Communicating in the "Gray Zone": Perceptions about Emergency Physician–hospitalist Handoffs and Patient Safety

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Abstract

Objectives: To identify the perceptions of emergency physicians (EPs) and hospitalists regarding interservice handoff communication as patients are transferred from the emergency department to the inpatient setting.

Methods: Investigators conducted individual interviews with 12 physicians (six EPs and six hospitalists). Data evaluation consisted of using the steps of constant comparative, thematic analysis.

Results: Physicians perceived handoff communication as a gray zone characterized by ambiguity about patients' conditions and treatment. Two major themes emerged regarding the handoff gray zone. The first theme, poor communication practices and conflicting communication expectations, presented barriers that exacerbated physicians' information ambiguity. Specifically, handoffs consisting of insufficient information, incomplete data, omissions, and faulty information flow exacerbated gray zone problems and may negatively affect patient outcomes. EPs and hospitalists had different expectations about handoffs, and those expectations influenced their interactions in ways that may result in communication breakdowns. The second theme illustrated how poor handoff communication contributes to boarding-related patient safety threats for boarders and emergency department patients alike. Those interviewed talked about the systemic failures that lead to patient boarding and how poor handoffs exacerbated system flaws.

Conclusions: Handoffs between EPs and hospitalists both reflect and contribute to the ambiguity inherent in emergency medicine. Poor handoffs, consisting of faulty communication behaviors and conflicting expectations for information, contribute to patient boarding conditions that can pose safety threats. Pragmatic conclusions are drawn regarding physician–physician communication in patient transfers, and recommendations are offered for medical education.

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"I do defensive medicine sometimes and that's where some of the biggest mistakes are made if you don't have good enough communication."
—*Emergency physician study participant*

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In 2000, the Institute of Medicine issued a landmark report[1] announcing that up to 100,000 Americans die annually due to medical errors. The findings of the Institute of Medicine drew attention to a growing body of research showing that modern health care delivery poses significant patient safety risks, ranging from medication errors to surgical mistakes and from missed diagnoses to treatment delays. Hospitals are not immune from patient safety threats, and extant scholarship shows that communication is at the heart of the problem.[2,3] According to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), poor communication is the root cause of most sentinel events, medical mistakes, and "near misses."[4]

Perhaps nowhere is the hospital patient safety crisis more apparent than in the emergency medical system. Our nation's emergency departments (EDs) are high-risk contexts characterized by overcrowded conditions

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that pose threats to patient safety.[5] Ambulance diversion, treatment delays due to long wait times, and patients leaving the ED without being seen by a clinician are just a few of the major problems caused by overburdened ED environments.[6,7]

Researchers from a variety of disciplines have studied ED processes in the search for answers to reduce ED overcrowding and heighten patient safety. Scholars have underscored the need to improve clinician communication to enhance ED patient flow and increase patient safety.[8–10] Within this body of research, handoffs have emerged as a core communication process that affects patient safety risks.[11] For example, patients who remain in the ED for long periods due to overcrowded conditions may be handed off multiple times as their physicians and nurses change shifts. Multiple handoffs add more links to the "chain of communication" in the ED, thus increasing the opportunity for medical errors.[12] Patients who experience more handoffs are more likely to have hospital complications and longer lengths of stay.[13]

Ineffective handoffs have been identified as key causes of ED medical error,[5,14] yet, to date, past studies have focused primarily on how intershift (change of shift) handoffs among emergency physicians (EPs) affect patient safety.[9,11,15,16] What remains underexplored is the role of interservice handoffs that occur between EPs and their peers representing hospital inpatient services (e.g., internal medicine, surgery) as patients are transferred from the ED to inpatient beds. Interservice handoffs warrant study because the most commonly cited contributor to ED overcrowding is the inability to move admitted patients from the ED to inpatient hospital beds.[5] Most hospital admissions from the ED are for medical conditions such as pneumonia and heart failure,[17] and thus the hospitalist service is a common recipient of ED patient admissions and ED-initiated handoffs. Patient flow bottlenecks from the ED to inpatient units have numerous causal factors, ranging from lack of inpatient nurses to problematic working relationships between clinicians. Of relevance to the present study is research showing that poor communication between EPs and inpatient physicians plays a role in ED overcrowding.[5]

HANDOFF COMMUNICATION AND PATIENT SAFETY

Handoffs serve a critical function in hospitals because they are a core process in ensuring patient care continuity.[5] Handoffs occur in times of transition, where clinicians share and process patient information as well as jointly plan the next steps of patient care.[18] In many ways, handoffs can be considered the "glue" that holds the health care continuum together as patients experience numerous caregivers in the process of hospital admission, treatment, and discharge.

