

Acknowledgment. The authors are grateful to Dr. Nasser El-Kum for his statistical help in the preparation of the manuscript.

Received 3rd January 2004. Accepted for publication in final form 7th April 2004.

From the Department of Pathology and Laboratory Medicine, King Faisal Specialist Hospital and Research Centre, Riyadh, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Tarek Owaidah, Head, Point of Care Testing, Consultant Hematologist, Department of Pathology and Laboratory Medicine, King Faisal Specialist Hospital and Research Centre, PO Box 3354, Riyadh 11211, Kingdom of Saudi Arabia. Tel. +966 (1) 4424328. Fax. +966 (1) 4424280. E-mail: towaidah@kfshrc.edu.sa

References

1. Dorfman HD, Czerniak B. Bone cancers. *Cancer* 1995; 75: 203-210.
2. Horowitz ME, Malawer MM, Woo SY, Hicks MJ. Ewing's sarcoma family of tumours: Ewing's sarcoma of bone and soft tissue and the peripheral primitive neuroectodermal tumours. In: Pizzo PA, Poplack DG editors. Principles and Practice of Pediatric Oncology. 2nd ed. Philadelphia (PA): Lippincott Williams & Wilkins; 1993. p. 831-863.
3. Oberlin O, Bayle C, Hartmann OR, Terrier-Lacombe MJ, Lemerle J. Incidence of bone marrow involvement in Ewing's Sarcoma: Value of extensive investigations of the bone marrow. *Med Pediatr Oncol* 1995; 24: 343-346.
4. Cangir A, Vietti TJ, Gehan EA, Burgert EO Jr, Thomas P, Tefft M et al. Ewing's sarcoma metastatic at diagnosis. Results and comparisons of the two intergroup Ewing's sarcoma studies. *Cancer* 1990; 66: 887-893.
5. Hayes FA, Thompson EI, Parvey L, Rao B, Kun L, Parham P et al. Metastatic Ewing's sarcoma: remission induction and survival. *J Clin Oncol* 1987; 5: 1199-1204.
6. Jane GR, Miller JH, White L, Laug WE, Shore NA. Improved detection of metastatic Ewing's sarcoma with the use of bone marrow scintigraphy. (Case Reports. Journal Article) *Med Pediatr Oncol* 1987; 15: 78-81.

Challenges in creating the educated surgeon in the 21st century. *Where do we stand?*

Gamal A. Khairy, FRCS, MS.

Improved performance, which remains a constant concern in the health service, puts a heavy burden and responsibility on health planners. This has become an increasingly difficult task in view of the fast changes in society in general and medicine in particular.¹ The rate of changes in medicine nowadays, resembles those associated with the industrial revolution in England, 150 years ago. In the field of surgery, 2 major changes occurred, the appearance and the increasing importance of less invasive technologies, and the growing awareness of the importance of "systems" in surgical care. To cope with these challenges in the current surgical residency training program (SRTP), the traditional educational strategies in surgery need to be modified to keep pace with the recent developments in this field. We undertook a prospective qualitative study to pin point main problems and accordingly

lay out plans for a better performance in the future. The problems in the current SRTP at King Khalid University Hospital (KKUH), Riyadh, Kingdom of Saudi Arabia, have been examined by 2 approaches: 1. A quantitative semi-structured focus group study has been conducted through direct contact with the individuals involved in the SRTP. Three sources of information were contacted, residents (11), program directors (3) and consultants (7) involved in the training and education of the trainees. They were interviewed and their opinions in the current program were recorded. 2. A review of the international literature regarding the problems in surgical education and training using a computer based literature search (Medline). Most of the residents in the current surgical training program agreed that there is a limited number of clinical cases for their practice and training, and that they are not satisfied with the quantity and quality of operations they are performing during their training as first surgeons. They also think that a resident off day and a study leave should be made mandatory to enable them to attend conferences, symposia and surgical courses.

Program directors and consultants stressed on the small number of cases for the practice and training of the residents. They think that our senior surgical residents do not show full competence after graduation and they cannot be relied upon to perform major operations with confidence. They suggested that effort should be made to find alternatives in training, to fill the current deficiencies and to cope with the shortage in clinical cases.

