

Understanding Conflict Between Intensivists and Surgeons*

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A recent Society of Critical Care Medicine Taskforce on ICU delivery models highlighted the integral role of intensivist physicians in the care of critically ill patients (1). This recommendation is supported by a large body of evidence demonstrating improved clinical outcomes under an intensivist-led model of critical care (2). Still, there are acknowledged tradeoffs under this model, including the potential for conflicts between multiple physicians caring for one patient: specifically, the intensivist responsible for minute-to-minute decision making in the ICU and the “primary” physician who admitted the patient to the hospital and will care for him or her after they leave the ICU (3).

These conflicts are readily observable in the interplay between intensivists and surgeons (4). Patients often need intensive care after high-risk surgery (5), and surgeons rightly feel a deep sense of responsibility for these patients (6, 7). In addition, most surgeons receive formal training in critical care during residency, giving them some measure of experience in the care of critically ill patients (8). Nonetheless, the surgery team is often unavailable for in-the-moment decision making in the ICU due to competing responsibilities, and it is difficult for nonintensivists to sustain the knowledge base necessary to work in a complex, modern ICU (9).

These tensions can inspire conflict, ranging from the mundane (e.g., one physician orders a test or drug that another would consider inappropriate) (10) to the serious

(e.g., one physician wishes to approach the family about withdraw of life-sustaining therapy, whereas another is opposed to this strategy) (11). These conflicts may be detrimental to patient care, but little empirical research exists regarding their source and management. Thus, we lack pragmatic targets to improve interactions between surgeons and intensivists, reduce the impact of conflicts when they arise, and minimize harm that may come to patients or families as a result.

In this issue of *Critical Care Medicine*, Haas et al (12) from the University of Toronto take a first step at addressing this knowledge gap. They performed semistructured interviews with eight surgeons, seven intensivists, and 10 other ICU clinicians at a number of academic medical centers regarding communication practices between intensivists and surgeons. They then analyzed these interviews to identify barriers and facilitators to surgeon-intensivist communication.

There are several findings of interest. First, surgeons and intensivists **generally respected each others'** unique expertise and contributions to patient care, yet each felt that they had a **more holistic** view of the patient's overall trajectory than the other. Second, participants often held **competing notions** of what is meant by a “closed” ICU, with some surgeons feeling empowered to enact a range of clinical decisions and some intensivists and nurses mandating all decisions to be run by the ICU team. These discordant **perceptions** over “**who knows more**” and “**who decides**” may promote **conflict** related to both treatment decisions and end-of-life care.

In addition, participants described a disconcerting reliance on informal rather than on formal channels for communication. **Informal** practices such as text messages and “drop ins” were **favored over formal** practices such as documentation in the medical record and multidisciplinary rounds. High-functioning organizations rarely relegate important communication practices to the realm of the informal; instead they institute a range of formal procedures to ensure standardization and redundancy (13). Given this **predominantly informal communication system**, it is not surprising that miscommunication, errors, and conflict occur.

Overall, this study provides some relevant insight into how surgeons and intensivists communicate and how specific modes of communication may lead to conflict. However, the findings are tempered by some important limitations. Several components of rigorous qualitative analysis are missing, including the use of multiple data sources to get at key constructs and the revisiting of preliminary results with participants (14). Without these steps, we have less confidence in the trustworthiness of the results. Indeed, many factors related to communication effectiveness appear missing, including the role of physician experience, base surgeon specialty, and whether or not the intensivist has surgical

*See also p. 2147.

Key Words: communication barriers, conflict; critical care; intensive care units; surgery

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training. It is likely that other barriers to effective communication and strategies to overcome those barriers exist but are not identified here.

In addition, although the study objective was to characterize communication between intensivists and surgeons, the interview script narrowly defines communication as a strategy to relay information without digging deeper into how, when, and why members of these groups either choose to interact or avoid each other. Although the authors uncover the respondents' report of routine communication practices, their singular focus on "communication" rather than interaction and relatedness fails to unearth the latent structural factors that allow such communication to occur.

Due to these limitations, the resulting conceptual model for surgeon-intensivist communication is underdeveloped. We still lack a complete picture of surgeon-intensivist communication, a tractable conceptual model for effective communication, and actionable targets for improving communication. Although the investigators set out to perform a preliminary investigation of this topic, their report grazes the surface and does not provide the rich description possible with qualitative research.

Additional work should attempt to replicate, expand, and strengthen these findings. It is important to understand how intensivists and surgeons interact with each other, not only what information is delivered and the route of delivery but also what is not said based on specialty roles and assumptions about others in a specific group. It is also important to explore how these communication failures impact patient care and whether there may actually be benefit from conflicts between intensivists and surgeons. **Conflict in medicine is not always bad**—it may be a useful way to achieve **balance** between two extremes. Finally, it is essential to develop ICU organizational structures that are resistant to communication failure, ensuring that patients receive effective care in the absence of effective communication. This line of research will provide much needed insight into the foundations of communication and conflict

between intensivists and surgeons, leading to improved quality and safety for critically ill patients.