Despite their centrality to hospital health care delivery, poor or ineffective handoff communication has been identified as a key contributor to patient safety risks.[19–23] Ineffective handoffs are directly linked to adverse events and poor outcomes.[24] Receiving care in multiple settings means that patients receive medications from different clinicians, presenting increased opportunities for medication errors to occur.[25] According to JCAHO, communication breakdowns during patient handoffs are the single largest source of patient safety threats.[26] Handoff communication creates an opportunity for error because the handoff process is characterized by missing, inaccessible, or forgotten information.[5,15,16,26] Clinicians also often fail to allocate enough time to appropriately transfer patient data.[4,18] Consequently, one or all of the caregivers involved may not get a full, accurate picture of the patient's condition.[27]

Information barriers heighten handoff unpredictability and increase patient safety threats. The research literature identifies many forms of information-based obstacles: mistimed data, delayed information, lack of data, inaccuracies, omissions, and information overload.[16,28] A 2005 survey funded by the Agency for Healthcare Research and Quality found that nearly 50% of 1,400 respondents across 20 hospitals believed that handoff gaps existed at their facilities. Deficiencies identified in the survey include lost information during shift changes (58%), things "falling through the cracks" during interunit shift changes (42%), and problematic information exchange across units (38%).[29]

Information barriers are key problems in the change-of-shift handoffs occurring in emergency medicine and internal medicine services. Singer and Dean[11] argue that ED handoffs are characterized by variable information content and dropped information exchanges that lead to patient safety risks. On the internal medicine side, studies underscore the need for unambiguous, precise handoff information to anticipate and minimize errors.[21,30] These findings provide a useful starting point for the present study's investigation of interservice handoffs between EPs and hospitalists.

Relational communication barriers compound the problem of faulty information exchange in handoffs. The power and status differences inherent in the traditional medical hierarchy may prevent physicians in subordinate positions (e.g., residents) from asking questions during handoffs to avoid conflict with or embarrassment from physician superiors (e.g., attending physicians, specialists).[21,22] Moreover, concerns about positive face (the desire to be publicly approved of by others) pressure residents to appear certain and competent in front of peers, even when they are unsure of what to do in a patient's treatment.[9] Such a barrier can prevent the frank discussion of ideas and, in extreme cases, may result in misdiagnoses or inappropriate care.[31]

The unique characteristics of today's EDs exacerbate the information and relational barriers present in handoffs.[32] Multiple and simultaneous patient presentations, unscheduled care, lack of patient history, and unpredictable patient conditions are just a few of the identified error-producing circumstances that typify EDs and pose patient safety threats.[16] Further, EDs are often chaotic places where interruptions and distractions are frequent, and clinicians multitask constantly to attend to multiple patient needs simultaneously.[5,27] In addition, the fast-paced atmosphere prevents opportunities for clinicians to ask and respond to questions and the overwhelming inputs of information may result in lack of sufficient information processing for physicians receiving handoffs.[22,25]

Thus, the need for effective handoff communication is perhaps most critical in emergency medicine, a context

where poor handoffs have been identified as key causes of medical error.[5,14] Although research studies have separately explored handoff communication within emergency medicine and internal medicine, less is known about interservice handoffs occurring between EPs and hospitalists. A more thorough knowledge of EP–hospitalist handoff communication and its implications to patient safety is a necessary first step in potentially reducing safety risks within this critical link in the health care continuum. To meet this identified gap, this investigation specifically examines the handoff communication occurring between EPs and internal medicine physicians (i.e., hospitalists) when patients are transferred out of the ED and to a medical unit. The purposes of this investigation were twofold: to identify physicians' perceptions of ED–hospitalist interservice handoff communication and to explore physicians' perceptions of the patient safety implications of ED–hospitalist interservice handoff communication.

METHODS

Study Design

This was an interview study of EPs and hospitalists regarding patient handoffs. We gained university and hospital institutional review board approval to collect data from physician volunteers from the emergency medicine and hospitalist services.

Study Setting and Population

This research was conducted at Midwestern Hospital, a 348-bed tertiary facility that has approximately 4,000 employees. The hospital serves as a regional teaching institution for medical and nursing programs. It is a highly regarded health care system with a history of winning national and regional quality awards. The research team consisted of one health communication researcher, one researcher specializing in health management systems engineering, and one EP who is affiliated with the study hospital. In consultation with the study hospital, and based on literature regarding handoffs and patient safety, the research team focused on EP–hospitalist handoff communication.

Physicians received e-mailed invitations that described the potential study goals of improving handoff communication and patient safety and asked them to participate in individual interviews. The hospital's chief medical officer approved and signed these letters. Before conducting interviews, the communication and engineering research team members spent several hours observing ED clinicians to better understand the context in which handoffs occur.

The communication and engineering researchers then conducted semistructured interviews with 12 attending physicians (six EPs and six hospitalists). The EPs, who were not hospital employees, averaged 15.8 years of post-graduate experience. The average age of ED participants was 47 years. The hospitalists, who were employed by the study hospital, were all internal medicine physicians. They averaged 9.3 years of post-graduate experience, and their average age was 39 years. All those interviewed completed their training in the United States.

The goal of the interviews was to gather participants' impressions of the handoff process from the ED to an inpatient service, as well as patient safety issues related to handoff communication. The interviews included a critical incident technique[33] to gather positive and negative narratives depicting the handoff process based on participants' own experiences (Appendix A, available as an online Data Supplement at http://www.aemj.org/cgi/content/full/j.aem.2007.06.037/DC1). Such narratives explore the specifics of complex behaviors and provide illustrative examples of those behaviors in action.[34] Interviews ranged from 20 to 45 minutes in length and were conducted at times and locations convenient to the participants. All interviews were tape recorded and transcribed for subsequent analysis.

