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Web-based training modules make surgical-equipment training accessible

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While training to become a surgeon, a physician acquires many skills. Nevertheless, when it comes to the procedures involved in learning to handle equipment in laparoscopic surgery (keyhole surgery in the abdominal cavity), there is room for imvrovement. This is the conclusion drawn by physician and researcher Diederick van Hove, who will be defending his doctoral thesis on this subject at TU Delft on Friday 20 September. He developed two web-based training modules for handling equipment during laparoscopic surgery that significantly improve theoretical and practical skills.

There has always been great interest in improving training for laparoscopic surgery (keyhole surgery in the abdominal cavity). After all, this form of surgery requires a different skill set than conventional open surgery and is highly dependent on technology. Much has been done to structure and standardise the training of this surgical technique, but as yet no system existed in which the competence of handling equipment is trained and assessed.

Van Hove found that although training with surgical equipment does exist in almost every hospital, the frequency of this varies significantly. Moreover, in a third of the hospitals questioned, training is not compulsory, and only seven hospitals provided training that included an assessment. In almost all the hospitals, training with equipment was directed towards the surgical assistants. And in only four hospitals was the training also specifically directed towards registrars and consultant physicians. In addition, the times scheduled for the training sessions,

which are often carried out by the manufacturer, can form an organisational hurdle, owing to the fact that these can be difficult to fit into the daily working schedule.

As a possible answer to this problem, Van Hove has developed two interactive web-based training modules for laparoscopic surgical equipment. Both modules consist of three parts: a theoretical part covering the underlying physical principles, a tutorial which explains precisely how the equipment should be handled and finally an assessment in which both theoretical and practical skills are tested. Both modules make use of a simulation of the actual equipment, allowing connections to be made, controls to be used and alarms to sound. The simulations are used for practice and for assessing practical skills.

"We've demonstrated that training with both modules significantly improves theoretical and practical skills," says Van Hove. "In a test with the actual equipment, the participants who had trained with the modules made fewer mistakes in handling the equipment than participants who hadn't trained. All participants indicated that the modules would be a useful addition to surgical training." Laurents Stassen, gastrointestinal surgeon and surgical tutor in Maastricht: "These modules are a very promising training method for healthcare staff. The main advantages are that they can be used independently in your own time and that no supervision is necessary."

Provided by Delft University of Technology