Patient Experiences of Trauma Resuscitation

Elinore J. Kaufman, MD, MSHP; Therese S. Richmond, PhD; Douglas J. Wiebe, PhD; Sara F. Jacoby, PhD; Daniel N. Holena, MD, MSCE

IMPORTANCE Patient satisfaction is an increasingly common feature of quality measurement, and patient-centered care is a key aspect of high-quality clinical care. Incorporating patient preferences in an acute context, such as trauma resuscitation, presents distinct challenges; however, to our knowledge, patients' experiences of trauma resuscitation have not been explored.

OBJECTIVES To describe patient experiences of trauma resuscitation and to identify opportunities to improve patient experience without compromising speed or thoroughness.

DESIGN, SETTING, AND PARTICIPANTS This qualitative, descriptive study was conducted at an urban, academic, level I trauma center. Semistructured interviews and video observations were conducted from May to December 2015. Interview participants were adult English-speaking patients who had experienced trauma resuscitation and were clinically stable with no alteration in consciousness. We recruited interview participants and conducted video observations until thematic saturation was reached, resulting in 30 interviews and 20 observations. Video observation patients did not overlap with interview participants. The purposive sample included equal numbers of violently and nonviolently injured patients. Data were analyzed for thematic content from June 2015 to April 2016.

MAIN OUTCOMES AND MEASURES The main outcomes reported are themes of patient experience.

RESULTS Of 30 interview participants, 25 were men (83.3%), and 21 were black (70.0%). Of 20 video observation patients, 16 were men (80.0%), and 17 were black (85.0%). Salient aspects of patient experience of trauma resuscitation included emotional responses, physical experience, nonclinical concerns, treatment and procedures, trauma team members' interactions, communication, and comfort. Participants drew satisfaction from trauma team members' demeanor, expertise, and efficiency and valued clear clinical communication, as well as words of reassurance. Dissatisfaction stemmed from the perceived absence of these attributes and from participants' emotional or physical discomfort. Observation data added insight into the components of care that may have contributed to participants' responses and those aspects of care that were not salient to participants.

CONCLUSIONS AND RELEVANCE Although the urgency of trauma care limits explicit discussion and consideration of patient priorities, we found that patient concerns corresponded well with trauma team goals. Patients perceived trauma team members as competent, efficient, and caring. Focusing on patient communication could further improve patient-centeredness in this setting.
During a trauma resuscitation, a team of health care professionals (ie, physicians, medical students, nurses, and emergency medical technicians) conducts a series of assessments and treatments with the goal of “treating first what kills first.” This rapid, protocol-driven care includes little room to identify and address individual patient concerns. Patient-centered care is defined as “respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.” Patient-centered care can improve patient-physician communication and reduce racial/ethnic and economic disparities but has been slow to infiltrate practice. Less than 2% of trauma centers in the United States, Canada, Australia, and New Zealand use patient-centered measures in quality improvement.

Attending to the needs and values of patients is important and can draw attention to important outcomes in trauma patients, such as posttraumatic stress disorder, depression, and functional status. Patient-centered approaches to trauma resuscitation could avoid retraumatizing vulnerable patients and improve patient satisfaction and engagement with health care. The limited literature on patient experiences of trauma resuscitation reports strong feelings and memories of care, with themes of fear, confusion, and trust in health care professionals. However, we are not aware of any specific efforts to assess or increase patient-centeredness in trauma resuscitation.

Given the limited knowledge available, we used qualitative research methods to elicit patient experiences of trauma resuscitation through the lens of patient-centered care. Qualitative research draws on the expertise of patients about their own experience, allows a full range of responses, and is important to generate preliminary evidence, hypotheses, and metrics for quantitative research. As such, qualitative research methods are well-suited to detect patient-centered and other relevant outcomes that researchers might not identify independently.

