TURKISH SURGICAL ASSOCIATION RESIDENT COMMITTE REPORT ON SURGICAL EDUCATION 2010

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Executive Summary

EXECUTIVE SUMMARY

The 'Residents Commission', established within Turkish Surgical Association (TSA) in 11th of December 2009, aims to identify and solve the problems related to residency training or employee rights in the field of general surgery, to improve the communication between residents as well as with TSA, and to ensure them to take part in institutional decision-making processes.

General Surgery Residency Training Report was prepared after a yearlong study in 2010 by TSA Residents Commission to evaluate the results of **TSA General Surgery Residents' Attitudes Survey**, and approved by the Executive committee of TSA. Thus, it consists of comments and suggestions of TSA as well as surgical residents.

The report consists of three independent but complementary parts. The first chapter was intended as a compilation to inform the reader about postgraduate training and general surgery residency training in our country and in the world, and to enlighten the current debates. The second chapter consists of the results of TSA General Surgery Residents' Attitudes Survey. The third chapter was created as a road map for authorities, managers and trainers responsible for residency training in medicine to improve the quality of general surgery residency training. The first two chapters answered the questions why and how to improve the general surgery residency training in our country.

When considering the standardization and quality improvement of general surgery residency training in Turkey it is essential to reveal the current situation and listen to the voice of the trainee. TSA General Surgery Residents' Attitudes Survey highlights subjective views and trends of residents as well as objective data about training and working environment. These survey results showed the opinions of general surgery residents on basic headings, including education programs and implications, working conditions and on duty/on-call system, training infrastructure of the clinic, and contributions of faculty, and yielded an assessment of clinic from the residents' perspective.

The modern general surgery residency training is necessary not only for the development of a very well-trained new generation of surgeons, but also to achieve the most advanced quality of patient care in state hospitals and surgical clinics. The improvement in residency training and the allocation of adequate resources to achieve this result will be possible with that the Ministry of Health (MoH) understands the importance of the issue and takes action. Primary duties and responsibilities undoubtedly belong to the MoH in creating the national strategies to implement these proposals.

Postgraduate training in medicine

Postgraduate (specialty) training in medicine is an organized training program offered under the guidance and supervision of faculty (trainers). Both professional and personal development of residents and safe and appropriate health services for patients must be guaranteed by this program. Postgraduate training in medicine is an integrated system with structure, process and outcome components (1). Organizational oriented laws and regulations constitute the structure of specialty training. Postgraduate training process includes the integration of didactic training activities with an appropriate diagnosis and treatment activities under surveillance through a structured curriculum. The development of lifelong learning skills and professional expertise is considered to be a part of postgraduate training. The outcome components of this training are the performance and the adequacy of specialist (2).

The organization of postgraduate training varies between countries. It is essential for each country to develop an appropriate model that will cover existing health care system, needs and the future requirements, and to renew it over time. In our country, the generation of coordination between MoH, the Council of Higher Education, Medical Faculties, Turkish Medical Association and specialty associations in sharing authority and responsibility on postgraduate training should be among the priority targets (2).

Current trends on postgraduate training

The current trends of reforms focused on the postgraduate training in medicine can be stated as follows: (3,4). A progressive training program containing a combination of formal and informal elements, accredited educational institution, accredited faculty, proactive supervision, establishing a balance between health service (patient care) and education activities, enough time for training, the definition of proficiencies gained from specialty training, assessment of acquired proficiencies, shortening the working time of residents and increasing the central (government) financial support.

In the old paradigm, a certain amount of time spent in a clinic and rotations assumed to be equivalent to specialty training. Learning was believed to have carried out naturally in routine clinical process. Thus, many institutions had no formal training program with clearly determined objectives. The roles, duties and responsibilities of faculty were not adequately defined. Training needs of residents have not been taken into account. Yet in recent years, educational objectives and content are clearly defined in widely adopted competency-based training model. Training details were specified. Training strategies, methods and assessment systems have been identified. Training environment was provided to meet training purposes. Competency-based training focuses on resident's performance, in other words learning outcomes to realize the original purposes in line with the curriculum goals and objectives. Accreditation Council for Graduate Medical Education (ACGME), the body which is responsible for the accreditation of residency programs in the United States (US), has identified six competency domains in residency training in 2006 (5). Of the six skills of ACGME competency based training system that all residents have to gain, patient care, medical knowledge and lifelong learning are developed quite well over many years. On the other hand, communication skills and professionalism did not become an important part of training with the assumption that they are a part of personality or a natural part of being a physician. Surgical care of patients requires the surgeons to work with all other members of multidisciplinary team. However, traditional surgeons tend to emphasize their personal qualities. Systems-based practice has become the antithesis of surgeons in this classical type of behaviour. Professionalism, communication and system-based application are especially important in improving quality of service being offered to patients. In recent years, general surgery training in the US is focusing on professionalism, communication skills, and effective work in multidisciplinary team (6).

Postgraduate training in medicine is changing in many countries. This process can be summarized with the following statements: Postgraduate training is being modernized and changed to competency-based training. In these countries an effort was put in to ensure cooperation and collaboration between institutions and organizations responsible for postgraduate training, and postgraduate training is organized to be closely related to health needs of society and the country's health system. Postgraduate training should be related and integrated with medical school training (undergraduate training), and continuous medical education (CME)/continuing professional development (CPD) activities after graduation. It is emphasized that each country has to plan postgraduate training by planning manpower and workload according to priority health problems and health care system.

Marketing in health care and postgraduate training

In the last two decades market driven health system and as a result financial pressure on academic centres have increasingly become a problem in all around the world(7). Competitive and market-oriented health services led to the bankruptcy of 125 academic centres in the US in the early 2000s. Many of the others have negative budget. Barely surviving training hospitals have difficulty in fulfilling their traditional functions in terms of education, research and patient care missions.

Such a system leads faculty to spend more time for patient care and the amount of time allocated to education has steadily decreased (7). According to an assessment published in 2006, the cost of health care services in training hospitals was about 25-30% higher compared to other hospitals due to very important functions such as education, research, complex and seriously ill patients treatments, and free medical services for poor patients. It has been reported that state or insurance companies, who previously accepted relatively high bills of training hospitals without any reservation in order to support the social functions mentioned above, have abandoned this approach since the early 90's (8). In recent years the hospitals have suffered very serious loss of income with the package payment system. Financial crisis has particularly negative effects on education (8). The academicians are extremely concerned about the deterioration in academic quality, although initially they showed a proactive approach to marketing. Nowadays a very few number of academicians are available as trainers and mentors. The academicians are overwhelmed by clinical workload, racing to serve more 'paying' patients. The productivity of academician is measured with the money he/she brings into the institution. The services offered to the patients without ability to pay were excluded from the assessment (8). Working and training environment has become commercial. It is not possible for residents to develop right attitudes and behaviours where patients are accepted as customers, the best visit seen as 'the shortest visit', and where shortage of funds and a way of making money is spoken constantly (8). Marketing in health care and its devastating effects on medical training is not unique to the US. The results of a study conducted within European Union also emphasize similar negativities (9).

In recent years university hospitals of our country, which are also public hospitals, are transformed into 'health enterprises' especially with the main policy of MoH called 'transformation program in health'. Since government support has cut a little more each day, and they are entirely based on revolving funds many of these hospitals have negative budgets. The transfer of research funding to revolving funds has made university hospitals unable to breathe.

General surgery specialty training

Today general surgery contains diseases of digestive system including oesophagus, stomach, small intestine, large intestine, liver, pancreas, gall bladder as well as thyroid, parathyroid glands, peripheral vascular diseases, hernia, skin and breast diseases. General surgeons are educated to manage almost any emergency surgical case. Minimally invasive surgery and endoscopy applications are also within the scope of general surgery (10).

