Optimizing the Patient Handoff Between EMS and the Emergency Department

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Study objective: Patient handoffs are known as high-risk events for medical error but little is known about the professional, structural, and interpersonal factors that can affect the patient transition from emergency medical services (EMS) care to the emergency department (ED). We study EMS providers’ perspectives to generate hypotheses to inform and improve this handoff.

Methods: We conducted focus groups with EMS providers recruited at 3 national and regional conferences from January to March 2011 until theme saturation was reached; 7 focus groups were conducted with 48 EMS providers. Deidentified transcripts and notes were entered into QSR NVivo, coded, and analyzed to identify themes.

Results: EMS providers identified themselves as advocates for their patients during the challenging EMS-to-ED handoffs. Providers identified normative challenges they encounter in their communications with hospital staff, and features of EMS and hospital protocols that either facilitate or undermine effective handoffs from the out-of-hospital environment to the ED. They identified 4 key potential ways to improve the structure and process of the handoff: (1) communicate directly with the ED provider responsible for the patient’s care; (2) increase interdisciplinary feedback, transparency, and shared understanding of scope of practice between out-of-hospital and hospital-based providers; (3) standardize some (but not all) aspects of the handoff; and (4) harness technology to close gaps in information exchange.

Conclusion: These exploratory findings suggest that the effect of increasing EMS interactions with emergency physicians, standardizing handoff processes, and fostering interprofessional learning represent opportunities for future study and may serve as potential solutions for the high-risk EMS-ED patient transition. [Ann Emerg Med. 2014;–:1-8.]

Please see page XX for the Editor's Capsule Summary of this article.

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INTRODUCTION

Background

During the past 20 years, emergency medical services (EMS) care around the world has expanded, increasing the likelihood that the first medical transition on any given clinical encounter is from the out-of-hospital setting to the hospital emergency department (ED).1-3 Patient handoffs are known as high-risk events for medical error.4-6 Since the Institute of Medicine report To Err Is Human was published, identifying gaps in patient safety throughout the health care system, handoffs have been a source of regulatory and scholarly interest.7,8 Most of these efforts, including that of The Joint Commission, which listed improved handoffs as a major hospital safety goal in 2006, have focused on within-hospital handoffs and posthospital discharge transitions.9

EMS-to-ED handoffs present unique challenges, in part because participants have distinctive clinical duties and professional cultures and largely nonoverlapping sites of work, leading to potential communication and teamwork gaps that may be especially costly in the context of care for critically ill patients.10 However, these EMS-ED handoffs have not been extensively explored. In a systematic review of the literature on patient safety in EMS, Bigham et al11 identified that communication was addressed in only 6 of 88 studies included in the review, and of these, only 4 studies addressed actual EMS-ED handoffs.

There is a shortage of insights from out-of-hospital providers themselves about how to improve the safety of the transition into the hospital. Previous research on EMS-ED transitions has focused on the handover from the receiving clinicians’ perspective12-16 or has used direct observational and simulation methods to assess the content of information (data elements) communicated during EMS-to-ED transitions.17-22

Importance

Using the limited evidence available, local and national policy efforts have focused on standardizing and automating patient
Editor’s Capsule Summary

What is already known on this topic
Patient handoffs are high risk.

What question this study addressed
This was a qualitative analysis from the emergency medical services (EMS) provider’s perspective of the experience of patient handoffs and how to improve the process.

What this study adds to our knowledge
EMS providers are often frustrated by the handoff process and identified several possible ways to improve the process from their perspective.

How this is relevant to clinical practice
The proposed improvements require evaluation for feasibility and benefit before adoption. However, making emergency physicians aware of EMS providers’ concerns about handoffs may be a simple step forward.

Goals of This Investigation
With the goal of bridging this evidence gap, we conducted a qualitative study to capture EMS providers’ perspectives about the handoff to the ED. The purpose of this study was to identify issues and factors surrounding the EMS handoff process to build a picture of how the EMS-to-ED handoff functions and how it can be improved to translate into safer, more efficient, and higher-quality patient care.

MATERIALS AND METHODS
This project used focus groups, a qualitative method that was selected to reveal the range of experiences and challenges faced by out-of-hospital providers during the handoff of patients to ED personnel. In contrast to hypothesis-testing quantitative methods, which often use surveys with closed-ended and categorical response structures, qualitative methods allow flexible, detailed assessments of participants’ priorities, standard work practices, and recommendations for change. Because little has been published about the transitions between out-of-hospital providers and the ED (particularly from the EMS provider’s viewpoint), focus groups were intended to provide insights that would contextualize current policies and future research, driving the formulation of relevant questions and testable hypotheses.

