



Simulated Surgical Systems

Precision through Simulation™

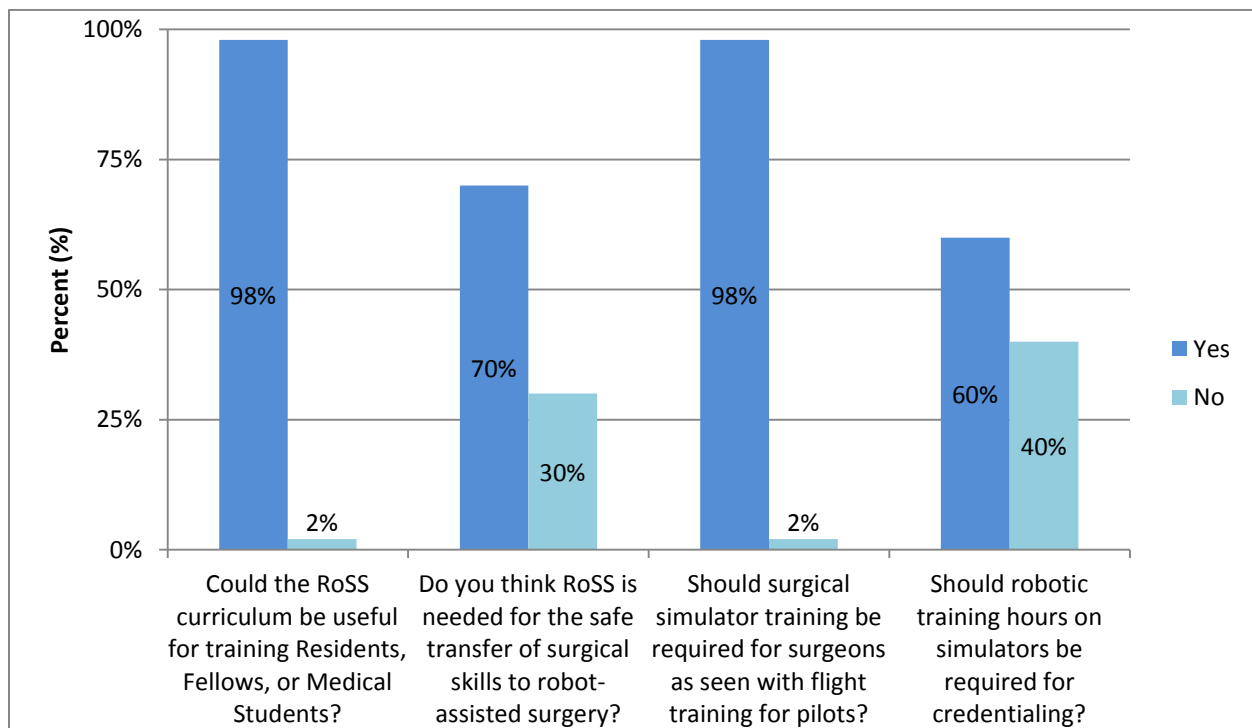
Assessment of RoSS Curriculum*

The Robotic Surgical Simulator (RoSS) is a stand-alone robotic training console that is designed to emulate the da Vinci Surgical System. The RoSS features a virtual-reality based curriculum that was developed by 4 expert robotic surgeons and 1 engineer. This novel curriculum contains 4 modules (Orientation, Motor Skills, Basic Surgical Skills, and Intermediate Surgical Skills) that progressively acclimate a novice robotic surgeon to the controls and features of the da Vinci Surgical System in a step-wise and safe environment.

A recent multi-institutional study was designed to evaluate the effectiveness of the RoSS curriculum as a tool to teach aspiring robotic surgeons. The participating institutions included Cleveland Clinic Foundation, Henry Ford Health System, and Roswell Park Cancer Institute. Participants were randomized into two separate groups: a Control Group and an Experimental Group. The Control Group participants were tested on three tasks on the da Vinci robot and their performance was evaluated. Conversely, the Experimental Group participants completed the RoSS curriculum first and then tested on the da Vinci robot.

Analysis of the results showed that participants that completed the RoSS curriculum performed better in aspects of all three tasks on the da Vinci robot. More specifically, these participants made fewer errors and moved their robotic instruments outside the field of view less frequently. Another analysis compared the first performance of participants on the da Vinci robot to their performance after completing the RoSS curriculum. These results showed that participants could complete da Vinci tasks more efficiently (more quickly with fewer errors and better use of the camera).

Furthermore, a post-study opinion questionnaire to evaluate RoSS revealed the following results:



*Stegemann et al. "Development, Implementation and Validation of a Simulation-Based Curriculum for Robot-Assisted Surgery. AUA 2012 Annual Meeting. Abstract #1512.