



# Error reduction through team leadership:

## Seven principles of CRM applied to surgery

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**Authors' note:** *This is the second in a series of articles the authors have prepared for publication in the Bulletin, focusing on how the crew resource management (CRM) training techniques used in aviation may be applied in surgery and health care leadership. In the first article of the series (Bull Am Coll Surg. 2006;91(2):10-15), we presented the basic concepts of CRM training and its possible applications in the operating room. In this article, we focus on the seven principles for leading high-performance teams.*

CRM training centers on the following seven skills that leaders of high-performance teams should possess: (1) command, (2) leadership, (3) communication, (4) situational awareness, (5) workload management, (6) resource management, and (7) decision making. This article provides details about why these competen-

cies are important in directing a group of other very knowledgeable professionals and how these abilities may be acquired and applied.

### **Command**

The concept of command should be addressed first to dispel any misconceptions that CRM in health care leadership would have a weakening effect on surgeons' authority in the operating room. An individual takes command whenever exercising the duties of a team leader. So although health care leadership does empower all team members to offer their input, only one person has the final authority and makes the judgment calls.

Once the leader chooses a course of action, his or her next responsibility is to get the team to rally around the decision. At the same time, individuals who take command in health care leadership situations also must be willing to assume

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responsibility and accountability for their team's actions. The team should view them as the final authorities, and they should ensure that all of the colleagues' efforts are coordinated to provide maximum efficacy.

### **Leadership**

Leadership is probably the broadest and most complex element of CRM. Leaders allow team members to exercise their rights, obligations, and responsibilities as appropriate for ensuring a safe, efficient, and successful outcome. Leaders maintain a team climate and provide an atmosphere that is conducive to open communication. Leaders act as mentors, teaching fellow team members the unwritten "tricks of the trade," in terms of conducting a procedure and of understanding the institutional culture. Leaders are professional. They expect excellence from themselves and from the rest of the team. Strong leaders also recognize that conflict often is healthy and can breed better outcomes. However, they also manage and resolve disagreements before they fester into destructive arguments.

### **Communication**

Effective communication is the single most important component of health care leadership. A surgeon can have the best diagnostic skills, finely tuned situational awareness, advanced equipment, and excellent decision-making abilities, but without the ability to effectively communicate, all these other attributes are rendered useless in health care leadership.

Communication is the glue that holds teams together. When high-performance groups interact effectively, everything else just naturally falls into place. Teams that fail to communicate are assured negative results.

Communication in health care leadership is best described as the effective and timely exchange of ideas, information, and instruction. Such interactions ensure that messages are clearly received and understood, are two-way, and benefit all involved parties.

The exchange must occur in a timely and effective way to ensure a positive outcome. For example, if during the dissection of the deep lobe of the parotid gland for a recurrent tumor, the assistant notices that the surgeon is about to cut a main

branch of the facial nerve, he or she should issue an assertive and confident warning. For example, saying, "Stop! I believe that is the nerve," would be more effective than saying, "Shouldn't we be trying to identify the branches of the nerve?"

Methods of ensuring clear communication include the following:

- Inquiry: Using questions to ensure a meeting of the minds
- Advocacy: Tactfully and effectively making a point.

Skillful communicators also recognize the barriers to communication. Barriers to communication include steep hierarchies, fatigue, stress, cultural differences, and many other complications. Almost without exception, studies of the human factors related to adverse events prove communication failure to be a causal factor.

### **Situational awareness**

Situational awareness is defined as an understanding of what is happening in the surrounding environment and why. It may seem that this is an obvious statement, but the fact is, no one is omniscient. An effective leader relies on the team to promote situational awareness through effective communication about what is occurring.

A key to situational awareness is reviewing the past and using that knowledge to draw conclusions about the present scenario. Individuals who have situational awareness go on to monitor the current circumstances, accurately predict what's likely to happen next, and prepare the team for the anticipated outcome.

### **Workload management**

Workload management involves organizing tasks in such a way that the workload is equitably distributed among the team members. An effective team is ready for any contingency and prevents any individuals from becoming overwhelmed while others have too few tasks. Effective team leaders "plan the work and work the plan." A comprehensive briefing before a procedure ensures everyone is doing the right job at the right time, and effective communication and situational awareness throughout the procedure allow everyone to stay on task. Effective leaders also know how to delegate to make certain neither they nor anyone else on the team is overtaxed.

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### **Resource management**

Resource management is the optimal use of all available information and other forms of internal and external forms of assistance available to the team. Like workload management, it calls for making maximal use of what is available to create a positive outcome.

During the preoperative briefing, the team should spend some time discussing potential needs and identifying the resources available to satisfy those demands. If a resource is not immediately available, the team should determine how to access it. The team leader should think ahead about which resources will be of greatest necessity and make sure that the people using the instruments understand their functions and how to apply them.

### **Decision making**

Decision making is the process of determining and implementing a course of action and evaluating the outcome. If communication is the glue that holds a team together, good decision making is the desired end product of health care leadership.

Following are three approaches to decision making, each having its place and its advantages and disadvantages:

- Collaborative: The democratic method under which every person has a final say. Leaders of high-performance teams are strongly discouraged from using this approach.
- Unilateral: One person makes the decisions. This method is fast and effective, but problems could arise if the team is not fully trained to step in should something prevent the leader from completing the mission.
- Consultative: The leader establishes a collegial rapport with the team members and captures their collective wisdom. The leader must know when and how to stop gathering data and avoid letting perfection be the enemy of good.

Ultimately, we have found that the consultative approach is most effective in coordinating high-performance teams of intelligent, skilled professionals.

### **Conclusion**

The seven principles of CRM can be applied effectively in health care leadership. The proper and careful application of these concepts

will ensure that the surgeons effectively lead surgical teams in the provision of high-quality care. Ω

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