

## 'Black Box' for Improving OR Safety



A black box similar to that used in the aviation industry has been developed specifically for improving safety in the operating room, according to researchers at St. Michael's Hospital in Toronto, Canada.

The box is about the size of a thick book and can record what is going on in the OR during a surgical procedure. The device can measure room temperature and decibel levels, and create audio and video recordings of the interactions among medical staff. The goal is to improve patient safety and outcomes by identifying where mistakes occur in the OR and teaching surgeons how to prevent them, said lead author Teodor Grantcharov, MD.

Dr. Grantcharov said the prototype of the OR black box is being tested in the operating rooms at St. Michael's, where he specialises in advanced minimally invasive surgeries, such as gastric bypasses. The OR box is designed to work only for laparoscopic, or minimally invasive, surgeries that insert video cameras contained in thin plastic tubes into small incisions in the body to help surgeons see what is happening inside the patient.

Testing of the new box is also underway at two hospitals in Copenhagen, Denmark, with other international sites soon to be involved in the piloting of the device.

### Training to Help Prevent Errors

The aim is to see where errors occur in surgery "so that we can understand how errors lead to adverse events," said Dr. Grantcharov, adding that training curricula can then be created to help prevent these errors from being repeated. Data show that 84 percent of errors in bypass surgery happen during the same two steps, the lead author said, hence training has been designed to help surgeons master those two skills.

Dr. Grantcharov said he is looking at performance issues – what the surgeon did or did not do, such as apply enough force when grabbing a bowel, which might make it slip and tear. However, it is also important to look into less tangible factors that can lead to errors, such as communication and team dynamics, he added.

In the world of sports, athletes have coaches who are capable of pointing out their wrong moves and helping them to improve their performance. For surgeons, the data collected from the black boxes will allow better mentoring and improvements for the benefit of patients, Dr. Grantcharov noted. "We will reduce the risk and complications and show how to make the OR more efficient, which will also allow us to save money and do more cases."

With the black box, there could be more transparency in the OR for patients. The device may also help change the culture that traditionally has made physicians and nurses reluctant to report mistakes.

Source: Health Data Management  
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