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Prehospital Trauma Triage Decision-Making: A Model of What Happens Between the 911 Call and the Hospital

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Abstract

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Objective—We describe the decision-making process used by emergency medical services (EMS) providers in order to understand how: 1) injured patients are evaluated in the prehospital setting; 2) field triage criteria are applied in-practice; and 3) selection of a destination hospital is determined.

Methods—We conducted separate focus groups with advanced and basic life support providers from rural and urban/suburban regions. Four exploratory focus groups were conducted to identify overarching themes and five additional confirmatory focus groups were conducted to verify initial focus group findings and provide additional detail regarding trauma triage decision-making and application of field triage criteria. All focus groups were conducted by a public health researcher with formal training in qualitative research. A standardized question guide was used to facilitate discussion at all focus groups. All focus groups were audio-recorded and transcribed. Responses were coded and categorized into larger domains to describe how EMS providers approach trauma triage and apply the Field Triage Decision Scheme.

Results—We conducted 9 focus groups with 50 EMS providers. Participants highlighted that trauma triage is complex and there is often limited time to make destination decisions. Four overarching domains were identified within the context of trauma triage decision-making: 1) initial assessment; 2) importance of speed versus accuracy; 3) usability of current field triage criteria; and 4) consideration of patient and emergency care system-level factors.

Conclusions—Field triage is a complex decision-making process which involves consideration of many patient and system-level factors. The decision model presented in this study suggests that EMS providers place significant emphasis on speed of decisions, relying on initial impressions and immediately observable information, rather than precise measurement of vital signs or systematic application of field triage criteria.

Keywords

Triage; Emergency Medical Services; Medical Decision Making

INTRODUCTION

For severely injured patients, trauma centers have been shown to decrease the risk of mortality by 25% and to be cost-effective.[1,2] However, to be transported to a trauma center via ambulance, emergency medical services (EMS) providers must make accurate field triage decisions when selecting a receiving facility.[3,4] This selection of a destination hospital is referred to as trauma triage. Previous research has shown EMS providers have limited ability to predict clinical outcomes of their patients such as medical necessity of transport, mortality, or hospital admission.[5,6] The Field Triage Decision Scheme (FTDS), developed by the American College of Surgeons Committee on Trauma and the Centers for Disease Control and Prevention, was designed to simplify and facilitate risk-stratification and the decision-making process by guiding EMS providers in their selection of a destination hospital.[3,7] The goal of the FTDS is to minimize undertriage, defined as transportation of severely injured patients to non-trauma centers, without excessive overtriage.[4,7] Both undertriage and overtriage have implications for patient outcomes and efficiency of the overall emergency care system.[1,8–10] The accuracy of these prehospital trauma triage

guidelines to identify severely injured patients, even when applied consistently and uniformly to all patients, is sub-optimal and fails to attain standards set by the American College of Surgeons Committee on Trauma (goal: undertriage <5% and overtriage of 25–50%).[7,11–13]

Clinical decision rules, such as the FTDS, are designed to assist providers in making medical decisions; however, for them to be effectively applied and attain maximum adherence, these decision aides should be feasible for use in the target setting and aligned with the natural decision-making process of the end-user.[14,15] Unfortunately, research is limited on how EMS providers assess injured patients and the decision-making processes they use when making field triage decisions under actual circumstances. To date, only one study specifically evaluated how EMS providers approach field triage decisions.[16] The purpose of this study was to model the decision process and to identify potential assessment factors related to the decision to transport to a trauma center.

METHODS

Study Design

We conducted a two-stage qualitative study involving EMS providers between January 2012 and April 2013. We used inductive content analysis methods to determine how EMS providers approach trauma triage and how trauma triage protocols are applied in the prehospital setting. This qualitative method is well-suited to address research questions in areas where little prior knowledge exists as key themes of interests are not identified *a priori*, but rather emerge based on observations from the raw data.[17,18] Due to the paucity of literature in this field, we first conducted four exploratory focus groups (stage 1) with EMS providers. After completion of these four exploratory focus groups, our question guide was revised and we conducted five additional confirmatory focus groups (stage 2) as part of another larger qualitative study on field triage decisions. This second stage served as respondent verification for the findings in the first stage.[19] Our Institution's Research Subject's Review Board approved this study with exempt status and a waiver of documentation of informed consent.

