

In One Ear and Out the Other: Communication Barriers as a Risk Factor for Critical Incidents

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There have been myriad improvements in the care of critically ill patients as intensive care medicine has developed as a specialty over the past 50 yr. Yet the increasing complexity of processes and medical conditions encountered in a typical intensive care unit (ICU) makes patients increasingly vulnerable to errors of care.

The occurrence of "adverse events" or "critical incidents," situations in which injuries or near-injuries are caused by medical management rather than the patient's underlying disease (1), has become an urgent issue in intensive care in recent years. The problem, acknowledged in the United States through the publication of "To Err is Human" (2) and in Europe through the Sentinel Events Evaluation (3), has led to a surge in quality assurance initiatives worldwide.

Yet despite heightened awareness and activity, critical incidents continue to occur on a regular basis. In the multinational Sentinel Events Evaluation study, a 24-h cross-sectional evaluation of incidents by the Research Group on Quality Improvement of the European Society of Intensive Care Medicine, about 38 events were observed per 100 patient days (4). Although nearly 19% of the affected events in the study were associated with the prescription of drugs, there are many more potential causes of errors in the ICU.

In this issue of *Anesthesia & Analgesia*, Drs. Kroll and Maher present a striking example of a critical incident involving a diabetic patient whose blood glucose was mismanaged through reliance on a bedside glucometer (5). The case raises a number of important questions about the care of critically ill patients:

1. What are the risks of point-of-care laboratory monitoring?
2. How can we ensure that ICUs are aware of product interactions?
3. What are the risks of tight blood glucose control?
4. How can we best monitor cerebral function in sedated patients?

Perhaps the most important issue highlighted by the case, however, is that of communication. What can we do to ensure that we get the information we need in order to care for our patients? And how can we ensure that communication functions over the multiple interfaces that are built into the patient care process today?

THE CASE

The patient in the current case developed severe hypoglycemia because her blood glucose was measured with a point-of-care device which was not suitable for her situation. The patient, who had end-stage renal disease, was taking a peritoneal dialysate containing icodextrin, which is metabolized to maltose, and which can lead to falsely elevated capillary blood glucose measurements with this type of point-of-care device. The patient herself questioned the accuracy of the measurements provided by two hospital glucometers, leading to an initial measurement by the hospital's central laboratory. Kroll and Maher note that "At the time of transfer of care to the PACU, the necessity of ascertaining blood glucose levels by

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Accepted for publication March 6, 2007.

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DOI: 10.1213/01.ane.0000264080.34899.86

central laboratory determination was communicated verbally to the PACU nurse and the surgical resident involved with the patient's care, and in writing on the PACU order form." Somehow, however, this crucial piece of information was lost during the transfer at night to the surgical ICU, with catastrophic consequences. Was the ultimate problem a lack of attentiveness, a lost piece of paper, or the workload of the night staff? We do not know the details.

The patient might have survived if someone working in the ICU had been aware of the interference of icodextrin with blood glucose measurements. At least 12 publications have described this problem, the first apparently in 1998 (6). Most of these articles appeared in specialist journals, however. And although mainstream journals like *Anesthesia & Analgesia* reach a broader audience, it is no secret that physicians just do not have time to read all the journal articles and product inserts that deal with the thousands of drugs and devices available today.

The staff treating the patient in this case followed their ICU's tight glycemic control protocol. Unfortunately for the patient, the staff did not have the information they needed to make a decision about administering insulin. During the preoperative evaluation, the patient herself alerted her caregivers to the fact that her blood glucose levels were insufficient. While she was awake, she was a competent promoter of her own health needs. But how can we clinically recognize such a problem if the patient is sedated, or over-sedated? Is it helpful, or realistic, to stop sedation every 1–2 h to make sure that there is no new cerebral pathology or treatment complication? In this case, by the time the surgical team convened in the morning to examine the patient she was comatose.

WHAT IS BEING DONE TO REDUCE THE OCCURRENCE OF CRITICAL INCIDENTS?

Much is being done to address the issue. First, we are acknowledging that patient safety is a problem in ICUs. Publications like the current case report raise

our awareness of potential complications. Although admitting our failures is difficult, this information is necessary for preventing further adverse events.

Second, we are developing plans for responding to critical incidents. Interdisciplinary groups of health care professionals, such as that of the Harvard teaching hospitals, are working together to determine how best to serve the needs of patients who are threatened or injured by adverse events (1).

Third, hospitals are designing quality assurance guidelines and hiring the staff to implement them. And health care organizations from various disciplines are joining together to prevent medical errors through initiatives like the Institute for Healthcare Improvement's Five Million Lives campaign (7).

