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Checks and balances for medical practitioners?

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USC Marshall study finds video capture and other automated systems cut down medical errors and minimize the tendency to operate outside normal procedures.

The Conrad Murray case can obfuscate that the vast majority of grave medical errors happen in hospitals—the places we think are most safe—and are often the result of bad systems. Poor transmission of information and unmonitored interventions yield problems in operations, recovery rooms and regular wards. But how can we minimize interpretive and procedural errors that are the root cause of most medical mistakes?

Research by USC Marshall School of Business Dave and Jeanne Tappan Chair in Marketing Shantanu Dutta and colleagues at Johns Hopkins University, Texas A&M University and the University of Florida investigated two Asian hospitals to determine how investment in technology and automated systems (including video cameras, swipe cards to access samples, electronic dispensation, data recording as well as alarms and alerts to notify practitioners to conduct tasks) can substantially reduce medical errors. Their paper, "The Impact of Automation of Systems on Medical Errors: Evidence from Field Research," was published in *Information Systems Research*.

Why do mistakes happen and fail to be rectified? The paper's authors suggest the very structure of how physicians are compensated makes them less likely to spend time on process-level details.

In addition, Dutta and his colleagues suggest that clinical agents fail to admit that that they made "suboptimal efforts" that result in an error and attribute error to environmental factors outside their control.

But the question is, can electronic surveillance systems and other automated systems change individual behavior and the tendency of human nature to cover up a mistake? The study found that this tendency can be overcome with technology.

"Even if no one ends up monitoring video cameras, the very fact that they are there impacts patient care," Dutta said in an interview. He explained that automation systems, such as panoptic cameras that make an image 360 degrees, can change behavior, even if there is little monitoring.

Reducing the "repetitive human touch," it turns out, may be one of the best ways for those in a hospital to avoid human errors in getting the correct dosage amount of medicine or having blood work accurately tested.

In addition, workers who keep track of their jobs manually can hope that their work isn't observed or reviewed by managers, but increasing automation will lower the chance that their errors would go unnoticed.

Dutta points out, however, that automated systems only reduce the chance of errors so much. Procedural errors—such as not disinfecting an area—are easier to track. But interpretive errors, such as judgment calls, are a little trickier to monitor. Automation won't help improve those errors unless training is added, Dutta said.

To have the greatest impact on reducing interpretative errors, workers need to buy in to automation by having management explain the best ways to monitor their work and having training to help them with

judgment calls, according to the study.

"Technology is not going to solve the problem unless practitioners are educated and have an appreciation of the role that technology has in enhancing the quality of their judgments and how it can improve the patient experience," Dutta said.

Provided by USC Marshall School of Business

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