

# Surgical Residency Training Program

## Are changes needed?

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### ABSTRACT

**الأهداف:** جمع آراء الجراحين الممارسين حول برنامج تدريب الأطباء المقيمين الحالي.

**الطريقة:** تم جمع المعلومات من قبل جراحين ممارسين مشاركون في برنامج تدريب المقيمين في خمسة مدن في المملكة العربية السعودية خلال الفترة ما بين يناير 2004م وحتى ديسمبر 2005م. وقد تضمنت الدراسة ثلاثة محاور أساسية حول التعليم الطبي: مشاكل نظام التعليم الحالي، كيفية الأسلوب التعليمي و الطرق المثلى لتصحيح النقص التعليمي.

**النتائج:** تم إشراك 96 جراح في برنامج تدريب المقيمين. 34.4% منهم من وزارة الصحة. أفاد 61.5% من الجراحين بأن المهارات الجراحية يمكن اكتسابها خارج غرفة العمليات، النسبة الأكبر 58.3% أفادوا بأن تعويض النقص الأكبر في مستوى المقيمين هو عن طريق المهارات التقنية.

**خاتمة:** يجب إحداث بعض التغييرات الضرورية كي نستطيع تطوير نظام تدريب المقيمين ويعتبر التعاون بين المستشفيات من أجل ضم الجهود المتنوعة لتدريب الطلاب خارج غرفة العمليات ضروريا من أجل بناء مركز تدريبي قادر على بناء المهارات وتعليم كل من المقيمين الجدد والقادمي. كما تعتبر صيغة نظام التعليم للمعلمين وتشجيع المقيمين على زيادة مسؤولياتهم من العوامل المهمة لتطوير العملية التعليمية.

**Objectives:** To obtain a collective opinion of practicing surgeons on the current state of general surgical residency training.

**Methods:** A data collection sheet was completed by the practicing surgeons involved in the residency training in 5 cities in Saudi Arabia, from January 2004 to December 2005. The survey questions covered mainly 3 aspects of surgical education: problems within the current education system, how education should be conducted, and the best approaches to correct education deficits.

**Results:** A total of 96 surgeons involved in the training program responded. Thirty-three (34.4%) were from the Ministry of Health, 59 (61.5%) of the surgeons agreed that surgical skills can be acquired outside the operating theater. The majority (58.3%) considered that, the biggest deficit in graduating residents that must be corrected is technical skills.

**Conclusions:** Changes are necessary to improve our surgical training program. Collaboration between hospitals to combine the current diverse efforts to train residents outside the operating rooms is necessary to establish a structured skills training center to teach and train both junior and senior residents. Formal education courses for the educators and encouraging residents to accept more responsibilities are additional efforts to improve the process of learning.

*Saudi Med J 2009; Vol. 30 (5): 698-701*

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*Received 7th February 2009. Accepted 30th March 2009.*

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The residency is already defined as the period of time in which, a newly graduated physician is trained by taking on progressive responsibilities and learning to provide humane and professional care to patients.<sup>1</sup> The main factors leading to the dramatic changes in the practice of surgery are advances in medical technology, lower clinical case load, and greater public expectation. In such a situation, surgical education must adapt to face these challenges without compromising the level of the new graduates of the surgical program.<sup>2</sup> Graduates of the training programs constitute a useful

source of reliable feedback and evaluation,<sup>3</sup> and their ratings provide valuable information for use in program modification.<sup>4</sup> However, the opinion of the trainers is essential in improving the situation and should not be ignored. This have been highlighted in our previous report,<sup>5</sup> where the need for a change was emphasized and should be confirmed, if necessary, based on the opinion of surgeons involved in the training of surgical residents. The aim of the current study, is to obtain a collective opinion of practicing surgeons on the current state of general surgical residency training and education.

**Methods.** An 11 item data collection sheet was completed by the practicing surgeons from January 2004 to December 2005, by visiting 13 hospitals in 3 regions of the Kingdom of Saudi Arabia: the Western, the Central, and the Southern Regions. The survey questions covered 3 aspects of surgical education: 1) problems within the current education systems, 2) how education should be conducted, and 3) the best approaches to correct educational deficits. The majority of the questions were asked on a 4-point Likert scale, (\*Appendix). Demographic questions, including the length of practice of the surgeons and the institution they belong to were asked for classification into Ministry of Health surgeons, university surgeons, and others (Military, Security Forces, National Guard Hospital, and so forth). All participants in the study were involved in the training of surgical residents and were available at the time when the author visited the hospitals.