REFERENCES

1. Weled BJ, Adzhigirey LA, Hodgman TM, et al: Critical care delivery: The importance of process of care and ICU structure to improved outcomes: An update from the American College of Critical Care Medicine Task Force on Models of Critical Care. *Crit Care Med* 2015; 43:1520–1525
2. Wilcox ME, Chong CA, Niven DJ, et al: Do intensivist staffing patterns influence hospital mortality following ICU admission? A systematic review and meta-analyses. *Crit Care Med* 2013; 41:2253–2274
3. Fassier T, Azoulay E: Conflicts and communication gaps in the intensive care unit. *Curr Opin Crit Care* 2010; 16:654–665
4. Penkoske PA, Buchman TG: The relationship between the surgeon and the intensivist in the surgical intensive care unit. *Surg Clin North Am* 2006; 86:1351–1357
5. Wunsch H, Gershengorn HB, Guerra C, et al: Association between age and use of intensive care among surgical Medicare beneficiaries. *J Crit Care* 2013; 28:597–605
6. Bosk CL: *Forgive and remember: Managing medical failure*. Chicago, IL, University of Chicago Press; 2003
7. Schwarze ML, Bradley CT, Brasel KJ: Surgical "buy-in": the contractual relationship between surgeons and patients that influences decisions regarding life-supporting therapy. *Crit Care Med* 2010; 38:843–848
8. Cohn SM, Price MA, Stewart RM, et al: Perceptions and attitudes of critical care training and careers among United States surgical residents: Who wants to be a surgical intensivist? *Am Surg* 2007; 73:433–437
9. Kahn JM: Volume, outcome, and the organization of intensive care. *Crit Care* 2007; 11:129
10. Rubenfeld GD: Understanding why we agree on the evidence but disagree on the medicine. *Respir Care* 2001; 46:1442–1449
11. Paul Olson TJ, Brasel KJ, Redmann AJ, et al: Surgeon-reported conflict with intensivists about postoperative goals of care. *JAMA Surg* 2013; 148:29–35
12. Haas B, Conn LG, Rubenfeld, et al: "It's Parallel Universes": An Analysis of Communication Between Surgeons and Intensivists. *Crit Care Med* 2015; 43:2147–2154
13. Roberts KH, Bea R, Bartles DL: Must accidents happen? Lessons from high-reliability organizations. *Acad Manage Exec* 2001; 15:70–78
14. Shenton AK: Strategies for ensuring trustworthiness in qualitative research projects. *Educ Info* 2004; 22:63–75

“It’s Parallel Universes”: An Analysis of Communication Between Surgeons and Intensivists*

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Objectives: The intensivist-led model of ICU care requires surgical consultants and the ICU team to collaborate in the care of ICU patients and to communicate effectively across teams. We sought to characterize communication between intensivists and surgeons and to assess enablers and barriers of effective communication.

Design: Qualitative interview study. An inductive data analysis approach was taken.

Setting: Seven intensivist-led ICUs in four academic hospitals.

Subjects: Surgeons (attendings and residents), intensivists (attendings and residents), and ICU nurses participating in the care of surgical patients in the ICU.

Interventions: None.

Measurements and Main Results: Communication enablers and barriers existed at two distinct levels: 1) organizational and 2) cultural. At an organizational level, participants identified that formally sanctioned communication structures and processes often acted as barriers to communication. Participants had developed informal strategies to improve communication. At a cultural level, surgical and ICU participants often expressed conflicting perspectives regarding patient ownership, scope of practice, and clinical expertise.

Conclusions: Major barriers to optimal communication between surgical and ICU teams exist in the intensivist-led ICU environment. Many are related to the structures and processes meant to facilitate communication across teams and others to how some aspects of care in the ICU are conceptualized. Multiple

actionable opportunities exist to improve communication in the intensivist-led ICU. (*Crit Care Med* 2015; 43:2147–2154)

Key Words: communication; consultants; critical care; intensive care units; qualitative research; surgeons

Communication failures between health professionals are a common cause of medical errors and significantly impact on the quality of patient care (1–4). Effective communication between healthcare providers is also directly related to patient satisfaction (5). Interventions targeting improvements in interprofessional communication within critical care teams, such as multidisciplinary rounds and daily goals, improve outcomes in the ICU (6–11). To date, discussions of communication among healthcare providers caring for ICU patients have largely focused on communication among ICU physicians and/or between ICU physicians and nurses (7, 12–16).

With surgical patients accounting for more than 30% of patients admitted to ICU, surgical teams are regular ICU consultants (17). However, communication between ICU and surgical teams has largely not been studied. Indirect evidence suggests that existing communication patterns and strategies may be suboptimal for interspecialty collaboration. Conflicts occur frequently in the ICU, particularly between ICU staff and consultants (18). Medical errors and adverse events among surgical patients often occur in the ICU and many involve conflict over decision making (19). Finally, previous reports suggest that there is often discordance between surgeons’ and intensivists’ perceptions and communication of prognoses (20–22).

A variety of factors likely predispose surgeons and intensivists to poor communication. First, cultural differences between surgical and medical teams are well described (22). Group-level factors, such as intergroup power differences, group norms and values, as well as other contextual factors, may influence how well surgeons and intensivists communicate (23). In addition, the relatively recent adoption of the “high-intensity staffing” or “intensivist-led” model of ICU care challenges long-held beliefs about decisional authority held by surgeons, which may in turn generate conflict between intensivists and surgeons (24, 25).