Considering the time-sensitive nature of trauma care, excess attention to patient concerns could risk unsafe delays and patient harm. Therefore, understanding the relationship of patient priorities to clinical events is critical to designing interventions that can optimize both. In this study, we analyze patient interviews and video recordings of trauma resuscitations to identify opportunities to improve patient experience without compromising speed or thoroughness. Video review has been used to evaluate trauma team performance but not to explore patient experiences. Therefore, combining observations of video-recorded resuscitations with patient interviews offers a novel opportunity to situate patient reports within observed events.

Methods

Study Design and Setting
To explore the range of patient experiences of trauma resuscitation, we used a qualitative descriptive study design consisting of a combination of semistructured interviews with recently injured patients and separate observations of video-recorded resuscitations. The goal of the interviews was to learn about patient experience directly from participants. We observed videos to assess how patient concerns fit with trauma resuscitation events to identify opportunities to safely improve patient experience without disrupting clinical care. Observations were used to determine portions of the resuscitation that patients did not find salient, for which intervention would be unnecessary. This study was conducted at an academic level I trauma center in Philadelphia, Pennsylvania, after institutional review board approval from the University of Pennsylvania.

Interview Participants
Adult English-speaking patients who had undergone a trauma resuscitation were recruited. Investigators approached eligible patients in their hospital rooms or in the emergency department at a quiet time and described the study. Patients who consented to participate were either interviewed at the time or scheduled an interview at a convenient time. Interviews were conducted within 2 days of injury to account for participants’ recall and need for care. Participants received a $25 cash incentive. We excluded patients with altered consciousness during resuscitation or at the time of interview eligibility because they were unlikely to be able to describe resuscitation experiences. This was a convenience sample with respect to participant and interviewer availability, but we purposively sampled men and women from a range of injury severities and included equal numbers of violently and nonviolently injured patients. We recruited participants until thematic saturation (no new major themes occurring in subsequent interviews) was reached, resulting in 30 interviews.

Interview Procedures
After verbal informed consent, private interviews were conducted and audio-recorded. Questions focused on the trauma resuscitation, and the interview guide was refined for content and clarity during the first 5 interviews (Box). Because only
minor changes were made to the guide, initial interviews were included in analysis. After training from experts in qualitative interviewing, the primary investigator (E.J.K.) and a research assistant conducted interviews from May to September 2015. Audio recordings were transcribed by a professional transcription service that had received Health Information Portability and Accountability Act certification.

**Observation Procedures**

We reviewed video recordings of trauma resuscitations collected as part of standing quality improvement. Signs in the trauma bay informed patients that resuscitations may be video recorded. Informed consent for recording was not obtained. Videos are reviewed and deleted within 30 days. There was no overlap with interview participants, and we excluded videos of patients who seemed intoxicated or unconscious. We included equal numbers of violently and nonviolently injured patients. All videos were reviewed by an investigator (E.J.K.) and summarized in detailed field notes. A subset of videos was reviewed by a coinvestigator (S.F.J.) to validate field notes. Observations were continued until no new themes emerged in subsequent videos, providing an adequate comparison with participant perception. Twenty observations were conducted between October and December 2015.

**Analysis**

We summarized sample characteristics using the median for continuous variables and frequencies for categorical variables. We used a qualitative descriptive approach to analyze interview data, identifying major categories of participants’ experiences. The research team collaboratively reviewed the first 5 transcripts and used line-by-line coding to create a codebook of all codes emerging in early analysis. Staff from the University of Pennsylvania Mixed Methods Research Lab coded all subsequent interview data in NVivo v11.1 (QSR International). For rigor, 6 of 30 interview transcripts (20%) and 4 of 20 video observations (20%) were double-coded, and interrater reliability was calculated with Cohen κ. Disagreements were resolved by consensus. After coding, major themes were identified and rereviewed by the research team.

Analysis of interview data provided a framework of patient experience in trauma resuscitation that served as a scaffold to interpret video observations. Field notes were coded using the codebook developed from interview data, with additional codes generated as they emerged. This analysis was used to reinforce categories that emerged from the interview data and identify areas of trauma resuscitation not captured through participant self-report.

