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PATIENT SAFETY NETWORK

On O.R. Off?

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The Case

An elderly man was admitted to the vascular surgery service with rest pain in his leg. Angiography demonstrated peripheral artery disease with anatomy suitable for revascularization. A consulting cardiologist recommended a stress echocardiogram to evaluate the patient's risk for surgery. While awaiting those results, the vascular surgery service tentatively scheduled the patient for surgery the next morning after obtaining informed consent. Shortly after making their decision, the surgeons learned that the stress echocardiogram showed marked abnormalities warranting a cardiac catheterization and delay of surgery. The surgeons contacted the operating room and informed them that the case was canceled. When the team rounded on the patient later that evening, he was asleep, so the surgeons chose to defer their discussion of the new course of action with him until the morning. The surgeons documented the change of plans in the patient's chart, but failed to inform the nursing staff. The patient remained "NPO" overnight in anticipation of the cardiac catheterization. Due to unexplained events, the operation was not canceled on the schedule.

The next morning the patient was taken to the OR holding area as the first case of the day. Meanwhile, the vascular surgery team rounded on the patient only to discover him missing from his bed. They assumed he was undergoing cardiac catheterization. Due to time restrictions and the desire to start promptly, staff did not ask surgeons to mark the operative site in the holding area outside the OR. The patient was taken to the operating room, intubated, and given a general anesthetic. When the OR staff contacted the vascular surgeon to start the case, he stated that it had been canceled. The patient awakened without event and suffered no adverse consequences from the error. Cardiac catheterization and peripheral arterial bypass surgery were later completed successfully.

The Commentary

Five years ago, the Institute of Medicine's landmark report on medical errors raised national awareness about the scope of the epidemic. However, common clinical failures that put patients and providers at risk continue to exist. Sadly, this case will not sound unfamiliar to many providers: a complex process of care,

multiple communication failures, and numerous lapses in basic safety procedures. These represent common and recurrent elements in unanticipated adverse events.(1) As a practicing anesthesiologist, I have had the wrong patient brought to the operating room for surgery, not once, but twice in the same day! Additionally, a colleague related the story of a patient whose coronary bypass operation was canceled, but showed up at the hospital "on schedule" to have his operation. The patient managed to make it all the way through admissions, pre-op and into the OR, where he received an arterial line and a pulmonary artery catheter. The mistake was discovered only when the surgeon was called to start the operation—thankfully before the induction of general anesthesia.

Let's examine the multiple processes that failed for this patient, leading to him being mistakenly anesthetized in the operating room.

Walking through a Series of Mishaps

First and foremost in this case, there was a fundamental lack of patient involvement or informed process. The patient was determined to be at significant cardiac risk, precluding surgery and requiring further evaluation, but appropriate communication never occurred. The surgeons obtained informed consent for the surgery, but failed to inform the patient of the cancellation. What about communication with other family members? If the patient and/or family had been actively engaged during the care process, this error would have been prevented. To echo the mantra of patient-centered care, "Nothing about me without me."(2)

Second, the role played by the cardiology consultant illustrates another missed intervention opportunity. Cardiologists are frequently asked to evaluate cardiac risk for patients undergoing peripheral vascular bypass. Based on risk stratification, subsequent testing is often required to guide peri-operative management. In certain cases, such test results will lead to delay, or even cancellation, of surgery. In this case, the cardiologist likely estimated a high risk for coronary disease (given the existing peripheral artery disease) and recommended a stress echocardiogram. Despite the concerning findings and the decision to pursue cardiac catheterization, the type of communication that ensued is unclear. Most physicians and nurses may recall similar scenarios in which crucial test results, recommendations, and plans are "discussed" only through the chart. This case illustrates the importance of active communication. A simple call from the cardiologist to the surgeon—saying, "We need to cath this guy tomorrow"—would have prevented the subsequent events.

Think for a moment about the gravity of the clinical changes: surgery was canceled and a coronary angiogram scheduled, all while the patient remained symptomatic. How remarkable, then, that neither the patient, the nurse caring for the patient, nor the OR staff was informed of the change in plans, a dearth of communication that allowed the "error chain"—a series of mistakes linked together—to remain intact.(3) This type of miscommunication—or more accurately, lack of communication—runs counter to the dynamic of team-based care. The care process here favors "action" despite clear and compelling reasons to hold-off. Overall, this lack of response and documentation in the face of important clinical changes can likely be attributed to a "normalization of deviance," where shortcuts and other activities that are inherently risky are considered acceptable because "we've never had a problem."(4) The fact that the patient remained NPO reinforced the concept that he was having the surgery.