*See also p. 2261.

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Given these data, as well as the close relationship between effective provider communication and patient safety, we sought to characterize communication between intensivists and surgeons and to assess enablers and barriers of effective communication.

MATERIALS AND METHODS

Study Design

This was a qualitative study of communication between intensivists and surgeons across four academic hospitals. By means of in-depth, semi-structured interviews, we sought to understand how members of ICU and surgical teams perceive and define the quality of communication across teams. We aimed to identify barriers and enablers of good communication. The definition of “good” or “bad” communication was participant led, rather than being established a priori by the research team. We used a constructionist approach (26), which assumes that multiple valid viewpoints are operating in the production of providers’ experiences and understandings of quality communication. This approach aims to explore these experiences and viewpoints accepting each as valid and true. This study was approved by the Research Ethics Board of each participating institution.

Study Setting

The four participating academic hospitals are affiliated with a single university. Across these institutions, there are a total of 15 ICUs and coronary care units. Due to the highly specialized nature of the care provided in coronary care units, cardiovascular ICUs, and burn units, these ICUs were excluded. The study focused on communication regarding patients in the seven remaining ICUs: two units admitting exclusively trauma and neurosurgical patients, four mixed medical-surgical ICUs (excluding trauma patients), and one medical-surgical ICU that also admits trauma patients.

All included ICUs are intensivist-led, with surgical services typically rounding on their patients daily. All of the ICUs in the study have been intensivist-led for at least 20 years. Base specialties among attending intensivists in the study units are internal medicine, respiratory, anesthesia, and general surgery. Two of the four centers (representing two medical-surgical ICUs) have no surgeon-intensivists. At the other two centers, surgeon-intensivists are in the minority: four among a total of 20 intensivists at one institution and two among 15 intensivists at the other site. Residents and fellows participate in the care of ICU and surgical patients at all study sites. Study ICUs have no written guidelines outlining communication practices between surgical teams and ICU teams.

Study Population

A purposive sampling strategy combining two sampling techniques was used for participant recruitment: criterion sampling and snowball sampling (27). The criterion sample was composed of key informants from the Departments of Surgery and Critical Care Medicine in each of the participating

institutions. Participants were considered to be key informants based on their institutional roles and medical, surgical, or nursing specialty areas. Surgical residents and ICU fellows from the University of Toronto were included. Twenty-four interviews were scheduled and completed via criterion sampling. One additional participant was recruited using the snowball sampling technique.

Data Collection

Semi-structured interviews were conducted (**Appendix 1**). Semi-structured interviews are organized around themes and contain open-ended questions that are then supplemented with questions that emerge from the dialogue between the interviewer and interviewee (27). One experienced qualitative researcher (L.G.C.) conducted all interviews in-person; interviews were audiorecorded and subsequently transcribed. Data were analyzed inductively and iteratively (28). Two coinvestigators (L.G.C., B.H.) independently read and coded the first seven transcripts and then discussed emerging themes. Transcripts were iteratively reviewed to identify categories within these themes, comparing them against one another, that is, the constant comparison method (29). During data analysis, the interview guide was adjusted accordingly to explore the categories in more depth. Consensus between coders regarding the major thematic findings was achieved by discussion. Data collection ceased when saturation was reached (30). Summary data were subsequently reviewed for face validity by all investigators with backgrounds in critical care, surgery, and qualitative research.

RESULTS

In total, 25 participants were interviewed: eight surgeons, seven intensivists, five critical care nurses, and five residents/fellows (three surgery residents/two ICU fellows). Surgical subspecialties represented were surgical oncology, colorectal surgery, transplant surgery, thoracic surgery, and neurosurgery. Base specialties represented among intensivists were internal medicine, respiratory, anesthesia, and general surgery. Among attending surgeons and intensivists, the majority had been in practice between 10 and 20 years ($n = 7$), followed by those in practice fewer than 10 years ($n = 5$) and those in practice over 20 years ($n = 3$). The average length of interviews was 35 minutes, ranging from 14 to 46 minutes.

Defining “Good” and “Bad” Communication

The majority of participants were able to identify instances of high-quality communication between surgical and ICU teams, and all participants were able to describe instances of poor-quality communication between the two teams. Participants perceived that ICU and surgery teams had “good” communication when 1) the two teams faced a shared challenge that they overcame together and 2) the participant felt their expertise was valued by the counterpart team (**Table 1**). Communication was perceived as “bad” when 1) the two teams were perceived to be working toward different goals or 2) the participant felt their expertise was not valued or given appropriate weight in

TABLE 1. Characterization of Good Communication

Surgical team and ICU team faced a common challenge that they overcame together

Surgeon: And there were no divisions between us and no "Well, why didn't you do this? Why didn't you do that?" It was just sort of dealing with [the family's] grief and lament. And very equally. So I thought that was a good example of sort of satisfying communication and teamwork.

Participant felt their expertise was valued by the counterpart team

Intensivist: So even if I don't agree with the final management, if I feel like my concerns have been heard and considered, then I'm usually happy with the discussion even if it's not necessarily what I thought would be the outcome.

decision making. As such, "bad" communication often resulted in the participant's perception that the patient had received inappropriate care. For example, a surgeon explained that when his patient received dialysis in the ICU without his consultation, "The resident or fellow in the ICU stuck in the dialysis line in the middle of the night 'cause the creatinine went up a little bit. [That] patient has had an unnecessary procedure from our point of view. And one that carries potential risks, which, if they were under our care, we would never have done because there's no reason to do it."