**Results**

Thirty interviews and 20 video observations were completed for analysis. Of 30 interview participants, 25 were men (83.3%), and 21 were black (70.0%). Of 20 video observation patients, 16 were men (80.0%), and 17 were black (85.0%). The median age was 44 years (interquartile range, 25-56) for interview participants and 39 years (interquartile range, 35-55) for observation patients. Sample characteristics are summarized in Table 1. Interviews lasted 12 to 42 minutes. Interrater reliability was excellent (mean κ = 0.93).

Salient aspects of experience fell into 2 categories. First, interview participants’ internal experiences included discussions about emotional responses, physical experience, and nonclinical concerns. Second, interview participants’ interactions with the trauma team included treatment and procedures, health care professionals, and communication. Table 2 summarizes interview participant satisfaction and dissatisfaction with the treatment they received. Participants were generally more satisfied than dissatisfied with care. Video observation data captured little of satisfaction and dissatisfaction directly but provided insight into aspects of care that may have contributed to interview participants’ responses.

**Internal Experience**

Table 3 summarizes interview participants’ internal experience. Most participants described fear and agitation at the time of injury along with loss of control, such as, “I didn’t want to die, so I was just like—just let them do whatever they have to do to save my life.” Participants reported a sense of reassurance that “it could’ve been worse, but it wasn’t.” For a few, their injuries brought realizations about the priorities in their lives. All participants commented on physical experience, particularly pain, bleeding, and fatigue. Twenty-eight of 30 interview participants (93.3%) reported concerns beyond their physical condition or treatment such as family, work, and safety. All video observations included verbal reports of pain, and patients were also seen grimacing or shaking a hand or foot in discomfort. Many observation patients appeared to be resting or sleeping in a relaxed position.
All 30 participants discussed aspects of their medical treatment. For many, the process was “a little surreal” and blurred together into “a lot of people working on me trying to put me back together.” Table 4 summarizes participant responses to interactions with the trauma team.

The removal of clothing was a signal event for many participants. For example, 1 participant recalled a trauma team member “taking 1 swipe and removing your pair of Levi’s you’ve been wearing for the past 5 years.” A few interview participants reported not having money to replace their clothes and were upset about this loss.

Interview participants described the remainder of their care in general terms such as “a lot of people working on me trying to put me back together...Basically, they were trying to keep me alive,” with brief descriptions of procedures including placement of intravenous catheters, urinary catheters, chest tubes, and wound care. One participant mentioned a rectal examination. Most participants reported receiving pain medication promptly, although it was not always immediately effective.

Video observations showed the examination in detail, with multiple trauma team members working simultaneously. Several patients had a towel draped across their groin immediately, but many were not fully covered until some time after the physical examination was complete. Some patients cried out as an injured area was examined, and trauma team members often reminded one another to be mindful of injuries (eg, “watch that leg”). In video observations, a member of the trauma team often administered pain medication before a procedure, but pain control was not always complete. Observation patients getting wound care or stitches often joked with trauma team members, even if they intermittently expressed pain. All 20 observation patients reported pain, and 13 (65.0%) received pain medication during or shortly after the primary survey.

Trauma Team
All interview participants discussed their trauma team and described them as caring and expert, saying “they deal with this every day, they’ve had even worse sometimes.” Participants rarely distinguished among health care professionals, saying “I was surrounded by like a hundred doctors and nurses.”

A few interview participants expressed concerns about members of the trauma team. One participant felt that some were judging his worth and deciding “should or shouldn’t we” save his life. No conflicts between patients and trauma team members occurred in the video observations, but several observation patients objected to aspects of care: yelling in response to intravenous placement or sitting up when told to lie down. In 1 case, an observation patient was asked to wiggle her toes and said no. A trauma team member responded, “There’s no ‘no’s’ right now. I need to see you move everything.” During treatment, interview participants drew comfort from the trauma team members’ demeanor, words, and actions as the team members paid close attention to what participants told them.