Although the basic features of surgery have undergone limited changes since Halsted, today's surgery residency programs in many countries have become structured, monitored programs, subject to continuous evaluation and accreditation processes (11). Since the beginning of the 21st century many new developments have necessitated changes in the structure and the nature of general surgery training. These include the information explosion in the area of surgery, new technologies in surgical procedures and in teaching/assessment of surgical skills, development in the multidisciplinary cooperation for surgical health service delivery, increasing demand for advanced / specialized general surgery service, quality and safety concerns for the patient care, putting emphasis on professional standards, and increasing expectations of patients (11).

General surgery postgraduate training in Turkey

In our country general surgery specialty training is provided by universities affiliated to the Council of Higher Education and training and research hospitals affiliated to the MoH. Postgraduate training in general surgery lasts five years. At the end of five years, residents write theses. The candidate surgeon who is successful at the theses stage has to carry out an operation with primary responsibility and be supervised by the jury. After the candidate imparts observation of his/her surgical skills in an operation, his/her theoretical knowledge is verified with oral and written exams. Unfortunately written exam is generally applied as a matter of formality after oral exam. General surgery specialty training may extend to 5.5 - 6 years if necessary. In this period there are mandatory rotations in nine different surgical specialities in a total of 10 months. MoH is the statutory body responsible for postgraduate training.

As at March 2009, 1005 residents are receiving specialty training in 123 general surgery clinics, where 51 of them are functioning in university hospitals, and 72 of them in 26 different research and training hospitals affiliated to the MoH. About 60% of them (625) are serving in university hospitals and 40% (380) in Ministry of Health Research and Training Hospitals (MoHRTH) (12).

In our country after residency training in general surgery, noncompulsory but encouraged "Surgery Board Exam" is applied for about ten years. Surgery board exam is administered by Turkish Board of Surgery (TBoS), the autonomous agency of TSA (13). The main objectives of TBoS are to identify and promote the standards of general surgery training, to certificate the national surgical competence, and to accredit the postgraduate training institutions. General Surgery Residency Training Core Curriculum and the list of the operations including the number and types of surgical procedures that the residents are supposed to perform during training were published in 2006 (14). The residents should certify with log book that they have performed the total of 350 operations in the list, including 150 major operations, personally in order to enter the second stage of TSA Board Examination. Accreditation of institutions providing general surgery residency training was started in 2007.

Current trends in the field of general surgery specialty

That increasingly small number of physicians prefers general surgery residency is a common problem encountered in many countries (15). The reasons of this are as follows: The doctors prefer a more controlled way of life, the income of general surgery residents and specialists is lower than other specialties, and the number of women physician is increasing. "Over-specialization" is an important problem for a long time in the US. In

recent years, the majority of general surgery residents are directed to laparoscopic surgery fellowship, which is not yet an independent subspecialty. In addition, many of the general surgeons prefer to go on training in subspecialty fields (such as colorectal surgery, transplantation etc.) of general surgery (15). Long working hours and low wages during residency training are among the negative factors (16,17). The rate of physicians preferring the general surgery residency has also greatly reduced in Japan (18).

Women surgeons

As other professionalities women were interested in medical profession, and the perception of male profession has changed. It is estimated that one third of all doctors in the world would be women in 2010. At the present women comprise 60% of undergraduates and 50% of graduating medical students (19). In our country 41% of a total of 33 871 medical students are women in the school year 2006-2007 (20). The rate of women in surgical branches rose from 2% to 24% from 1989 to 2007 in USA (21). In a study conducted in Australia and New Zealand in 2009 the rate of women surgeons and women general surgery residents were found to be 7% and 30%, respectively (22). The number of women surgeon continues to increase in our country. In Turkey, after national medical specialty examination was centralized, women overcame the prejudice to be surgeon and were able to start surgical residency. Our country has approximately 500 women surgeons in all surgical branches. Also the number of women entering the general surgery field has increased. Approximately 150 women general surgeon are member of TSA.

How is the general surgery training changing in the world?

Many fundamental changes beginning from selection of residents to training period and evaluation process have become necessary in many countries to make general surgery residency training attractive (23). Current developments in general surgery training require structural reforms in our country as all over the world.

Basic surgical training model has been valid for years. In general this conservative approach is a reflection of the perception that the surgeons are well-trained with existing training programs. However today there are drastic changes in training environment: The European Union (EU) and the US have imposed restrictions on residents' work hours. Physicians are faced with much less tolerance for medical errors. The independent role of residents is decreasing. Difficult and complex technological innovations and focused approach to patient safety are complicating the surgical training (24).

Reduction of work hours in surgery residency training

After Libby Zion had died in 1984 under the care of overworked resident, politicians and medical chambers began work on working hours in order to improve patient safety. As a result of this ACGME adopted some regulations in the US:

- Working hours should not exceed 80 hours per week on an average four weeks period..
- The residents should be free from all patient care and educational obligations one day in seven, averaged over four weeks.
- There must be 10 hours rest period between clinical assignments.
- In-house call duty should not be more than once every three nights.
- Continuous duty time including in-house call duty should be limited with 24-hours (with an additional six hours permitted for patient transfers for continuity of care of patients, or for didactic education programmes) (25).

Although it is not applied in all EU member countries, general surgery residents' working hours were restricted with 45 hours then 40 hours per week in accordance with EU laws. This law is carefully applied by some member countries such as United Kingdom, Scandinavian countries, and the Netherland. Germany can not implement this law and fines each year. UEMS Section of General Surgery proposed to increase weekly working time from 45 hours up to 60 hours in 2010.

There is no such debate in our country. However, some studies have been published reporting that the working hours are long and the rest periods are not enough. In an article published in 1997, the weekly working time of first-year general surgery residents was reported to be 115 hours in MoHRTH and 120 hours in the university hospital (26). After making international comparisons this article has emphasized the negative effects of excessive workload and long working hours on residents' training. In another study, conducted in 2009 with residents in all level, in a surgical clinic of a university the average weekly working time and the number of on duties per month were found to be 95.6 (81-108.5) hours and 7:29 (4-10), respectively (27).

Structured curriculum and assessment system

General surgery residency training curriculum is unplanned and unorganized in many clinics. The residents use informal learning or training opportunities rather than a program structured according to educational objectives (24). Generally core curriculums are similar to the index of textbooks, in the form of a long list. However, there is not an integral relationship between this list of objectives and plan/implementation of the curriculum (24). In addition, resident training is held in a very strict hierarchical order in many clinics, which leads to the residents to perform many ordinary tasks which are not directly related to their education, and waste their time (24). In this context, an appropriate balance should be established between hospital services and training with minimizing non-educational hospital services (such as patient transport, secretarial work etc.), but trying to maximize educational opportunities. Clearly stated training objectives in general surgery core curriculum and the determination of the expectations from residents as well as the way of assessment of adequacy in accordance with these training objectives has the potential to seriously improve the educational process. In such an educational system, the qualification criteria which must be completed before progressing to the next level of education (second or third year of residency etc.) are clearly defined. The knowledge and skills of residents can be improved drastically where the objectives are actualized, daily practice of residents is evaluated whether it meets the objectives and expectations, and feedback mechanisms are activated.

University of Toronto leads to a new experience which will create dramatic changes in the general surgical training. Toronto model handles the surgical education in modular system including objectives in conjunction with curriculum. In addition, the residents spend a significant period of time in skill laboratories, and learn surgical anatomy on cadavers and virtual reality models. With this approach, a dramatic acceleration in acquiring surgical skills would be expected. In this model the tasks without educational purpose have been eliminated, and wasted time has been reduced. Performance assessment of residents is embedded in daily practice. The model aims to improve collegiality and team work among residents, and to reach performance acceleration in the daily tasks (6).