Data Analysis

Data evaluation was primarily conducted by the communication and engineering members of the research team and consisted of using the steps of constant comparative analysis.[35] All interview transcripts were first read in their entirety without any notes. Then, the researchers reread each transcript, identifying key behaviors, highlighting relevant portions of the text, and noting their interpretations of the data. Owen's[36] criteria of repetition, recurrence, and forcefulness for identifying themes in discourse were used to aid in the initial classification of themes. Owen's criteria include the following: 1) recurrence—multiple descriptions with the same meaning; 2) repetition—use of the same wording multiple times; and 3) forcefulness—nonverbal behavior stressing the importance of the behavior (e.g., pitch and volume noted in the transcripts). The data were constantly compared, revised, and reduced as new data were examined.

In consultation with other members of the research team, the communication researcher identified preliminary themes and developed inductive memos regarding the topic areas.[37] Categories were constantly compared, revised, expanded, and reduced until they became "theoretically saturated" and new information added little or no conceptual development.[35] Analytic memos were then created for each of the identified themes. These memos included key concepts, reflective or second-order comments from the researchers, and quotations from the transcripts. Links were then made between categories and subcategories in an effort to achieve greater conceptual cohesion.[38] The analytical memos were revised to reflect these explanatory and integrative processes. Finally, a narrative that encompassed major categories and their linkages was constructed.

RESULTS

Throughout our interviews, EPs and hospitalists consistently identified patient handoffs as a "gray zone" rife with communication barriers. A tension exists at the center of the gray zone, between information ambiguity about patients' conditions and a need for medical certainty so patients can receive appropriate care, and this tension is a consistent obstacle in physicians' handoff communication. Physicians reported experiencing three types of information ambiguity while communicating in the gray zone. First, there was uncertainty over patient

diagnosis. This occurs when patients initially present in the ED and are assessed and worked up by ED staff. Second, a lack of clarity existed about patient disposition. This occurs when patients are considered for potential admission, typically a joint decision made between EPs and receiving inpatient physicians as part of an interservice handoff. The final area of uncertainty was in regard to ED patient boarding. Here, patients have been admitted to the hospital but physically remain in the ED while they wait for an open inpatient bed. It can be unclear which physician is responsible for patient care.

Theme 1: Barriers in the Gray Zone of Handoff Communication

Two thematic areas emerged in response to the research goals of the study. The first theme highlights barriers that exacerbate physicians' information ambiguity. Table 1 summarizes this theme and provides representative narratives from EPs and hospitalists.

Poor Communication Behaviors. Participants from both medical services said that physician communication behaviors present numerous barriers to effective handoff communication, heightening gray zone ambiguity. EPs and hospitalists alike acknowledged their frustration when their peers on the other end of the handoff (giving or receiving) provided insufficient and incomplete information about patients' conditions and treatment needs. The first row of Table 1 shows this shared dissatisfaction. Lack of information or unclear data can quickly turn from an annoyance to a potential patient safety problem, as illustrated in the following example provided by a hospitalist.

> *[The ED physician] calls, "Well, the patient is here for so and so and I've ordered a bunch of tests but the results are not back yet. I would like you to admit the patient." At times, I get surprised when the results are back and there is a major change in the treatment then.*

Hospitalists provided multiple examples about requests from EPs to admit patients with pending information. Many stated their reluctance to agree to such situations because, in the words of one participant, "What if I miss something or I'm too late to see the patient and something bad happens? It's my responsibility!" He added that to protect himself from liability, he never accepts patients until the ED staff has test results back and has completed a full patient workup. His views conflicted with the perspectives articulated by EPs, who said that having every test result and laboratory study in a patient's chart can be unnecessary if other symptoms or conditions are present that warrant admission. They argued that such practices increase patient wait time and delay needed treatment.

Those interviewed also identified information omissions as another communication barrier that heightened gray zone ambiguity and complicated EP–hospitalist handoff communication. Physicians often mentioned these concerns in the context of identifying the patient's disposition. As a result of missing information, physicians are left with an inaccurate picture of why the patient requires admission or, if it is clear that the patient needs to be admitted, which service should be involved. One hospitalist commented that the greatest communication obstacle he encountered in handoffs from EPs was the "things not said." Another hospitalist provided an example to illustrate this barrier.

