II Série • N.º 14 • Setembro 2010

Revista Portuguesa de Cirurgia

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Revista Portuguesa de Cirurgia

ISSN 1646-6918

Órgão Oficial da Sociedade Portuguesa de Cirurgia

Training and education in the USA

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The following text is the opinion of the authors, and it may reflect the thoughts of The Mount Sinai Hospital, New York.

Surgical education has evolved to keep pace with technical innovation, while remaining compliant with the requirements of the regulatory agencies that oversee the training and licensure of practicing surgeons. These challenges have required changes in the training approach. Going beyond the traditional "apprenticeship model ", surgical training has incorporated various teaching modalities such as simulation technology and web based learning.

The training of surgeons has become much more structured over the last 20 years, so that different programs can be compared in a more systematic fashion. The ACGME has identified six Core Competencies by which a resident's performance and progress are assessed. The goal is to produce not only technically competent surgeons, but surgeons who are equipped with the skills to deliver professional , compassionate care based on scientifically sound principles. One of the big challenges of this system is determining surgical dexterity and technical skills. How do we define a technically adept surgeon with good skills from someone who is not? Even though there is a systematic recurring review of surgical residents and their progress every six months at our institution, this may not translate into technical skill acquisition, and there are no reproducible methods to measure skills at this time. Longitudinal studies are currently underway to determine the utility of this evaluation system.

Most training programs in the United States are five years in length. Some programs have incorporated mandatory or optional research time , either in basic science or clinical outcomes based work. The CMS which provides the funding for resident training has imposed more restrictions in the length of training. Funding for research is program dependent. (Given the current financial issues in the United States, industry sponsored research funding will likely be decreased. Exactly how this will effect resident selection is unknown.) Over the last 5 years, there has been emphasis placed on early specialization offered by integrated programs, such as in Plastic, Cardiothoracic and Vascular Surgery. This entails making a specialty choice right out of medical school, which is oftentimes not possible or turn out to be the wrong choice. These programs include 2 -3 years of General Surgery followed by 2-3 years of specialty training. The limitation of this track is that graduates can no longer be Board Certified in General Surgery. (This is a big unknown in surgery and education in general. It potentially changes the surgical playing field.)

Most academic programs are no longer pyramidal in structure. Categorical residents are identified from the onset by a rigorous selection process out of a large applicant pool. This has been a welcome change from the past. The good part of this is that we (the institution) know who will be around for the five to seven years of training. Unfortunately, the selection process is not perfect. On a national level, there is an almost 20% attrition rate in General Surgery. (Clearly, this is

a huge waste of finances and training time for the surgical teachers. However, it is a necessary by-product of no longer having a pyramidal struction.) Our institution is unlike most in our successful retention rate. (We think this is secondary to a vigorous selection process coupled with input from all segments of the surgical staff (including the residents).)

Perhaps one of the most controversial and powerful drives for change in surgical education in the United States has been the implementation of the Work Hour regulations to limit resident fatigue and medical errors. The regulations mandate that residents may not work more than 80 hours a week, in addition to having 10 hours off between shifts and a full 24 hour off a week. To maintain full compliance, our institution has employed non-physician extenders to assist the residents. Implementation of this new paradigm has been controversial and challenging, to say the least. Proponents cite improved resident well being, morale, enhanced education over service obligations and ultimately decreased medical errors. Critics of the system point out the lack of continuity of care and increased hand-off s as a result of this "shift work" mentality. The long term effects on the product—the surgical trainee—in terms of decreased patient experience and operative cases—remains to be seen. For the system to work, a commitment from the residents, as well as attendings, are critical. It is interesting to note that the Institute of Medical Education has proposed to further decrease the working hours. (The decrease in work hours will effect surgical training. The most likely course will be an increase in years for training, but other options are also possible. Obviously, the effects of the hours limitation are not completely known as yet.)

The ACGME and RRC has put a premium on education over service obligation. Ancillary support has decreased the "skut" work while enhancing educational opportunities. The residents have "protected" time for simulation training and didactic teaching. Evidence –based Medicine has been incorporated in all teaching conferences. Simulation training plays a prominent role in the training. The old premise of "see one, do one" is no longer the norm. The goal is to equip the resident with the knowledge, understanding and rudimentary skills before they work on an actual patient. The metrics for measuring technical competence is not completely defined at this time.

With all these changes, it is unclear whether we will produce better surgeons. Mentorship by good role models is critical. (This is the same as it has been since surgical education began!) The challenge lies in finding a compromise to develop future surgeons that are competent, professional, compassionate and able to function in a socially conscious global environment.