QMP's Plastic Surgery Pulse News

Crew Resource Management in Plastic Surgery: Lessons From Aviation

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I recently mentioned CRM to a friend who works in the automobile industry. "Yes, consumer relationship management is very important in our business," he replied without hesitation. Now if I had mentioned CRM to a pilot, he would immediately have known that I was talking about *crew resource management,* the concept of maximizing effectiveness and safety by optimal utilization of all available resources of a team, especially the human factor (Fig. 1).

In aviation, the need to manage crew resources was recognized long ago as a key factor for flight safety. Indeed, the airline industry considers CRM one of the most effective safety programs ever launched. In fact, safety is *the* most critical point for the survival not only of the passengers, but of the entire industry. Ask yourself if you would ever board an airplane if there was a 1% chance of getting into a crash because of human error. The most likely answer is "absolutely not." Yet this is the approximate risk one encounters when undergoing surgery.[1]

Every year in the United States, 100,000 avoidable deaths occur as a result of human error associated with surgery.[2,3] Unfortunately, these deaths and the human tragedies these engender somehow always seem to have been accepted as unavoidable. But these deaths are not fated. Transposed to aviation, this death rate corresponds to one Boeing 747 crash every day of the year. Imagine what this would mean to the airline industry. Soon there would be no airplanes, and no pilots!

For aviation and its regulators, CRM training has become an absolute must. It completes the training for combining the technical knowledge and skills to operate an aircraft with the mental processes used for ensuring safety of the operations: communication, situational awareness, stress management, interpersonal interactions, and teamwork, among other factors. Annual training programs with these issues as goals are mandatory for commercial pilots worldwide as well as in most air forces (Fig. 2).

The fact that, in an airplane, the pilot is physically threatened in the same way the passengers are may explain why safety measures such as CRM are better accepted and implemented in aviation than in medicine.

A surgery team works much like a cockpit crew in an airplane does, requiring teamwork, communication, and interaction (Fig. 3). Therefore it seems reasonable that what works for them should work for us. What is the difference, then, between the cultures in aviation and surgery? What can we learn from them?

It may be an interesting intellectual exercise for us to think of ourselves as pilots sitting in the same aircraft as our patient whenever we make a decision concerning his or her safety. Would we make the same decision if it would cause us to "crash" along with the patient if the decision is wrong?

Medicine has a tremendous room for improvement on the cultural side. The culture of aviation is characterized by three closely linked key elements:

1. Briefing and debriefing
2. Working with checklists
3. Dealing with errors

Briefing and Debriefing

Every mission is preceded by a structured briefing to set every member of the team on the same level about actions to take, the manner in which to do them, and likely contingencies. An important part of a briefing is encouraging all team members to speak up if they are uncomfortable with or feel unsafe with any part of the mission.

In plastic surgery, a preoperative briefing should include such questions as: Who is the patient? What is her or his condition? Which side do we operate on? Are all of the necessary materials, such as implants, available? Does anyone have any doubts concerning the operation?

The debriefing is just as important. It can be very short, but it should answer specific questions: What did we do well? What could we have done better? What lessons can we learn?

In plastic surgery, the debriefing can also be a moment to reflect with staff on why an operation went well and what set of circumstances contributed to the effectiveness of the procedure. In doing this, the entire staff can achieve a sense of accomplishment rather than being preoccupied with the fault-based thinking so common in hospital settings.

Working With Checklists

If used correctly, checklists are a powerful safety tool. They not only list what to do, they are also a structured way to verify whether a correct action was taken. For routine actions, checklists are an important safety element, but for extraordinary situations, checklists may be indispensable for the patient's survival. To be used to their best potential, checklists must be

designed in a way that allows them to be used consistently.

Dealing With Errors
Dealing with errors is probably the most important cultural factor that we as surgeons need to address. Determining *what* is wrong is much more important than determining *who* is wrong.

Surprisingly, though, medicine, which deals with humans, has thus far given much less attention to human factors than aviation has, which deals with machines. Recognizing that humans make errors means recognizing also that a surgeon can err, as can any member of a team. If an error happens, the effort must not be to punish its author, but to learn how to avoid the error in the future. When a corrective course is found, it has to reach everyone who could be put in the same situation.

Critical incidence reporting systems (CIRS) have started to become available to health practitioners, but they can only work effectively if the reporting person does not have to fear consequences of the reporting. This may also mean protecting the reports from legal discovery. Ideally, a CIRS should not contain any "crashes" but only "near misses."

Creating a Culture
Changes that lead surgeons to a culture similar to that of aviation will not happen by themselves. They require will, and therefore leadership. For those of us working in a teaching environment, leadership starts with transmitting this new culture of safety to our residents. At hospitals, CRM should be led by physicians, not left to hospital management to administer. We must set the rules ourselves before the regulatory authorities do. In offices, surgeons are directly responsible for the culture of safety, in which CRM plays a crucial part.

CRM courses are available from a number of sources. They cost time and money, but the effort will pay dividends immediately, as documented in many studies. Fewer errors means less waste, less waiting time, and fewer secondary (free) procedures. Staff satisfaction reduces turnover. All these contributions to operational excellence will produce better patient satisfaction. And ultimately, they will allow us to deliver our services at a lower cost and thus give us a competitive advantage in challenging economic times.

CRM should not be considered a stand-alone issue, because it is part of a process-oriented approach to our industry. In my own practice I consider time management crucial in the daily routine. I feel that the quality of my medical work is reduced when I am under time pressure. When I am behind schedule, I may speed up the next consultation. Without doubt, the patient notices this and may think that I am so stressed that he or she should look for another surgeon. Or perhaps the last postoperative hematoma one of my patients had occurred because I was an hour late and thus may not have been as meticulous as required with hemostasis. Because of these effects, I must make every effort to avoid being late. All processes affecting my schedule therefore must constantly be reviewed and improved. To this end, suggestions for continuous improvement from any involved staff members should be encouraged and followed.

Technical tools that manage patient calls and appointments are useful, but, considering the risks, a culture that allows my receptionist to keep me from taking an unnecessary phone call when I am late or that allows my scrub nurse to openly tell me that she thinks a wound is still bleeding too much is of even greater importance.

CRM is closely linked with other quality measures, such as a process-oriented certified quality management system. For example, ANSI/ISO 9000 is a useful tool that can be applied in a plastic surgery office. Processes can be improved; team members can be encouraged to speak up. Errors can be eliminated without someone having to be afraid of punishment.

Although my friend in the automobile industry thought I was talking about customer relationship management rather than crew resource management, CRM will also improve our customer relations. By applying CRM in our daily work, we provide our patients with what they as clients are most interested in: optimal safety and operational excellence.

Key messages for plastic surgeons:

- CRM works.
- CRM programs are available and should be encouraged in offices and hospitals.
- CRM is a perfect example of our first rule of doing no harm (*primum non nocere*).
- CRM should be included in a process-oriented approach like other quality and safety measures.
- Better safety is directly related to better cost effectiveness.
- A surgeon should use critical incidence reporting systems, both as a provider and as a reader.
- It is beneficial to think of yourself as a pilot sitting in the same aircraft as your patient. To get back to earth safely, both must survive the operation.

References

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PHOTOS

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