> *It's lack of information that is not translated. For example, a case where they [the ED] called me and told me there's this patient who has chronic renal failure and other medical problems, she's not doing good, she missed her dialysis, and she needs to come in. They failed to tell me that her potassium was very high to where she becomes an emergency. And I had three patients ahead of her to see and two hours later I show up to see her, because it's her turn now, and I find out she's in emergency now. The resident had already left. She just went down the tubes.*

Finally, participants talked about challenges of unclear information flow from the ED once the EP developed a working diagnosis or clinical impression that he or she believed required admission. Activating the appropriate admitting service to receive the patient and handoff is

Table 1
Barriers Exacerbating Interservice Handoff Ambiguity

Theme and Description	Example Narrative of EP Perspective	Example Narrative of Hospitalist Perspective
Poor communication practices Insufficient, incomplete and/or omitted information; poor information flow between clinicians	"When another doctor is thinking out loud and you don't have a diagnosis and they're saying, 'What do you want me to do? I did this. I did the other thing. I didn't find anything. What am I supposed to do?'"	"When the ED [physician] says 'I know you will admit them anyway so I'll let you deal with it.' And then, you get a patient you're not trained to deal with on your service."
Conflicting information expectations Differing needs for handoff information that stem from contrasting approaches to patient care	"Our job is to make sure that an emergency doesn't exist … If we don't find an emergency medical problem, that's okay, they still might need a whole different treatment, whether inpatient or outpatient. But we don't always give the diagnosis."	"A lot of ED physicians come from the perspective that their job is to make sure the patient is not a life-threatening emergency, do some stabilization, and then they triage them to the next level of care … the ED physician's job is to do that but also understand the entire spectrum."

EP = emergency physician.

challenging when the patient presents with multiple conditions that may require treatment from different specialties. Participants spoke of the problems associated with identifying admitting and consulting services in such cases. For example, an EP recounted a situation in which a patient presented to the ED with sepsis. He recommended admission to the hospital's intensive care unit (ICU). The ICU attending physician disagreed and requested that ICU residents evaluate the patient while the patient waited in the ED. Hours passed, with the ICU team still refusing admission. A hospitalist then evaluated the patient and concurred with the EP that the patient needed to be admitted to the ICU. Based on the hospitalist's recommendation, the ICU team accepted the patient, but only after wasting precious treatment time. The EP commented on what went wrong in the case.

> *I guess the heart of it was the difficulty of communication between me and the ICU attending. I felt like he and I didn't adequately come to an agreement about what the patient status was and what was the appropriate disposition. Then, after that impasse, the rest of the overall handoff process involves his other physicians, the ICU team, the hospitalist, and the other ED physician who was on duty after me. It just ends up taking hours longer than I felt like it should have.*

This example also illustrates information flow problems associated with having multiple clinicians involved in handoffs, a common occurrence in teaching hospitals where residents provide a significant amount of bedside care. Participants mentioned that residents performed most of the handoffs at the study hospital. Involving residents in handoffs creates information flow barriers because it added more links to the communication chain, increasing the likelihood for miscommunication to occur. Because residents often lacked handoff experience, their handoffs were more prone to having omissions because they did not know how to differentiate pertinent data from extraneous information.

Conflicting Information Expectations. Findings revealed that the differing information expectations held by EPs and hospitalists heighten gray zone ambiguity. Interview responses demonstrated that physicians' conflicting expectations stemmed from their unique philosophical orientations to medicine. Participants' comments showed that even though physicians from both services shared a goal of providing quality patient care, their professional approaches to achieving that outcome can conflict and prevent effective handoff communication. The two different philosophies are articulated in row 2 of Table 1.

The different worldviews played themselves out in the patient handoff, because EPs and hospitalists have divergent expectations for the information that should be communicated. EPs' remarks revealed a need for information that helped them treat patients' immediate care needs. This approach makes sense given the nature of emergency medicine, where patients present with traumatic or urgent conditions that require instant attention. One EP said that the ED wants to "keep the process moving," and "slam dunk admissions" are ideal because patient information clearly points to an inpatient transfer. He disliked playing "telephone cop," where he had to search for data to convince a hospitalist that a patient needed admission. Another EP commented that waiting for all available patient information "slows down the process." He added, "I don't mind treating patients [in the ED] but there comes a time where I've done enough. I don't always have to come up with a complete, 100% diagnosis."

In contrast, the hospitalists interviewed took a long-term approach to patient care, requiring information that helped them make admitting diagnoses and plan inpatient treatment. This perspective is also understandable, given that hospitalists are responsible for their patients from admission to discharge. Quotes from two hospitalists demonstrate this perspective.

> *Their [ED] job is really to decide in delivering emergency care, can the patient go home or be admitted? Once they make that decision, it becomes very hard for us to manage a patient on the inpatient side if there isn't details, accurate information about patient history, type of medication they are using, things that have gone on at home.*

> *A lot of ED physicians come from the perspective that their job is to make sure the patient is not a life-threatening emergency, do some stabilization, and then triage them to the next level of care. From a hospitalist standpoint, I believe the ED physician's job is to do that but also understand the entire spectrum of what this patient is going to go through in the hospital.*

Conflicting professional expectations for information can create disagreements between the two services. For example, EPs talked about the need to "sell" or "force" admissions when they believed patients needed inpatient care yet information was lacking to meet the hospital's admission criteria. An EP provided an illustrative comment.