Fourth, we are using technology to improve the reliability, accessibility, and stability of our information. With electronic medical records, a patient's history can be accessed from various areas of the hospital. Decision support computer systems help nurses and physicians keep track of all the variables associated with a patient's treatment. Alerts for needed laboratory tests and drug interactions are being built into our patient data management systems. Computer-based checklists and protocols are being used to standardize patient treatments. A new generation of point-of-care devices will have alerts built in to LCD displays.

And we are finally beginning to acknowledge the importance of **communication** by including it as a subject in medical school and continuing education curricula (8).

IS IT ENOUGH?

These efforts are beginning to reduce the occurrence of medical errors. They are a big step in the right direction. But are we ignoring a larger problem as we go about solving the smaller ones? Do we have a system error?

Many readers will be familiar with the **game "Telephone."** A large group of people sit together in a circle. One person whispers a sentence into the ear of

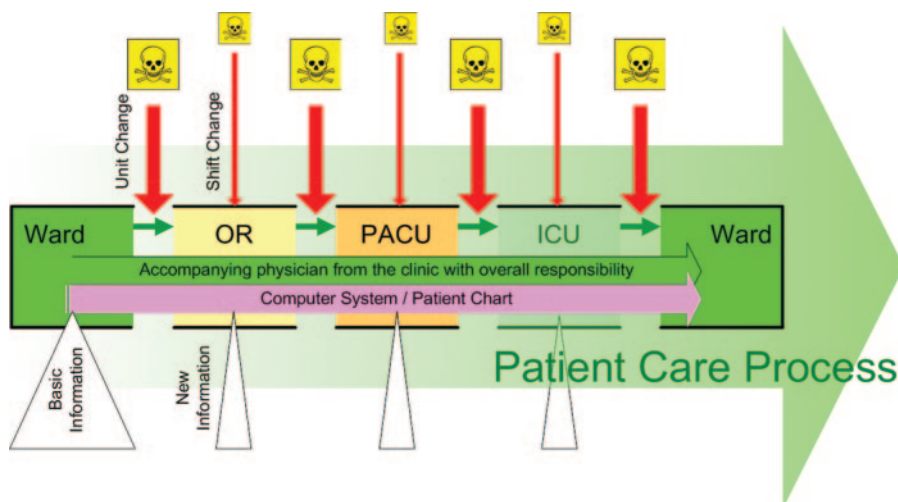


Figure 1. Barriers compromising ICU care. The patient care process is complicated by multiple interfaces (unit and shift changes), with the risk of essential information loss. An optimal set-up would include an uninterrupted flow of information, no walls between the units, a well-functioning chart system, and an accompanying physician with overall responsibility. OR = operating room, PACU = post-anesthesia care unit, ICU = intensive care unit.

the person to the right. That person communicates the information to the next person to the right. The information travels around the circle, each member passing along what he hears. Often, when the final member of the circle recites the phrase aloud, it is no longer recognizable.

Like a phrase that enters one ear and goes out another, transformed by the level of understanding of each phrase-bearer, our patients travel from station to station in our institutions, risking transformation at every interface.

Multiple interfaces are common in the patient care process. Personnel and units are highly specialized, continuity of care is interrupted when shifts change, and a patient typically travels between wards, rooms, and teams. Within 24 h, a single patient might pass through seven interfaces that include starting in the ward, being treated in the operating room, postanesthesia care unit and ICU, and returning to the ward (Fig. 1). Every wall is a potential barrier to patient care. Every patient handover requires a transfer of information, and when that information is lost or miscommunicated, errors are likely to occur.

Today's patient care process is filled with walls. In addition to designing initiatives to treat problems within the walls of our ICUs, we should be considering how we can eliminate those walls, literally or figuratively, so that information can circulate.

Can we reduce the number of patient handovers by providing various levels of care (postanesthesia care unit, ICU, Intermediate Care) in the same room? Or perhaps a single person should be responsible for the patient as he travels through various departments, an approach used by anesthesiologists treating victims of terrorist bombings in Israel (9).

In addition to overcoming physical barriers, we need to conquer mental ones. We need to discuss our cases with our junior coworkers, invite treating specialists to attend rounds in our closed ICUs, take advantage of the knowledge possessed by people in other disciplines, and do more than file the information in our patients' files. To prevent errors, we need to communicate. Even if we are professionals with

considerable education and experience, we should never assume that we know everything; the patient, the hospital laboratory, the night nurse, or a family member may have a crucial piece of information that we do not have.

No one—not us, not our patients, not our families, not our employers—is happy when we make mistakes. Critical incidents can have serious consequences, as in the case presented here. Ultimately, however, our goal is to learn from our errors. Every time we admit a patient to the ICU, or send one to another department, we need to evaluate the quality of our communication, and to eliminate all barriers. We cannot afford to let information about a patient go in one ear and out the other; it should be available when we need it, where we need it: In our heads!

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