Video observations confirmed trauma teams of 5 to 11 health care professionals wearing surgical gowns, gloves, hats, and masks obscuring their faces. A few resuscitations began with an introductory sentence, such as “Lots of people, lots of questions. We’re going to take good care of you.” Trauma team members addressed patients in formal and affectionate terms, including “ma’am,” “sir,” “sweetheart,” or “bud.” They often leaned in to talk with observation patients and patted them on the leg or shoulder.

Table 4

Treatment and Procedures
All 30 participants discussed aspects of their medical treatment. For many, the process was “a little surreal” and blurred together into “a lot of people working on me trying to put me back together.” Table 4 summarizes participant responses to interactions with the trauma team.

The removal of clothing was a signal event for many participants. For example, 1 participant recalled a trauma team member “taking 1 swipe and removing your pair of Levi’s you’ve been wearing for the past 5 years.” A few interview participants reported not having money to replace their clothes and were upset about this loss.

Interview participants described the remainder of their care in general terms such as “a lot of people working on me trying to put me back together...Basically, they were trying to keep me alive,” with brief descriptions of procedures including placement of intravenous catheters, urinary catheters, chest tubes, and wound care. One participant mentioned a rectal examination. Most participants reported receiving pain medication promptly, although it was not always immediately effective.

Video observations showed the examination in detail, with multiple trauma team members working simultaneously. Several patients had a towel draped across their groin immediately, but many were not fully covered until some time after the physical examination was complete. Some patients cried out as an injured area was examined, and trauma team members often reminded one another to be mindful of injuries (eg, “watch that leg”). In video observations, a member of the trauma team often administered pain medication before a procedure, but pain control was not always complete. Observation patients getting wound care or stitches often joked with trauma team members, even if they intermittently expressed pain. All 20 observation patients reported pain, and 13 (65.0%) received pain medication during or shortly after the primary survey.

Table 4

Trauma Team
All interview participants discussed their trauma team and described them as caring and expert, saying “they deal with this every day, they’ve had even worse sometimes.” Participants rarely distinguished among health care professionals, saying “I was surrounded by like a hundred doctors and nurses.”

A few interview participants expressed concerns about members of the trauma team. One participant felt that some were judging his worth and deciding “should or shouldn’t we” save his life. No conflicts between patients and trauma team members occurred in the video observations, but several observation patients objected to aspects of care: yelling in response to intravenous placement or sitting up when told to lie down. In 1 case, an observation patient was asked to wiggle her toes and said no. A trauma team member responded, “There’s no ‘no’s’ right now. I need to see you move everything.” During treatment, interview participants drew comfort from the trauma team members’ demeanor, words, and actions as the team members paid close attention to what participants told them.

Video observations confirmed trauma teams of 5 to 11 health care professionals wearing surgical gowns, gloves, hats, and masks obscuring their faces. A few resuscitations began with an introductory sentence, such as “Lots of people, lots of questions. We’re going to take good care of you.” Trauma team members addressed patients in formal and affectionate terms, including “ma’am,” “sir,” “sweetheart,” or “bud.” They often leaned in to talk with observation patients and patted them on the leg or shoulder.

Communication
All 30 interview participants discussed communication with their trauma team. Many reported that communication about clinical matters was clear, without any “candy coat.” Interview participants reported little of what they themselves had said and had few questions. They appreciated that trauma team members introduced themselves and offered reassurance. Interview participants were alert to discussion among trauma
team members, who presented “a very organized plan,” although they often did not understand it beyond “a bunch of medical terms.” However, interview participants also noted that trauma team members sometimes had side conversations and, at times, lacked clear communication.

All 20 video observations included moments when trauma team members explained examination maneuvers or procedures and also when they proceeded without explanation. For many observation patients who remained in the trauma bay, a trauma team member returned to summarize the patient’s condition and discuss a treatment plan. Reassuring language was present in every observation, but trauma team members rarely introduced themselves. Many observation patients were quiet, but others repeated detailed histories. Patient questions focused on diagnoses, treatment, and prognosis, with a few requests for a drink or to contact family.