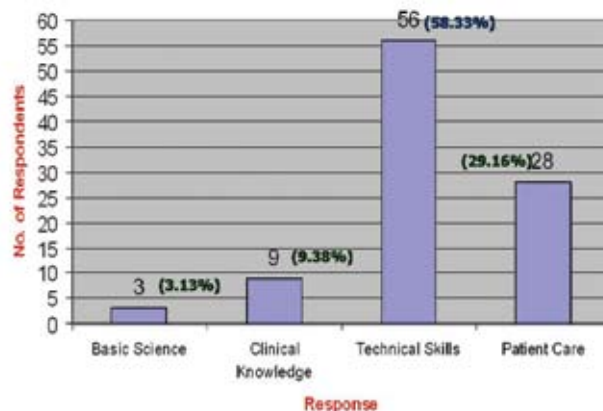
The data were analyzed using percentages and correspondence analysis (CA). Statistical Package for Social Sciences version 12.0 was used.

**Results.** Ninety-six surgeons involved in the training of residents responded. Thirty-three surgeons (34.4%) from Ministry of Health, 24 (25%) from university hospitals, and 39 (40.6%) from other hospitals (Military, Security Forces, National Guard, and so forth). The duration of practice for the surgeons ranged from 1-33 years, with a mean  $\pm$  SD duration of 12.4  $\pm$  7.8 years, and a median of 10.5 years. Approximately 61.5% of the respondents agreed that surgical skills (including minimal access) can be acquired outside the operating theater (for junior residents). Approximately 91.6% of the surgeons agreed that providing educational courses for the educators will result in better outcomes in Residency Training (Table 1). Approximately 57.4% of the surgeons think that the current methods of evaluation of the surgical residents are fair, and of these, the majority (58.3%) considered that the biggest deficits in graduating chief residents that must be corrected before graduation is technical skill (question 10 of the appendix, Figure 1).

**Discussion.** Satisfactory care of surgical patients requires knowledge, judgment, and technical skills, and accordingly, the first priority of postgraduate surgical training in a developing country, is to train a safe surgeon who practices his profession knowing his limitations.<sup>6</sup> While some surgeons do not believe that alteration in general surgery training is necessary, due to many satisfactory elements in the current format for training general surgery residents, others believe it is mandatory and this remains to be the situation in surgical programs worldwide.<sup>7,8</sup> An important change that has dominated in the evaluation of surgical training in many countries is the restriction of working hours for residents in training.<sup>9-11</sup> Despite growing concerns that the limitation of working hours would lead to diminished operative experience for the residents, this has not been substantiated by research data.<sup>12</sup> In the present study, 61.5% of the surgeons agree that surgical skills for junior residents (including minimal access) can be acquired outside the operating theater (question 6). The importance of acquiring surgical proficiency in a shorter time period is evident.<sup>13</sup>

**Table 1 -** Surgeons responses to various items on the questionnaire (Questions 4-8).

Serial number in questionnaire	Item (see Appendix)	Opinion of surgeons %	
		Agree	Disagree
4	Didactic material	47.8	52.2
5	Clinical material	44.7	55.2
6	Surgical skills	61.5	38.5
7	Current system	18.8	81.2
8	Education courses	91.6	8.4



**Figure 1 -** Distribution of responses to question 10 of the questionnaire. "The biggest deficit in graduating chief residents that must be corrected before graduation is technical skills."

