

Applying aviation safety techniques in medicine

by Lesley Viner, MS

In 2007, the TMLT Risk Management Department offered policyholders an innovative aviation-based CME series entitled “Soaring Over the Safety and Quality Chasm: Using Teamwork and Communication to Reduce Medical Liability Risk and Improve Performance.” This article will summarize the content discussed in the 2007 program as well as offer additional insight from the speaker, Steven Montague, pilot and vice president of LifeWings Partners.

Can you tell me briefly about the recent history of the aviation safety movement? What have been the results/outcomes?

“In 1979, NASA convened a workshop on airline safety, the outgrowth of which was one important piece of data and a direct challenge. The data showed that 70% of airline accidents were due to human error in a team setting. The airlines were asked how to address this threat, and they were challenged to move forward and fix the problem. The resulting solution, known as Crew Resource Management (CRM), began to take on a life of its own. The results of this intervention can best be summarized by stating that one fatality has been experienced by a major U.S. commercial airline since 2001.

Desiring others to benefit from lessons learned, the airlines shared their experiences openly. LifeWings believes in this type of collaboration and works to facilitate the sharing of best practices between health care professionals and institutions.”

What does aviation safety have to do with medicine?

“Physicians and pilots both work in closely scrutinized environments with high degrees of interdependency on other professionals and agencies. The workplace is stressful, complex, and demands quick decision-making abilities that can often lead to potentially catastrophic outcomes. Also, just as aviators must often form a team in 90 seconds or less, clinicians are often called upon to quickly create an effective team with complete strangers comprising a wide variability in experience and qualification.

While there are significant differences between health care and aviation, these similarities provide a very good fit for many of the strategies that have proven successful in aviation and other high reliability organizations.”

What specific techniques/strategies can physicians use?

“Physicians can benefit from utilizing a ‘huddle’ technique when teams come together to provide care to a patient. During these huddle sessions, physicians should articulate goals, assess team member capabilities and concerns, clarify roles and responsibilities, discuss likely contingencies that may arise, and create an atmosphere of open communication. These huddle sessions, when approached with structure and adequate training, can be accomplished in as little as one minute and result in increased efficiencies and better processes.

Physicians can also leverage their expertise, critical thinking, and team awareness when making decisions by engaging in well-designed processes that ensure the best decisions are made.”

In your opinion, what are physicians’ weakest areas when it comes to patient safety? Where does the most work need to be done?

“As is often the case, their greatest strength is their greatest weakness. Doctors are intelligent, dedicated, compassionate people who are trained to never make a mistake. This is very similar to the expectations that pilots place on themselves, and it’s unrealistic. Further, because of the systems in which both practice their professions, they may be technically perfect and still have an undesirable outcome simply because of the errors of others, latent errors in the system, or other unanticipated events.

Changing the paradigm to one that is inclusive of this reality allows for and encourages a layering of team management skills over technical skills to facilitate further reduction of untoward outcomes. Strengthening the systems used by hospitals, physicians, nurses, and their teams is where most of the work needs to be done to improve patient safety and provide reliable care.”



Do you find that physicians are hesitant to adopt aviation safety techniques in medicine? If so, why the reluctance?

“Many physicians are indeed hesitant in the beginning. Logically, physicians should be skeptical of ‘new’ procedures and techniques and scrutinize these ideas and concepts on behalf of their patients. Once physicians understand the skills and techniques used in CRM and comprehend the tremendous impact they have had on the safety of high reliability organizations (like commercial aviation), they often find that the concepts are not so radical at all. In fact, the skills and behaviors advocated by LifeWings are simple-to-understand, common-sense techniques that require persistence and flexibility. The benefits of hardwiring these changes permanently into their systems far outweigh any concerns that CRM might just be another ‘flavor of the month’ effort.”

If an office-based physician can only adopt one aviation-based patient safety technique, what should it be?

“It should really be a change in outlook to expect error. Dr. James Reason argues in his work that the physicians with the best outcomes were not necessarily the ones with the greatest skill. They were the ones who expected adverse events and put into place systems to trap and mitigate the impact of error. Physicians should look at their practice and evaluate how things could potentially go wrong, especially if the existing system is dependent upon one person being error free. Target those areas with focused solutions and systems to prevent an unwanted outcome. A couple of examples:

1. Implement a ‘hot box’ that houses a copy of all lab results that are critical and timed (24 hours), which are reviewed at a given time of day to ensure that results were received when expected. Tie that review to a fixed event that happens without fail every day.
2. Educate the patient (or parent in the case of children) on what you expect them to do to help the rest of the health care team deliver the optimum care/cure to the patient. In other words, engage the patient as a critical part of the health care team and encourage them to ask questions when something does not seem right.”

Steven Montague is Vice President for LifeWings Partners. With more than 26 years in aviation, Mr. Montague is an experienced facilitator of CRM-based patient safety programs. He has provided program implementation for several organizations including Texas Spine and Joint Hospital, University of Texas Medical Branch, Vanderbilt University Medical Center, Vassar Brothers Medical Center, and the University of California, Los Angeles.

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