Young Surgeons Face Special Concerns With OR Distractions

A study has found that young, less-experienced surgeons made major surgical mistakes almost half the time during a “simulated” gall bladder removal when they were distracted by noises, questions, conversation or other commotion in the operating room.

In this analysis, eight out of 18, or 44 percent of surgical residents made serious errors, particularly when they were being tested in the afternoon. By comparison, only one surgeon made a mistake when there were no distractions.

Exercises such as this in what scientists call “human factors engineering” show not just that humans are fallible – we already know that - but work to identify why they make mistakes, what approaches or systems can contribute to the errors, and hopefully find ways to improve performance.

The analysis is especially important when the major mistake can be fatal.

This study, published in Archives of Surgery, was done by researchers from Oregon State University and the Oregon Health and Science University, in the first collaboration between their respective industrial engineering and general surgery faculty.

“This research clearly shows that at least with younger surgeons, distractions in the operating room can hurt you,” said Robin Feuerbacher, an assistant professor in Energy Systems Engineering at OSU-Cascades and lead author on the study. “The problem appears significant, but it may be that we can develop better ways to address the concern and help train surgeons how to deal with distractions.”

The findings do not necessarily apply to older surgeons, Feuerbacher said, and human factors research suggests that more experienced people can better perform tasks despite interruptions. But if surgery is similar to other fields of human performance, he said, older and more experienced surgeons are probably not immune to distractions and interruptions, especially under conditions of high workload or fatigue. Some of those issues will be analyzed in continued research, he said.

This study was done with second-, third- and research-year surgical residents, who are still working to perfect their surgical skills. Months were spent observing real operating room conditions so that the nature of interruptions would be realistic, although in this study the distractions were a little more frequent than usually found.

Based on these real-life scenarios, the researchers used a virtual reality simulator of

a laparoscopic cholecystectomy – removing a gall bladder with minimally invasive instruments and techniques. It's not easy, and takes significant skill and concentration.

While the young surgeons, ages 27 to 35, were trying to perform this delicate task, a cell phone would ring, followed later by a metal tray clanging to the floor. Questions would be posed about problems developing with a previous surgical patient – a necessary conversation – and someone off to the side would decide this was a great time to talk about politics, a not-so-necessary, but fairly realistic distraction.

When all this happened, the results weren't good. Major errors, defined as things like damage to internal organs, ducts and arteries, some of which could lead to fatality, happened with regularity.

Interrupting questions caused the most problems, followed by sidebar conversations. And for some reason, participants facing disruptions did much worse in the afternoons, even though conventional fatigue did not appear to be an issue.

"We've presented these findings at a surgical conference and many experienced surgeons didn't seem too surprised by the results," Feuerbacher said. "It appears working through interruptions is something you learn how to deal with, and in the beginning you might not deal with them very well."

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