> *You and the hospitalist don't necessarily agree that the patient needs to be hospitalized and many times it's gray because the patient doesn't fit specific criteria to come into the hospital. The hospitalists will look at it as "Does the patient meet the criteria?" because of the billing and the insurance review. There are many patients who don't fit that criteria, but you can't send them home. They can't stay in the emergency department. So what will happen is we'll ask the hospitalist to come down and interview and see the patient. What we're doing is placing the onus on them. The majority of the time that puts them in the corner and the patient gets admitted.*

Hospitalists' comments reflected a range of reactions about consulting on ambiguous cases. Some of those interviewed complained about being "boxed in" to agree to admissions where they believed patients needed more workup and observation time in the ED. They talked about the need for more (and better) information that not only would support a patient's admission but would also help them more effectively manage inpatient treatment. Such data, said one hospitalist, "Helps me make a decision about what I want to do and where to place a patient. It may change the severity of things." Other

hospitalists made it clear that their presence in the ED did not guarantee patient admission, while still others simply said they did not provide bedside consultation until the information that warranted admission was available. This latter perspective was articulated by a hospitalist who worried about possible liability.

> *So I always tell them,"Why don't you wait until all the tests come back and you finish your workup and give me a call." Some people don't like it, but that's how I work. The end point is not to admit the patient, the end point is to make a diagnosis. Admitting the patient is easy, but how are you going to treat that patient is the question!*

What became apparent in our interviews was that conflicting expectations for information influenced physicians' handoff communication behaviors and those communication practices affected interservice relationships. For example, participants talked about how differing perceptions regarding bedside consulting resulted in lack of collegiality between the two services. Hospitalists believed they were being "dumped" on with admissions that were difficult to justify, whereas EPs believed that their professional opinions were being questioned. Said one EP, "If we call a hospitalist about a patient they have to understand that we have tried our best." Tensions over information expectations contributed to "unpleasant conversations" consisting of complaints and disagreements where neither EPs nor hospitalists "felt good about an admission."

Theme 2: Handoffs Contribute to Boarding-related Safety Risks

The second theme encompassed participants' perceptions of how handoff communication plays a role in patient safety. When asked to discuss the patient safety implications of poor handoffs, both EPs and hospitalists routinely framed their comments within the context of ED boarding-related risks. While participants' responses underscored that multiple, systemic causes (e.g., lack of inpatient beds, insufficient inpatient nurse staffing) create ED boarding conditions, it became clear from our interviews that inadequate handoff communication is a factor that exacerbates system failures in the clinical environment. Physicians primarily talked about this issue in terms of potential safety risks to boarders and to "true" ED patients (individuals presenting with emergent and/or traumatic care needs). Table 2 summarizes this theme and provides representative narratives from study participants.

Risks to Boarded Patients. When discussing safety for ED boarders, physicians gave examples demonstrating how poor interservice handoffs contributed to fragmented care within the ED–inpatient continuum. Participants tended to identify problems in the clinical environment that posed patient safety threats and then commented on how handoff errors heightened those problems. For example, it was revealed that the shift-based nature of the emergency and hospitalist services at the study hospital increased the likelihood that patients boarded for long periods experienced multiple caregivers and handoffs. According to those interviewed, more transfers in care between EPs and hospitalists increased the opportunity for handoff "information gaps" to occur, and those gaps figured into patient safety threats. The following instance provided by an EP demonstrates how handoff omissions exacerbate problems associated with multiple transfers in care for a patient boarder.

> *If it's a medical patient that is stable and waiting for a regular floor bed, depending on how tight the beds are in the hospital, they would stay in the ED for several hours. We [ED] ask the service that we think should come see the patient with expectation that they will admit the patient. Then, a number of hours later they decide that they don't want to take the patient. The original ED physician has gone off duty and the next ED physician has to deal with what to do.*

The EP believed the handoff contributed to a safety threat because the new EP lacked sufficient patient status information present in the original ED–hospitalist transfer. The on-duty physician was then required to reacquaint herself/himself with the patient's history, physical examination, and workup. The new on-duty physician also had to activate a different medical service, a multistep process that involved contacting different physicians, updating them on the patient's condition, and counseling the patient and family members. According to the EP interviewed, the information gaps in the handoff were created by problems in communication among the EPs and between the on-duty EP and the hospitalist. Ultimately, he believed the poor handoff contributed to treatment delays for the boarded patient.

Those interviewed also talked about how unresponsive handoffs could play a role in boarders' experience of treatment delays. EPs and hospitalists alike recognized how boarded patients could quickly "go down the tubes" while they waited for definitive inpatient care, resulting in them needing immediate, intensive medical treatment. An EP told the following story of a boarded patient with gastrointestinal bleeding who decompensated in the ED.