Study Setting and Population

EMS providers from agencies located in two counties in Western NY were recruited for participation. All EMS agencies in this area are part of a trauma system. The regional Level I trauma center is centrally located in Monroe County and immediately north of Livingston County. EMS providers in this region are allowed to cross the county line for transportation to the trauma center. Actively practicing EMS providers participated in one of nine focus groups. EMS providers were eligible to participate regardless of whether they were paid or volunteer providers. Due to the hierarchical culture in EMS, separate focus groups were conducted with advanced life support (ALS) and basic life support (BLS) providers, as we believed participants would be more willing to share their experiences and disclose their opinions in a group of their peers. We also conducted separate focus groups with EMS providers from both urban/suburban (Monroe County, NY) and rural (Livingston County, NY) EMS agencies as the decision-making processes for these settings likely differ due to

differences in case-mix, resource availability and transport times. During the time period in which the focus groups occurred, all EMS agencies in this region used the FTDS as part of their regional trauma and patient care protocols, thus all providers in the sample had previous exposure to the FTDS.

Study Protocol

We used a purposive sampling strategy to intentionally select specific ambulance agencies that would be supportive of our research and willing to provide space for the focus groups. As part of this sampling procedure, we identified agencies that fulfilled our inclusion criteria (ALS and BLS agencies from rural and urban/suburban regions), had leadership supportive of clinical research, and EMS providers who would be willing to openly share their experiences.[20] A member of the study team approached the director of each agency to gauge interest in participating. Once the agency director agreed to participate, we sent a standardized recruitment email to all active EMS providers in the agency. Once at least five EMS providers at each agency expressed interest in participating, the focus group was scheduled. All focus groups took place at the individual EMS agency so as to ensure participants were in a familiar and comfortable setting and to decrease the travel burden on the participants. Participants received $25.00 as an incentive for their participation. All participating agencies use a common set of protocols that include the FTDS to guide destination decisions of trauma patients.

To minimize the effect of social desirability bias, all focus groups were moderated by a non-clinician investigator (CMCJ) and research assistant (EBW) who do not have a leadership or management role within the EMS system. At the start of the focus group, we distributed an information letter to participants and discussed the nature of the study and what the focus group process would entail. We then proceeded with the focus group and used a standardized question guide to elicit responses from participants. We asked additional probing questions to clarify individual responses or comments as needed. All focus groups were audio-recorded with permission from all participants and later transcribed by a professional transcriptionist.

Materials and Measures

We developed a standardized question guide to facilitate the discussion, which assessed three primary concepts related to EMS provider trauma triage decision-making: 1) how EMS providers approach trauma triage; 2) patient factors that influence trauma triage decisions (e.g., vital signs, anatomic injuries, mechanism of injury); and 3) system-level factors that influence trauma triage decisions (e.g., trauma center proximity, hospital resources, hospital patient volume). Our goal in developing the question guide was to create an instrument that engaged participants in a discussion about trauma triage. Initial questions were very general (e.g., “Tell me about trauma triage” or “What is the first thing you do when you arrive on the scene?”). A draft was pretested by content experts as well as pilot tested with practicing EMS providers to ensure the questions reflected the language and terminology used by the target population. In addition to the question guide, at the end of the focus group we distributed a one-page figure of both the 2006 and 2011 FTDS. Participants were asked general questions about the FTDS and its alignment with their natural thought process and

invited any suggestions for revision. We believed that EMS providers would be hesitant to provide personal descriptive information (e.g., age, sex, education, etc.) during the focus groups; however, based on feedback from the exploratory focus groups, we found that participants were willing to answer our questions and would not find such questions intrusive. Based on feedback from the exploratory groups, we added a demographic questionnaire as part of the confirmatory focus groups.