Enablers and Barriers to Good Communication

Thematic findings revealed that the quality of ICU-surgery team communication was viewed to be influenced by both organizational and cultural factors that were both tacit and explicit. These factors influenced whether participants perceived teams to be working together or at cross purposes and whether participants perceived their expertise was valued or not by the counterpart team. When reviewed, these factors fell into one of two categories: 1) communication structures and processes (organizational factors) and 2) competing constructs of care (cultural factors).

Communication Structures and Processes: Organizational Factors

Participants described two parallel communication systems (Table 2): the **formal** structures and processes as managed by institutions, such as **documentation** in the **medical record**, the paging system, and team **hierarchy**, and the **informal** communication system, such as **texting** and instant **messaging**. Generally, participants **disfavored** the **formal** systems designed to enable interteam communication; the informal systems were preferred and were used to bypass the more formal communication channels. The formal system of communication was felt to significantly increase the likelihood that the ICU and surgical teams were working at cross purposes.

Participants understood that they "should" be using formal communication channels, but used them only in low-priority situations, when there was a minimal level of decision-making

TABLE 2. Communication Structures and Processes: Organizational Factors

Formal communication structures and processes

Documentation in the medical record

Paging system

Morning rounds

Communication networks based on hierarchy

Informal communication structures and processes

Texting, instant messaging, e-mail

Unplanned, face-to-face communication

Communication networks based on personal relationships

uncertainty and when there was trust in the person being contacted (e.g., the junior resident who is the first call is known to be reliable by the ICU team). If any one of these criteria were absent, formal communication channels were abandoned in favor of informal ones.

The existence of both formal and informal practices often led to redundant or incomplete information transfer across and within teams. Participants expressed a desire to implement more effective, formal communication structures that would incorporate features of existing informal practices, in particular relating to the timeliness of communication. As one surgeon reflected, "I mean, if rioters in London can communicate with each other on a minute to minute basis then we should be able to do better as well."

Formal Communication Structures and Processes. Documentation in the medical record. The primary formal communication mode between teams was documentation in the medical record. However, both intensivists and surgeons expressed a high degree of dissatisfaction with written notes as a means of interteam communication. The majority of intensivists expressed frustration with the quality of notes written by the surgical team in the medical record, as intensivists often used these notes to gain insight into a surgical team's plan. Intensivists felt that surgical notes focused on recording laboratory information, vital signs, and ventilator settings, without including information about the surgical plan. Surgical participants did not view the patient chart as a means by which care plans are communicated; medical records were seen as a legal document providing evidence that the patient had been seen.

Paging system. In addition to the written patient record, the second official interteam communication mode was paging. Participants noted, however, that pages were often answered in a significantly delayed manner (particularly when surgeons were in the operating room), were sometimes not answered, and often resulted in the wrong person being contacted (e.g., the wrong surgical team). While participants described efforts to use this official means of communication, paging was not viewed as enabling effective communication.

Morning rounds. In virtually all cases, the only time point at which surgical and ICU teams interacted predictably was

during surgical teams' morning rounds. Typically, these rounds involved trainees from the surgical team, but not the attending physicians. Among ICU team members, only the bedside critical care nurses were consistently present for these rounds. In general, after surgical teams had made their morning rounds, either the bedside nurse or post-call ICU fellow were expected to act as an intermediary between surgical teams and the daytime ICU team; participants felt this practice led to information loss and did not permit collaborative interactions.

Communication networks based on hierarchy. Formal communication processes followed a clear hierarchy. If either a surgical or ICU team had an inquiry for the counterpart team, the sanctioned process described by participants involved paging or otherwise contacting a junior member of the counterpart team. The junior physician contacted would then contact their senior resident or fellow, who would then contact the attending physician. Although participants acknowledged that this was the "right" thing to do, the hierarchical escalation of inquiries led to delays; such delays were associated with the perception that teams were working at cross purposes.

Informal Communication Structures and Processes. Texting, instant messaging, and e-mail. Most participants preferred using text messaging, e-mail, or other direct messaging communication technology, despite the fact that texting and e-mail might not protect patients' personal health information.

Unplanned, face-to-face communication. Face-to-face communication was universally acknowledged as the most favored mode for quality communication. All participants highly valued the opportunity for the ICU physicians and surgeons to interact during the day, when attending physicians from both teams were present. Such interactions only occurred informally, however, and were unpredictable. Despite this strong preference, participants noted that there were few or no structures in place to facilitate face-to-face communication. Face-to-face communication occurred opportunistically and was largely dependent on chance and personal effort by individual participants. Virtually all participants expressed a desire for joint bedside rounds between surgery and ICU teams.

Communication networks based on personal relationships. Despite acknowledging that the formal communication process followed a hierarchy, participants frequently circumvented this. Participants overwhelmingly preferred communication with individuals with whom they were familiar based on pre-existing, personal relationships. As such, participants identified the high turnover of trainees and the lack of familiarity with certain colleagues as major barriers to good communication. The informal communication network frequently excluded residents and fellows because they were unfamiliar to members of the counterpart team. In addition, attending physicians would avoid communicating with other attending physicians if they did not have a good interpersonal relationship with them.