Selection of Participants
Focus group participants were recruited at 3 national and regional meetings attended by EMS providers. The first was a continuing educational conference for emergency medical technicians (EMTs; EMT-basic and EMT-paramedic), convened in southeastern Pennsylvania in January 2011. The second was the National Association for EMS Physicians Annual Meeting (January 2011, Bonita Springs, FL), and the third was EMS Today: EMS and First Responder Conference and Exhibition (March 2011, Baltimore, MD). Recruitment consisted of posted flyers, general announcements, and some direct solicitation at each meeting. Recruitment sites were selected because they were large gatherings of regional and national EMS providers from diverse practice settings. Purposive sampling was used to target only out-of-hospital medical care providers, including EMTs and paramedics. Some were also physicians and nurses, but all self-identified as active or recently active (within 3 years) EMS providers. All participants spoke English and provided written documentation of informed consent, as required by the University of Pennsylvania Institutional Review Board, which approved this project. We conducted 7 focus groups, with approximately 6 to 10 participants in each group, for a total of 48 participants. We ceased collecting data after theme saturation was reached. We recognized early in the conduct of the focus groups that ideas and concepts were being repeated across groups. This observation was strong enough that we terminated data collection before our initially planned eighth to 10th focus groups. This decision was reinforced during our data analysis. For any of the ideas presented in the article, we had a broad range of supporting quotes and observations. Each focus group participant received a gift card for $15 at the completion of data collection.

Data Collection and Processing
The focus group interview guide (Appendix E1, available online at http://www.annemergmed.com) consisted of open-ended questions that elicited information about handoffs of patients to the ED. We specifically probed for challenges and observations in the domains of quality of care, trust, and system and professional characteristics as they relate to the handoff. We offered participants the opportunity to elaborate within each of these domains. The focus group facilitator (Z.F.M.) actively encouraged focus group participants to express divergent opinions. Focus groups generally lasted 60 to 75 minutes and were audiorecorded and professionally transcribed, with identifying information, such as hospital names, redacted.

Primary Data Analysis
Deidentified transcripts were entered into QSR NVivo (version 9.0; QSR International, Melbourne, Australia) for analysis. We developed a coding structure for the data that

information to be used for written and verbal handoffs. The consequences, both intended and unintended, of these efforts to universalize certain aspects of the handoff have yet to be determined. Professional, structural, and interpersonal factors that can affect the EMS-ED patient care transition are likely to influence the ways in which such policy efforts are both constructed and implemented.
included a limited set of codes based on the a priori questions in the interview guide and a larger set of codes developed through a close reading of the data, independently conducted by Z.F.M., B.P., and C.C.C.24,25 The 3 readers had complementary perspectives and all have formal training and experience in qualitative research. The lead researcher (Z.F.M.) is an emergency physician with clinical experience as an out-of-hospital provider and medical director of an EMS service, and has advanced degrees in public health and health services research. He has conducted and facilitated multiple qualitative studies. C.C.C. is a social epidemiologist with health outcomes and health care delivery research experience and serves as core faculty in the mixed methods research laboratory at the University of Pennsylvania. B.P. is staff at the mixed methods research laboratory and in this role has worked, nearly exclusively, on qualitative research projects. Each reader extensively annotated the transcripts, produced memos about the text reviewed, and proposed a possible coding structure. Through team dialogue, the 3 reviewers’ proposed codes were harmonized and distilled into a single coding structure that included the following 8 codes: technology, “what can go wrong,” facilitators to quality transitions, interpersonal interactions, handoff definition, processes of care, interprofessional understanding, and suggestions for change and improvement. The team specified operational definitions for each of the codes and recorded those definitions in the project’s data dictionary. Operational definitions were refined after a subset of the data was coded independently by 2 coders with specific training in qualitative research, and rare explicit disagreements in coding were resolved through real-time discussion. Using the constant comparison method, the team members moved iteratively between codes and text and independently developed reports for each coded category, summarizing key findings and corroborative or divergent views reflected in participant quotes.26 We then discussed those reports as a team to reach consensus on data patterns and cross-cutting themes.