> *These patients may not look too bad, but they're internally bleeding in their intestines somewhere. Their numbers look good, and they're not too anemic, but these patients can look good one minute, and a half hour later, look really poor. So you call and say, "I need someone to look at Mrs. Jones." She may be doing okay. If the hospitalist is doing two or three other admissions, they've got patients upstairs, they're seeing multiple others. Patient number one, number two, and number three, and my patient is number five, but I don't know that. I'm seeing other patients and Mrs. Jones is now bleeding a little bit more …Well, if Mrs. Jones becomes emergent, we jump in and have the nurse give them a call. The hospitalist says, "I'll be down in a half an hour." Well, nursing hasn't given them the vital signs and say Mrs. Jones' heart rate has gone from 80 to 120, and she's bleeding more, or has difficulty breathing. Those kinds of things in a handoff present patient safety risks.*

From the EP's perspective, the lack of responsiveness from the hospitalist (which the EP acknowledged could

Table 2
Handoff Communication and Patient-boarding Safety Risks

Theme and Description	Example Narrative of EP Perspective	Example Narrative of Hospitalist Perspective
Risks to boarded patients Poor handoffs contribute to patient boarding conditions that reduce the ED–inpatient care continuum	"If it's a medical patient that is stable and waiting for a regular floor bed, depending on how tight the beds are, they would stay in the ED for hours. We ask the service we think should come see the patient with the expectation that they will admit … hours later they decide they don't want to take the patient. The original ED physician has gone off duty and the next physician has to deal with what to do."	"Let's say you order an MRI and there's a brain hemorrhage. Immediately the radiologist will look at that brain hemorrhage and hand it back to the ED doc. The ED takes first priority on reads. Then the ED doc will turn around and hand those to us, but sometimes that doesn't happen. So by the time you get those, there's a delay."
Risks to ED patients Poor handoffs contribute to patient boarding conditions that burden ED clinicians and resources	"What happens is that the ED physician will be completely done with the patient and the orders may be written but the patient may stay in the ED for hours waiting to get out … The nurse has a question about the patient. They come to me and ask, 'What can the patient eat?' So we're pretty much involved in the care of the patient."	Hospitalists did not comment on this topic.

EP = emergency physician; MRI = magnetic resonance imaging.

have been due to system problems such as multiple, simultaneous admissions, juggling many priorities, and so on) in the handoff contributed to a treatment delay and potentially to the patient's decompensation. Interestingly, our interview findings showed that unresponsive handoff communication is a two-way street. According to hospitalists, it was the role of EPs to provide complete, timely patient information in a handoff so a decision could be made about whether a boarder needed urgent inpatient attention or not. In this light, then, the decompensation of the patient with gastrointestinal bleeding could possibly have been avoided if the EP had immediately communicated critical information (e.g., a spike in heart rate, increased bleeding) so the hospitalist could have reprioritized how quickly the patient would be seen for admission.

Hospitalists were particularly vocal about the lack of follow-up in handoff communication from EPs as a contributor to treatment delays. They identified this problem in the context of situations where admissions occurred before the results of all diagnostic tests were available. Hospitalists reported frustration when EPs did not communicate the results of pending tests and laboratory studies for boarded patients, even though ED orders took priority over floor orders (making the information more quickly available to the EP than if ordered by the hospitalist). Two hospitalists provided illustrative scenarios.

> *If somebody has bowel obstruction and if I do the CAT scan, I don't get the results for hours, the patient may get a bowel infarction, they may go into sepsis. That can potentially kill the patient. So, if we have all the information from the ED, then admit the patient, then that will improve the patient. It will prevent a delay of care because if you wait for the relevant tests, then you may not know what is going on in the belly.*

> *Let's say you order an MRI and there's a brain hemorrhage. Immediately the radiologist will look at that brain hemorrhage and hand it back to the ED doc. The ED takes first priority on reads. Then the ED doc will turn around and hand those to us, but sometimes that doesn't happen. So by the time you get those, there's a delay.*

Hospitalists' remarks revealed that they depended on their ED peers to communicate relevant patient information that was unavailable to them. When follow-through was lacking on the ED handoff side, boarded patient care could be delayed. Possible negative outcomes of such situations included patient decompensation, longer inpatient lengths of stay, and the need for critical care.

Comments provided by EPs presented the topic of follow-up communication regarding pending tests and results in a somewhat different light. EPs said that although it was their role to tell the accepting physician that some tests or labs were still pending as part of the handoff, once patients were handed off, they were "out of sight, out of mind." Follow-up was the responsibility of the admitting hospitalist, not the EP. Those interviewed also explained that with the transfer of the patient to another service, the system of care could fail to pass along test results and laboratory information to the EP (e.g., the bedside nurse may not communicate changes in patient status). Without this updated knowledge, the EP would assume he or she had given the handoff appropriately, a perception not shared by the hospitalist. These diverging perspectives between EP and hospitalist participants illustrated that misunderstandings existed between the two medical services regarding handoff communication responsibilities, and this confusion heightened system problems in the clinical environment.

Risks to ED Patients. Another topic that emerged within the theme of handoff communication and boarding-related patient safety was how poor handoffs contributed to safety threats affecting ED (nonboarded) patients. Again, participants perceived that problems in handoff communication exacerbated systemic factors (e.g., lack of inpatient beds, insufficient staffing) that created ED boarding conditions. Safety risks occurred when such circumstances overwhelmed ED caregivers and resources and shifted care away from legitimate emergent and traumatic patients. An EP provided an illustrative example of how an unclear handoff contributed to a "boarding burden" in row 2 of Table 2. In his opinion, the handoff was complete and it was time to "move on to care for other patients." However, the boarder's needs prevented him from doing so, thus posing a safety threat to his ED patients (e.g., treatment delays, patients leaving without being seen). The EP believed that poor handoff communication figured into the problem because there lacked tacit agreement between himself and the hospitalist that the handoff would be accompanied by timely transfer of the boarder to the inpatient floor.