Competing Constructs of Care: Cultural Factors

Several conceptual constructs were repeatedly referenced by participants and appeared to strongly influence perceived

quality of interteam communication (Table 3). Specifically, participants made frequent references to patient ownership in the intensivist-led unit and to the role of surgeons' and intensivists' expertise in the care of surgical ICU patients. When agreement existed between surgeons and intensivists in defining these constructs, participants expressed satisfaction with the quality of communication with their colleagues. Conversely, competing definitions of these key constructs were associated with perceptions of poor interteam communication.

Patient Ownership. The majority of intensivists acknowledged a special relationship between surgeons (as compared to internists) and their patients (Table 3). Some characterized this relationship in a positive way, whereas others described it negatively as causing surgeons to be overly involved in the ICU care of surgical patients. There was a clear tension between surgeons' sense of patient ownership and the parameters of the intensivist-led ICU (Table 3). Additionally, the degree to which intensivists were willing to accommodate for surgical input varied greatly; as a result, "intensivist-led" care existed on a spectrum from open and flexible to closed and rigid. Surgeons were significantly more satisfied with communication when they perceived a less rigid approach to the intensivist-led model of care.

The tension between the intensivist-led model of care and surgeons' sense of patient ownership was highlighted during end-of-life care. The majority of intensivists described involving surgeons in end-of-life discussions in order to preserve surgeons' sense of ownership. However, some intensivists maintained a rigid approach to the intensivist-led model of care even surrounding end-of-life care of critically ill surgical patients. Surgeons perceived exclusion from end-of-life decision making for their patients as the most significant violation of their sense of patient ownership and considered it a prime example of poor communication between teams.

The Role of Surgeons' and Intensivists' Expertise. Participants identified specific areas of patient care that were outside their own scope of expertise, regardless of who held the status of most responsible (i.e., attending) physician. For example, intensivists generally felt that decisions regarding enteral nutrition following bowel surgery should be left to surgeons, and surgeons felt that decisions regarding mechanical ventilation should be left to intensivists. When participants perceived that ICU and surgical team members had each participated in care to a degree commensurate with these expectations regarding scope of expertise, such comanagement was described as good communication.

There were, however, significant discrepancies between how clinicians described their own expertise and how their expertise was viewed by others. Both surgeons and intensivists felt that their counterparts understood only a narrow aspect of their patients' clinical situation, but that they themselves had a better sense of the patient's overall trajectory and prognosis. Differences in how surgeons and intensivists defined their scope of expertise were a significant source of tension. Many participants described instances in which other clinicians attempted to communicate information or suggestions that were perceived to be beyond their scope of expertise; instances

TABLE 3. Competing Constructs of Care: Cultural Factors

Patient ownership

Special relationship between surgeons and patients (positive and negative characterization)

Intensivist: And I think they feel like they have, and appropriately, an ownership of the patient because it's their patient who is now in the ICU. And they stay obviously involved and they care.

Intensivist: Because [the surgeons have] already had their hands in the patients so to speak and they have an ownership issue there.

Spectrum of definitions for intensivist-led model of care

Critical care nurse: So we have what we like to term an "openly closed" unit [laughs].

Surgeon: I think that, number one, is that our closed unit actually operates a lot like an open unit, not in name but actually in function so the intensivists listen carefully to what we have to say, we listen carefully to what they have to say and our suggestions are taken seriously and listened to.

Intensivist: So we did have a situation a while back where the Chief of General Surgery at the time said to the nurse, "You can pull out the nasogastric tube" and the nurse said, "No, I've gotta check with my team." The surgical intern [rotating through the ICU] got all embarrassed 'cause he was being asked to check on the Chief of Surgery's decision. So that's how closed we are.

Highlighted sense of patient ownership by surgeons during end-of-life care

Surgeon: The other frustration is with decisions about withdrawal of care 'cause that's fairly frequent. If you just did some huge operation that took you 18 hours and now four days later, somehow there's a withdrawal of care, how did that happen? Who spoke to the patient's family?

The role of surgeons' and intensivists' expertise in the care of surgical ICU patients

Adherence to perceived scope of expertise perceived as good communication

Surgeon: You get the sense that you're working for the collective good of looking after a patient. And the roles are fairly well-defined.

Perception that counterpart team understands only a narrow aspect of patient care

Surgeon: [Describing disadvantages of postoperative ICU care] You want them to get a post-op suite of care. You don't want them to get "Oh, let's give him a little metoprolol and let's give him some adrenaline." I think that there are different types of care.

Intensivist: And [surgeons] play the role of answering specific questions that are related to the surgical plan of care. And then our job is to put the big picture together and work out a care plan that's patient-centered and values-based and goal-directed.

Surgeon-perceived exclusion from important aspects of patient care

Surgeon: [name of intensivist] often says "We don't need you to talk about the ventilator, the inotropes. We just wanna know what to do with the NG tube." I don't think we do want to just think about the NG tube. I think we wanna think about all aspects of patient care. And we have things that we could learn from them about that and perhaps we could also impart some of what we know.

where other clinicians crossed an expertise barrier were perceived as highly disruptive (Table 3).