Video observations included plentiful communication among trauma team members, sometimes decoupled from patient interaction. Trauma team members called out findings to one another during the primary survey, used jargon and shorthand, and at times examined or discussed part of a patient’s body without talking to him or her. Patients rarely reacted to these discussions, but in 1 case, a trauma team member described a patient’s injured finger as “destroyed,” prompting the patient to cry out. Observations included aspects of clinical decision making not reflected in interviews, such as plans for tests and procedures. A few observations included disagreement among trauma team members over the clinical plan, again without visible reaction from the patients.

### Discussion

In advanced trauma life support training, trauma team members learn to move methodically through a time-tested resuscitation that may favor patient safety over patient comfort. We expected that this protocol-driven structure, along with the clinical urgency of evaluating and treating life-threatening injuries, would make patient-centered care scarce in the trauma bay. Although efforts to increase patient-centeredness often emphasize discussions of individual concerns, absence of these conversations did not preclude patient-centered care. In trauma resuscitation, patients appeared to calibrate their expectations and priorities to clinical urgency. Interview participants responded positively when they felt that their trauma

### Table 2. Sources of Interview Participant Satisfaction and Dissatisfaction With Trauma Resuscitation From Semistructured Interviews

<table>
<thead>
<tr>
<th>Source</th>
<th>Satisfaction Participants (References), No.</th>
<th>Representative Quotations</th>
<th>Dissatisfaction Participants (References), No.</th>
<th>Representative Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>28 (211)</td>
<td>NA</td>
<td>26 (129)</td>
<td>NA</td>
</tr>
<tr>
<td>Trauma team members</td>
<td>25 (89)</td>
<td>“The doctors that I have so far, they’re really nice. They talk to me. Anything I need, they help me. And they let me know they care.”</td>
<td>13 (32)</td>
<td>“Honestly, to have so many people kinda like bombard you is kinda scary, especially, I was in a neck brace. So for me not to be able to see my surroundings, it was very, very scary.”</td>
</tr>
<tr>
<td>Clinical care</td>
<td>21 (32)</td>
<td>“When I got in here, they was right on the button. They started moving me. They stripped me. They checked me, made sure everything was fine. They did a very good job...they checked me from head to toe and made sure everything was all right.”</td>
<td>16 (30)</td>
<td>“I remember the nurses cutting up my clothes. Man, I didn’t like that. Because I really, I don’t really have no other clothes as it is.”</td>
</tr>
<tr>
<td>Communication</td>
<td>20 (43)</td>
<td>“They let me know every time they were gonna do something and what was gonna happen and what my condition was, so I wouldn’t be worried.”</td>
<td>14 (30)</td>
<td>“…[T]hey supposed [to] let me know what’s going on. I wasn’t told, I know I’ve been shot and all that, but I wasn’t told that this injury would take this amount to heal or whatever.”</td>
</tr>
<tr>
<td>Emotional experience</td>
<td>16 (23)</td>
<td>“I could feel it kind of like, it was like, okay, my shirt is gone. I’m in a safe place, and these people are going to just take care of me.”</td>
<td>10 (19)</td>
<td>“What they gonna do? What were they talking about? Whether it was serious? ...It scared me a little, the possibility.”</td>
</tr>
<tr>
<td>Physical experience</td>
<td>9 (11)</td>
<td>“I remember, they gave me some pretty heavy-duty painkillers downstairs, and that helped take away some of the pain. I was thankful for that.”</td>
<td>9 (14)</td>
<td>“That was the only complaint I had because like just any, they didn’t even have to get me a drink. Just wet my mouth with something. My mouth was so dry, I couldn’t swallow. I couldn’t do anything.”</td>
</tr>
</tbody>
</table>

