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Problems associated with education and teaching laparoscopic surgery: the role of the European Association for Endoscopic Surgery

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The training of future surgeons has become a burning issue within the last few years, especially in the light of restricted working hours (1), changing social and economical patterns, and fear of legal pursuits. Never before has a new paradyme for teaching become so vital. The recent evolution toward laparoscopy and associated technology has sparked new discussions on patient safety (2) and the best way to teach. Surgical training, however, should not be considered teaching only how to operate, but encompass also decision making, appropriate indications, and adequate postoperative care. Critical appraisal, the proper way to analyze and criticize the literature, is an important step in medical training: it allows the future surgeon to follow the current trends, and measure progress, in search for proven facts, upon which decisions must be based for adequate patient care. Critical appraisal goes hand in hand with medical writing (3). Training also concerns proper communication, whether orally, such as in meetings, international conferences, as well as staff meetings, or medical writing, the original article being the vehicle of scientific diffusion. This paper sets out to briefly describe the present day problems and review possible solutions.

The 48 hour working week imposed by law in most European countries (1) means that residents have less exposure to patients and spends less time in the OR seeing his peers at work. Both the time spent in hospital and the time-honored apprenticeship learning process have come under fire of late. Most training programs require at least five years of clinical training with additional years in subspecialties, and one or more years of research. The 48 hour week provides 2326 hours a year, i.e. 11630 hours of training, the lower limit of recommendations from expert teachers (4, 5, 6) and well below the 20,000 hours the 80 h US system provides.

However, surgical training not only means that surgeons acquire medical knowledge but also develop the manual dexterity and skills to perform procedures (5).

It is not clear whether the reduction of working hours has impacted education for the better or for the worse (7). On the other hand, restrictions have improved quality of life for the trainees (8,9).

As one of the driving forces to enforce working time restrictions, patient safety must remain a major issue in training programs (2). Most studies, however, fail to show that these restrictions have a positive effect on patient safety (8). Few studies actually equate the expected and logical advantages of restricted working time as concerns patient safety, especially in Europe.

Critical appraisal is taught in some units, but usually only because the participating surgeons are aware of its importance. Oral communication and medical writing are rarely, if ever, taught in formal educational programs. This aspect of teaching surgeons has not been emphasized enough in the past.

What are the solutions?

While some plead for flexibility in regulations (5) to permit exceptions to restrictions, the law exists and breaking the law, irrespective the "well-founded" reasons, raise medicolegal issues that still have to be ironed out.

Fifteen member states of the European Union have chosen to depot the directive and do not apply the 48 h rule (10); others simply ignore the directive. Residents are allowed to work from as little as 37 hours in Denmark to 56-64 hours in the United Kingdom. In France, up until last year, the average number of hours medical juniors declared was 52.5 (10).

Increasing the number of years the surgeon has to train or encouraging "after hours" training (11) have been suggested (5). The former usually uses the additional years of research to allow the searchers to fill in for residents. The popularity of this deviation is increasing.

For many years, becoming ready to operate was assimilated to the time spent in hospital. However, more important than the number of hours or years of training, there is now compelling evidence that it is the quality and not quantity that counts most (12). Pellegrini et al have suggested to start subspecialization earlier in medical school (13). Never more obviously is there a need for structured teaching, with well-defined objectives and controls of theoretical as well as practical aspects of laparoscopic surgery.

Several studies have shown that simulation techniques can lead to enhanced skills (14), decision making, as well as improved patient outcome (15-17). A recent Cochrane meta-analysis, Gursamy (18) showed that simulators significantly decreased the time taken to complete a task, increased accuracy and decreased errors and was more accurate than video trainer training in trainees without surgical experience. In participants with limited laparoscopic experience, there was statistically significantly greater reduction in operating time, reduced errors and unnecessary movements (vs. standard laparoscopic training).

Simulator training could be a solution to the ethical problem of eliminating going through one's learning curve on live patients: both the young and older trainees should first be controlled (by peers and by simulators) for basic and advanced skills before being allowed to operate on live human beings.

Recredentialization could also be a future domain for simulators.

Recognizing the lack in structured educational and training programs (19), the European Association for Endoscopic Surgery has set up a curriculum under the label of the Laparoscopic Surgical Skills (LSS) program to develop, validate and implement training in laparoscopic surgery. In contrast to existing programs, such as the Fundamentals in Laparoscopic Surgery, the LSS curriculum will include not only basic laparoscopic skills, but explore also task-specific and procedure-based skills. The LSS program is criterion-based and goal-oriented. Criteria include: a) precourse testing, b) in-course lectures, and c) postcourse skills and clinical performance assessment, the final objectives of the goal-oriented program. Pilot studies have been undertaken in Hippokration Hospital, Athens and in Catharina Hospital Eindhoven, the Netherlands, and soon will be expanded to other centers throughout Europe, including knowledgeable societies such as the Portuguese Society of Surgery.

However, we must recognize that in spite of great progress, today's simulators still lack the adequate visual and tactile reality needed for this task. Costs are another important issue.

Efforts are still needed to teach critical appraisal

(Fingerhut) and adequate communication skills. The European Association for Endoscopic Surgery is actively engaged in these directions, and EAES endorsed courses are available on the EAES web site.

In conclusion, the educational and training principle have undergone profound changes in the last few years. The need to adapt to social and economic modifications has led to burgeoning new teaching paradigms. The future of mini-invasive surgery is heavily dependent on the validity of such changes and a sound structured curriculum with which to teach. This is the goal of LSS.

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