Whereas surgeons' perceived limitations of intensivists' expertise were described in general terms ("If it's something to do with the surgery, then we obviously know more about it than they do"), intensivists expressed relatively precise categories of care which they felt were and were not within surgeons' scope. For example, **information** they sought **from the surgical team** was "Whether or not the patient can eat that particular day or be fed enterally. Whether or not one can start anticoagulants and aspirin and those sorts of things." Significant differences emerged between surgeons and intensivists in how they felt their colleagues perceived them. Surgeons described a sense of exclusion from aspects of patient care that they felt were important and in which they wished to participate. **Surgeons' sense of exclusion** was closely associated with **feelings** of frustration and **mistrust** in the **ICU team** and was **perceived** by surgeons as one of the most **important causes** of **poor interteam communication**.

DISCUSSION

We performed an exploratory analysis of communication between surgeons and intensivists across seven ICUs in four academic centers. **Formal structures** and processes meant to facilitate communication across hospital teams **fall short** of promoting **good-quality communication**. Critical care nurses, intensivists, and surgeons have developed **informal** communication practices that they prefer and associate with improved interteam communication. These **informal practices depend primarily on individual provider motivation** and **existing interpersonal relationships**, leading to their use only on an opportunistic and **unpredictable** basis.

Although an **intensivist-led model of care** is associated with a **significant reduction** in **mortality** among critically ill patients (31, 32), our data demonstrate that the **intensivist-led ICU environment** has **significant, unintended consequences on interspecialty team communication**. The intensivist-led ICU directly challenges surgeons' traditional view of their relationship with their patient, in which they

have a “covenant to cure” (22) and should “hold themselves entirely accountable for the outcomes of their patients” (25). Surgeons described attempts to integrate their professional worldview with the intensivist-led ICU model. Nevertheless, we identified significant discrepancies in how members of surgical and ICU teams operationalize this model and how they value the spectrum of expertise required to care for critically ill surgical patients. The lack of a common understanding of these concepts contributed significantly to perceptions and experiences of poor communication and dissatisfaction with the counterpart team.

Improving patient safety by improving teamwork within the ICU has been the focus of a large number of studies (4, 33). In particular, the development of the interprofessional team, consisting of physicians, nurses, and other healthcare professionals, has become the cornerstone to patient care in the ICU. Facilitating teamwork between members of this team and identifying methods to ensure all team members are working toward similar patient goals have been the subject of many reports (3, 4, 6, 9, 14, 16, 33). These data also frequently demonstrate that interventions can improve how individuals within the ICU team communicate and collaborate, despite a broad range of professional and group identities (6, 8–11, 34). Notwithstanding advances made by ICU teams to provide patient-centered, interprofessional care, our data suggest that communication between ICU and surgical teams is fraught with tension—likely to the detriment of communication with critically ill patients and their families.

Several studies have assessed communication between surgeons and intensivists; however, these data examined communication at a single point in time (35–39). Furthermore, these studies defined effective communication as accurate transmission of information in a linear fashion (40). Such an approach ignores the way in which communication across teams not only serves to transfer information but also defines the social context in which people work and the “spoken and unspoken frameworks the team develops regarding appropriate goals, roles, and behaviors” (40). Our study focused on this broader, “social construction” view of communication; this approach is particularly relevant to interactions between intensivists and surgeons, where nuanced, close collaboration across disparate medical cultures is required for the optimal care of complex patients and their families. Notably, in our data, participants did not define good or bad communication simply through the lens of information transfer but rather as a complex process of interpersonal and intergroup relationship building.

Both surgeons and intensivists had clear beliefs about their own group identity and role and strongly identified with their own group. Participants demonstrated attribution bias when describing the behavior among members of the counterpart group (41). Negative behaviors were attributed to peoples’ values and their lack of consideration or lack of understanding. Even when institutional structures and processes were acting as barriers to good communication (e.g., paging system), participants felt that the counterpart team should make more effort.

These data emphasize the influence of group identity and intergroup dynamics on communication between surgeons and intensivists.

This study has a number of limitations. Our interviews with surgeons did not include data from all specialties. It is possible that the communication practices described in this study do not fully capture the variety of practices across all surgical specialties. In addition, our study did not specifically seek to identify differences in communication practices across general surgery, thoracic surgery, and neurosurgery. As a result, there may be nuanced differences in how each of these subspecialties interact with ICU teams that are not captured. Tensions may also exist between ICU teams and other healthcare providers (e.g., medical oncologists); the possibility of such tensions is not addressed in this study. However, we hypothesize that, given the unique nature of surgical culture and the “surgical personality” (22), barriers to high-quality communication between ICU and surgical teams are likely unique.

Given that the interview guide was designed and modified around the primary objective of our study, there are areas of interest where we did not achieve data saturation, which may be worthy of further study. For example, we did not have adequate data to comment on the relative differences between surgeon-intensivists and other intensivists or the relative importance of each type of communication barrier across different contexts. Finally, as with all qualitative research, there is an inherent balance between the in-depth nature of our inquiry and the generalizability of our data. Clearly, not all of our findings are applicable to all intensivist-led ICUs, since institutions likely vary significantly in how they operationalize the intensivist-led ICU model. Given that this study was conducted in academic centers, our findings may not be generalizable to community centers. Nevertheless, the overarching themes and concepts we have identified are likely to be relevant to many interactions between surgeons and intensivists.