RESULTS

Characteristics of Study Subjects

The characteristics of the study participants are described in Table 1. The 48 EMS professionals who participated in the focus groups varied with respect to age, sex, and years of experience. The mean age was 36.9 years. The mean (as well as median) number of years in practice was 13.

Focus group participants offered a range of insights about typical handoffs, exemplary handoffs, and problematic handoffs. They described normative challenges they encounter in their communications with hospital staff, and they identified features of EMS and hospital protocols that facilitate or undermine effective handoffs from EMS to ED staff. Table 2 summarizes the key themes and provides additional quotations, as well as testable hypotheses that can be derived from these themes.

After consideration of the data within and across those 8 original codes, several overarching themes reappeared across multiple codes. We therefore report the data according to those broader themes, which included handoff definitions, understanding of the social dynamics of the handoff (including hierarchies among staff and patients), job characteristics that influence the effectiveness of the handoff, the concept of time and timeliness, and ways in which standardized operating procedures and technology could improve or harm handoffs.

The EMS providers (“participants”) noted that handoffs are a central feature of their work with every patient they encounter, yet there are “no standard 5 points that you have to give when you give handoff.” Because of this, many stated that they often improvise or develop their own working guidelines for the delivery of the verbal handoff. Participants stressed that handoffs happen very quickly, during a window that was often described as the “first minute or so,” when key ED stakeholders are engaged in the care of the patient. “The initial interaction makes a difference,” stated one participant, reflecting a broadly endorsed concept. Another stated that, “you lose their attention real quick…and the busier they are, the worse the problem.” Participants agreed that handoffs happen fast but needed to be clear, effective, and delivered to the right ED staff person to serve the needs of the patient. There was some discussion about whether the handoffs should be spare—with the minimum necessary information relayed—or more extensive. Out-of-hospital providers suggested that more detailed handoffs are necessary when a patient’s clinical status has changed (improved or declined) during out-of-hospital care.