Finally, while many of those interviewed described interservice handoff communication positively, using terms such as "negotiation" and "discussion," there appeared to be limits to what was considered acceptable give and take, particularly when the ED was overstressed by patient boarders. For example, an EP disliked when the hospitalists "hemmed and hawed" when he attempted handoffs for patients that he believed clearly needed admission. He recounted a story of a time when the ED was full to capacity and a patient with cancer who had "significant problems" presented in the ED after being recently discharged from the hospital. The EP believed the patient needed readmission and called the hospitalist to jointly determine which service should be activated and to initiate a handoff. The hospitalist was reticent to take the case, and the two physicians disagreed on where to transfer the patient. After a series of conversations discussing the case, the hospitalist eventually called the oncology service, which accepted the patient. The EP summarized the scene.

> *"The hospitalist was like, 'I don't think the patient should be admitted to cancer, but I talked to cancer. They said fine, if you don't want to do it, we'll readmit.' So I said, 'If you are going to make it grief for me to admit, well fine. I'll call back and talk. You know I'm busy seeing ten other patients.'"*

According to the EP, the time spent on the telephone attempting to hand off the patient took him away from the ED patients who needed his attention in a clinical environment already "stretched too thinly." Other ED participants also said that poor handoffs could potentially aggravate the problems of ED boarding (e.g., nursing "speed-ups," using temporary hallway beds that lack appropriate medical technology) in ways that could ultimately translate into safety risks for ED patients (e.g., ambulance diversions, lengthy wait times in the ED waiting room, and patients leaving without being seen).

In our analyses of this second theme, it became apparent that while both EPs and hospitalists recognized how poor handoffs could heighten boarding-related patient safety risks, the two groups focused on different patient constituencies. While hospitalists were certainly aware of how handoff-related patient boarding problems contributed to ED system strain, they framed the issue in terms of how it affected their patients, rather than ED patients. In contrast, EPs talked about how handoff communication played a role in the safety of boarded patients and ED patients. Again, the influence of divergent professional approaches between the ED and hospitalist services may help explain this finding. Perhaps hospitalists focused only on boarded patient safety issues because those patients were directly under their responsibility of inpatient care. While EPs' scope of practice centered on caring for ED patients, it also indirectly included boarded patients because the physical proximity of the boarders necessitated the use of ED services and resources.

DISCUSSION

Handoff communication between physicians is a fundamental component of hospital health care delivery; however, to be effective, handoff communication depends on correct information being available on a timely basis to appropriate caregivers.[18,21,22,28] The safety risks associated with patient transfers demand handoff reliability, yet by their nature, content, and structure, handoff processes exhibit variation across clinicians, settings, and time.[21,22]

Despite its importance in the health care continuum, methods of handing over patients vary widely across medical services, even within a single institution.[25,39] To date, however, researchers have not specifically explored the communication characteristics of patient handoffs taking place between different medical specialties and have not qualitatively investigated potential connections between interservice handoffs and patient safety. Our study provides a useful beginning toward a more complete understanding of the actual communication behaviors physicians from different professional subcultures use when transferring patients. Further, our study takes initial steps in exploring EPs' and hospitalists' perceptions of how handoff communication practices contribute to patient safety.

Handoffs between EPs and hospitalists both reflect and contribute to the ambiguity inherent in emergency medicine. Our results indicate that poor communication practices—insufficient information, incomplete data, omissions, and faulty information flow—function to exacerbate existing "gray zone" problems in ways that can potentially impact patient outcomes. Our findings extend past research conducted in separate medical specialties (e.g., ED, internal medicine)[11,13,16,21] by suggesting a need for greater reliability in the handoffs taking place between the ED and internal medicine. One conclusion we draw from our results is that consistent, effective interservice handoff communication can be an important key to reducing physicians' information ambiguity and enhancing patient safety.

Results from our work highlight the influence of physicians' professional approaches or philosophies on their handoff communication. Findings show that EPs and hospitalists hold different expectations about the characteristics of effective handoffs, and those expectations

influence their specific communication behaviors. For example, hospitalists may want to receive handoffs that include complete patient histories and workups before patient admission so they can immediately plan long-term treatment with no surprises. Their expectations differ significantly from those of EPs, who may initiate handoffs after ascertaining that patients' presenting conditions warrant admission yet confirmatory test results and laboratory studies remain unknown. Thus, physicians may encounter conflicting information expectations when communicating with peers from different medical services, and those variations can heighten the ambiguity already present in the handoff process. Ultimately, such contrasting information needs may result in communication breakdowns that threaten patient safety.

Reinforcing past research findings, physicians at the study hospital noted the contributions of ineffective handoffs to safety risks. Those interviewed talked about the systemic failures that lead to patient boarding and how handoff exacerbated those system flaws. Treatment delays, a known safety risk,[21,22,25,40] figured prominently as one major safety threat posed to boarders and ED patients alike. Our findings explicate the complicated relationship between physicians' varying expectations about what information is (or is not) pertinent to a handoff and how their perceptions influence physician handoff communication behaviors in ways that could cause harm. These results underscore a need to align physicians' views for handoff communication across medical specializations. Doing so may potentially eliminate, or at least minimize, the communication obstacles that affect the timing, effectiveness, and appropriateness of medical treatment during interservice patient transfers.