Data Analysis

Basic characteristics of the study population were calculated using descriptive statistics. A content analysis was conducted to address our key questions surrounding trauma triage decision-making.[21] Focus group transcriptions were reviewed by members of the study team (CMCJ, MNS, EBW, AD) and trained research assistants. All individuals involved in the coding process were first instructed to read the transcripts in their entirety and then identify any statements related to how EMS providers approach trauma triage. Within these broader areas of interest, inductive qualitative research techniques were used to identify key themes that emerged from the data. Specific coding categories were not created a priori, but rather, codes were created based on commonalities that emerged from the data.[19,21] Code definitions were created and reviewed for clarity in an iterative process by the lead investigator (CMCJ), in consultation with members of the study team (MNS, EBW). Coding categories were discussed in bi-weekly meetings so as to ensure adherence and minimize any drift in the coding process over time. Any questions that arose were discussed as a team and all instances of coding disagreement were discussed until consensus was achieved. Coding was documented in a Microsoft Excel spreadsheet and during the final phase of analysis the codes were grouped into larger themed categories. The study team met to synthesize the themes and identify overarching domains of interest.[21,22] Illustrative statements made by participants were also identified as part of the data analysis.[19] Lastly, a decision model was created to illustrate the process that providers in our sample use during field triage.

RESULTS

Fifty EMS providers from 9 different EMS agencies participated in separate focus groups: four exploratory (n=27) and five confirmatory focus groups (n=23). All agencies who were approached for the study agreed to participate. Across these nine focus groups there were 10 rural ALS providers, 20 urban/suburban ALS providers, 9 Rural BLS providers, and 11 urban/suburban BLS providers (Table 1). Descriptive characteristics of participants in the confirmatory focus groups are presented in Table 1. Each focus group lasted an average of 75 minutes.

Eight themes were identified, including rapid evaluation, use of estimation, provider intuition, provider education/training, thought process, protocol application, patient factors, and system factors. These 8 themes coalesced four overarching domains: 1) initial assessment; 2) importance of speed versus accuracy; 3) usability of current field triage criteria; and 4) consideration of patient and emergency care system-level factors (Table 2). A

brief description of each of these domains is provided below with accompanying illustrative quotations from participants.

Domain 1: Importance of Initial Assessment

Providers remarked that upon arriving at the scene of an injury, they perform an initial patient assessment within the first minute and this initial assessment drives their ultimate choice in destination hospital. Participants frequently indicated they trust their initial instincts and "listen to their gut." For example, one participant from the rural ALS focus group stated: "Within 90 seconds you should probably have your decision made." Further, many of the participants remarked that general appearance of the patient upon arrival is more valuable than a more detailed assessment and precise measurement of vital signs. Participants in all focus groups agreed that an initial "scene size-up" drives the subsequent evaluations and assessments they perform.

Domain 2: Speed versus Accuracy

"Efficiency of getting through the process is very important to me" (Urban BLS provider). Participants reported placing significant emphasis on the rapidity of their assessments and decisions. Providers often reported using "estimates" or dichotomous normal/abnormal impressions, rather than specific numeric measurements, to inform their choice of destination hospital. Providers remarked that precise measurements are taken during transport to validate their impressions. One rural ALS provider stated: "you're taking a quick look and you're making quick decisions."

It was frequently noted that "estimates" of vital signs such as blood pressure or Glasgow Coma Scale (GCS) were inferred based on general impressions of patients using on-scene simple interactions, rather than taking precise measurements. When discussing patient assessment, one urban ALS provider remarked, "If they're not talking and they are diaphoretic they probably…the coma scale is below 14…[and] they probably don't have a [good] blood pressure."

