

SimSurgery Case Study

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SimSurgery Finds Success with SEP Simulator—Powered by Polhemus PATRIOT™

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Vidar Sorhus, PhD, CTO at SimSurgery



If you were going in for major surgery, would you like the reassurance that your surgeon had already logged plenty of training time and had achieved a high level of proficiency on the procedure? Thankfully, companies like SimSurgery are helping to provide additional, innovative training options for surgeons through simulation. SimSurgery is not new to training and simulation; they’ve been developing quality products for surgical simulation since 1999. Headquartered in Norway, they also have offices in Germany and the U.S. The company is constantly upgrading and developing new products, which are based on the SimSurgery Educational Platform, otherwise known as SEP--an award-winning training and educational platform for laparoscopic and robotic surgery.

Polhemus PATRIOT System Powers SEP Simulator

Polhemus is proud to provide the enabling technology that powers SEP. SimSurgery uses the Polhemus PATRIOT system in the SEP simulator. Specifically, the SEP system allows surgical students to train and learn surgical skills, such as hand-eye coordination, use of endoscope and surgical instruments, tissue manipulation, and other procedural skills before operating on patients.

Why PATRIOT Over Other Motion Tracking Systems?

When reviewing tracking options, PATRIOT was the top choice. According to Vidar Sorhus, PhD, CTO at SimSurgery, “The reason for this selection is the combination of performance, cost, and the size of the PATRIOT system. We needed a system with two trackers that was possible to embed into our simulation hardware.”



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(SimSurgery SEP Case Study Continued)



The PATRIOT sensors are not only easily embedded, but due to the true 6DOF the PATRIOT delivers, the SEP system can track both position and orientation of laparoscopic instruments. The tracked position and orientation data is used as input to real-time 3D simulation of surgical techniques and procedures.

For this application, SimSurgery needed a high level of accuracy and repeatability of position and orientation values, as well as a high update rate. PATRIOT was the perfect solution to achieve this.

According to Vidar Sorhus of SimSurgery, “A great advantage of the PATRIOT tracking system used in SEP is that it measures the position and orientation of the free instruments without having the instruments anchored in a mechanical measurement system. This feature makes the simulator user interface very flexible and allows the user to freely select an instrument port. As a consequence, the system can be used to simulate scenarios with any port configurations, including single incision laparoscopic surgery.”

The SimSurgery laparoscopy simulator, combined with the SEP learning concept is based on validated educational principles. It is a unique tool for minimally invasive surgery training and performance evaluation. SEP allows for proficiency based training, providing surgeons the opportunity to increase competency at every level. Today, SEP is being used at leading institutions in the U.S., Europe, and Asia.

To read more about SimSurgery, visit their website at: www.simsurgery.com.