Technological developments in education

Skill laboratories and simulation models are used increasingly in general surgery training. Having benefit from this type of training before performing surgery on patients is an important development (28). Simu-

lation technology plays an important role in the acquisition of surgical knowledge and skills. Simulation system provides a learning environment close to the ideal. Residents would filter the process through their mind, get used to surgical instruments (cognitive level), develop appropriate motor behaviour, and achieve an autonomous course where the procedure is ended without any problem. With sufficient repetition, the resident reaches a good performance, thereby reducing the demands on guidance of faculty (6). The studies showed that an hour spent in virtual reality simulator corresponds to two hours in the operating room (transfer efficiency rate 2.28) (29). Also the randomized studies have shown that the abilities gained in the virtual environment might be transported to the operating room (30,31). These new training techniques seem to have a potential to better educate the surgeon in a shorter time without jeopardizing patient safety. Near-term objectives of the American College of Surgeons include the definition of the standards of skill centers, giving an active role to simulators in training, and increasing the use of simulation in the training not only of residents but also of all surgeons (32).

TSA General surgery residents' attitudes survey

The survey was web based to be answered online (33). The number of residents invited to survey with actual e-mail addresses was about 670 out of 1005. The targeted response rate was set to 50%. Residents have received two reminder e-mails one month apart from each other.

Likert scale responses, yes / no answers and free text responses were used in combination. The average time to complete questionnaire was 30 minutes. There was no obligation to respond to all questions.

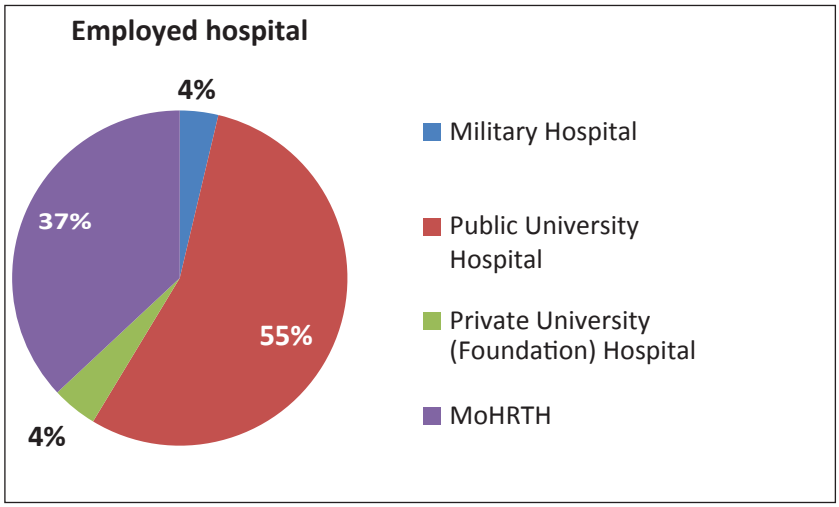
All analyses were performed using SPSS 11.0. Saphiro Wilk and Kolmogorov-Smirnov one-sample tests were used to test the appropriateness of numeric variables to normal distribution. Nominal variables were compared with chi-square analysis and numeric variables with the Mann-Whitney U test or the Kruskal Wallis variance analysis. Spearman's rho test was used to analyze associations between two ordinal variables. Median and 25-75% percentile were used for data that did not follow a normal distribution. The alpha level of significance was set at 0.05.

The survey was performed anonymously; the respondent's personal data were not recorded on the questionnaire.

Findings and discussion

1- Demographics and characteristics

Our country has a total of 1005 general surgery residents. Almost 60% (625) of them work in university hospitals whereas the rest of 40% in MoHRTH (12). Only 670 (67%) of 1005 residents with accurate contact information could be invited to participate in the survey. A total of 435 general surgery residents responded to the survey. The completion rate of the survey was 65%. Considering the total number of residents, the rate of residents completing the survey was 43%.

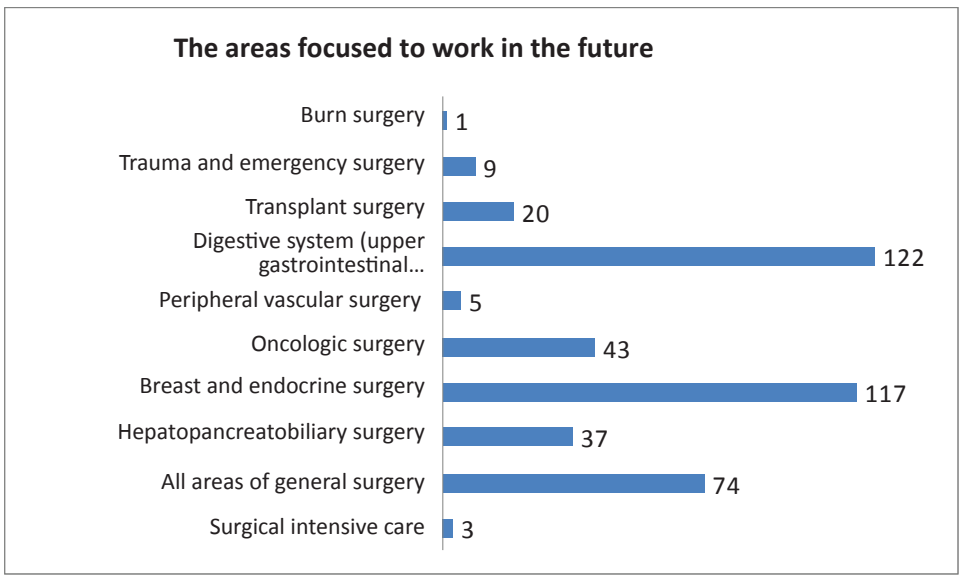


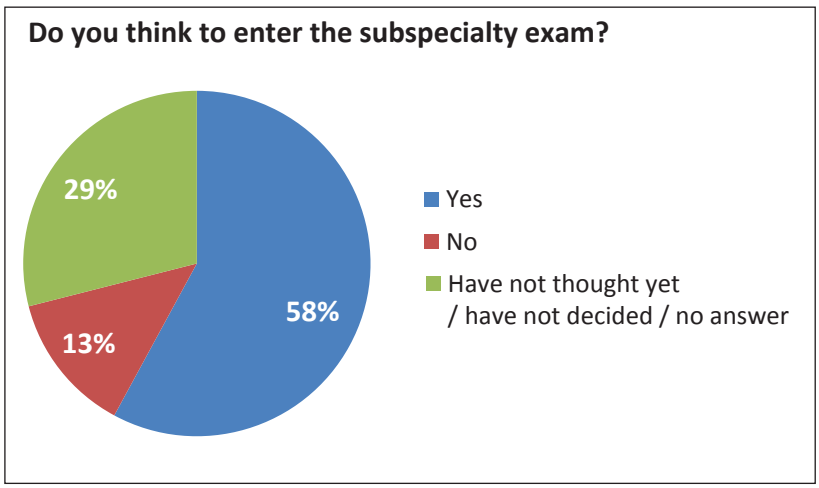
The percentage of residents working in public university hospitals, MoHRTH, private university hospitals and military hospitals were, respectively, 55%, 37%, 4% and 4%. While 22% of residents surveyed were 3-year residents, 21% first-year, 19% fourth-year, 16% fifth-year, and 4% 5 or more year residents. As our study sample was homogeneous in terms of size and distribution, it represents the country.

The median age of subjects was 29 years, with no differences in age between male and female residents (p=0,261). Eighty eight percent were male and 12% were female residents. Fifty two percent were married and 25% had children.