Domain 3: Usability of Current Field Triage Criteria

Providers in our sample further indicated that the structure and design of trauma triage guidelines, which are visually presented in a step-wise fashion, to assess vital signs, anatomic injuries, mechanism of injury, and finally special patient considerations, do not align with how they actually perform trauma triage in the prehospital setting. Participants stated that trauma triage is not a linear process that involves step-by-step evaluation, in contrast to the current structure of the FTDS. Participants agreed that the selection of a receiving hospital begins while en-route to the scene based on dispatch information and is further informed by their initial assessment upon scene arrival. They remarked that patient severity upon arrival at the scene dictate what assessments they will perform and in what order.

Participants stated that the mechanism of injury and obvious anatomic injuries are assessed first followed by impression of the patient. For example, a common topic of discussion was the assessment of on-scene vital signs. Participants stated the priority given to taking vitals

depends on the specific situation and patient. Participants noted that there are instances in which vitals are taken immediately upon arrival at the scene, such as taking the blood pressure of someone who fell from standing. However, providers also remarked that taking vital signs is often not feasible upon initial scene arrival and may delay care. They further stated vitals are often taken to validate observations and the impression of EMS provider, after the patient is stabilized and a destination hospital has been selected. The participants agreed they rely more on general patient impression than specific numbers because the specific values outlined in their triage guidelines do not account for the baseline status of patients.

Domain 4: Consideration of patient- and system-level factors

Participants also stated that, for cases in which an immediate decision cannot be made, other factors such as patient preference, trauma center proximity, available resources at non-trauma centers, and “busy-ness” of the trauma center are vital in their triage decisions. Providers frequently indicated that patient preferences are incorporated into their trauma triage decisions whenever possible, particularly in the rural settings. One rural BLS provider indicated that patients often wish to be transported to the hospital with which their primary care physician is affiliated or to hospitals that are closer to home and their families. Additionally, patients may have negative associations with specific hospitals and indicate their preference to be transported elsewhere. The triage decision patterns for severe trauma patients differed between rural and urban/suburban providers. Rural EMS providers consistently expressed concerns regarding the lengthy transportation time to the closest trauma center and rural BLS providers agreed that “calling for ALS backup” or “ALS intercept” is often required in cases of severe trauma. Rural providers remarked that “stabilizing the patient” and transporting them to the closest hospital is often weighed against making a one-hour or longer drive to the trauma center. Participants noted concerns about the availability of helicopter transport in poor weather conditions and stated that decisions are often made between lengthy ground transportation to the trauma center versus transportation to the closest hospital knowing that subsequent transport to the trauma center will likely be required. However, participants in the urban/suburban focus groups did not mention these concerns due to their close proximity to the trauma center.

Synthesis of Domains

These four domains are distinct concepts; however, participants highlighted that they are interrelated in that they each influence prehospital field triage processes and decisions and the selection of a destination hospital. Figure 1 presents the overall decision model described by EMS providers in our sample. There was consensus among participants that speed is essential to their decision-making process and destination decisions are often made based on information that is available immediately upon scene arrival and/or their initial impression, including severe anatomic injury (e.g., open fractures) or significant mechanism (e.g., fall from significant height). For patients who are not immediately recognized as requiring trauma center transport, a secondary and usually more detailed evaluation of other factors is performed (e.g., vital signs, medications, age). Rural providers stated they perform a risk-benefit analysis, weighing system factors with the patient’s need for trauma center care. Patient- and systems-level factors, including patient preference and proximity of the trauma

center, are often incorporated into triage decisions for situations in which the patient does not warrant evaluation at a trauma center.

DISCUSSION

This qualitative study identified a more realistic decision-making model used by EMS providers when making field triage decisions for injured patients. This study expands upon the results of a previous mixed-methods study[16] which examined prehospital trauma triage decisions. The decision-making model presented in our study provides confirmatory evidence of the approaches and processes used by practicing EMS providers in a geographically and structurally distinct region. Further, our findings provide additional details on how EMS providers assess their injured patients and determine their transport destinations.