Educators in medical schools and residency programs can use the study findings in several ways. First, medical students and residents need to be aware of the ambiguities associated with patient handoffs and how service specialization can create varying expectations for handoff communication. They must then develop a repertoire of communication skills that can be used to address the varying handoff expectations created by different approaches to patient care. As part of developing a communication skill set, it is imperative that medical students and residents understand that the effectiveness of their handoff communication requires being able to competently meet their peers' information needs.

Second, EPs and emergency medicine faculty should provide a role model of effective interservice handoff communication. EPs are uniquely suited to demonstrate best practices in interservice handoff communication because their roles involve routinely transferring patients to other medical services. Through their daily interactions with peers, EPs provide a visible, consistent example of the handoff communication skills required of today's physicians. Whenever possible, EPs and emergency medicine faculty need to coach novice physicians in different types of handoff communication situations and reinforce how handoffs must successfully meet the various information expectations of other medical specialties. Enabling physicians in training to practice under supervision allows them to gain mastery of appropriate communication skills and understand why particular discursive strategies are more effective than others.

Third, because many interservice handoffs originate in the ED, EP education could also include interactive exercises that place novice physicians in realistic interservice handoff situations and ask them to demonstrate communication strategies, while more experienced colleagues provide feedback. Interactive simulations using video and CD-ROM visual aids could also provide medical students and residents with handoff scenarios and teach effective forms of handoff communication. Further, such interventions can provide a basis for a controlled trial in which the results of this introductory study could be tested in rigorous, scientific fashion.

The results of our study also provide preliminary insights for potential interventions in health care organizations. The efforts of physician educators must be supported by organizational policies that encourage effective interservice handoff communication. For example, JCAHO's 2007 National Safety Goals require accredited hospitals to develop and implement standardized handoff tools that provide opportunities for feedback and questioning.[41] These guidelines are a useful beginning to improving handoff communication. However, based on the preliminary findings from this study, we advocate that physician and hospital leaders become actively involved in establishing organizational handoff tools. These tools should represent the range of handoff communication expectations held by different professional medical subcultures.

In addition, physician and hospital leaders should develop organizational policies promoting practice environments that exemplify best practices in handoff communication. Measures that reinforce such policies could include implementing a protocol involving descriptions of "situation," "background," "assessment," and "recommendation," (SBAR), which was originally designed to enhance physician–nurse communication.[17] Modifying this rubric or other such tools to more appropriately meet the needs of the local hospital context, handoff situation, and physician-to-physician relational dynamics could go a long way in guiding improvements in handoff communication.

Finally, we encourage physician and hospital leaders to invite physicians from multiple medical specialties to contribute feedback for improving interservice handoffs. The findings of this study clearly indicate that handoff communication and patient safety are not just ED problems. Handoff communication is a "two-way street" that depends on the mutual engagement of EPs and non-ED physicians to be successful. Doing so will increase physician ownership of organizational practices and offer physicians the opportunity to discuss their expectations of interservice handoff communication.

LIMITATIONS

While this study represents an important first step in understanding the relationship between interservice handoff communication and patient safety, our findings are limited by the use of participants' recall of physician behavior. There is the potential that their recollections may be inaccurate or biased by social demand characteristics. Therefore, future research needs to further assess the validity of the physicians' interservice handoff

communication behaviors culled from participant interviews. A second limitation is the reliance on participants' perceptions that particular physician communication practices may create or exacerbate patient safety risks. Further research will need to extend our initial findings by making explicit the connection between the behaviors identified in this study and patient safety outcomes. To accomplish that goal, a means to reliably measure the identified behaviors first must be developed. For example, a coding scheme could be developed to observe physician–physician interactions and code actual behaviors. Another option is to develop an instrument by which physicians could assess the frequency of the identified communication barriers. This instrument then could be used to validate the predictive relationship between interservice handoff communication and specific outcomes associated with patient safety (e.g., treatment delays, boarding times).

CONCLUSIONS

This study explored the communicative components of patient handoffs occurring within the context of EP–hospitalist interactions. Physicians from both medical services viewed the interservice handoff as a "gray zone" characterized by a high degree of ambiguity about patient condition and treatment. Various communication barriers exist that heighten physician uncertainty during patient transfers. Further, conflicting expectations for communication, grounded in the different professional patient care approaches taken by EPs and hospitalists, also exacerbate ambiguous handoff conditions. The physicians interviewed perceived a link between gray zone communication and the patient safety risks associated with ED boarders.

Through these findings, we hope to raise awareness of the ambiguity inherent in interservice handoff communication and highlight the varied communication expectations placed on physicians in today's health care system. Our results demonstrate connections between specific handoff communication behaviors and patient safety. It is hoped that the information provided in this study will help reinforce the efforts of physician educators in medical schools and residency programs as they teach novice physicians specific interaction skills to enhance their handoff communication experiences.

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