Table 1. Participant characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (48), No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>13 (27)</td>
</tr>
<tr>
<td>Male</td>
<td>35 (73)</td>
</tr>
<tr>
<td><strong>Age, by group, y</strong></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>10 (21)</td>
</tr>
<tr>
<td>26–30</td>
<td>12 (25)</td>
</tr>
<tr>
<td>31–40</td>
<td>22 (46)</td>
</tr>
<tr>
<td>41–50</td>
<td>11 (23)</td>
</tr>
<tr>
<td>51–60</td>
<td>4 (8)</td>
</tr>
<tr>
<td><strong>Training/practice</strong></td>
<td></td>
</tr>
<tr>
<td>EMT-basic</td>
<td>24 (50)</td>
</tr>
<tr>
<td>EMT-paramedic</td>
<td>24 (50)</td>
</tr>
<tr>
<td><strong>Additional professional roles</strong></td>
<td></td>
</tr>
<tr>
<td>Physician (EMT-basic)</td>
<td>11 (23)</td>
</tr>
<tr>
<td>Nurse (EMT-paramedic)</td>
<td>2 (4)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>3 (6)</td>
</tr>
<tr>
<td>White</td>
<td>42 (88)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Other/declined</td>
<td>2 (4)</td>
</tr>
<tr>
<td><strong>Number of years as EMS provider</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;3</td>
<td>3 (6)</td>
</tr>
<tr>
<td>5–10</td>
<td>16 (33)</td>
</tr>
<tr>
<td>11–20</td>
<td>21 (44)</td>
</tr>
<tr>
<td>&gt;20</td>
<td>8 (17)</td>
</tr>
<tr>
<td><strong>Patients transported/wk</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>7 (14)</td>
</tr>
<tr>
<td>10–20</td>
<td>20 (42)</td>
</tr>
<tr>
<td>&gt;20</td>
<td>21 (44)</td>
</tr>
</tbody>
</table>
### Table 2. Key findings and relevant research questions/hypotheses.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Findings Reported by EMS Providers</th>
<th>Quote</th>
<th>Research Questions/Testable Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing of handoff</td>
<td>They have a limited amount of time—usually a minute or less—to relay information to the ED staff.</td>
<td>“You never met me before and I gotta become your best friend in 30 seconds or less…. I’m gonna make sure that I’m taking really good care of [the patient]. I’m hoping that care continues. And I want someone to listen to my report.”</td>
<td>How does the first minute of EMS-ED contact influence patient care and outcomes?</td>
</tr>
<tr>
<td>Staff hierarchy</td>
<td>Direct communication with physicians was the most effective form of information exchange.</td>
<td>“But whenever I get a chance, if I know the doctor, I’ll come over and tell him what’s going on.”</td>
<td>Do handoffs directly to physicians improve patient care and outcomes?</td>
</tr>
<tr>
<td></td>
<td>They held low status and power in the ED, and receiving staff did not understand their professional scope of practice. This complicated their work as patient advocates.</td>
<td>“I think that the emergency physicians don’t even know what we do…. I worked in the [ED] as an EMT and then I graduated from paramedic school…. So the one doc said ‘I thought you were already a paramedic.’ And I said ‘No, I just graduated. And she didn’t know the difference between an EMT and a paramedic, and she’s giving medical command…to paramedic staff.”</td>
<td>Does EMS-hospital cross-disciplinary training improve communication, handoff effectiveness and patient outcomes?</td>
</tr>
<tr>
<td>Patient hierarchy</td>
<td>Information exchange was higher quality in the context of trauma vs medical cases. In some hospitals, the protocols for trauma patient handoffs were superior to those for nontrauma patients. “Frequent flyers” were discounted, regardless of acuity.</td>
<td>“To me, the receiving information, the traumas seem to do much better than the medical…patients. ‘Cause it seems to me, in the trauma bay, when a patient rolls in, everyone, usually there’s someone in charge who’s, if it’s, if the trauma’s being run well, you know, it’s really only 1 person talking at a time. And my experience has been, everyone shuts up for that first 30 seconds and often it’s the trauma surgeon who says, all right, everybody be quiet.”</td>
<td>Are handoffs more effective for trauma patients vs medical patients, given equal severity of illness? Would medical patients benefit from handoffs modeled on trauma care?</td>
</tr>
<tr>
<td>Educational potential of the handoff</td>
<td>They desired more feedback about their patients’ status and presumptive diagnosis during the handoff to improve their clinical skills and capacity to advocate for patients.</td>
<td>“When you fly in there with a trauma, basically, you walk in through [a] cordon of residents, surgeons, anesthesia, and all that. And there’s one person there with their hand up in the air and they’re, like, you know, ‘Go.’ You give your report. And before your patient is moved over, you’ve given your report…. That’s it.”</td>
<td>Do out-of-hospital providers’ clinical knowledge and skills improve if they receive feedback on their patients?</td>
</tr>
<tr>
<td>Role of standardization and technology</td>
<td>Out-of-hospital medical records are inconsistently used at the handoff and can provide important out-of-hospital information. Technology was used inconsistently and often ineffectively to support handoffs. Standardization could eliminate opportunities to convey important out-of-hospital information, including description of environmental and interpersonal threats to health at home.</td>
<td>“Maybe I’m bringing in [Mr. Jones] and this is his 12th time he blew a shunt, but this time he’s had some massive bleeding that we can’t control. You’re just telling me to go off to room 3. I don’t think so…. They don’t even look to see what you’re doing…. I don’t care if they came in 20,000 times; they’re a patient. They have to be treated with the same respect as anybody else.”</td>
<td>Does the hospital staff review and use out-of-hospital written or electronic records to inform patient care? Are late or absent “run sheets” related to poorer patient outcomes? What is the optimal balance of structured vs open-ended reporting in standardized EMS-ED communication systems?</td>
</tr>
</tbody>
</table>
A central finding of this analysis was that out-of-hospital providers viewed themselves as advocates for their patients; their overarching and widely shared objective was to deliver information that served their patients’ needs. In focus groups, several insights emerged about how the handoff was complicated by hierarchic aspects of this process.

Participants described 2 concurrent hierarchies in the world of the ED: the professional or staff hierarchy and the patient hierarchy. In the staff hierarchy, physicians were clearly at the top, with the apex reserved for trauma surgeons. Out-of-hospital providers repeatedly expressed a desire to relay critical information directly to physicians. Many participants suggested that direct handoffs to physicians led to more robust and comprehensive handoffs that included discussion of intangibles such as general diagnostic impression and assessment of acuity. Out-of-hospital providers actively sought opportunities to interact directly with physicians, one stating “…whenever I get the chance, if I know the doctor, I’ll come over and tell him what’s going on.” These providers also preferred to hand off directly to physicians to avoid the “whisper down the lane” phenomenon, wherein information was distorted or lost as it was relayed from one person to another.