EMS provider participants in our sample remarked that trauma triage was complex and multiple factors need to be assessed in order to select an appropriate destination hospital. Participants frequently noted that specific evaluation of each component (e.g., vital signs, level of consciousness, anatomic injury, mechanism of injury, etc.) is highly variable and completed on a case-by-case basis. Participants largely agreed that trauma triage is not a linear process and assessments are not performed in a sequential stepwise fashion. Rather, there are two broad clinical judgment pathways used in the prehospital selection of a destination hospital: 1) “obvious cases” and 2) cases that require more detailed evaluation. In other cases, when a destination hospital is not immediately chosen based on either severity of the injury or mechanism, a more detailed patient assessment is performed with the specific intent of determining the need for a trauma center. These findings are consistent with those from a previous study conducted in Oregon and lead us to believe that such approaches to field triage are not unique to our region.[16]

One theme from the focus groups was that EMS providers report using their intuition and making decisions based on their previous experiences and gestalt impression of the patient. Similarly, a recent study found that the most commonly cited criterion for triage decisions was EMS provider judgment.[23] Another study also found that EMS provider judgment was frequently cited as a criterion for transport and was associated with a 23% increased odds of having a severe injury.[24] However, a literature review concluded that the evidence-base to support paramedic judgment as an accurate triage criterion is lacking.[25] Our model indicates that EMS providers routinely rely on their intuition to make destination decisions, but it is uncertain whether such judgment may have additional value independent of the FTDS. There may in fact be some inherent risk in the reliance on provider intuition, especially among providers with insufficient experience, such as providers who are newly certified, part-time or practice in rural settings where the overall trauma volume is relatively low. Such reliance on intuition may contribute to higher than acceptable levels of under- and overtriage and is an area in which future research is warranted.

Participants in our focus groups stated they generally follow their trauma triage guidelines, but reported using an interpretation of these guidelines, incorporating their past experiences and first impressions on scene, rather than application of specific decision aids or adherence

to any specific word-for-word criteria within the guideline. It is unclear whether this is adaptation of the guidelines is due to inadequate training or inexperience with its real-world application. Providers did acknowledge the importance of these criteria and how they can aide in the selection of a destination hospital, but reported the use of complex decision tools and precise assessment of vital signs are not routinely conducted before a triage decision is made. In fact, providers remarked that such assessments such as Glasgow Coma Scale (GCS), which was originally designed for use in ICU patients[26], is not feasible in the prehospital setting. This is supported by research showing that agreement between prehospital and ED physician GCS scores is poor.[27,28] While the FTDS and local trauma protocols do contain specific threshold values for vital signs and GCS, they may not be used in practice. Instead, providers in our sample expressed their proclivity to "simplify" many vital sign measurements to dichotomous findings based on outward signs present during their initial assessments (normotensive versus hypotensive, GCS normal versus abnormal, etc.). Nevertheless, while it may not be used as intended, the inclusion of specific thresholds in triage guidelines, such as the FTDS, may have value for education, training, and for new providers who do not have extensive prior experiences with injured patients on which to base their triage decisions.[14]

Providers in our sample did seem to appreciate the purpose and value of the prehospital triage guidelines; however, they frequently remarked the structure of the current FTDS does not align with the natural decision-making process used by EMS providers. The FTDS is currently structured as four decision points: vital signs and consciousness, anatomic injury, mechanism of injury, and other special considerations. Providers in our sample agreed that these factors are not identified in this order and thus the presentation of the FTDS decision points is not synchronized with how information is processed in the prehospital setting. Participants frequently noted that specific vital signs are often not taken until the destination decision has been made. Providers in our sample placed significant emphasis on factors that are readily observable immediately upon scene arrival such as mechanism or anatomic injuries – as opposed to the FTDS linear structure, which leads the EMS provider to assess vital signs as the first decision tier. This divergence may influence uptake and adherence and ultimately the real-world accuracy of the FTDS may be affected by its usability.[14,23,29] Future revisions of the FTDS may benefit from restructuring to better align with how EMS providers approach field triage while not compromising rates of under- or overtriage.