Despite 92% of the residents stated that they have started residency training in general surgery willingly, only 1/3 (31%) of them have chosen general surgery as a first choice, and the rate of the residents desired general surgery in the first three choices was only 55%.

In which field do you want to work more intensively in the future?



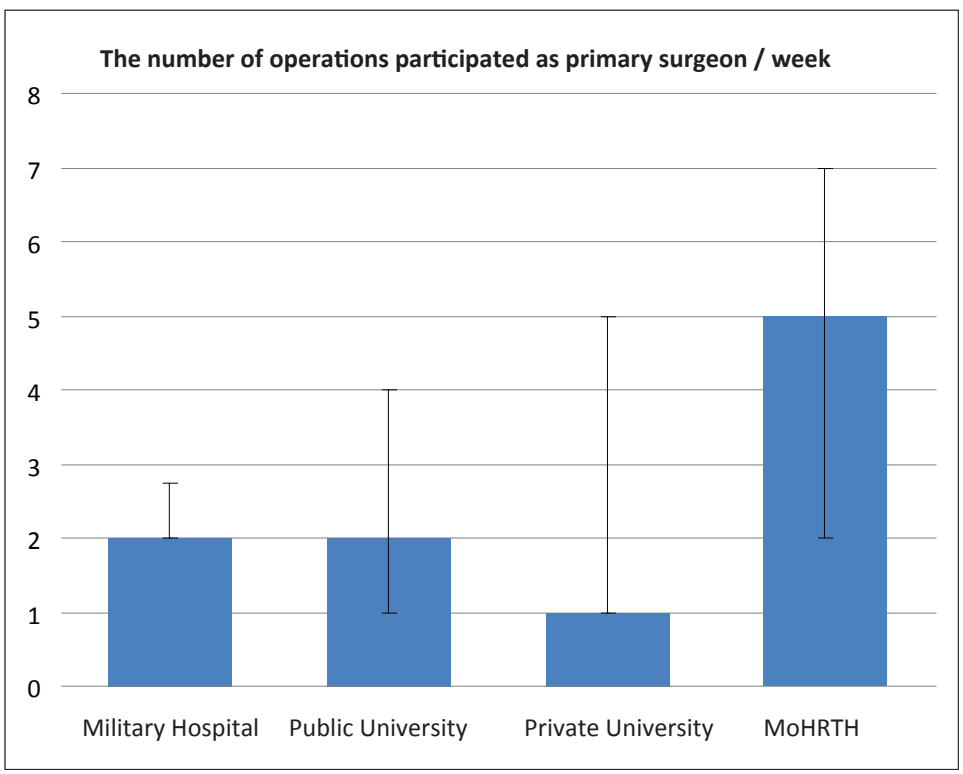


The rate of residents disposed to work in all areas of general surgery remained at 17%. The areas that the residents focus to work in the future are digestive tract (upper gastrointestinal and / or colorectal) surgery with 28% and breast and endocrine surgery with 27% in line with the concentrated areas of the clinics they were trained. Most of the women residents preferred breast and endocrine surgery.

Fifty eight percent of the residents had a mind to have subspeciality exam.

2. Surgical experience

The number of operations that you participate as a primary surgeon in a week

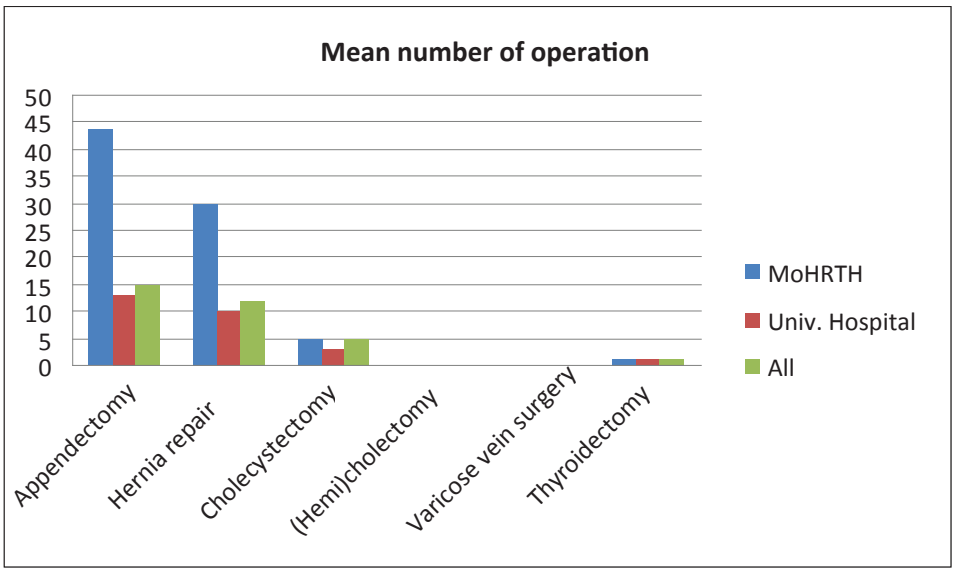


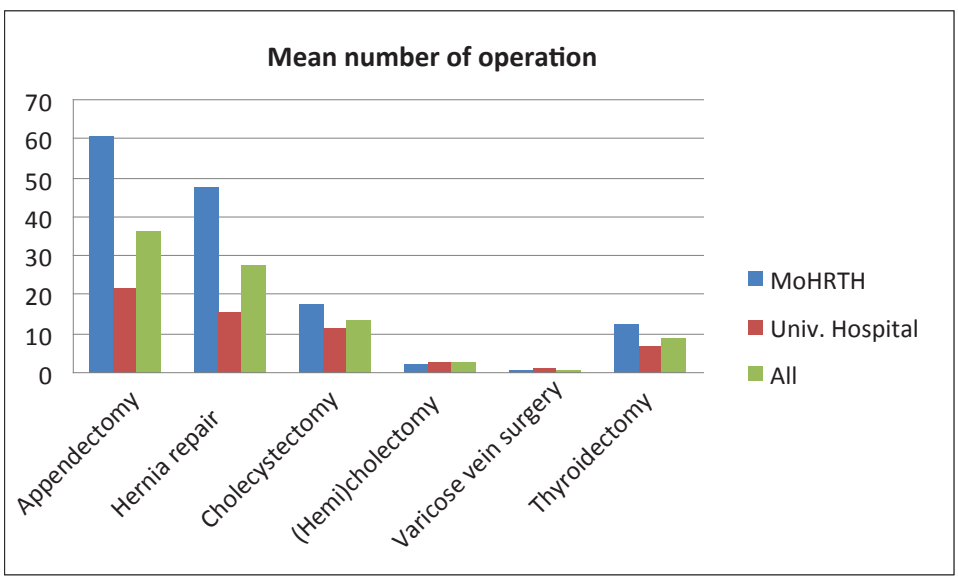
p=0,001

The median number of operations performed in a week by a resident as primary surgeon is 2. This value, which is significantly higher than other training institutions, is 5 in MoHRTH (p=0,001).