Participants also viewed direct contact with physicians as a valuable learning opportunity. One participant described his appreciation for a physician who regularly followed up with him to discuss the outcomes of cases. But contact with physicians during the handoff seemed to be the exception rather than the norm. The discussion reflected that in most cases, the out-of-hospital providers engaged with nursing staff. One participant indicated that “99%” of handoffs occurred with nurses, and many stressed that communication between out-of-hospital providers and nurses was often problematic. Participants resented times when nurses expressed little interest in hearing what the out-of-hospital providers had to say about patients. Several out-of-hospital providers acknowledged their own status in the hospital hierarchy. One described himself as “way down on the totem pole.” This low-status position complicated the out-of-hospital providers’ overarching objective of working as advocates for their patients.

The second, concurrent hierarchy in the ED was the patient hierarchy. Participants described how trauma patients commanded the most intense and immediate interest. Participants perceived that during trauma cases, the receiving ED staff members were highly engaged in the handoff, desiring as much detailed information as possible about the patient’s out-of-hospital status and interventions. Participants perceived that ED staff members were far less interested in reports about medical (nontrauma) patients, even when the clinical severity was high. As one participant explained, “…just because I’m not thumping on someone’s chest doesn’t make it any different. Sick is sick. You’re a hospital. It doesn’t say at the front door ‘We only take traumas only, sick people go next door.’”

Paradoxically, handoffs of low-acuity patients were perceived as the most challenging because all parties seemed to resent or view these patients as an unwelcome aspect of their work. At the very bottom of the patient hierarchy were “frequent fliers,” patients whose repeated visits earned them a degree of disregard among both out-of-hospital providers and ED staff. Participants explained that these patients’ concerns were more readily relegated to “routine” status, even when the patients were quite sick.

Participants repeatedly noted that many handoffs were vexing, particularly because they challenged out-of-hospital providers’ goal of being effective patient advocates. For participants, a successful handoff was often defined as one in which the patient was received and promptly triaged by the ED staff. Participants desired that their patients be placed in rooms, given privacy, stabilized, and made comfortable. The negative alternative was that patients were “in the hall,” “in the corner,” or “next to the broom closet.” The example below highlights the frustration experienced by an out-of-hospital provider on behalf of a patient he believed was in danger and was being inappropriately ignored:

“In a 78-year-old male who pulled his Foley cath out, on 325 milligrams of aspirin and uncontrollable bleeding…we called there and let them know what we had. They told us that he was gonna be a level 1 due to the aspirin, the amount, the bleeding and all. We get there 7 minutes later [and] they tell us to put him in the hallway…[and] he literally went unresponsive as I was holding pressure. The next thing you know, they’re calling for a level 1…and everybody’s coming over finally.”

Without the resolution of a patient being assigned to a room or bed and assessed or treated by ED staff (particularly a physician), the out-of-hospital providers were frustrated that their work on behalf of patients was incomplete.

Participants described the time pressures of their work, saying that they were often consciously racing to obtain prompt care for their patients, only to feel defeated when that race was stalled in the ED. One participant described a scenario that might elicit such frustration:

“We’re the first people on the scene…. ‘Well how long has the patient been down?’ ‘Forty-five minutes.’ Well that golden hour is, like, shot to hell now. Forget it. Fifteen minutes to go…. You’re going; you’re doing your job on the back of the truck. Now when you get to the hospital…[maybe] she came around, or he came around. You did your job. Hey I feel great, man!… Then when you get there it’s, like, now they look at it like ‘OK, he’s breathing. He’s OK.’ Well, no, the guy was out for 45 minutes to an hour. I don’t know what kind of brain function he’s gonna have anymore. I don’t know how long he’s been without oxygen. I just happened to bring him around…. Because he can talk to you a little bit, he’s a little bit alert, conscious…so we just throw him in the corner? No, this guy’s been down for a long time.”

In effect, the story above illustrates how an out-of-hospital provider’s success in resuscitating a patient could actually work against a patient by creating the illusion of a lower-acuity case. In cases such as this one, perceptions of time often vary for patients, out-of-hospital providers, and ED staff. For patients,
time of the episode begins at illness onset or the time of injury; for out-of-hospital providers, it begins when they first encounter the patient; and for ED staff, it begins when the patient enters the hospital. These usually unacknowledged differences in time perception shape the perceived urgency, and possibly the immediacy, of each person’s approach to patient care.