There was consistency both between practice settings and provider levels (urban/suburban vs. rural and ALS vs. BLS). The only emerging dissimilarity between these sub-groups related to severe trauma patients in which rural providers often remarked their decisions are impacted by factors not experienced in urban/suburban settings such as: availability of helicopter transportation, weather, travel distance to the trauma center, and the concept of "calling for ALS intercept" among the rural BLS provider participants. There was little concern expressed related to time-to-definitive care among our participants. Rural providers agreed that transportation to the nearest facility is often preferred, knowing that the patient can be stabilized and transferred to the trauma center at a later time, if needed. These findings provide insight for future education and training of rural EMS providers and structural modifications to rural EMS systems.

This study has some important limitations to consider. First, our findings are from one geographic area and one EMS system; thus, the extent to which these approaches to field triage are shared among all EMS providers is unknown. We attempted to mitigate this concern through our design by purposefully sampling a diverse range of advanced and basic life support providers from urban/suburban and rural EMS agencies with different leaders and medical directors. While we did not collect data on EMS agencies who did not participate in our focus groups we believe that our sampling strategy adequately captured the diversity of EMS agencies in our area. Additionally, our findings are consistent with those of Newgard and colleagues[16], indicating that the experiences shared in our focus groups are not unique to our study participants and these approaches to field triage may be generalizable to EMS providers as a whole. While it is unknown how prevalent these decision-making patterns are among all EMS providers, such strikingly similar qualitative findings indicate that EMS providers from very different practice regions, with different educational requirements, medical direction, and leadership practices, approach field triage similarly. Second, we do not have demographic information from providers in the exploratory focus groups because we felt it would be intrusive. Based on our experiences in this phase of the study, we adapted our methodology for the confirmatory focus groups and demographic information was collected on these individuals. Given the consistency of findings between the exploratory and confirmatory focus group findings, we do not believe that the exploratory group was biased due to overrepresentation of a specific demographic group. Similarly, we were able to identify participants' certification level and practice setting based on the focus group in which they participated, but we were unable to attribute specific statements with any one individual. Thus, we are unable to evaluate the effect of experience level or education of decision-making processes. Third, it is important to note that our intention was to describe the way in which EMS providers approach field triage using a qualitative methodology. Our study findings and our decision model were not linked to specific patients or cases, but rather, are based on self-reported experiences of EMS provider's usual approach to field triage and their resulting decisions. As such, we do not have patient outcomes and are unable to evaluate rates of under- or overtriage using this decision model. Lastly, it is possible that social desirability did influence the information participants were willing to share. We attempted to mitigate this concern by using a non-clinician researcher to moderate the focus groups; however, there may have been a residual effect as the participants were aware that members of EMS leadership were involved with other aspects of the study.

CONCLUSION

This study presents a model of the field triage decision process used by EMS providers in the prehospital setting. Rapid transport decisions are highly valued and influence the way in which patients are evaluated in the prehospital setting. Provider intuition, consisting of a complex confluence of both provider experience and information that is readily available upon scene arrival (e.g., anatomic injuries, mechanism) is prioritized with consideration of other factors, as appropriate, such as patient preference, trauma center proximity, and measurement of vital signs and GCS. Adherence to and the accuracy of field triage

guidelines may be affected by their usability and represents an area in which future research is warranted.

