Surgical Residents Perform Better With Structured Training

New research has shown that surgical residents who received structured training in a simulated environment perform significantly better when they start operating on patients. The results of the study by researchers at St. Michael's Hospital were so convincing that the University of Toronto implemented the training program they developed even before their research was published in the July issue of the *Annals of Surgery*.

"Often surgical residents came to the OR and we didn't know whether they had the skills or the knowledge to perform safe surgery. Their education took place in the OR under the guidance of an experienced surgeon," said Dr. Teodor Grantcharov, a surgeon at St. Michael's and one of the researchers. "Now we are moving that learning curve from the OR to a virtual environment." Dr. Grantcharov and Dr. Vanessa Palter, a U of T surgical resident at St. Michael's, said that even though preventable medical errors contribute to between 9,000 and 24,000 deaths in Canada each year, there was no effective mechanism to ensure that residents have the skills and knowledge to perform safe surgery.

They devised a study in which surgical residents were divided into two groups. One group received the conventional training for laparoscopic colorectal surgery—removing a tumor from the colon. The other group trained on a virtual reality simulator, received cognitive training (when and how to operate, how to work as a team) and practiced surgery on cadavers. After five months of training, each resident performed a laparoscopic right hemicolectomy (removed a tumor from the right side of the colon) that was videotaped and analyzed by outside experts.

Those who went through the simulated training performed the procedure significantly better and did better on a multiple choice test. They scored an average of 16 out of 20 on technical performance, double the 8 out of 20 score for those who underwent the conventional training. On the multiple choice test of their knowledge of the procedure they scored 10 out of 18, compared to 7.5 out of 18 for those in the conventional program.

"We are very proud to bring this groundbreaking research into the U of T general surgery curriculum," said Dr. Andy Smith, the Bernard and Ryna Langer Chair of the division of general surgery at U of T. "It is a fine example of knowledge translation: education research implemented into the 'real world' of surgical education." Dr. Grantcharov said he has received inquiries from medical schools around the world regarding the curriculum he and Dr. Palter developed. This curriculum currently applies to colorectal procedures but they are designing similar approaches for a

number of other high-risk procedures.

"We're excited that it actually makes a difference," he said.

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