

Aviation-based team training may influence clinicians' safety behaviors

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Team training based on protocols originally developed for aviation crews may change safety-related behaviors and contribute to perceptions of empowerment among nurses and other surgical staff, according to a report in the December issue of *Archives of Surgery*.

Drawing on analogies between medicine and aviation, several programs have been developed to improve patient safety based on aviation crew resource management, according to background information in the article. "Developed in the late 1970s after the collision of two 747 airliners on a foggy runway in Tenerife, crew resource management focuses on both human and systems issues, improving communication, error management and work culture," the authors write. "Although aviation accidents continue to occur, the overall rate of incidents has declined and commercial aviation is now the safest form of transportation on a per-mile basis."

Over the last decade, hospitals have begun to contract for crew resource management training for staff, typically in high-risk areas such as emergency, obstetrics/gynecology and surgery. To quantify the results of this training, Harry C. Sax, M.D., of Warren Alpert Medical School of Brown University and The Miriam Hospital, Providence, R.I., and colleagues studied two facilities, one 722-bed university hospital and one 247-bed affiliated community hospital. Both offered a regularly scheduled six-hour course, "Lessons from the Cockpit," to nurses, physicians and ancillary personnel in operating rooms. A perioperative checklist modeled on preflight checklists was posted in all operating

rooms and use was monitored by the circulating nurse. In addition, participants completed a survey about self-empowerment before and then immediately and a minimum of two months after completing the course.

A total of 509 participants underwent the training at the university hospital and 349 at the affiliated community hospital. "Not surprisingly, there was initial resistance because surgeons saw the checklists as speed bumps that hindered flow," the authors write. "The circulating nurse was then empowered to start the checklist process and the scrub nurse was instructed not to hand up the knife until the checklist was completed. Hospital administration and all clinical chiefs were broadly supportive of this process and any physician who was unwilling to participate was counseled." Consistent use of the checklist increased from 75 percent in 2002 to 100 percent in 2007.

In addition, self-reporting of patient safety-related incidents increased from 709 per quarter in 2002 to 1,481 per quarter in 2008, with an increase in the willingness to report unsafe conditions or near-miss events. "Perceived self-empowerment, creating a culture of safety, rose by an average of 0.5 point in all 10 realms immediately post-training," the authors write. "This was maintained after a minimum of two months."

The results suggest that aviation-based training, when combined with other initiatives, enhances personal commitments to patient safety, the authors note. In addition, the program appears to change safety-related behaviors, particularly regarding the use of checklists and self-reporting. "Participants become aware of, and empowered, by these tools," they conclude. "Leadership of institutions must strive to foster the elusive 'culture of safety' by creating an environment that focuses on systems issues as opposed to individual blame, maintains personal accountability and encourages open communication in a supportive environment across

all disciplines."

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