Fewer chances for surgical trainees to learn skills in the operating room is the main factor.<sup>14</sup> This will be influenced further by the modern medical career.<sup>15</sup> A study comparing between 1992 and 2000, showed that surgical case loads have reduced to almost half.<sup>14</sup> The financial pressure to increase productivity has reduced the opportunity to learn surgical skills in the operating theater.<sup>16</sup> Surgical proficiency must therefore, be acquired in less time and with less number of cases with the risk that some surgeons may not be sufficiently skilled after completing their training.<sup>17</sup> It is also worth while noting that a stressful environment, such as a complex operating room, is not conducive to learning.<sup>18</sup> With the emphasis on an efficient use of the theater and waiting list reduction, supplementary training away from the operating room is likely to be necessary. The potential for postgraduate skills training was soon identified.<sup>19</sup> The aim of such centers, are to allow trainees to be exposed and to practice new skills in a safe, non-threatening environment before implementation in the real clinical setting.<sup>20</sup> Live animal models have been used for many years to supplement the teaching of surgical skills in the operating suite.<sup>21</sup> Cadavers have been used in some surgical training programs.<sup>22</sup> Many studies support the use of synthetic bench models in teaching operating skills to the trainees, particularly in the field of minimally invasive surgery.<sup>23</sup> Mannequin-based simulators, proved to be useful in improving both the technical and clinical skills, and for teaching teamwork and crisis management skills.<sup>24</sup> In the setting of clinical skills centers nowadays, and with the growth of multimedia technology, the potential for computer assisted learning to support surgical training has been recognized.<sup>25</sup> The advantages and challenges associated with virtual reality simulations have also been documented in an earlier review.<sup>26</sup> In our programs, there are some diverse efforts for training residents outside the operating theaters. Such efforts include Bowel and vascular anastomosis workshops in the animal lab at the University Hospital, Advanced Trauma Life Support Course in the National Guard, Basic Surgical Skills Workshop in the Military Hospital, and Basic Laparoscopic Training Courses in other centers. However, there is no formal single structured course for training residents. Collaboration between these different hospitals could generate a structured skills training program, allowing residents to rotate for few days, before joining the program, with formal assessment and evaluation at the end. Although, there are some recent local reports,<sup>27</sup> suggesting the need for change, saying that “the wind of change is blowing and we must start planning for the future from today” our surgical programs remain static.

In the current survey, the majority of surgeons (81.2%) disagree that the current system of training residents allows the chief resident to graduate as a surgeon competent enough to practice on his/her own (Table 1). In addition, they think that the major deficit in graduating chief residents that must be corrected before graduation is technical skills (\*Appendix, Question 10). Although non-technical skills such as decision making, error management, leadership, and communication are essential in the operating theater, the importance of manual skills in determining surgical outcomes is well recognized. Excellence in psychomotor ability has been determined in a previous survey, as the most important determinant of a successful surgical career.<sup>25,27</sup> William Halsted recognized the importance of technical ability with the establishment of his school for safety in surgery in 1904.<sup>28</sup> Others argued, that training in surgery is not simply a question of teaching operative techniques, as most problems with trainees occur in relation to attitudes and behavior.<sup>29</sup> In the present study, the majority of the surgeons (91.6%) considered that, providing education courses for the educators will result in better outcomes in Residence Training (Question 8). In this respect, it has been emphasized before, that “a clinical teacher is not an easy task”.<sup>30</sup> Griffen<sup>31</sup> stated that those responsible for surgical education “must know something about education”. Also, Roland<sup>32</sup> identified 3 concepts that relate to surgical education, the most important is the need to recognize and reaffirm the principles of adult learning that must continue to be a part of medical education. Some Royal Colleges sponsor courses, designed to provide surgeons with knowledge and skills on the surgical education curriculum, teaching strategies, administration, and performance evaluation.<sup>33</sup> Approximately 71.9% of the respondents in the present study, think that more resident personal effort is one of the best approaches to correct educational deficits (Question 11). The important component in resident education is that, the resident ultimately accept responsibility for his or her own education. Dr. William Halsted was among the first to implement the surgical residency system of progressive responsibility.<sup>28</sup> Once a resident stops waiting to be magically infused with knowledge and accepts more responsibilities, he or she can establish personal study habits and an agenda to achieve the level of knowledge and skill in caring for surgical patients to which we all aspire.<sup>34</sup>

This study suffers from a few limitations, firstly, it does not cover the Surgical Residency Program in the whole country, and secondly, if feedback was obtained from the trainees also, on their opinion on different programs, it would give a much better view from all sides.

\*The full text including Appendix is available in PDF format on Saudi Medical Journal website ([www.smj.org.sa](http://www.smj.org.sa))

In conclusion, some changes are necessary to improve our surgical training program to cope with the decreasing number of clinical cases, the community pressure for better care and the recent developments in minimal invasive surgery. The current diverse efforts to train residents outside the operating rooms, needs coordination and collaboration between hospitals, aiming to establish a structured Skills Training Center, to teach junior residents basic surgical skills, and to allow seniors to acquire advanced laparoscopic skills. Additional efforts are needed to improve the process of learning and training in the form of formal education courses for the educators, and encouraging residents to accept more responsibilities.

**Acknowledgment.** *The authors gratefully acknowledge Mr. Dustin Kangave and Corazon Rivera for their technical assistance.*

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