CONCLUSIONS

Our data suggest that significant opportunities exist in improving communication between surgeons and intensivists in intensivist-led ICUs. First, existing institutional structures and processes to facilitate communication across teams are inadequate. Approaches that harness and formalize existing informal communication networks should be explored. For example, including attending physicians in joint rounds and replacing texting with hospital-wide microblogging might serve to facilitate daily, structured, meaningful interactions and foster interpersonal relationships. In addition, cultural differences between surgeons and intensivists must be addressed if collaboration is to improve. The creation of the ICU interprofessional team approach required the acknowledgment and breakdown of cultural, professional, and historical barriers between physicians, nurses, and other health professionals; in a similar fashion, these same barriers between surgeons and intensivists will need to be addressed in order to optimize the intensivist-led model of critical care delivery for surgical patients.

REFERENCES

- Proctor ML, Pastore J, Gerstle JT, et al: Incidence of medical error and adverse outcomes on a pediatric general surgery service. *J Pediatr Surg* 2003; 38:1361–1365
- Haller G, Myles PS, Taffé P, et al: Rate of undesirable events at beginning of academic year: Retrospective cohort study. *BMJ* 2009; 339:b3974
- Reader T, Flin R, Lauche K, et al: Non-technical skills in the intensive care unit. *Br J Anaesth* 2006; 96:551–559
- Reader TW, Flin R, Cuthbertson BH: Communication skills and error in the intensive care unit. *Curr Opin Crit Care* 2007; 13:732–736
- Chow A, Mayer EK, Darzi AW, et al: Patient-reported outcome measures: The importance of patient satisfaction in surgery. *Surgery* 2009; 146:435–443
- Rehder KJ, Uhl TL, Meliones JN, et al: Targeted interventions improve shared agreement of daily goals in the pediatric intensive care unit. *Pediatr Crit Care Med* 2012; 13:6–10
- Sexton JB, Berenholtz SM, Goeschel CA, et al: Assessing and improving safety climate in a large cohort of intensive care units. *Crit Care Med* 2011; 39:934–939
- Kim MM, Barnato AE, Angus DC, et al: The effect of multidisciplinary care teams on intensive care unit mortality. *Arch Intern Med* 2010; 170:369–376
- Jain M, Miller L, Belt D, et al: Decline in ICU adverse events, nosocomial infections and cost through a quality improvement initiative focusing on teamwork and culture change. *Qual Saf Health Care* 2006; 15:235–239
- Shaw DJ, Davidson JE, Smilde RI, et al: Multidisciplinary team training to enhance family communication in the ICU. *Crit Care Med* 2014; 42:265–271
- Dodek PM, Raboud J: Explicit approach to rounds in an ICU improves communication and satisfaction of providers. *Intensive Care Med* 2003; 29:1584–1588
- Thomas EJ, Sexton JB, Helmreich RL: Discrepant attitudes about teamwork among critical care nurses and physicians. *Crit Care Med* 2003; 31:956–959
- Boyle DK, Kochinda C: Enhancing collaborative communication of nurse and physician leadership in two intensive care units. *J Nurs Adm* 2004; 34:60–70
- Reader TW, Flin R, Mearns K, et al: Interdisciplinary communication in the intensive care unit. *Br J Anaesth* 2007; 98:347–352
- Cardarelli M, Vaidya V, Conway D, et al: Dissecting multidisciplinary cardiac surgery rounds. *Ann Thorac Surg* 2009; 88:809–813
- Pronovost P, Berenholtz S, Dorman T, et al: Improving communication in the ICU using daily goals. *J Crit Care* 2003; 18:71–75
- Wunsch H, Wagner J, Herlim M, et al: ICU occupancy and mechanical ventilator use in the United States. *Crit Care Med* 2013; 41:2712–2719
- Azoulay E, Timsit JF, Sprung CL, et al: Conflicus Study Investigators and for the Ethics Section of the European Society of Intensive Care Medicine: Prevalence and factors of intensive care unit conflicts: The Conflicus study. *Am J Respir Crit Care Med* 2009; 180:853–860
- Gawande AA, Zinner MJ, Studdert DM, et al: Analysis of errors reported by surgeons at three teaching hospitals. *Surgery* 2003; 133:614–621
- Aslakson RA, Wyskiel R, Thornton I, et al: Nurse-perceived barriers to effective communication regarding prognosis and optimal end-of-life care for surgical ICU patients: A qualitative exploration. *J Palliat Med* 2012; 15:910–915
- Aslakson RA, Wyskiel R, Shaeffer D, et al: Surgical intensive care unit clinician estimates of the adequacy of communication regarding patient prognosis. *Crit Care* 2010; 14:R218
- Penkoske PA, Buchman TG: The relationship between the surgeon and the intensivist in the surgical intensive care unit. *Surg Clin North Am* 2006; 86:1351–1357
- Kreindler SA, Dowd DA, Dana Star N, et al: Silos and social identity: The social identity approach as a framework for understanding and overcoming divisions in health care. *Milbank Q* 2012; 90:347–374
- Schwarze M, Bradley C, Brasel K: Surgical “buy-in”: The contractual relationship between surgeons and patients that influences decisions regarding life-supporting therapy. *Crit Care Med* 2010; 38:843–848
- Buchman TG, Cassell J, Ray SE, et al: Who should manage the dying patient? Rescue, shame, and the surgical ICU dilemma. *J Am Coll Surg* 2002; 194:665–673
- Guba EG, Lincoln YS: Competing paradigms in qualitative research. In: *Handbook of Qualitative Research*. Denzin NK, Lincoln YS (Eds). Thousand Oaks, CA, SAGE, 1994, pp 105–117
- Bernard HR: *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Fifth Edition. Lanham, MD, Altamira Press, 2011
- Bernard HR, Ryan GW: *Analyzing Qualitative Data: Systematic Approaches*. Thousand Oaks, CA, Sage, 2010
- Strauss A, Corbin J: *Basics of Qualitative Research*. Los Angeles, CA, Sage, 2008
- Morse JM: The significance of saturation. *Qual Health Res* 1995; 5:147–149
- Pronovost PJ, Angus DC, Dorman T, et al: Physician staffing patterns and clinical outcomes in critically ill patients: A systematic review. *JAMA* 2002; 288:2151–2162
- Wilcox ME, Chong CA, Niven DJ, et al: Do intensivist staffing patterns influence hospital mortality following ICU admission? A systematic review and meta-analyses. *Crit Care Med* 2013; 41:2253–2274
- Reader TW, Flin R, Mearns K, et al: Developing a team performance framework for the intensive care unit. *Crit Care Med* 2009; 37:1787–1793
- Petrovic M, Martinez E, Aboumatar H: Implementing a perioperative handoff tool to improve postprocedural patient transfers. *Jt Comm J Qual Patient Saf* 2012; 38:135–142
- Agarwal HS, Saville BR, Slayton JM, et al: Standardized postoperative handover process improves outcomes in the intensive care unit: A model for operational sustainability and improved team performance. *Crit Care Med* 2012; 40:2109–2115
- Karakaya A, Moerman AT, Peperstraete H, et al: Implementation of a structured information transfer checklist improves postoperative data transfer after congenital cardiac surgery. *Eur J Anaesthesiol* 2013; 30:764–769
- Joy BF, Elliott E, Hardy C, et al: Standardized multidisciplinary protocol improves handover of cardiac surgery patients to the intensive care unit. *Pediatr Crit Care Med* 2011; 12:304–308
- Segall N, Bonifacio AS, Schroeder RA, et al: Can we make postoperative patient handovers safer? A systematic review of the literature. *Anesth Analg* 2012; 115:102–115
- Zavalkoff SR, Razack SI, Lavoie J, et al: Handover after pediatric heart surgery: A simple tool improves information exchange. *Pediatr Crit Care Med* 2011; 12:309–313
- Eisenberg EM: The social construction of health care teams. In: *Improving Healthcare Team Communication: Building on Lessons From Aviation and Aerospace*. Nemeth CP (Ed). Burlington, VT, Ashgate, 2009, 9-202008
- Turner RN, Hewstone M: Attribution biases. In: *Encyclopedia of Group Processes and Intergroup Relations*. Levine JM, Hogg MA (Eds). Thousand Oaks, CA, SAGE, 2009, pp 43–46

