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A safety tool borrowed from airlines is saving lives in surgery

By THOMAS A. DEMETRIO and KENNETH T. LUMB

Last month we wrote about the potential patient safety benefits of using "black box" technology in operating rooms. That technology, borrowed from the airline industry's cockpit data recorders, allows the recording and subsequent review of everything that happens during a surgical procedure and will presumably improve surgical patient safety once it is implemented and studied. Another safety tool borrowed from the airlines, however, is already saving lives in South Carolina and, if used in conjunction with black box technology, could provide an exponential increase in patient safety.

According to a report recently published in the *Annals of Surgery* by Dr. Alex Haynes, et al., South Carolina hospitals participating in a study that fully implemented the World Health Organization's (WHO) Surgery Safety Checklist had a 22 percent drop in post-surgical deaths over three years.

The notion of a checklist as a surgical quality improvement tool is not new. Before the South Carolina study, multiple small trials had demonstrated the potential effectiveness of the WHO checklist but larger, population-based implementations — usually in response to a regulatory mandate — proved disappointing, according to Haynes. Haynes and his colleagues wondered if mandated use of checklists without systematic implementation processes could account for the disappointing results and designed their study to find out.

Much like preflight checklists used by the airlines and NASA, evidence-based surgical safety checklists are designed to be as simple as possible to allow surgical teams to ensure that critical safety steps are consistently applied and do not depend on failure-prone human memory. According to the study, surgical checklists also foster an atmosphere of communication and information-sharing among the surgical team members that protects patient safety.

But the mere presence of the one-page checklist in the operating room is the least important part of the initiative. Haynes developed a comprehensive surgical safety program, emphasizing multidisciplinary engagement, team alignment and a culture of patient safety. The program included a 12-part hospital implementation process composed of activities to support checklist implementation and culture over time, including securing resources and the participation of surgical and executive leaders, providing teams with initial and ongoing training in checklist use and evaluating progress and compliance through direct observation.

The results were astounding. While overall statewide postoperative mortality rates did not fall, the hospitals that fully implemented the checklist safety program saw a 22-percent drop in 30-day post-surgical deaths. Expressed in terms of mortality rate (3.38 percent to 2.84 percent, a drop of 0.5 percent), the results may seem less impressive until one realizes that for every 200 surgeries, one South Carolina patient has been spared an untimely death. According to a highly unscientific survey of two colleagues with nursing backgrounds, an average-size community hospital with eight to 10 operating rooms will perform approximately 60 surgical procedures per day. That half percentage point drop means that a preventable patient death will actually be prevented every four days. CL

Thomas A. Demetrio is a founding partner of Corboy & Demetrio, representing victims of medical malpractice and personal injury.
TAD@CorboyDemetrio.com

Kenneth T. Lumb is a medical-malpractice attorney and partner at Corboy & Demetrio.
KTL@CorboyDemetrio.com