

Heart surgeons-in-training benefit from hands-on homework

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Residents in cardiac surgery who receive extra training on a take-home simulator do a better job once they get into the operating room, Dr. Buu-Khanh Lam today told the Canadian Cardiovascular Congress 2011, co-hosted by the Heart and Stroke Foundation and the Canadian Cardiovascular Society.

Dr. Lam and a multidisciplinary surgical team developed a kit – containing sutures, forceps, and miniature tubing – that can be taken home by trainees to practice a highly technical operation called microvascular anastomosis. The procedure, which involves joining two arteries together, is the "bread and butter" of coronary artery bypass surgery and is performed hundreds of thousands of times a year in North America, says Dr. Lam, director of surgical undergraduate education at the University of Ottawa and director of the University of Ottawa Heart Institute Valve Clinic.

It is difficult for residents to get enough surgical [training](#) for such a delicate procedure, he says, because cardiac cases are more complex, there are work hour restrictions for medical professionals, and the medical environment is more litigious. In addition, the high-stress environment of the [operating room](#) may not be conducive to the acquisition of a new skill. "We wanted to develop a training strategy so that new surgeons had more opportunities to practice on their own in order to become more proficient in the operating room," he explains.

To date the use of simulation in cardiac surgical training has been

limited.

To test the benefits of at-home practice with the device, they recruited 39 first- and second-year surgical trainees. All received traditional tutorials and hands-on sessions. In addition, half of the trainees were also given the kit and asked to practice 10 more times and keep a log of practice hours.

Two weeks later, all trainees returned to the lab to perform a micro-anastomosis under operating room conditions. They were assessed by expert observers who were not aware which of the doctors had done the extra take-home practice. Each received a score based on their surgical skill, technical ability, knowledge of the instruments, quality of the procedure, and the time it took to complete the surgery.

Those who had done the simulator training at home scored higher on all counts.

"The take-home message is that even in a highly specialized environment, deliberate practice has a significant impact on performance," says Dr. Lam. "The more surgeries you perform, the better you are at it. This is the future of [cardiac surgery](#) training."

"Canadians are in good hands with our highly skilled cardiac surgeons," says Heart and Stroke Foundation spokesperson Dr. Beth Abramson.

"This simple training method is an exciting advance because it strengthens the safety net for the large number of people who have vascular surgery each year." Indeed, the leading cause of hospitalization in Canada continues to be heart disease and stroke, accounting for almost 17 per cent of total hospitalizations.

Dr. Abramson says that training, especially in cardiac surgery, requires a very long learning curve. "There are not enough patients for rapid

training," she says. "Simulators – like those used for pilot training – replicate real-life scenarios and conditions in order for trainees to train in all conditions and build their training hours."

"We are producing good, confident surgeons," says Dr. Lam, adding that this extra training in micro-anastomosis can benefit doctors who are doing surgery on arteries elsewhere in the body.

Provided by Heart and Stroke Foundation of Canada

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