Abbreviation: NA, not applicable.
team members were capable and efficient. They valued thoroughness, even when it was associated with inconvenience or discomfort. In their study of patient and family satisfaction with acute and postacute trauma care, Bobrovitz et al identified high levels of satisfaction associated with health care professionals’ timeliness and skill. Likewise, Morse and O’Brien found that injured patients initially responded with “vigilance,” but “relinquished control” to health care professionals when they felt that they were “in good hands.” As seen in past studies, participants in the current study responded positively to friendly and reassuring words and gestures from trauma team members. As I participant stated: “They were very attentive, that they were focused on me, that they were speaking only about what was going on with me. So, I mean, it seemed to be me-centered.”

Our findings point to strengths in current practice and to opportunities to optimize patient-centered care a priority. Communication is “the most common ‘procedure’ in medicine,” and emphasizing patient communication in advanced trauma life support protocols could improve patient experience. This concept is consistent with the findings of Gagliardi et al that communication is key to patient and family experience throughout trauma care. Thus, we propose the following steps to emphasize communication in a trauma setting.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Participants (References), No.</th>
<th>Representative Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional responses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>NA</td>
<td>“I ain’t never had nothing like that happen to me in my life…I coulda been dead.”</td>
</tr>
<tr>
<td>Agitation</td>
<td>NA</td>
<td>“[..]Your adrenaline is rushing.”</td>
</tr>
<tr>
<td>Loss of control</td>
<td>NA</td>
<td>“I’m laying there naked on somebody’s table. You know what I’m saying? Vulnerable.”</td>
</tr>
<tr>
<td>Comfort and safety</td>
<td>NA</td>
<td>“When [the team] took control…I felt more safe…I felt blessed when I was in here.”</td>
</tr>
<tr>
<td>Realization</td>
<td>NA</td>
<td>“Coming to realizing that…I may have a drinking problem…a major wake-up call for me.”</td>
</tr>
<tr>
<td>Physical experience</td>
<td>30 (174)</td>
<td>NA</td>
</tr>
<tr>
<td>Pain</td>
<td>NA</td>
<td>“I was screaming pretty much like a baby.”</td>
</tr>
<tr>
<td>Bleeding</td>
<td>NA</td>
<td>“…[B]lood was just coming from everywhere.”</td>
</tr>
<tr>
<td>Fatigue</td>
<td>NA</td>
<td>“[..]In and out, drowsy…so I lost time.”</td>
</tr>
<tr>
<td>Nonclinical concerns</td>
<td>28 (75)</td>
<td>NA</td>
</tr>
<tr>
<td>Family</td>
<td>NA</td>
<td>“[..]My they did have to happen to me in front of my kids?”</td>
</tr>
<tr>
<td>Work</td>
<td>NA</td>
<td>“Am I gonna be able to work like I was? Because I’m on my knees, I’m putting framing, I’m climbing ladders.”</td>
</tr>
<tr>
<td>Safety</td>
<td>NA</td>
<td>“I was just worried that the police didn’t get him and that he was going to come in here and kill me, because he told me he was going to kill me.”</td>
</tr>
</tbody>
</table>

Abbreviation: NA, not applicable.

Table 3. Themes of Interview Participants’ Internal Experience of Trauma Resuscitation

