Editor's Spotlight/Take 5

Editor's Spotlight/Take 5: Surgeons' Attitudes Are Associated With Reoperation and Readmission Rates

Seth S. Leopold MD

We have all seen the movie: Hotshot fighter pilot alienates those around him with his arrogance (and it is almost always a “him”), but wins victory after victory despite steep odds owing to his superior individual skills. Audiences seem never to tire of this trope.

Note from the Editor-In-Chief: In “Editor’s Spotlight,” one of our editors provides brief commentary on a paper we believe is especially important and worthy of general interest. Following the explanation of our choice, we present “Take Five,” in which the editor goes behind the discovery with a one-on-one interview with an author of the article featured in “Editor’s Spotlight.”

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This comment refers to the article available at: DOI: [10.1007/s11999-014-3687-6](https://doi.org/10.1007/s11999-014-3687-6).

As tragic heroes, the pilots in these films only belatedly discover the costs of their personality flaws. I suspect many “hotshot” surgeons (we all know some) likewise lack a certain capacity for introspection. But while the Hollywood storyline usually involves the ultimate sacrifice—the pilot himself in the classics, like John Wayne in *Flying Tigers*, John Guillermin’s *The Blue Max*, or someone close to the pilot, as in the Tom Cruise vehicle *Top Gun*—the same is not true where maverick surgeons are concerned. We do not pay for our lack of self-knowledge, our patients do.

Serious thinkers have concluded that surgery—like so many activities involving dangerous and complex systems—calls for effective teamwork [3]. As anyone who has played on a team knows, some personality types work better on teams than others. Hall-of-Fame basketball coach Red Auerbach is said to have preferred playing his “best five” rather

than his five best players; in other words, he felt an effective team beats a group of individual stars every time.

Here is the problem: Although we may share an intuitive sense that all this is true, we have no objective knowledge about how or whether strong personality types influence surgical results.

John Kadzielski MD (Fig. 1) and his team from Massachusetts seek to change that. They adapted several aviation psychology tools used to quantify hazardous attitudes in pilots (macho, impulsive, worry, resignation, self-confidence, and anti-authority), which the Federal Aviation Association (FAA) believes are incompatible with safe flight. Dr. Kadzielski and colleagues then used these tools to evaluate surgeons for the presence of these potentially hazardous attitudes. Finally, they correlated these attitudes with readmissions and reoperations after orthopaedic surgery. The study found that almost 20% of the observed variation in reoperations and readmission is associated with macho attitude alone [2]. In this same issue of *Clinical Orthopaedics and Related Research*®, using a larger sample, they found that these attitudes are present in nearly 40% of orthopaedic surgeons at a level

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that would be considered dangerously high in pilots [1].

A careful reader will identify shortcomings in these articles [1, 2]; surgeons are not pilots, and the questionnaires the investigators used have not been validated in surgeons. If you like, consider these articles conversation starters rather than definitive efforts. But as a specialty, we simply cannot afford to look away. These issues call out for our attention, and for further inquiry. Join me as I go behind the discovery with Dr. Kadzielski in the following "Take 5" interview.

Take Five Interview with John Kadzielski MD, first author of "Surgeons' Attitudes Are Associated With Reoperation and Readmission Rates"

Seth S. Leopold MD: *Congratulations on this fascinating work. How did you become interested in this unusual topic?*

John Kadzielski MD: I am an active private pilot and my undergraduate degree is in psychology. In previous research, I have investigated the impact of psychological factors in hand and upper extremity patients and their self-reported outcomes. As I advanced through my orthopaedic training, I experienced wide-ranging safety climates, levels of risk tolerance, and many different attitudes towards safety and safety

systems. It was a natural progression for me to bring my psychology, aviation, and research backgrounds together to quantify these factors and try to determine whether they affect patient care.

Dr. Leopold: *Most readers may have reservations about applying results from surveys whose tools have not been validated on the population surveyed. Why should surgeons have confidence in a study that employed a survey designed for assessing aviators, and what can you do in the future to increase confidence in this approach?*

Dr. Kadzielski: Maintaining a healthy level of skepticism and embracing one's own reservations regarding new areas of research and initial findings is very important. This is especially true, as in this case, when the instruments being used are not rigorously validated for the population in question. That being said, I would encourage people to view this initial body of work as a pilot project (no pun), and to consider the validity of the concepts being put forth rather than the rigorous validation of the instruments. The FAA incorporated hazardous-attitude training and mitigation techniques for all domestic pilot training based results from a group of college-aged drivers, not aviators.

Dr. Leopold: *How does the FAA use these sorts of surveys in practice? Specifically, do they consider the*

hazardous traits you studied (macho, impulsive, worry, resignation, self-confidence, and antiauthority) to be modifiable, and if so, how do they help the ability to improve? Do they consider these characteristics immutable parts of a professional's temperament by the time (s)he is fully trained, such that the right approach is not remediation, but rather removal from the field?

Dr. Kadzielski: The FAA mandates that these attitudes and their "antidotes" be taught to all pilots, and it incorporates them in testing procedures. Pilots can take online questionnaires to determine their own levels of hazardous attitudes. The FAA implies that these attitudes are modifiable by suggesting they use the "antidotes" to mitigate their impact on judgment, a key factor in aviation accidents. In the past several decades, pilots have made a cultural transition from captain with unquestionable authority to crew resource management and the equal importance of input from all team members. This cultural transformation necessitated the modification, and in some cases reversal of, attitudes. This substantial cultural change supports the idea that people can train and modify certain personal factors for the purpose of achieving a common goal—in this case, safety.

Dr. Leopold: *What role, if any, should tools like this play in resident education and/or residency selection?*

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Fig. 1 John Kadzielski MD.

Dr. Kadzielski: Safety education in orthopaedic surgical training is key. This can occur in two ways: The traditional curriculum, and the “unwritten curriculum.” In 2009, we incorporated quality and safety into the Core Curriculum of the Harvard Combined Orthopaedic

Residency Program. Although important, the “unwritten curriculum” is usually a more powerful educational experience. This refers to the concept that residents may learn more about how to behave by modeling the behavior and attitudes of their attendings and peers

more so than they might in a traditional lecture. That is, if a resident observes an attending mocking the preoperative surgical timeout, the resident may internalize certain negative beliefs and attitudes about safety and surgical practices, regardless of any supportive messages they may hear in lectures.

For surgical educators, modeling behaviors and team leadership skills, especially during stressful and difficult clinical scenarios, is key. In addition, residents in our training program have participated in multiple safety research initiatives and have begun to utilize and trust the safety infrastructure. It is not uncommon now to hear the residents discussing events amongst themselves and trying to determine root causes and systems-level solutions. Tools like the ones we evaluated in our study in *CORR*® may help give individual surgeons insight into their own attitudes, determine how these attitudes influence their behaviors, and perhaps shine some light on how their behaviors affect others around them.

At this point, though, based on the data we have and the uncertainty regarding their impact, I would not recommend these tools play more than a research role in the residency selection process.

Dr. Leopold: *What are the next questions you hope to answer in this important area?*

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Dr. Kadzielski: Human factors and their impact on surgical care and patient safety key to understand better. These areas are difficult to discuss as surgeons because they offer others insight into own inner most thoughts and attitudes. It is much more comfortable for us to discuss a technical failure or an implant design flaw leading to a complication than our own beliefs and behaviors. Nevertheless, we owe it to our patients and communities which we serve to develop and

maintain a culture of safety that is not based on blame and punishment to discuss these key elements and to understand all of the factors which influence the safe delivery of surgical care.

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