Third, we turn to the role of the surgical team, which attempted to cancel the case—attempts that failed both in the operating room and on the surgical ward. Due to the error, what is arguably the most expensive resource in the hospital (a fully-manned operating theater) remained poised for a canceled procedure. Holding onto available OR time in order not to lose access "normalizes" the practice of cases being changed around frequently. This leads to greater challenges in catching the mistake, and the lack of predictability makes it harder to detect errors. As the plan of care changed, multiple caregivers were acting the same roles but appeared to be acting in different movies. Health care delivery represents such a complex and dynamic process that simple but regimented communication mechanisms play a critical role in keeping "everyone on the same page," especially in the face of changing dynamics.

Finally, we see a system primed for speed more than safety. For instance, although site marking is required by JCAHO and advocated as a standard of care by professional surgical societies, this crucial step failed to occur due to time-saving efforts. Site marking is one tool to prevent communication mishaps. Along similar lines, this patient received preparations for surgery prior to the arrival of the operating surgeon. Once again, the motivation behind the ragged process revolved around time-saving goals. The tendency to take shortcuts and save time is a very human one, but it also increases the risk of a mistake.(4) If providers are routinely taking shortcuts and doing "adaptive work" to provide the best care, then the care process needs to be examined and quite likely re-designed. Safeguards, like briefings, can be very time efficient investments, as they dramatically reduce the frequency of getting in the middle of an operation or procedure and discovering the necessary equipment or personnel are not available.

The ideal process to have prevented this error would have been a clear model of communication with patient and his family as to what the plan of care was, telling the nurses what to expect, clearly telling the operating room when the case had been canceled, and not taking a patient into surgery until the surgeon has been present in the operating room and seen the patient. The difficulty here is that the rules seemed quite variable, and the practice of keeping the OR time invites mistakes. Lack of predictability greatly increases the risk of mistakes.

Typically, when a surgical case is "booked," orders are written in the patient's chart on the ward, the OR desk is consulted (often verbally), and consent is obtained from the patient. The system is now primed for action. Given the dynamic, ever-changing nature of patient care, basic communication mechanisms can keep everyone on the same page. A structured process for adding and canceling cases with the OR would have confirmed the cancellation, and ideally notified the surgical floor. That's a reliable system fix. If the surgical team and the nurses on the ward had spent 5 minutes briefly discussing the plan for each patient that day, everyone would have known the surgery had been canceled, and the patient would have never gone to the operating room. When the anesthesiologists were presented with a patient with severe cardiac risk, communication between the two groups would have quickly caught the error. In the OR area, a short briefing prior to induction of anesthesia between the team members would have caught the problem also. The combination of a reliable scheduling system along with structured communication to keep the team aware of the plan of care would have provided many opportunities to preclude what happened.

Conclusion

This error was the result of a complex system with multiple communication failures, which is how most medical mistakes happen. No one had the big picture of what was supposed to happen. Many things had to go wrong for all these mistakes (ie, the "holes in the This error was the result of a complex system with multiple communication failures, which is how most medical mistakes happen. No one had the big picture of what was supposed to happen. Many things had to go wrong for all these mistakes (ie, the "holes in the Swiss cheese") to line up.(5) Given the complexity of medical care, the combination of effective communication, teamwork, and reliable systems of care are essential to providing safe and high-quality care.

As we mark the five-year anniversary of the IOM report, an opportunity to reflect on our progress in reducing medical errors exists.(6) My feeling is that we must aim to transform medicine from a culture of the expert provider to one of a team-based model of care. This takes time. Many organizations are adopting a strategy to promote pre- and post-procedure briefings to ensure everyone "stays in the same movie" as we provide patient care, the use of critical language to "stop the line" when there is a concern, and the promotion of situational awareness, where all the team members know what is going to happen and what to expect.(7) Most critically, medicine is moving toward the realization that some basic safety procedures cannot be optional—they simply must become integral parts of medical citizenship.

Take-Home Points

- Actively engage patients and their families about their care. They're the most invested in "getting things right," so use them to partner in delivering safe and quality care.
- Use effective and active communication with members of a surgical team (or any service) when planning procedures based on contingencies.
- Engage in formal mechanisms for communicating changes in patient plans: orders, checklists, and briefings, including notification of relevant providers (eg, nursing staff or OR staff).
- Consider specific processes with double checks for adding or canceling cases in the operating room as these mistakes can be costly and dangerous.

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