<table>
<thead>
<tr>
<th>Theme</th>
<th>Participants (References), No.</th>
<th>Representative Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional responses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>NA</td>
<td>“I knew that it was just so they could give me the best treatment.”</td>
</tr>
<tr>
<td>Physical examination</td>
<td>NA</td>
<td>“[The team] just started working on me as soon as I got in here, trying to figure out where all this blood was coming from.”</td>
</tr>
<tr>
<td>Pain medication</td>
<td>NA</td>
<td>“They’ve been good about the pain meds…generous with them.”</td>
</tr>
<tr>
<td>Procedures</td>
<td>NA</td>
<td>“It was almost like torture…my ribs were broken, yet they’re still trying to push something in through the ribs.”</td>
</tr>
<tr>
<td>Trauma team members</td>
<td>30 (282)</td>
<td>NA</td>
</tr>
<tr>
<td>Quantity</td>
<td>NA</td>
<td>“[..]Scary…to have so many people kinda bombarding you.”</td>
</tr>
<tr>
<td>Expertise</td>
<td>NA</td>
<td>“…6 different people trying to help me at once”</td>
</tr>
<tr>
<td>Concerns about trauma</td>
<td>NA</td>
<td>“[..]Everybody played a perfect part…It was like we all rehearsed this thing.”</td>
</tr>
<tr>
<td>team members</td>
<td>NA</td>
<td>“…[..]It was a lot of talking vs—to me, it was like—if the students wasn’t there, the actual doctors could have got it done faster.”</td>
</tr>
<tr>
<td>Comfort</td>
<td>NA</td>
<td>“…[..]A pillow, warm blankets, and the IVs, and pain medicine.”</td>
</tr>
<tr>
<td>Communication</td>
<td>30 (233)</td>
<td>NA</td>
</tr>
<tr>
<td>Clinical issues</td>
<td>NA</td>
<td>“They spoke directly and clearly about what was going on, what to expect and what they were going to do.”</td>
</tr>
<tr>
<td>Reassurance</td>
<td>NA</td>
<td>“I’m going to be okay, it ain’t that serious, calm down, try to get some rest.”</td>
</tr>
<tr>
<td>Participants’ questions</td>
<td>NA</td>
<td>“There really wasn’t too much questions, but go ahead and do what you gotta do.”</td>
</tr>
<tr>
<td>Between trauma team</td>
<td>NA</td>
<td>“I didn’t know what they were talking about, but I knew it was something like a bunch of tools to help me.”</td>
</tr>
<tr>
<td>conversations</td>
<td>NA</td>
<td>“They kept on walking on the side of me, talking…what they gonna do? What were they talking about? Whether it was serious?”</td>
</tr>
<tr>
<td>Lack of communication</td>
<td>NA</td>
<td>“They still don’t tell me what the real thing that’s going on with me yet.”</td>
</tr>
</tbody>
</table>

Abbreviations: IV, intravenous; NA, not applicable.
First, health care professionals should briefly introduce themselves and discuss the resuscitation process with patients. Interview participants in the current study valued introductions, but introductions were rarely reported or observed. Bobrovitz et al.\(^\text{34}\) reported that survey respondents were satisfied that health care professionals explained their roles to patients and families, but this study did not focus on resuscitation and these explanations may have occurred later on.\(^\text{34}\)

Second, interview participants reported confusion about their injuries and prognoses, and they identified a variety of nonclinical concerns relating to work, family, and safety that they had not shared with trauma team members. Bobrovitz et al.\(^\text{33}\) also found health care professionals’ ability to explain injuries and to address patients’ concerns to be key to patient satisfaction. Reviewing events and plans and addressing patient concerns during a patient-centered “time out” could reduce confusion. Any such change must be brief and avoid delaying or compromising identification and treatment of life-threatening injuries.

Third, interview participants who saw trauma team members talking among themselves on the side drew negative conclusions, and additional care could be taken to include patients in these discussions or to shield them more thoroughly. To our knowledge, this dynamic has not been assessed in other studies, but trauma patients and families do value being included in treatment plans.\(^\text{34}\)

Last, many interview participants recalled having their clothing cut off, and this action served to signal the seriousness of their injuries and the intensity of their care. A few participants who could not afford new clothes were concerned about the loss of clothing. As the E in the ABCDE’s of trauma resuscitation, exposure is key to completely assessing a patient’s injuries.\(^\text{36}\) Greater effort could be made to remove clothing intact in hemodynamically stable patients with low suspicion of spinal injury and to replace clothing for patients in need.

