

## Communication Error in a Closed ICU

May 1, 2017

Haas B, Conn LG. Communication Error in a Closed ICU. PSNet [internet]. 2017.

<https://psnet.ahrq.gov/web-mm/communication-error-closed-icu>

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### The Case

A 70-year-old man with a complex medical history including end-stage renal disease (status post kidney transplant), coronary artery disease, and peripheral vascular disease requiring lower extremity bypass surgery in the past, was admitted to the intensive care unit (ICU) with septic shock secondary to an infected lower extremity wound. Soon after admission, he developed hypotension refractory to intravenous fluid resuscitation. The ICU team decided that the patient required central venous catheter placement in order to administer vasopressors to improve his blood pressure.

The ICU at this hospital was a closed system, where the ICU team had primary responsibility for daily management and acute issues, including performing procedures. The surgical team rounded on patients daily and discussed the plan of care with the ICU team regularly, but the team was not first call and did not write routine orders. The ICU team thus decided to place the central line after confirming the plan with the surgical team. Establishing central venous access in this patient was challenging. He had been on hemodialysis in the past through a right upper extremity arteriovenous fistula, which had failed. Due to worsening function of his transplanted kidney and anticipated need for restarting hemodialysis, he had a catheter in his left internal jugular vein already. The combination of this catheter and his prior fistula meant that upper extremity catheter placement was not possible. The ICU team therefore chose to place the central line in the right femoral vein and was able to do so after much effort. However, the team failed to recognize that the patient's transplanted kidney was also on the right side. This was a serious mistake, as femoral catheter placement is contraindicated on the same side as a transplanted kidney due to the risk of damaging the vein to which the transplanted kidney is anastomosed (surgically attached).

As the ICU team was finishing the procedure, the transplant surgeon arrived and recognized the mistake. The surgeon was furious at the ICU team for making such an error. Attempts were made to cannulate the left femoral vein, but they were unsuccessful due to the presence of blood clots. The patient required vasopressor administration through the right femoral line for several hours despite the risks, as he remained hemodynamically unstable. Eventually, the left internal jugular hemodialysis catheter was removed and replaced with a different catheter that could be used for vasopressor administration.

Over the next few days, the patient's kidney function continued to worsen and hemodialysis was initiated. The relationship between the ICU team and the surgical team remained tense and mistrustful, and the intensivists eventually ceded primary responsibility for the patient to the surgeons. The patient's overall condition did not respond to aggressive therapy for septic shock, and he eventually developed multiple organ system failure. After extensive discussion, his family eventually decided to pursue comfort measures only, and he died on hospital day 12.

## The Commentary

by Barbara Haas, MD, PhD, and Lesley Gotlib Conn, PhD

In the case presented, two main factors appear to have contributed to the patient's adverse event: a knowledge deficit on the part of the ICU team and a lack of communication between the surgical team and the ICU team.

The ICU had a closed model, which is more appropriately thought of as an intensivist-led model of critical care delivery. An intensivist-led model of critical care delivery has been associated with decreased patient mortality.<sup>(1)</sup> However, as ICUs transition from an open model to an intensivist-led or closed model of care, it is critical to evaluate potential adverse effects of this important change in practice. As was illustrated in this case, one group of patients that might be particularly affected by the intensivist-led model of critical care delivery is surgical patients.

Surgical patients account for more than 30% of patients admitted to ICU.<sup>(2)</sup> As a result, surgeons are a frequent presence in many ICUs. However, the intensivist-led model of critical care delivery conflicts with surgeons' traditional view of their relationship with their patients <sup>(3)</sup> and their training to "hold themselves entirely accountable for the outcomes of their patients."<sup>(4)</sup> Moreover, surgical and medical services have been shown to have distinct cultures of behavior likely to impede communication and collaboration.<sup>(5)</sup>

In the ICU setting, ineffective communication between providers has been linked to increased errors and other adverse events, and it is associated with harmful effects on relations between providers and patients' families.<sup>(6,7)</sup> Enhancing interprofessional communication in the ICU appears to be linked with improved outcomes among critically ill patients.<sup>(8,9)</sup> However, interventions aimed at improving communication in the ICU have largely focused on communication within the ICU team itself, namely ICU physicians, nurses, and other health care providers. Communication *between* surgery and ICU teams in an intensivist-led unit has been less extensively studied. Moreover, studies evaluating communication between surgeons and intensivists have largely focused on the quality of communication at a single point in time, namely, handover.<sup>(10-13)</sup> As a result, these studies have utilized an engineering approach to communication: effective communication is the accurate transmission of information in a linear fashion.<sup>(14)</sup> Such an approach may not address some of the fundamental causes of poor communication across teams.

