Touch-Enabled Simulator

SensAble Technologies, a manufacturer of haptic devices and 3D modeling solutions, announced that its customer, BioDigital, working in partnership with surgeons at NYU Langone Medical Center, has created the first medical simulation application for teaching residents the high-technology procedure for lung resection of the right upper lobe, most commonly performed to treat resectable lung cancers. The BioDigital RULR (Right Upper Lobe Resection) Cognitive Task Trainer provides residents in NYU Langone's cardiothoracic surgery department with a safe yet highly realistic method of learning the precise feeling of a video-assisted thoracoscopic surgery (VATS) lobectomy. This minimally invasive procedure offers faster recuperation time, yet requires the surgeon to operate with limited visibility inside the chest – amplifying the potential for surgical complications.

With severe limits on resident duty while hospitals strive for improved patient outcomes, touch-enabled simulators allow trainees to 'practice to perfection' on computers, with zero risk to patients and the ability to acquire skills that can only be learned by feeling. Funded in part by the Society for Thoracic Surgeons (STS) and its Thoracic Surgery Foundation for Research and Education (TSFRE), the simulator is showcased at this week's Western Thoracic Surgical Association (WTSA) annual meeting in Ojai Valley, CA.

VATS lobectomies have replaced traditional open lung surgery in the past decade, but the limits of visibility complicate resident training. Peering through a 3D stereoscopic viewer while holding a surgical scope, residents must know with certainty the "feeling" of the local anatomy in order to avoid collisions that might harm the patient. Practicing on cadavers or cadaveric organ blocks is costly and allows only one-time use; and, initial supervised learning-by-doing requires senior medical staff and operating room time that is increasingly in short supply.

BioDigital's RULR simulator teaches the identification of structures such as the right pulmonary artery, superior and inferior pulmonary veins, and the right pulmonary ligament, combining visual representation and tactical feel. The student learns and practices proper placement of the camera port, dissector port, and stapler port. After reaching a level of mastery, the trainee is given six different types of anatomic pathology that range from the most typically occurring to rare. Because the

simulator is computer based, it provides a consistent, quantifiable metric of competence. It allows residents to train in off-hours, at their convenience, and repeat modules until mastery is achieved.

With only an estimated 20 percent of thoracic surgeons having expertise in the VATS lobectomy procedure, the simulator also offers follow-on applicability for training and certifying practicing physicians.
More information, visit www.biodigital.com [1]

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