

Acknowledging the Limits of Individual Competence

Surgeons must know their clinical strengths and weaknesses in order to improve their skills and increase patient safety.

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Mark Twain said that to be a physician requires the right combination of confidence and ignorance. The confidence part of the combination grounds one of the more important aspects of medical care—providing reassurance. Such reassurance is needed by both the "worried-well" and by those with serious illnesses that need complex care. Surgeons often must maintain their confidence in the face of uncertainties. Though uncertainties result from many factors, this essay focuses on uncertainty that arises from limitations in the surgeon's knowledge or judgment. Specifically, it examines the challenge of recognizing and acknowledging these limitations. Put succinctly, it is difficult to know the limits of your own knowledge and gain insight into why you cannot recognize situations for what they are.

The last several decades have seen a substantial increase in the understanding of learning and error and how they affect human performance [1]. A key feature of human learning is that competence can be represented as a progression through stages of competence and is not a discrete state, the opposite of which is incompetence. Experts are distinguished from those with lesser degrees of competence by the number and complexity of rules they use to evaluate and solve problems. Acquiring the knowledge that forms the basis of these rules and the skills of increasing competence requires "deliberate practice" [2]. Errors are more likely to occur when, regardless of their level of competence, individuals attempt to deal with new or unusual situations. In the face of uncertainty, the tendency is to cling to one's initial hypothesis often in the face of astoundingly contradictory information. This tendency is known as confirmation bias. Stated another way, believing is seeing [3].

Another limitation of competence results from the complexity of health care delivery. One cause of this complexity is the fact that the average physician now interacts with 16 other health care individuals; in 1900, that number was 3. Moreover, each of these 17 individuals tends to play an increasingly critical role in overall care. As a result, health care outcomes are now as much a function of the system of care as they are of individual physician care, and the increasing numbers of involved individuals makes it easier for errors to occur in the system.

The need for surgeons to acquire the relevant knowledge and skills is self-evident; the socialization into medical practice, however, often intimidates individuals into hiding or ignoring their deficits—no one wants to be a weak link. As a result, surgeons may perform tasks using less than optimal processes. But even sub-optimal processes may achieve successful outcomes, and when they do succeed, they may be reinforced. This is particularly troublesome because it runs counter to a surgeon's ethical obligations to patients, other members of the health care team, and to society to teach safe and effective techniques to future generations [4]. When errors do result from sub-optimal individual or systemic process, they often are compounded by failure to disclose. This problem is reflected in surveys of patients' and physicians' attitudes toward the disclosure of medical errors. The disparity identified in these surveys suggests that physicians may not be providing the information or emotional support that patients involved in medical error need and deserve [5].

Accordingly, we should acknowledge that: (1) errors cannot entirely be avoided (ie, to err is human), and (2) efforts to minimize errors must address the systemic causes. Indeed, the observed relationship between volume and outcomes that have been noted for certain complex surgical procedures [6] already suggest some features of better systems of

care. For example, better outcomes for some procedures are more closely correlated to hospital volume than to surgery volume.

One key to improving the systems of care is for surgeons to change their roles from that of autonomous, authoritarian captain of the ship to that of leader of the team. As a leader, the surgeon must ensure that all team members have situational awareness, increasing the probability that errors will be quickly spotted and providing the team with an opportunity to recover (ie, prevent error from causing an adverse outcome). Optimizing situational awareness requires that each team member be willing to communicate his or her concerns and uncertainties to the team leader. In turn, the team leader must recognize such communications as an opportunity for team learning.

The importance of teamwork in the operating room is demonstrated by a study of learning minimally invasive cardiac surgery [7]. Fast-learning teams were characterized by members who had worked together in the past, were together in the early learning phase before new members were added, scheduled procedures in close succession, discussed each case before and after, and carefully analyzed the results. Faster learning occurred even when the surgeons on these teams were not as technically adept as those on slower learning teams.

Such findings suggest 2 ways of improving care. First, surgeons and other health care team members must be willing to acknowledge their shortcomings. Only then will they be able to practice the appropriate processes and achieve better outcomes. Given the increasing pressures on faculty time, simulators may play an important role here by providing opportunities for deliberate practice. The key word is *deliberate* because it emphasizes that practice focuses on specific weaknesses and aims at specific improvements. Second, surgeons must recognize the importance of systems of care and understand that the team concept is essential for optimal care. If surgeons continue to dwell excessively on their personal responsibility and the potential legal consequences, they will remain reluctant to engage in appropriate practice changes and improvements to the health care systems in which they operate.

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