New Score Can Tell Surgeons How They Perform on the Da Vinci Robot

A first of its kind assessment system has been developed by a team of researchers to more reliably predict whether surgeons are ready to operate on patients using the da Vinci robot. The new technology, called MScore, provides more precise analysis of actual surgical performance, which has been shown to be difficult to accomplish using common training approaches.
Prior to the introduction of da Vinci simulation training, the only option for most robotic surgeons was to learn on patients, animals and simple plastic models. Such training methods rely on a subjective assessment from proctors rather than precise measurement of movement and actions.

Mimic Technologies, the simulation company that built the da Vinci simulation platform, is developing MScore, utilizing performance data collected from more than 100 experienced surgeons and academics who have completed at least 75 separate cases. This performance data is being collected from seven leading academic medical centers worldwide, including University of Southern California, U.C. Irvine, and Columbia University. MScore compares a novice surgeon performance to that of experienced surgeons in order to give an objective assessment of a surgeon's skills. Such an evaluation can help hospitals decide whether a new da Vinci surgeon is proficient enough to conduct surgery on patients. The MScore system encourages continued training long after proficiency has been established, and performance is monitored over time to inspire a surgeon to continually advance their level of skill.

"This new technology is important for a surgeon's own assessment of his or her performance on a machine as complex and necessary as the da Vinci," says Inderbir S. Gill, M.D., M.Ch., chairman & professor, Catherine and Joseph Aresty Department of Urology, Keck School of Medicine of USC. "Surgeons are encouraged to continue to measure their ability with the best methods possible in order to ensure the safety of the patient and the quality of their work."

NEW SCORE
The MScore system allows every movement and action the surgeon makes to be tracked and evaluated within a virtual reality training environment. A surgeon's proficiency and score is established by utilizing a wide variety of performance metrics, such as task time, efficiency of instrument motion, blood loss and the force applied to tissue. Performance baselines are derived from the data collected from experienced surgeons.

"We believe, based on a decade of experience working with surgeons and hospitals, that assessment of surgeon performance must be objective and consistently applied regardless of training institution," says Jeff Berkley, Founder and CEO of Mimic Technologies. "The medical community and patients will have an increased level of comfort with robotic technology once there is such measurement of performance."

MScore assessment is based on an evaluation protocol called the Fundamentals of Laparoscopic Surgery (FLS), which is used to train and credential surgeons through the American College of Surgeons. The FLS scoring system has been limited to general and vascular services and requires testing with physical models and proctor overview. Mimic's virtual reality system automates the process for surgical robotics training and provides instant assessment and feedback. Current research is focused on utilizing MScore for surgeon credentialing across a wide breadth of surgical subspecialties. Beyond establishing new surgeon proficiency, Mimic's MScore is being applied to alternative training protocols, such as warming up before surgery and retaining surgical skills during periods of inactivity.

"Surgeons want to know their level of performance, as well as where they can improve," says Rick Satava, M.D., Professor of Surgery, University of Washington "Providing proficiency-based benchmarks developed from the performance of experts allows surgeons to gauge their own performance level and how to improve and become more effective for their patients."

Mimic Technologies, headquartered in Seattle, was founded in 2001 to provide leadership in robotic surgery simulation and training. Together with leading institutions, Mimic continues to develop next generation learning tools and curricula that aim to advance robotic surgery training and improve patient safety. Mimic's mission is to set the standard for simulation and training in medical robotics by continuing to provide needed software, and market leading haptic interfaces. Visit Mimic Technologies at www.MimicSimulation.com [1].

Source URL (retrieved on *04/28/2015 - 4:19pm*):
http://www.mdtmag.com/news/2012/05/new-score-can-tell-surgeons-how-they-perform-da-vinci-robot

Links:
[1] http://www.mimicsimulation.com/