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MED-MAL MATTERS

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homas Jefferson once wrote, "Whenever you do a thing, act as if all the world were watching."

Over the last three decades, the aviation industry has taken this advice to heart and achieved an astonishing reduction in the number of fatal accidents. The oft-cited observation that a person has a greater chance of being killed riding a bicycle or by lightning than by flying is actually true. Statistics published by the United Kingdom's Civil Aviation Authority show that the fatality rate per billion kilometers traveled by plane is 0.003, compared with 0.27 by rail and 2.57 by car.

Though the genesis of this safety revolution is multifactorial, a robust safety culture and routine data monitoring are among the more important contributors. According to the risk management firm, Allianz Global Corporate & Specialty, the use of cockpit data monitoring systems, which include digital audio- and visual-recording equipment, not only helps in determining the cause of crashes, it also prevents them. These systems, according to Allianz, are instrumental in proactively identifying safety trends that can be addressed by training or other means.

The health-care industry has followed a different arc. According to the *Journal of Patient Safety*, 440,000 patients die every year from preventable medical errors. That is roughly equivalent to the population of Atlanta. In a 2016 study published in the *British Medical Journal*, Dr. Martin Makary concluded that preventable medical error had surpassed respiratory disease as the nation's third leading cause of death.

That bears repeating: Medical negligence is the third-leading cause of death in the United States. Might the health-care industry benefit from three decades of aviation safety experience?

Outpatient Surgery Magazine recently reported that Wade Ayer, a Wisconsin patient safety advocate who lost his sister to a medication error at an ambulatory surgery center, is working with Wisconsin state legislators to introduce a bill to give patients the right to have their surgeries captured on video. The bill would require all surgical facilities to place video- and audio-recording equipment in operating rooms to capture real-time recordings of procedures.

At first blush, this proposal appears to be designed to memorialize events during a procedure to allow lawyers to prosecute — or defend — a lawsuit. According to the magazine, however, the bill is part of a growing interest in using "black box" technology to protect patients by preventing negligence.

The technology was first introduced by Dr. Teodor Grantcharov, a staff surgeon at St. Michael's Hospital in Toronto, who invented a system that acts like a flight data recorder during an airline disaster. As Grantcharov wrote in *Outpatient Surgery Magazine* in 2015, his black box



LIGHTS, CAMERA, SCALPEL

Can videotaping surgery make operations safer?

By THOMAS A. DEMETRIO and KENNETH T. LUMB

platform records almost everything that happens in an operating room: video from laparoscopic instruments and cameras mounted in the room, physiological data from the anesthesia monitor, noise levels and air temperatures in the operating room, how often the operating room door is opened and how many times phones ring.

Grantcharov's goal is to automate the entire information-gathering process and store the data in a central database designed to seek out safety trends and quantify team performance in an operating room. He wants to use the data to analyze adverse events and assess new procedures and techniques.

But after-the-fact analysis is likely only part of the benefit of direct observation of surgical personnel. Psychologists have long known that knowledge of being observed changes behavior and research into hand hygiene in hospitals has illustrated the effect.

According to a 2015 study published in *Infection Control & Hospital Epidemiology* (Hagel, et. al.), even though hand hygiene is one of the most important factors in preventing hospital-acquired infection, "adherence remains low." In other words, health-care workers simply aren't washing their hands when they should.

The authors thus studied the effect of direct

observation on hygiene compliance and found a nearly threefold increase in proper hygiene simply by having someone watching health workers wash their hands.

In the Army, leaders are taught that soldiers will only do the things that their commander checks and will only do well those things which the commander checks often. This tendency of human beings to behave differently when they know they are being watched is known as the Hawthorne effect and there is every reason to believe that black box technology in the operating room will leverage that effect to improve patient safety, just as it has done in the aviation industry.

After all, "safety culture" is often defined as how an organization's employees behave when no one is watching. Creating that culture, however, requires lots of watching. CL

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