In the present case, a handover checklist or tool would not have prevented the error; in contrast, a deeper understanding of the culture and norms surrounding communication in the hospital could help identify ways in which such errors could be prevented. Health care providers often define good or bad communication as a complex process of interpersonal and intergroup relationship building.<sup>(15)</sup> As such, a social construction

view of communication, where individuals' or groups' assumptions about the social reality of interspecialty team care serve as a basis for defining appropriate behaviors within the hospital, might help delineate some of the challenges that arise in the communication between surgeons and intensivists.

The structures and processes in place to facilitate communication can act as barriers to effective interspecialty team communication. Such structures and processes can create social rules that modulate who communicates with whom, when, and how. These rules may not result in good communication. For example, the team structure based on hierarchy can enforce the concept that communication must also flow along this same hierarchy; this practice can delay the transmission of information and lead to miscommunication.<sup>(15)</sup>

In this case, although the ICU confirmed their intention to place a central venous catheter with the surgical team, the structures and processes in place for interspecialty team communication may have inadvertently contributed to the error. For example, it may have been usual for the most junior member of the ICU team to communicate with the most junior member of the surgical team (e.g., the interns run the list together every morning). With such an arrangement, neither of the communicating physicians may have had adequate knowledge to identify the potential danger of placing a central venous catheter near the transplanted kidney. More importantly, the existence of a strong team hierarchy on either side may have created an environment in which neither junior team member felt empowered to ask for help prior to the placement of the central venous catheter. Contrast this imagined communication culture with an intensivist-led ICU where the two most senior faculty members are friendly and communicate daily; in such an environment, the potential for error may have been identified.

Exploratory works also suggest that how surgeons and intensivists interpret the concept of the closed ICU may play an important role in influencing the quality of communication between ICU and surgical teams.<sup>(15)</sup> ) When surgeons and intensivists embrace a collaborative approach to the care of the critically ill surgical patient, communication is perceived as being of high quality. Conversely, a rigid approach to the closed model of care acts as a barrier to communication. Differences in how surgeons and intensivists perceive their own scope of expertise, as well as the scope of expertise of their counterparts, can also be a significant source of tension.

In the present case, differences in perceived scope of practice between surgeons and intensivists may have contributed in the miscommunication that led to the error. If the intensivists felt that placing lines is what they do and that the surgeons have little to contribute to the resuscitation of a septic patient, they may not have thought that the patient's prior history was relevant to their resuscitation. In contrast, a culture of mutual respect may have led the intensivists to ask the surgeons for advice about the intricacies of resuscitating a patient with a prior kidney transplant—a conversation that may have averted the complication that contributed to the patient's death.

The response to the error in this example also illustrates a poor communication culture. The surgeon's fury and the ICU ceding responsibility to the surgeons both suggest a culture of blame. Rather than working together to understand how such an error could have happened, the ICU team and the surgical team drifted further apart, likely to the detriment of the patient, who needed multidisciplinary care. A deeper analysis of the error may have helped both teams identify their own assumptions about interspecialty team

care and improve their communication culture and care of critically ill surgical patients in the future.<sup>(16)</sup> First, joint debriefs of such cases with both the ICU team and surgery team present are critical. Moreover, debriefs should focus on how cultural norms of the institution might contribute to errors. Are junior members of a team allowed to skip hierarchy levels to ask for advice or help? Are there routine opportunities for teams to interact, or is communication limited to situations when there is a problem? Are surgery and ICU part of the same team, or are they teams who feel they are protecting patients from each other? Although these difficult questions may vary across institutions, addressing such issues is critical to improving patient safety.

## Take-Home Points

- The intensivist-led model of critical care delivery, though associated with decreased patient mortality, can have unexpected effects on patient care.
- The intensivist-led model of critical care delivery directly challenges many beliefs traditionally associated with surgical culture.
- Communication research in the ICU has largely focused on communication within the ICU team, rather than communication between the ICU team and consulting teams.
- Understanding communication between teams from a cultural perspective may help identify opportunities for quality improvement.

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*This project was funded under contract number 75Q80119C00004 from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The authors are solely responsible for this report's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this report as an official position of AHRQ or of the U.S. Department of Health and Human Services. None of the authors has any affiliation or financial involvement that conflicts with the material presented in this report. [View AHRQ Disclaimers](#)*