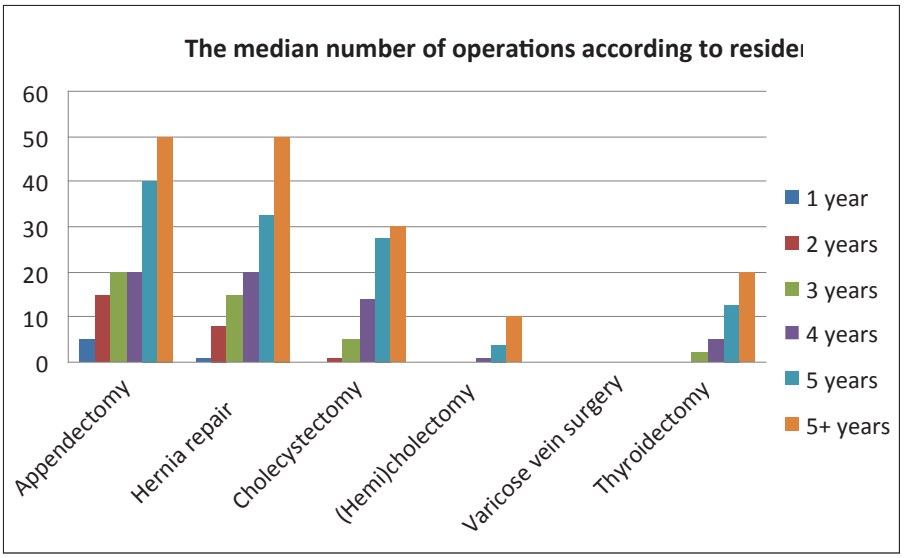
The number of index operations

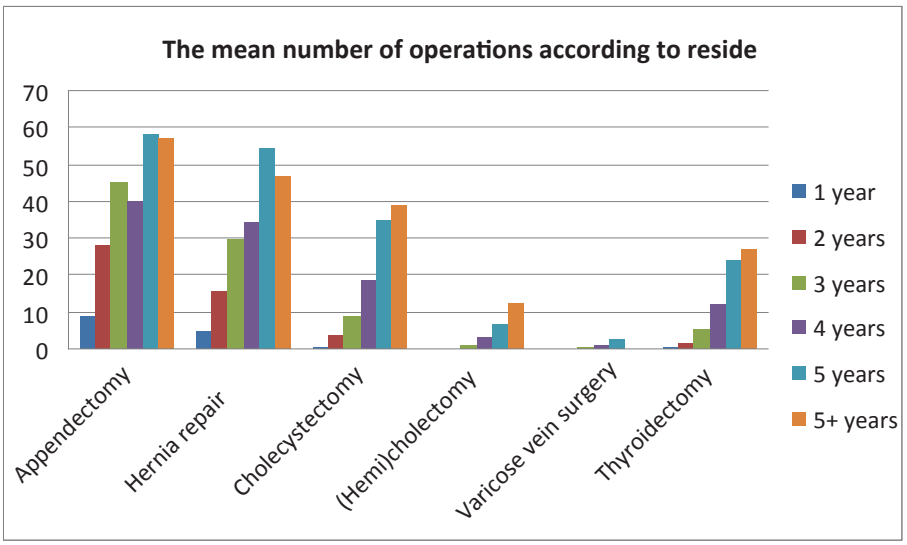
- How many of the following surgical procedures have been performed by yourself as a primary responsible surgeon (or had it done by you personally)?

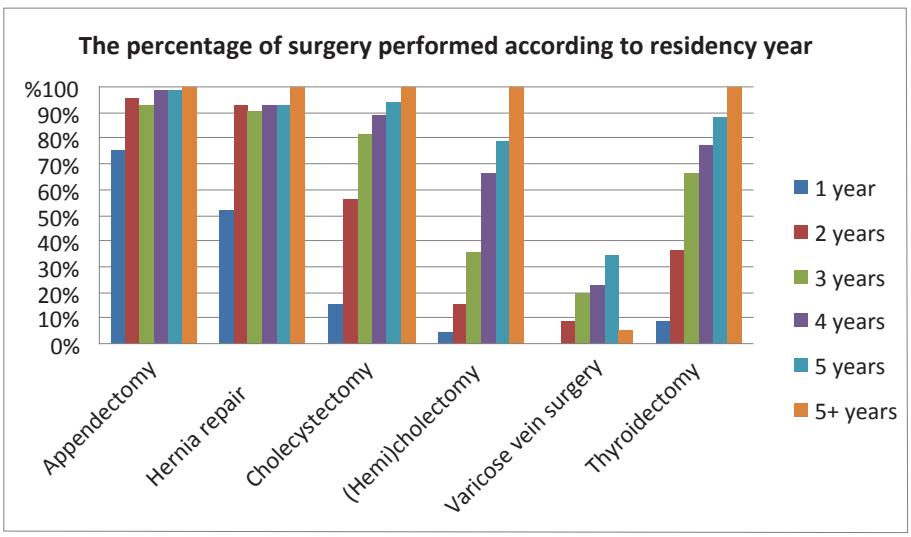




The median number of operations performed by residents were found to be 15 for appendectomy, 12 for hernia repair, 5 for cholecystectomy, 1 for thyroidectomy, and 0 for colectomy and varicose vein surgery. According to these results there is a risk that our country may not be able to follow the standards in terms of index operations including colectomy and varicose vein surgery.


The median number of operations according to reside
60
50
40
30
20
10
0
Appendectomy
Hernia repair
Cholecystectomy
(Hemi)cholectomy
Varicose vein surgery
Thyroidectomy
1 year
2 years
3 years
4 years
5 years
5+ years

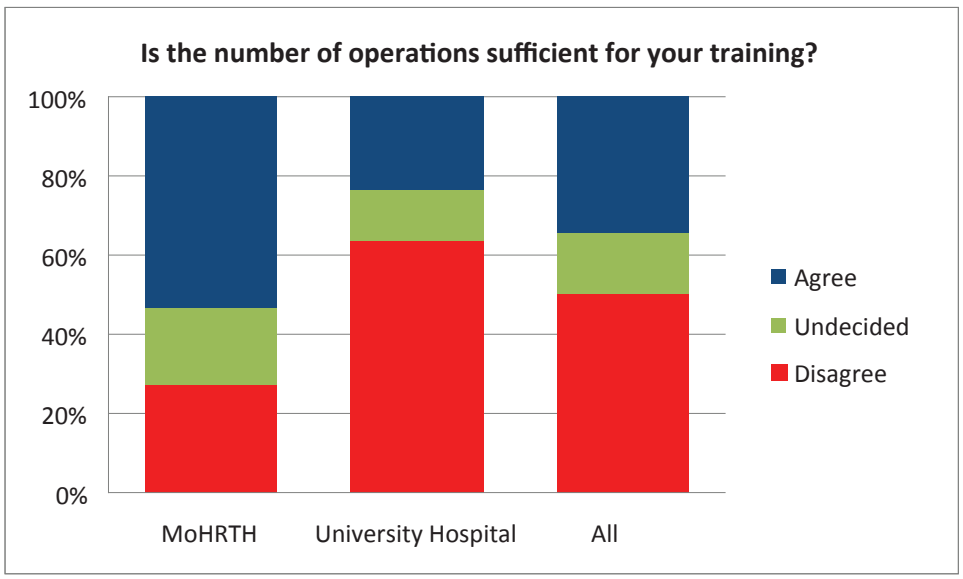

The mean number of operations according to reside
70
60
50
40
30
20
10
0
Appendectomy
Hernia repair
Cholecystectomy
(Hemi)cholectomy
Varicose vein surgery
Thyroidectomy
1 year
2 years
3 years
4 years
5 years
5+ years


The percentage of surgery performed according to residency year
%100
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Appendectomy
Hernia repair
Cholecystectomy
(Hemi)cholectomy
Varicose vein surgery
Thyroidectomy
1 year
2 years
3 years
4 years
5 years
5+ years

Considering the index operations, appendectomy is performed beginning from the first year and the others from the second year. The rate of the residents that have never performed any thyroidectomy in the fourth and fifth education years is 23% and 11%, respectively. These rates were 33% and 21% in the fourth and fifth education year for colectomy.