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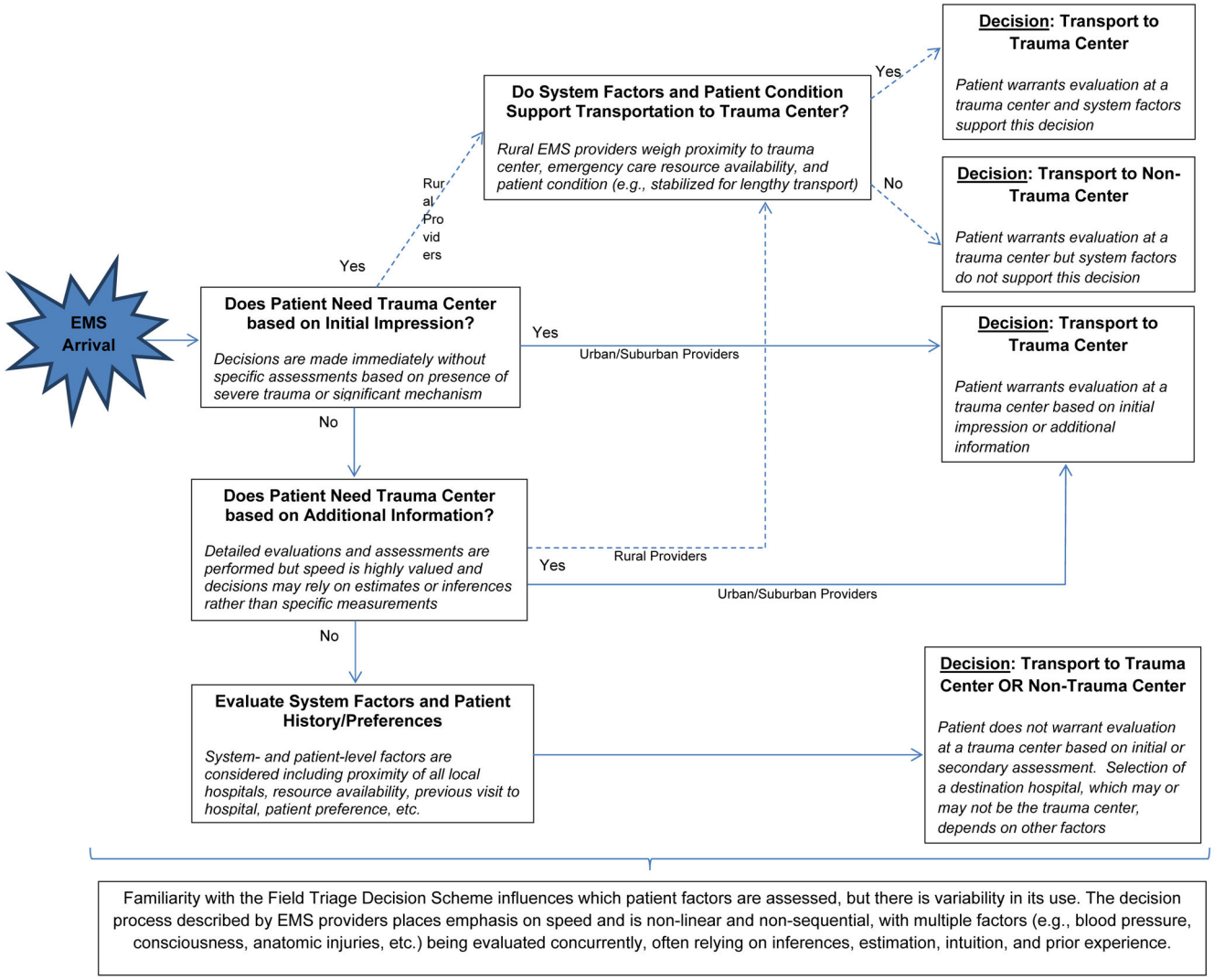

Figure 1.
Decision Model of EMS Provider Field Triage

Table 1

Sample Size of Focus Groups and Descriptive Characteristics of Participants

Characteristic	Exploratory Stage (n=27)	Confirmatory Stage (n=23)
Sample Size		
Rural ALS	5	5
Rural BLS	5	4
Urban/Suburban ALS	10	10*
Urban/Suburban BLS	7	4
Demographic Characteristics		
Age		
<25	-	3 (13.1%)
25–45	-	13 (56.5%)
>45 years	-	7 (30.4%)
Sex		
Male	-	16 (69.6%)
Female	-	7 (30.4%)
Years in EMS		
<2	-	9 (39.1%)
2–10	-	6 (26.1%)
>10	-	8 (34.8%)
Education		
High School Diploma	-	11 (47.8%)
Some College	-	7 (30.4%)
Bachelor's Degree or Higher	-	5 (21.7%)

*Note: two separate focus groups were conducted with urban/suburban ALS providers consisting of n=4 and n=6 in each group.