Despite out-of-hospital providers’ frustrations about timeliness of attention to their patients, they often expressed an understanding of the demands faced by ED staff. They recognized the competing needs of multiple sick patients; they understood the function of “divert” status to manage the flow of patients across multiple EDs in times of high patient volume. However, their persistent overarching goal was to advocate for their own patients. Out-of-hospital providers perceived that they were privy to information that should influence the timeliness and type of attention given to their patients. For example, they described how they practice “front-line medicine,” observing relevant characteristics of the home or trauma scene, such as unsafe housing conditions (eg, “black mold”), or evidence of the circumstances surrounding trauma experienced by a patient. The out-of-hospital providers were concerned that what happens during transport also may also be of great clinical relevance, but that such information is often dismissed by the hospital staff.

Out-of-hospital providers expressed a mix of optimism and skepticism about the role of technology to bridge gaps in handoffs. In fact, many of the participants mentioned that electronic written out-of-hospital records can be delayed from 24 to 28 hours (because of lax regulations about when the records are due to be completed and transmitted). Some also noted discrepancies between what was reported verbally and what was written on the standardized (and often delayed) out-of-hospital medical record. Additionally, there was broad skepticism about whether out-of-hospital electronic records would ever be incorporated into the patient chart or reviewed by hospital staff. Their skepticism was reflected in questions such as “Does the nurse or physician think it is important?” and “Does anybody ever look at it?” Several participants remarked that the lack of continuity in out-of-hospital and hospital-based electronic records reflected a devaluing of out-of-hospital clinical information.

In several cases, participants described the pull and tug between handwritten and electronic systems. Some participants were trained to enter information directly into the computer system rather than recording information on paper first. But this use of technology sometimes was perceived to interrupt patient care. As one participant said, to write notes down quickly, “[t]he nurses now are grabbing paper towels [to write on] that are in the room ‘cause we’ve gotten rid of all the paper elsewhere in the department.”

Some participants expressed concern that standardized charts (computer or written) would undermine face-to-face interactions, which they valued and believed to benefit patient care. “By the time you get to the hospital [with a completed standardized chart], you’d be, like, ‘Here’s your copy. Here’s my copy. See ya.’” Participants also expressed a desire for balance between closed- and open-ended reporting on charts, explaining that “[s]tandardization fails when you have it limited by a drop-down menu”; for example, when the presumptive diagnosis is not one of the multiple-choice options available.

Another perceived shortcoming of current record systems was that participants could not follow up on patient status to learn or receive feedback about particular patients. As one participant explained, “So what happened after the diagnosis was made? The system now is an absolute disconnect. After that patient is dropped off, medics cannot get information on what happened to that patient. Did the diagnosis in the field correlate with the diagnosis in the department? How did it change management?” To continue learning and developing their clinical skills, participants hoped that electronic standardized records systems would lead to the ability to access more information about their patients’ outcomes.

During the focus groups with peers from other systems, participants were surprised to hear about variations in methods, standards, and rules related to the handoff. Providers, for example, who worked in systems in which there was a requirement to leave a written record at the patient’s bedside were concerned to learn that other systems did not always require this.

LIMITATIONS

The results of this qualitative study are hypothesis-generating by design. Although we identified themes shared among study participants with diverse characteristics and from diverse geographic settings across the United States, these themes cannot be quantified or extrapolated to the general population of EMS providers. The study included attendees at 3 regional and national conferences. We may have recruited participants at the conference with particular interest in this topic, although we did not reveal the contents of the interview questions before enrollment. Moreover, because we studied professionals who attended EMS conferences, our participants may have been more inclined than the average EMS professional to view themselves as patient advocates.

Because of our study design and recruitment methods (flyer and poster recruitment at large meetings), we were unable to track reasons for nonparticipation. The findings, therefore, may not reflect the thoughts of physicians and other key players who did not attend the conferences or those who declined to participate.

Some of the participants spoke from multiple professional perspectives (because 13 of the 48 participants were physicians and EMS medical directors, in addition to being EMTs). Two nurses (who were also EMT-paramedics) were included in the sample, which may have complicated the focus group discussions about professional hierarchy. However, the investigators did not appreciate differences around these topics during the focus groups that included professionals with dual professional experiences. In fact, during the focus groups that included EMT/physicians and paramedic/nurses, participants spoke broadly
about their own experiences in participating in the handoffs as both out-of-hospital and hospital-based providers. These limitations, however, are understood to be part of most qualitative research. Future studies would be required to quantitatively test the hypotheses generated in this study as they relate to specific policies and educational initiatives.

