing down and all this sort of stuff.

But something was not sitting right with … my partner. He was just more seasoned than I was. He was like, “I don’t think this is CHF.” He has CHF, you could tell but that is not what is problem is right now. Something in [my partner’s] head said “I think he’s got a brain bleed.” His breathing is labored and all that but he is … pushing us away, he is exerting a lot of energy and that is why he is diaphoretic. He’s confused. He is not responding to our instructions very well. He is answering our questions but only kind of.

So, we switched …. I remember we take off the nitro paste and we wipe it off. We started treating as like a stroke or a brain bleed kind of thing instead … By the time we got to the hospital, it is way more evident now that he is strapped down and he is off of the roof and he is in a controlled atmosphere in the back of the ambulance. He’s acting goofy. He’s acting confused. That is more of the issue than the breathing thing …
If it was really his breathing, he would not be like pushing me away when I tried to give him oxygen. That is not normal behavior for someone in respiratory distress. But that is something that is consistent with somebody who has a brain bleed or a stroke or something like that, some sort of altered mental status. So, we were able to change our course of action.

Everyone in the world is screaming at me that he just was seen in the hospital for his CHF and he has labored breathing. He looks like crap and you start thinking, okay, I think I hear some crackles but I was not sure but we just started going down that route and then you don’t take into account the other things that you see. It is easy to get tunnel vision. You’ve gotta be able to step back sometimes.

**Story 5: “The Guy Was In So Much Pain”**

We had a call for an explosion … The fire department gets on the radio and they said it’s a propane explosion. It’s an underground … 1000 pound tank that was heating the house and the barn … There was a father and son working in that general area. The father … [had] 2nd and 3rd degree burns, he was 90 percent body … surface. His son … ended up being class 5.

We get there … [the father has] 3rd degree burns, he’s got facial burns, he’s 3rd degree burns down his legs, he’s got genitalia burns, he’s got burns on his hands. So I called for a helicopter to take him to the burn center …

I actually went outside … the protocols, gave him a little extra narcotics than I’m actually supposed to. I did get the deviation form, but the guy was in so much pain, he knew his kid was dead. Like, he kept asking me “What about my son? … Are you a father? I need to know about my son. Why are you working on me and not my son? I’m 40 some years old, he’ll be 13 tomorrow.” And me being a new father, I’m like … now I’m getting emotional for the guy because I feel bad for him and he’s in so much pain.

So I was able, once I got the IV in, I gave him 400 of fentanyl. We’re only allowed to give 100 micrograms, and I ended up giving him 400 micrograms. Which I talked to the doctor, he signed off on the papers and said he was fine with it. The guy really needed it. So I gave him a fluid bolus before the helicopter got there.

I’ve actually gone to counseling for this call because it was pretty emotional. Something I thought I would never see in a thousand years. So I did some counseling for it, and it was tough. I think maybe if I was single and didn’t have a kid, maybe it would have been a little easier. But now having a son, maybe that made it a little bit harder.
Story 6: “Struggling to Breathe”

It was a respiratory distress patient, and we get there and he was in congestive heart failure badly. He was a class-1 patient and his blood pressure ... he was getting to the point where his blood pressure was actually dropping. Which, normally they’re more on the high side of the blood pressure. So my partner and I started treating him. There are some medications, like Lasix and nitroglycerin, you’re not necessarily supposed to give when the blood pressure is low. And the other crew heard that we had a class 1, and they were nearby so they came by to give us a hand until we got in the truck. So I started to give the patient Nitroglycerin because he was having chest pain, and my partner is … kicking me in the leg because the guy’s blood pressure was low and I shouldn’t have been giving it…

And I ended up giving it anyway because I was just so focused on that’s what the guy needed. Like in my brain I omitted the blood pressure because he was a critical patient … [A]t the time, we didn’t have CPAP … that would be really great for that kind of thing, but we didn’t have that at the time. We were limited to just whatever drugs we carried. And same with the Lasix. And the other crew came and they were asking “Why are they giving…. did you give Nitro and the blood pressure was low?” And the other guy who was a flight medic, was also so focused on how bad the patient was and that our choices were limited, he went and gave the Lasix …

And it just kind of made me think as far as decision making … it’s frustrating when you know there’s things that can be done and you don’t have the means to do it. You see somebody struggling for the very essence of life, which their breath is. You know you have something that you can use, and I don’t regret giving him nitro and Lasix, because it was the only choice I had. And he was not going to make it to the hospital.

