

Title:
Design and Validation of a Comprehensive Simulation-enhanced Training Curriculum for a Complex Minimally Invasive Operation

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Abstract (summary):

Laparoscopic bariatric procedures are complex minimally invasive operations with a potential for substantial morbidity and mortality along the early part of a surgeon's learning curve. Simulation-enhanced training can improve a surgeon's technical and non-technical performance and lessen the learning curves in the operating room. Unfortunately, despite the convincing evidence supporting the use of simulation in surgical education, there is still a gap in translation of knowledge and technical skills from the research environment into clinically relevant training curricula. The objective of this thesis was to design and validate a comprehensive simulation-enhanced training curriculum that addressed cognitive knowledge, technical and non-technical skill in laparoscopic bariatric surgery. This objective was achieved using three experimental studies. The first study employed a modified Delphi methodology and an international panel of experts in surgical and medical education to develop a consensus-based framework for design, validation and implementation of simulation-enhanced training curricula in surgery. The second study used a modified Delphi methodology and an international panel of experienced bariatric surgeons to develop an objective scale for assessment of operative skill in laparoscopic gastric bypass procedure. This scale was feasible to use and had high inter-rater and test-retest reliability, as well as evidence of construct and concurrent validity. The third study used the previously developed consensus-based framework to design a comprehensive simulation-enhanced training curriculum for laparoscopic bariatric surgery. A prospective, single-blinded randomized controlled trial was used to compare the effectiveness of this curriculum in comparison to conventional surgery training. Surgery residents who were trained in this curriculum demonstrated superior technical skills, superior non-technical skills and enhanced safety in the operating room.

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Request PDF | On Oct 1, 2013, Boris Zevin and others published Development and Validation of a Comprehensive Simulation-Enhanced Training Curriculum in Bariatric Surgery. | Find, read and cite all the research you need on ResearchGate. The number of bariatric procedures performed worldwide has increased dramatically over the last decade (1). Factors contributing to this increase include (1) the rising prevalence of obesity in industrialized countries; (2) increasing awareness of the societal costs of this epidemic; (3) the introduction of minimally invasive approaches to bariatric surgery; and (4) a growing body of literature. Combined with the hospital minimally invasive operating room design examples, proposed a new era of minimally invasive surgery need to pay attention to the issue, put forward the development and construction of digital surgery application advantages and future development. Three - dimensional reconstruction technique based on helical CT abdominal organ scan data and clinical application of visual simulation in surgery. Visual simulation of Free Form Modeling System and PHANTOM software. surgical training and other aspects of digital medical technology is an important area of application. Significant development of minimally invasive surgery by the surgeon, patients and Source Watershed Environment Response Simulation (ANSWERS) [8]. Furthermore, many models enhanced their simulation capability and maneuverability by integrating with geographical information systems (GIS) and graphical user interfaces, such as Annualized Agricultural Non-Point Source (AnnAGNPS) [9], Soil and Water Assessment Tool (SWAT) [10], Hydrological Simulation Program-Fortran (HSPF) [11], etc. As a comprehensive watershed model, in addition to simulating hydrology, HSPF has been widely used to simulate the transport processes of selected water quality constituents, including sediment and nutrients by calculating mass balance. A comprehensive Solutions Manual is available from the publisher. Several specific features of the Second Edition should be mentioned. At the beginning of each chapter we suggest particular sections that we feel are fundamental for all readers. 3. An introduction to simulation as part of a general course on operations research or management science (Chaps. 1 through 3). xxi. However, most real-world systems are too complex to allow realistic models to be evaluated analytically, and these models must be studied by means of simulation. In a simulation we use a computer to evaluate a model numerically, and data are gathered in order to estimate the desired true characteristics of the model. 1. 2 simulation modeling and analysis. Simulation-based mastery learning improves patient outcomes in laparoscopic inguinal hernia repair. Ann Surg 2011;254:502-11. Henry B, Clark P, Sudan R. Cost and logistics of implementing a tissue-based American College of Surgeons/Association of Program Directors in Surgery surgical skills curriculum for general surgery residents of all clinical years. Am J Surg 2014;207(2):201-8. Virtual reality training in laparoscopic surgery: A preliminary assessment of minimally invasive surgical trainer virtual reality (MIST VR). Endoscopy 1999;31(4):310-3. Seymour NE, Gallagher AG, Roman SA, et al. Connolly M, Seligman J, Kastenmeier A, et al. Validation of a virtual reality-based robotic surgical skills curriculum. Surg Endosc 2014;28:1691-4. Marshall RL, Smith JS, Gorman PJ, et

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