DISCUSSION

In this focus group study of EMS providers’ perspectives on handoffs to the ED, we identified an overarching challenge: EMS providers viewed themselves as patient advocates but often encountered interpersonal, cultural, and structural barriers to advocating effectively for their patients. They identified the handoff as a critical, brief window (or “golden minute”) in which they could influence the course of their patients’ hospital-based care. EMS providers described a range of professional characteristics, patient characteristics, and health care delivery system characteristics that could constrain or enhance the effectiveness of the handoff. The following recommendations offer hypotheses to guide future research, using a range of methodological tools, as well as insights to assist EDs and health systems in the care of their patients who arrive by EMS.

Overall, EMS providers identified potential ways to improve the structure of the handoff in 4 key categories. First was a desire to communicate directly with the physician who would ultimately be responsible for the patient’s care. Second was a call for more interdisciplinary feedback, transparency, and shared understanding of scope of practice between out-of-hospital and hospital-based providers. Last was an expressed desire to standardize many (but not all) aspects of the handoff, including aspects beyond the informational content contained within the verbal report. In parallel to standardization, there was a desire to harness technology in a way that could improve the handoff by closing gaps in information exchange.

These data substantiate what has been previously described in this domain. Previous research has shown that EMS handoffs are variable in both content and structure, and EMS handoffs often result in the transfer of information many steps removed from the clinical decisionmakers. 17,18,27 Although health systems have stopped short of addressing the structural, cultural, and professional contexts in which the patient handoff occurs, testable hypotheses and potential solutions exist for each of these 4 categories. For standardization, EMS providers alluded to the potential benefits of creating a handoff protocol for all patients similar to that used for trauma patients. Process and outcome measures could be developed to evaluate a reliable system in which EMS providers could always communicate directly with physicians who would be able to translate the information contained in the handoff into direct decisions about patient care. The concept of cross-professional training and work, which has garnered increased attention across many work environments, might address the third identified category of interdisciplinary gaps and misunderstandings. 28 Last, technology that allows reliable, efficient transitions with built-in feedback opportunities might address the additional domains of timeliness and the desire for education.

In summary, these detailed discussions with EMS providers allowed us to better understand how out-of-hospital professionals define, perceive, and engage in patient care transitions to EDs. Our findings suggest that these providers view their role as patient advocates, as well as caretakers, in the time of transition into the hospital, and that multiple barriers exist to effectively serving in that role. The effect of increasing EMS interactions with emergency physicians, standardizing handoff processes, and fostering interprofessional training represent opportunities for current policy considerations and future study.

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REFERENCES


APPENDIX E1.

Focus group guide

Welcome. Thank you for attending today’s focus group. Everyone in this group works in the out-of-hospital arena and helps take care of patients with medical emergencies. We are hoping to get a discussion going about transitions in care as patients come to the ED by ambulance. Some people call these transitions handoffs. It means different things for different people.

Every person’s ideas and thoughts are important, so make sure everyone has an opportunity to speak. Also, everything is confidential and should not be discussed outside the room. We will be audiorecording this conversation, so please use first names only.

Let’s start by thinking about good handoffs. What do you think makes for a good transition? This can be what type of information is communicated, how much time is devoted to the handoff, how well you know the person who is giving you the patient. You can write down thoughts on a piece of paper (this is just for you). We are going to go around the room, and each person will name 1 thing that makes a good handoff. We will keep going around the room until everyone feels the list is complete.

*A bad handoff:
  • does not have enough information
  • has too much information
  • is usually performed by people without too much on-the-job experience
  • happens a lot (how often?)
  • happens for patients with obvious problems
  • happens for patients with subtle or hidden problems
  • is more likely to happen if the patient is drunk or high
  • is more likely to happen if the patients cannot speak for themselves

What percentage of the time would you say the handoffs you participate in are (question discontinued after focus group 3):
  • excellent
  • good
  • fine
  • poor
  • awful

What percentage of the time would you say the handoffs you witness are (question discontinued after FG 3):
  • excellent
  • good
  • fine
  • poor
  • awful

This is great. Here is what I have heard so far....

A few more questions (I want to open it up):

(Probe about trust and system characteristics.) If you had complete control of the handoff process, what would you change?