Comparing interview with observation data also identified areas where improvement may be unnecessary. Patients accepted that confusing medical terms were in service of their care. Details of the clinical examination, even its invasive aspects, were not salient to participants. Likewise, Morse and O’Brien\(^\text{10}\) found that injured patients who had relinquished control to health care professionals entered a “fog” of diminished awareness during their initial treatment. Pain was a prominent feature of the trauma experience, but most participants expected this and found pain control adequate. Pain management, personal hygiene, and other aspects of comfort were less salient in these interviews than in other studies that have focused on hospital and postacute care.\(^\text{17,34-36}\)

Further study is needed to determine how trauma resuscitation fits into patients’ longer-term recovery\(^\text{17,20,39}\) and family context.\(^\text{12,19,40,41}\) Emotional and physical recovery can take months,\(^\text{20,21,42}\) and studies have reported a lack of emotional support from health care professionals.\(^\text{21}\) Ogilvie et al.\(^\text{19}\) described 3 phases of response to injury: a time of chaos, injury negotiation, and injury reconciliation. Likewise, Morse and O’Brien\(^\text{10}\) divided response to injury into 4 categories: vigilance, disruption, enduring the self, and striving to regain the self. We found aspects of all phases in the trauma bay. Interview participants experienced confusion and time distortion but also began to predict outcomes, plan their futures, and integrate their injuries into a sense of self. To optimize recovery, health care professionals should capitalize on these initial moments of patient contact to build support and trust. As we develop interventions and assessments of patient experience, we aim to test them at multiple centers, incorporating the perspectives of patients, families, and health care professionals. To our knowledge, no conclusive evidence exists that patient experience correlates with or contributes to other metrics of quality in emergency or trauma care, and future research should investigate these relationships. As long as patient experience can be improved without compromising clinical outcomes, patient-centered care remains a valuable goal.\(^\text{7}\)

**Limitations**

We recognize several limitations to this qualitative study, including the role of investigator bias in both interviews and observations. We strived to create a welcoming, nonjudgmental atmosphere, but reporting may have been selective. In this single-center study, patient population and local personnel, facilities, and culture likely influenced experience. Our center primarily serves an English-speaking, black population, and trauma team members seen in video observations were mostly white. Patients of different races and ethnicities might have different priorities in trauma resuscitation. Patients with altered mental status or intoxication were excluded from analysis, and they may have had different experiences. Videos had limited audio clarity and varied in length. We encouraged interview participants to focus on the initial phase of treatment, but later events may have influenced their perceptions.

**Conclusions**

Trauma resuscitation incorporates principles of patient-centered care, as patient concerns were well aligned with clinical goals in this acute setting. Overall, patients perceived trauma team members as competent, efficient, and caring. An explicit focus on patient communication could further improve patient-centeredness in trauma resuscitation.
Obtained funding: Kaufman, Richmond, Holena. Administrative, technical, or material support: Kaufman, Holena. Study supervision: Kaufman, Richmond, Wiebe, Holena.

Conflict of Interest Disclosures: None reported.

Funding/Support: Dr Kaufman was supported by training grant T32 HL-08054-6 from the National Heart, Lung, and Blood Institute. This study was funded in part by grant R49CE002474 from the Penn Injury Science Center and the Centers for Disease Control and Prevention.

Role of the Funder/Sponsor: Funders had no role in design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Meeting Presentation: This study was presented at the American College of Surgeons Clinical Congress; October 19, 2016; Washington, DC.

Additional Contributions: We thank Keisha Mulugeta, BA, from the University of Pennsylvania in Philadelphia, for assistance in data collection; Eboni T. Easley, MPH, Tricon Davis, BA, and Brana Lott, MPH, from the University of Pennsylvania Mixed Methods Research Lab, for assistance with coding; and Judy Shea, PhD, from the University of Pennsylvania, for methodologic expertise.

Additional Information: During completion of this research, Dr Kaufman was a visiting research fellow at the University of Pennsylvania and a student in the Master’s Program in Health Policy there.

REFERENCES