Table 2

Illustrative Quotations and Corresponding Domains and Themes

Domain	Theme	Illustrative Quotations
Initial Assessment	Rapid Evaluation	*"You're taking a quick look and you're making quick decisions. Within 90 seconds you should probably have your decision made"* -Rural ALS Provider
	Rapid Evaluation	*"In the first few minutes we see a patient is about deciding sick, not sick, how sick, level of resources and making decision about how we can get the right resources and the right amount of resources most efficiently"* -Urban/Suburban BLS Provider
	Provider Intuition	*"You just have a gut feeling, if something is bad you know it is bad. You know what you're -- you already have your transport decision in mind once you've seen the patient and done a rapid assessment. You pretty much have an idea of where you are gonna go or where they should go"* -Urban/Suburban ALS Provider
Speed vs. Accuracy	Use of Estimation	*"Those vitals are our general impression. If they're not talking and they are diaphoretic they probably, the coma scale is below 14 [and] they probably don't have a [good] blood pressure"* -Urban/Suburban ALS Provider
	Provider Intuition	*"Sometimes at this point you rely a lot on your gut. If I think about working up a person, like we're going to [trauma center], once if I think about it in my head we're going"* -Rural ALS Provider
	Thought Process	*"Some of these steps can be combined. Like steps 1 & 2, [Physiologic and Anatomic Steps of the FTDS] you can almost do [the vitals] at the same time because when you are assessing someone's injury you're looking at them but you can also assess their pulse or taking their blood pressure. And obviously you're going to be talking to them so you're gonna be able to establish their GCS score, you know, establish their respiratory rate"* -Rural ALS Provider
	Use of Estimation	*"And the GCS, you're determining that from the get go. But to get a number for a systolic blood pressure, I mean you can get an estimate"* -Rural BLS Provider
Usability of Current Triage Criteria	Education/Training	*"The way we teach it is you do a quick head to toe assessment to identify anatomical issues before vitals"* -Urban/Suburban ALS Provider
	Protocol Application	*"Absolutely not step 1 [Physiologic Step of FTDS] first"* -Rural ALS Provider
	Thought Process	*"I happen to wait until we get in the rig, just I have no way to get to them to try to take blood pressure, some of them are pretty hard. Vital signs is usually some afterthought, I would say, but just, you know, getting them stabilized, getting them, you know, on the backboard, getting them out of the car, out of the elements or whatever. You know, once they're in the rig kind of settled, all right, let's check and see where we're at"* -Rural BLS Provider
	Protocol Application	*"I think 2 & 3 [Anatomic and Physiologic Steps of the FTDS] are a little more high priority"*
	Use of Estimation	*"So you may have done this sort of in the back of your mind, but specifically these numbers, sometimes you may not get to that blood pressure specific until you've already made that [destination hospital] decision"* -Rural BLS Provider
Multi-factorial Decisions	Patient-Level Factors	*"The patient chose to go to a hospital based off of where their primary care is so that definitely factors in"* -Rural BLS Provider
	Patient-Level Factors	*"If [the trauma center] just got six other trauma patients in and can't handle it we're going to use that to divert. Maybe we just left that hospital and we know they're not in any shape to take on sick patients"* -Urban/Suburban ALS Provider
	System-Level Factors	*"If they're stable I would like to get them to the hospital and get them stabilized, you know, and go from there… is let's face it, sometimes [the trauma center] is too busy"* -Urban/Suburban BLS Provider