But I broke protocol, and … I’m sure it was reviewed. And ultimately we can break protocol, and as long as the physician signs off that we made the right choice, it’s all good. So that’s probably what happened, but in the case, it was just kind of funny, because here was a flight paramedic sitting next to me as a medic who’d only been a medic for a couple years. I made the first mistake, he questioned… and then he went and did the same thing. But we all really knew that we had stuff that could help this guy, and that’s all our brain tuned in to really. I think we overlooked the number of the blood pressures because there was nothing that we could do for this man.

Story 7: “We Decided Not to Intubate”

[The] lady went across a yard and into a building and flipped her car. Leg was pinned between the dash and the console, and all but amputated her foot … [T]he rescue team was having a devil of a time getting her cut of there. They had been on scene about 20 minutes before we got there,
and we were on scene another 20 or 25 minutes before we got her out … probably a good 45 minutes getting her cut of there.

[The first responding paramedic from the other organization] had an IV going on her. She was otherwise stable, she really wasn’t, other than her leg, she wasn’t really hurt all that bad ... [she was] awake and screaming. It was just such a catastrophic injury to her leg. But the rest of her was fine … her vitals were good, her lungs were clear, belly was soft, there was nothing obvious anywhere on her except for that ankle. The ankle was really about the only injury that she suffered. … her vitals stayed rock solid and stable.

We ended up giving the etomidate, thinking that we were going to tube and then [the other medic] backed out and decided, “well she’s calm and still breathing, I think we’ll just leave her the way she is.” Ultimately decided not to tube her, though … [the other medic] ultimately decided that she was managing her airway ok on her own, despite the etomidate, and they ended up not tubeing her. Which, there was a lot of controversy about … giving Etomidate and not tubeing somebody … it is a short acting, short duration sedative … usually it starts to wear off anywhere by like five minutes or so, five to ten minutes it starts to wear off and patients start to wake back up again … That is one nice thing about in a situation like that … it has very little to do with the respiratory depression effects. Patients will still keep breathing, it’s not like a paralytic, but at the same time they are unconscious. If they end up throwing up or something like that, they have no way of protecting their own airway.

He had done the initial assessment, as obviously it was his patient. So him being the first one on scene, and him doing the initial assessment, having initial control over treatment regimen that we were going to do with her. I ended up deferring to his judgment on that, mainly because … it was “his patient,” and he was first one on the scene … [W]e had gotten everything set up, he had a tube and a laryngoscope and everything ready in the car to tube her right then and there. And we ended up pushing the etomidate, thinking he was going to just tube her right then and there. And after the etomidate was pushed was when he then decided “well, no, she’s calm now, why don’t we just leave her alone.” Things were happening kind of quick …

Like I said the initial decision was he was going to intubate her, but after we gave the etomidate and really kind of finished putting … she was more or less sorta sedated at that point, but she was still kind of grabbing at stuff … Once she was out and not moving, he was more comfortable with her. The only issue at that point was just her ability to protect her airway was gone. They were actively cutting on the car, and using rams and stuff on the dashboard trying to get her leg out while we were doing all of this, so there was a lot going on. We were trying to keep her, and ourselves and her covered with blankets so that we weren’t getting hit by glass and metal and whatever. So, again, that whole adrenaline factor kind of kicks in. Didn’t have any other patients to keep track of, but at the same time, at least in my opinion, it does affect people’s
ability to make sound, rational judgments, and not for the better. So I think a lot of that had a lot to do with the decisions that we made …

Everybody was I think wound up by her being wound up. She was not completely conscious, but enough that she was grabbing and pulling at stuff while we were trying to work with her. And just getting her under control to the fact where she was just flaccid, and not moving, and not causing us anxiety ourselves, it was just such a huge relief, I think, that it kind of put everybody back on their seat and took everybody’s guard down.