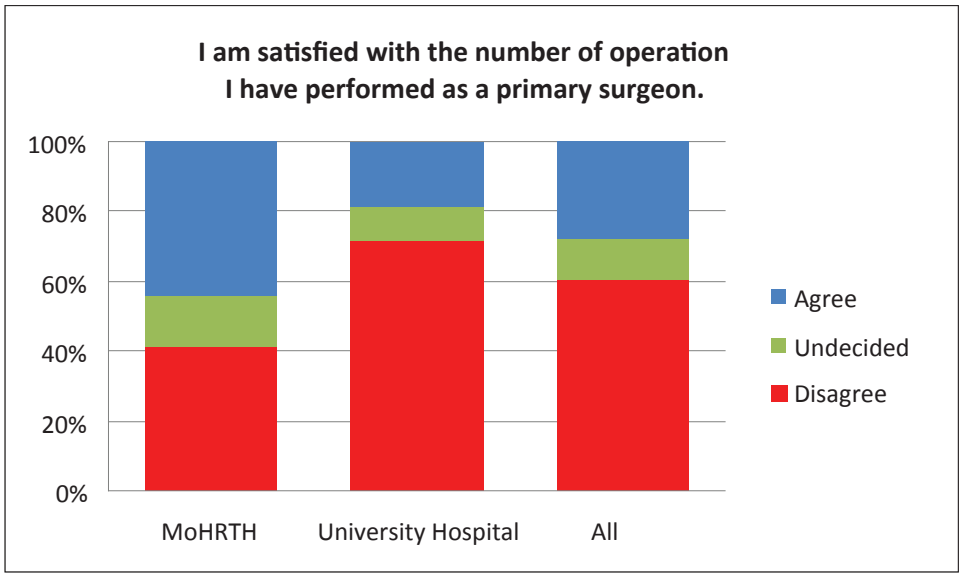
According to these results there is a risk that our country may not be able to follow the standards in terms of index operations including colectomy and varicose vein surgery. If varicose vein surgery is to be considered as an index operation (as in international programs) then the target has not been achieved in five years.

- Do you believe that the number of operations you have reported in a previous question is sufficient for a general surgery resident in your level?



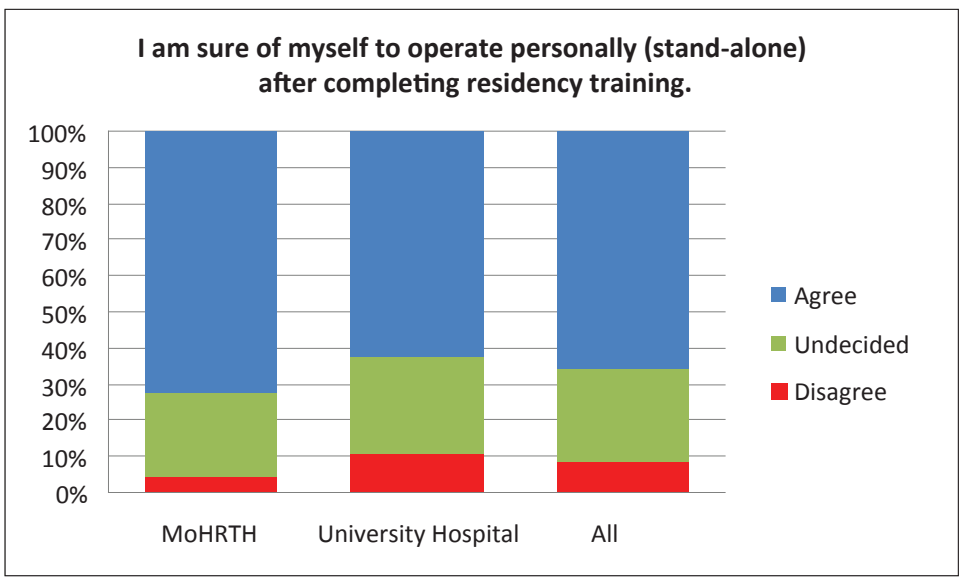
p=0,001

Surgery experience is perceived as being insufficient by the half of the residents. The residents working in MoHRTH would be more to believe that the number of operations is sufficient for their own residency level compared to the residents trained in university hospitals (53% vs 24%, p=0,001).



p=0,001

In general 61% of the residents stated that they were not satisfied with the number of operation they performed as a primary surgeon. The residents trained in MoHRTH were found to be more satisfied with the number of operation that they had opportunity to perform as a primary surgeon compared to the ones trained in university hospitals. (35% vs 19%, p=0,001).

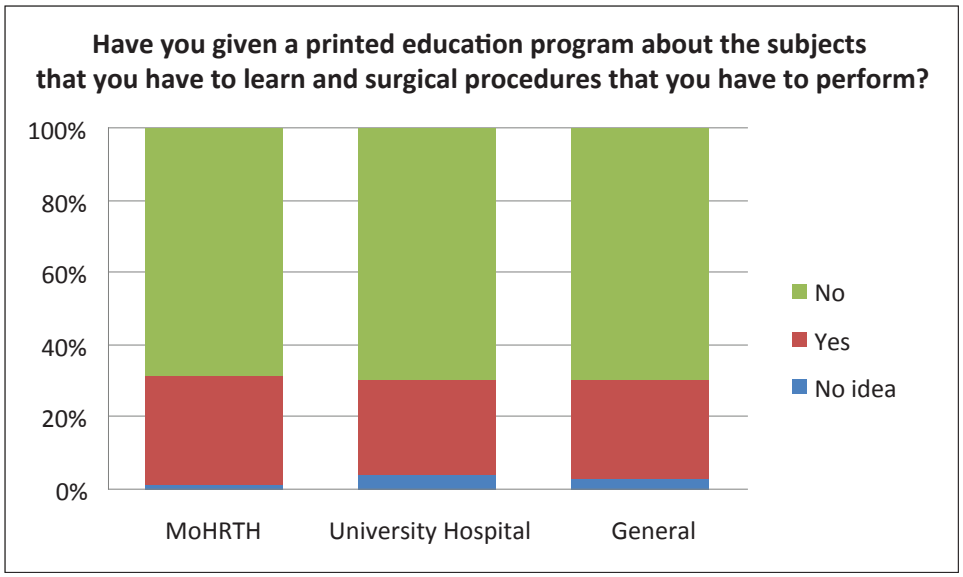


p=0,008

Only 8% of the residents claimed that they are not confident enough to perform procedures by themselves after completing residency training.

3. Educational program and assessment

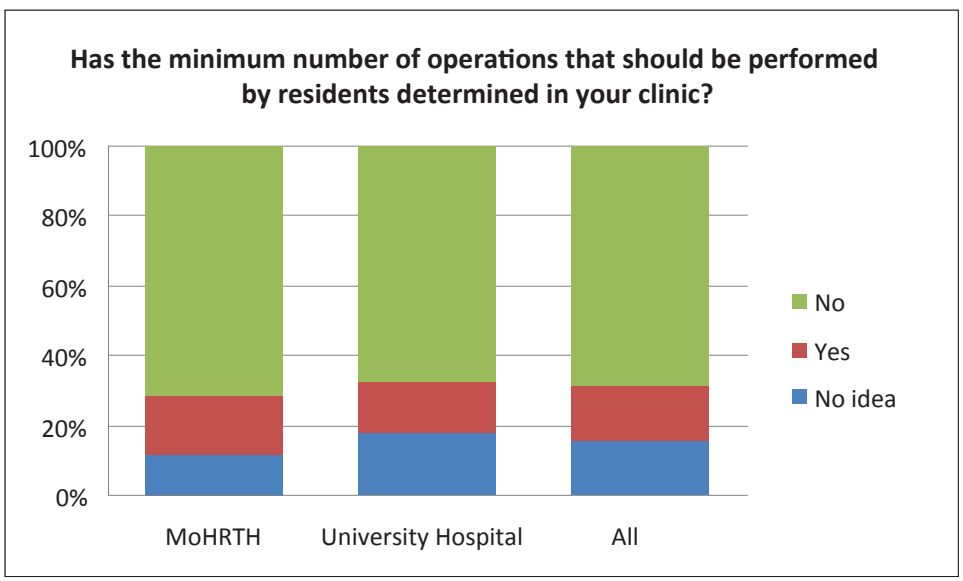
Educational program



p=0,312

Nearly 66% of residents didn't have a mentor and 76% of them did not have regular meetings with their mentors. Seventy percent of residents have not been given printed educational curriculum and 69% of them were not aware of the minimum number of operations that they should perform during training period. Only 56% of the residents stated that the log book system has been in actual their clinics. Seventy two percent of residents who had a log book indicated that the log book had not been used effectively.