Surgery has a long tradition of passing down skills to apprentices. With time, simple apprenticeships, involving family or friend gave way to more organized arrangements with formal rules, through which the residency system eventually merged.² A surgical training program was started in Guy's Hospital, London, United Kingdom, in 1972 in an attempt to meet the needs for surgical registrars. Thereafter, surgical training has been a structured and monitored process. The introduction of laparoscopic techniques during the early 1990s and its marked impact in surgical practice has resulted in a great turn in the methods of training in the SRTP. At KKUH, the 2 main important problems are the decreasing patient population for residents to practice at our medical center, and the second, is that our senior surgical residents do not show full competence after graduation as witnessed by their inability to perform major operations confidently, on their own. The decreasing patient population continues to be a major concern in other surgical programs. This has created the need for formal training outside the operating theatre.³ The lack of full competence in graduated surgical residents has also been documented in other programs, Weigelt et al,⁴

conducted a large survey among 954 general surgeons involved in the training of surgical residents, and concluded that changes were needed as the system of resident education allowed chief residents to graduate with significant deficiencies in their education. There is very little locoregional data regarding the current surgical residency-training program to reflect such problems and then to raise proposals that will improve performance and outcome.

What is a surgeon? The definition of the surgeon has been changed from the beginning to the end of the last century. If we look into the 1913 Webster's dictionary, the surgeon is defined as "one whose profession or occupation is to cure diseases or injuries of the body by manual operation". The 1998 Webster's dictionary defines the surgeon, as "a medical specialist who practices surgery", which is further defined as "a branch of medicine concerned with diseases and conditions requiring or amenable to operative or manual procedure". Thus, the focus shifted over time from a specialty defined by "manual operation", to one defined by concern with the disease that might need operation. There is a fast development of technology in the field of surgery, and accordingly, this has generated an increasing need to develop methods of technical skills instruction outside the operating theaters, in the form of courses or workshops. In fact, the latter are considered a mainstay of continuing education programs for surgeons. Some training programs provide sporadic teaching and practice opportunities for their residents outside the operating room. A detailed technical skill program for first-year residents in general surgery has been established, which consists of introductory didactic sessions and wet labs. The latter included instructions on the preparation of the patient and draping, aseptic technique, the principles of bowel anastomosis, incisions, the use and handling of instruments, principles of hemostasis, intraoperative surgical emergencies, surgical assisting and theatre etiquette. It must be emphasized that the introduction of laparoscopic techniques made the teaching of operative skills more difficult, due to many factors that include the complexity of the procedure, the medicolegal concerns and more time consumed in teaching skills in operating theatres. Nonetheless, it has been shown that concentrated didactic training in laparoscopy in a brief course unrelated to prior surgical experience, can improve skills in both residents and established surgeons. Advances in computing, imaging and information transfer have also allowed the use of virtual reality in the performance and teaching of surgery. Medical simulators are rapidly evolving from primitive plastic mannequins to machines with embedded technology.⁵ For example, the minimally invasive surgery-trainer virtual reality system allows suitable

tasks to be performed using laparoscopic instruments connected to a computer, where the movement of the instruments can be both measured and translated into a graphical display. Based on the above account, several practical methods have been introduced to train surgical residents outside the operating theatres. Such methods will enable them to improve the training to overcome the problems of the decreasing number of clinical cases in medical teaching centers and the increasing importance of minimal access surgery. In this way, we will have in our hands practical and convenient methods that can be applied in our surgical training program to overcome similar problems.

Therefore, We conclude that the traditional educational strategies in the current surgical training program need to be changed to cope with the recent developments in minimally invasive surgery, and the decreasing number of clinical cases in medical education centers. Before hand, the need for change should be confirmed on a wide scale by conducting a survey among the surgical consultants involved in the training and education of surgical residents, in various teaching and training centres Kingdom wide, and obtaining trainees feedback in this matter.

Acknowledgment. The author would like to thank Mrs. Corazon Rivera in typing the final manuscript.

Received 25th November 2003. Accepted for publication in final form 24th April 2004.

From the Department of Surgery, College of Medicine and King Khalid University Hospital, King Saud University, Riyadh, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Gamal A. Khairy, Assistant Professor and Consultant General Surgeon, Department of Surgery, College of Medicine and King Khalid University Hospital, King Saud University, PO Box 7805, Riyadh 11472, Kingdom of Saudi Arabia. Tel. +966 (1) 4671575. Fax. +966 (1) 4679493. E-mail: gkhairy@ksu.edu.sa

References

1. Way LW. General surgery in evolution: technology and competence. *Am J Surg* 1996; 171: 2-9.
2. Hamdorf JM, Hall JC. Acquiring surgical skills. *Br J Surg* 2000; 87: 28-37.
3. Andreopoulos S. The folly of teaching-hospital merges. *N Engl J Med* 1997; 336: 61-64.
4. Weigelt J, Brasel K, Olson C, Thal E. Opinions of practicing general surgeons on surgical education. *Am J Surg* 1998; 176: 481-485.
5. Champion HR, Gallagher AG. Surgical simulation - a 'good idea whose time has come'. *Br J Surg* 2003; 90: 767-768.

Terminology in diabetes; an example of resistance to change

Saleh A. Aldasouqi, MD, FACE,
Ali S. Alzahrani, MD, FRCP