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## Editorial

# Teaching of Laparoscopic Surgery Colorectal. The Lapco Model<sup>☆</sup>

## Formación en cirugía laparoscópica colorrectal. El modelo Lapco

The LAPCO program is a training program for laparoscopic colorectal surgery (LCS) for specialists in colorectal surgery developed in England. The aim of this program is to introduce LCS in a safe way in all the health system. As a consequence, at present LCS is performed in 87% of hospitals in England, and according to the Hospital Episode Statistics, 40% of elective colorectal resections are performed laparoscopically or assisted by laparoscopy.

In 2006, before Lapco was instituted, the National Institute for Health Clinical Excellence for England and Wales (NICE) of the government issued a technological guideline recommending the use of LCS, performed by adequately trained surgeons, as an alternative for appropriately selected patients. At that time, it was estimated that 5% of surgeons had received training in LCS, and therefore the guideline was postponed for 3 years, until September 2009.

Subsequently, this dispensation was extended until September 2010. With the aim of solving this national shortage of surgeons trained in LCS, the Health Department of England instituted in 2007 a National Training Program (NTP) for LCS (Lapco). The program was designed to give a practical training in LCS to colorectal surgeons in England. Ten regional centers with "training experts" were designated to provide training in LCS, with a national coordinator and a department of evaluation and education research.

The Lapco program includes cadaver courses, and hands-on training and structured assessment in the operating room. The NTP is centered on providing a practical training in this area of surgery where the specialist is directly supervised and tutored by an expert in LCS. The NTP considered that in order to obtain an adequate competence level to perform these operations independently, the surgeon should perform at least 20 cases.

In order to collect the data on the clinical results obtained and the competence learning curve, each training case is followed by the registration of a validated global assessment

form (GAS) on-line in the webpage ([www.lapco.nhs.uk](http://www.lapco.nhs.uk)). The forms are different for the trainer and the trainee.

The surgeon in training completes the form after the surgery, including subsequent results of morbidity and mortality. In the GAS forms, each of the LCS procedures are divided into 13 key steps, accorded by a panel of expert trainer surgeons of Lapco. In these key steps different aspects of LCS are included, such as preparation of the operating room, trocar insertion, dissection and division of the vascular pedicle, intestinal resection and anastomosis. Trainer and trainee evaluate the proficiency in each of these steps in a non-critical way, with a score of 1 to 6, in which 1 means "this step was performed by the trainer" to 6, which means "competent, could not have done it better". Since the program started in January 2008, 152 specialist colorectal surgeons in England have participated in the NTP and over 1800 cases have been registered, by the activity in the GAS forms. In regions with a shortage of specialized surgeons trained in LCS new training centers and trainers have been found.

In the provisional analysis of the GAS forms data from 339 cases performed by 38 trainees and supervised by 20 trainers were included. There were 130 right colon resections and 185 left colon resection (24 non-specified cases). Cancer was the main diagnosis in 268 cases. Conversion to open surgery was needed in 23 cases (7%), 50 patients had surgical or medical complications (15%), 9 of which had anastomotic leaks (3%).

Two patients died in hospital (0.5%). Both univariate and multivariate regression analysis showed that male sex and left colon resections are independent factors for conversion, but not the experience of the trainee. This result was confirmed by the CUSUM analysis that showed that the goal rate of conversion of 5% was obtained from the beginning of the training phase. However, the scores obtained in the analysis show that there is a gain in the acquired competence up to the twentieth procedure performed.

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These results clearly support the evidence that NTP is effective in allowing surgeons in training to advance in the development of their capabilities in the technique. The results obtained in patients are comparable to those obtained by experienced surgeons during the training period. This contrasts directly with prior non-structured reports on training that suggested a significant increase in conversion rates and morbidity in the early stages of the learning curve.

The GAS form also provides a structured framework to enhance the postoperative debriefing between trainer and trainee.

Completion of the form can be done in an average of 3.3 min and most trainees and trainers consider it a valuable element in the training process. No specific training is needed and it can be easily adapted for use in other surgical specialties and in other degrees of non-specialized training. In contrast with most of the methods employed at present in the UK to evaluate surgical training, the GAS form provides a validated means of evaluation of specific surgical ability and the proficiency gain curve acquired by the surgeons in training. Lapco also provides a course entitled "Train the trainer" that allows evaluation and improvement of the capabilities of our expert trainers. Fifty of the 67 trainers participating in Lapco have participated in this course.

We now live in a time when bad results cannot be accepted only because we are not familiarized with a new surgical technique; this happened in the nineties with some new laparoscopic procedures such as cholecystectomy. The NTP

has been successful in providing an efficient training at the same time as good clinical results in patients. We can conclude that Lapco offers a new paradigm for surgical training that should be considered for all areas of surgery where new techniques or technology is used.

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