The rates of residents unaware of TSA Core Training Program and TSA log book were 59% and 66%, respectively.



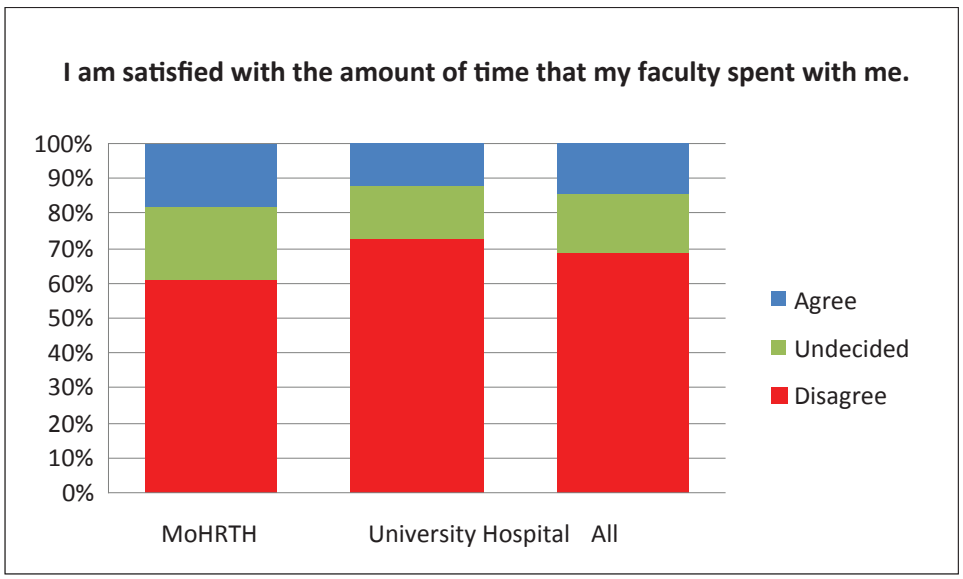
p=0,24

Sixty nine percent of the residents have reported that the minimum number of operations that they should perform during their training period has not been determined. This statement does not vary among institutions.

Fifty two percent of the residents expressed that the formal rotations and the duration of these rotations were not complied with the regulatory rules. Moreover, 63% of the residents suggested that they could not find the opportunity to work actively in clinics where they undertook rotation.

Assessment

Forty seven percent of residents stated that they didn't get feedback from faculty about their performance in surgery.



p=0,174

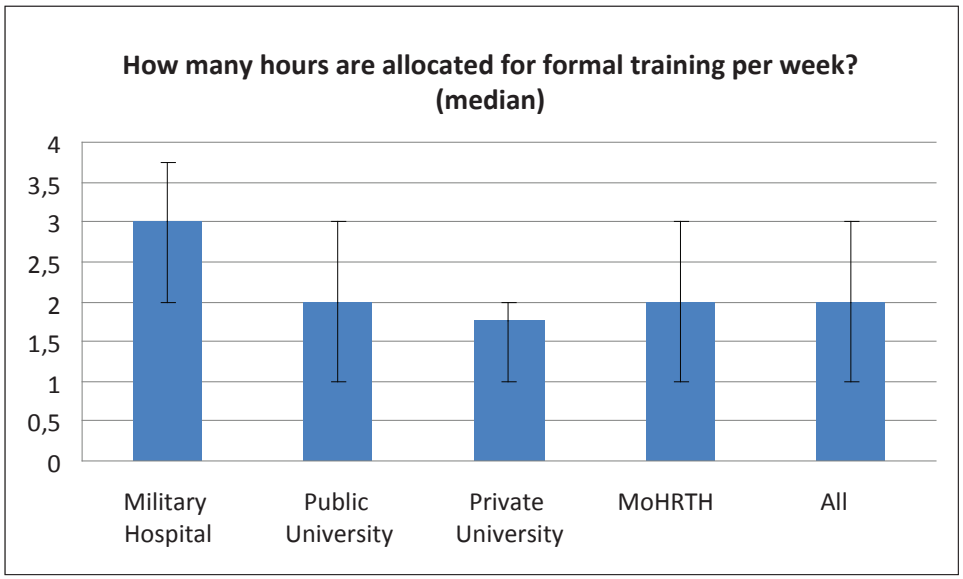
Only 14% of the residents expressed their satisfaction with the amount of time that faculty spent with them.

While 62% of the residents working in MoHRTH stated that performance-based pricing adversely affects their education, 50% of the residents working in university hospitals suggested that the revenue system implemented with faculty as a private patient (who pays some additional money to the faculty in order to have their service) adversely affect their education.

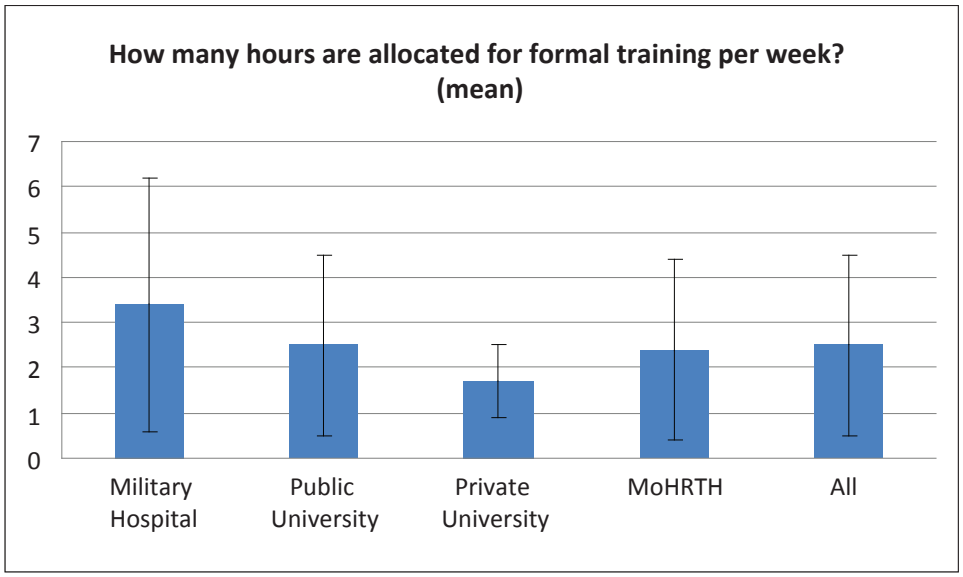
Only 26% of the residents might have received advice about career planning and only 22% of them have been adequately informed about the characteristics of education and how this education will lead them in the future.