APPENDIX 1. INTERVIEW GUIDES

Interview guide for members of ICU teams:

1. Can you please tell me about your training and on the job experience with patients in the ICU?
2. Can you describe a typical scenario when a surgery team becomes involved in the care of an ICU patient?
3. How do you communicate information regarding an ICU patient to surgery teams?
4. How do surgery teams typically communicate with you about ICU patients?
5. Overall, how would you describe the quality of communication that happens between ICU teams and surgery teams?
 - a. When do you think communication between the two teams is at its best? EXAMPLE please? What specific factors influenced the situation?
 - b. When/where do you think there are opportunities to improve communication? EXAMPLE please? What are the specific factors that hindered the situation?
6. In your experience in the ICU, over the past X number of years, how has communication between ICU teams and surgery teams changed?
7. In an ideal world, if you could instantly change one thing about communication between the ICU and surgery teams, what would that be?
8. Is there anything else you would like to add about communication between ICU and surgery teams, or about the ICU environment generally, that would be helpful for us to better understand this topic?

Interview guide for members of surgery teams:

1. Can you please tell me about your training and on the job experience?
2. Can you describe a typical scenario when a surgery team becomes involved in the care of an ICU patient?
3. How do you communicate information regarding an ICU patient to ICU teams?
4. How do ICU teams typically communicate with you about ICU patients?
5. Overall, how would you describe the quality of communication that happens between ICU teams and surgery teams?
 - a. When do you think communication between the two teams is at its best? EXAMPLE please? What specific factors influenced the situation?
 - b. When/where do you think there are opportunities to improve communication? EXAMPLE please? What are the specific factors that hindered the situation?
6. In your experience, over the past X number of years, how has communication between ICU teams and surgery teams changed?
7. In an ideal world, if you could instantly change one thing about communication between the ICU and surgery teams, what would that be?
8. Is there anything else you would like to add about communication between ICU and surgery teams, or about the ICU environment generally, that would be helpful for us to better understand this topic?