

**Laparoscopic surgical education - the experience of the first surgical unit Iași**

E. Târcoveanu<sup>1</sup>, R. Moldovanu<sup>1</sup>, C. Bradea<sup>1</sup>, G. Dimofte<sup>1</sup>, C. Lupașcu<sup>1</sup>, Șt. Georgescu<sup>1</sup>, D. Andronic<sup>1</sup>, J.C. Lotz<sup>2</sup>, N. Vlad<sup>1</sup>, A. Vasilescu<sup>1</sup>

<sup>1</sup>First Surgical Unit, "St. Spiridon" Hospital, Research Center for Open and Laparoscopic Surgery "Gr.T. Popa" University of Medicine and Pharmacy, Iași, Romania

<sup>2</sup>Staffordshire Hospital, Stafford, UK

**Abstract**

The classic apprenticeship model for surgical training takes place into the operating theater under the strict coordination of a senior surgeon. During the time and especially after the introduction of minimally invasive techniques as gold standard treatment for many diseases, other methods were developed to successfully fulfill the well known three stages of training: skill-based behavior, rule-based behavior and knowledge-based behavior. The skills needed for minimally invasive surgery aren't easily obtained using classical apprenticeship model due to ethical, medico-legal and economic considerations. In this way several types of simulators have been developed. Nowadays simulators are worldwide accepted for laparoscopic surgical training and provide formative feedback which allows an improvement of the performances of the young surgeons. The simulators currently used allow assimilating only skill based behavior and rule-based behavior. However, the training using animal models as well as new virtual reality simulators and augmented reality offer the possibility to achieve knowledge-based behavior. However it isn't a worldwide accepted laparoscopic training curriculum. We present our experience with different types of simulators and teaching methods used along the time in our surgical unit. We also performed a review of the literature data.

Key words: minimally invasive surgery, education, simulators, laparoscopic training, virtual reality

Corresponding author: Eugen Târcoveanu, MD, PhD

First Surgical Unit, "St. Spiridon" Hospital  
700111, Bd. Independenței No.1, Iași, Romania  
Tel. / Fax: 0232 218 272  
E-mail: etarco@iasi.mednet.ro