4. The process of training and infrastructure facilities, midterm examinations and assessment of institutions

- Approximately how many hours per week have been devoted for formal education in your clinic (lectures, seminars, conferences, journal club, and mortality-morbidity meetings etc.)?



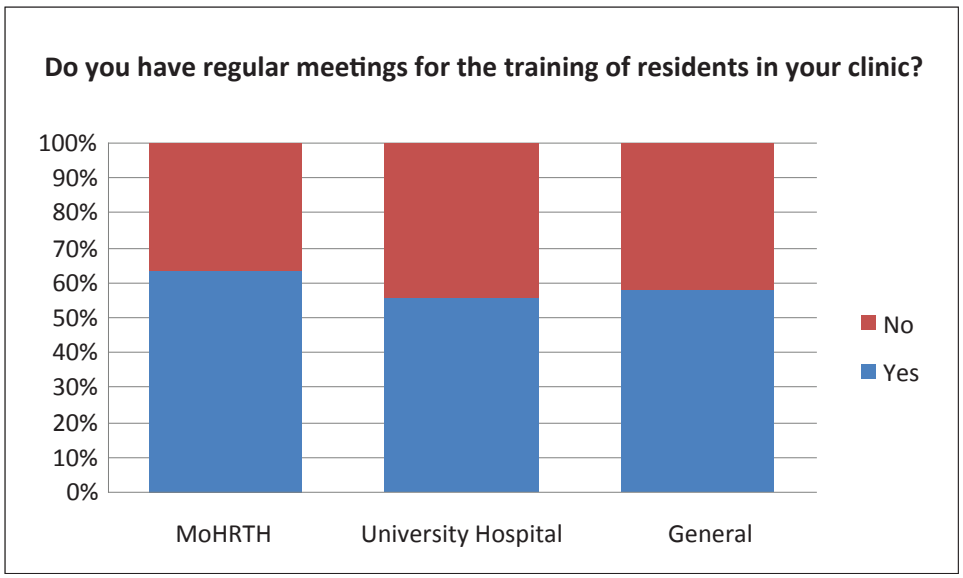
p=0,082



The median time allocated for formal/didactic training (lectures, seminars, conferences, journal club, and mortality-morbidity meetings etc.) in the clinics is two hours per week. This time do not vary between institutions.

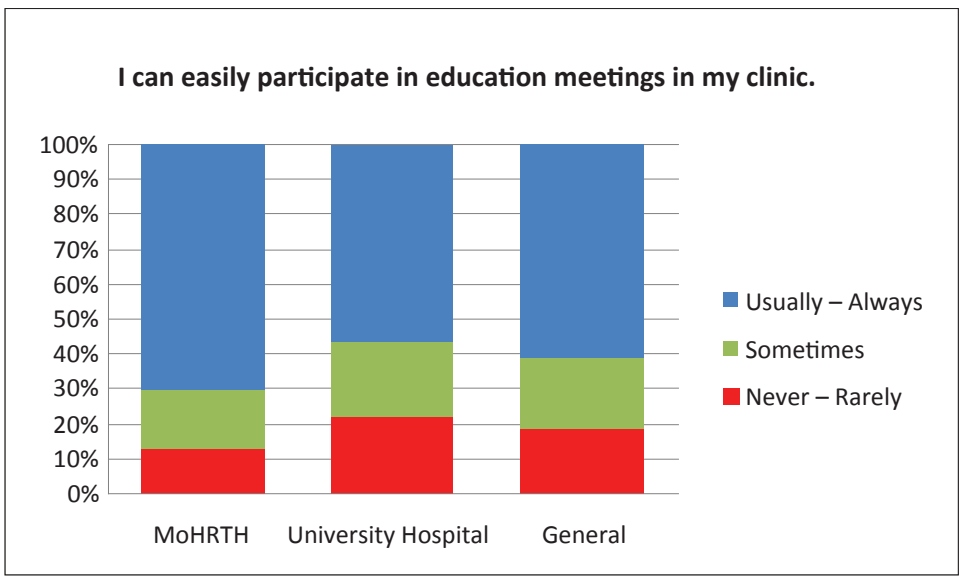
While 57% of the residents working in MoHRTH have found the time allocated for training sessions insufficient, this proportion was 71% in university hospitals.

Have didactic/formal training sessions been held on a regular basis in your clinic?



p=0,128

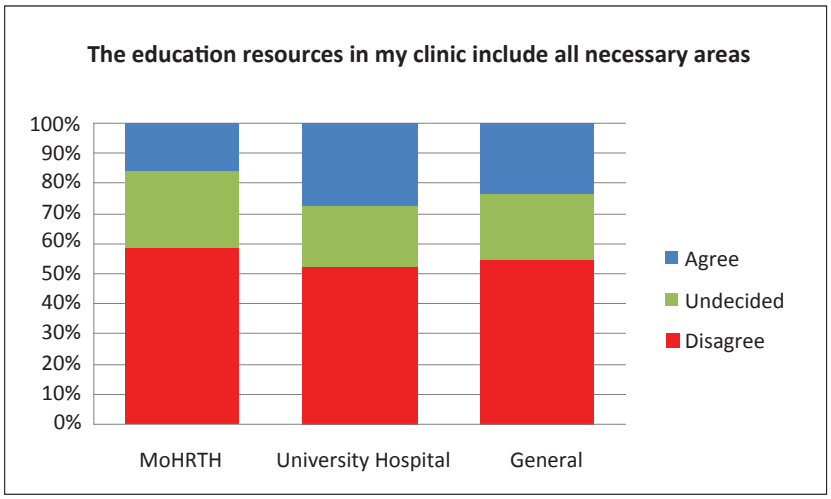
Nearly half of residents stated that didactic/formal meetings for residency training have not been performed. In the clinics where meetings have been performed the time allocated for this training was very low (2 hrs / week) and found to be insufficient. While 61% of the residents have stated that they could have easily participated in training sessions, 19% of them stated that they couldn't have participated. This finding is disadvantageous to university hospitals and statistically significant (70% vs. 56%, p=0,008).



p=0,008

Only 19% of residents have reported that they had opportunities to access laparoscopic simulation training, 16% skills laboratory training, 5% cadaver dissection, 22% e-learning and 58% online library.

Do you agree with the statement "The existing educational resources in my clinic cover a great diversity of areas that I need to perform my curriculum."?



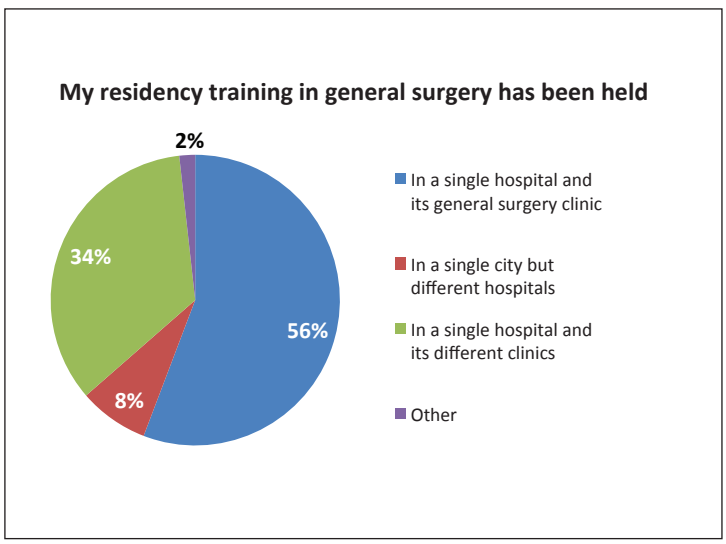
p=0,055

Only 23% of the residents have been agreed with the statement that the available resources include all areas necessary in order to perform the curriculum.

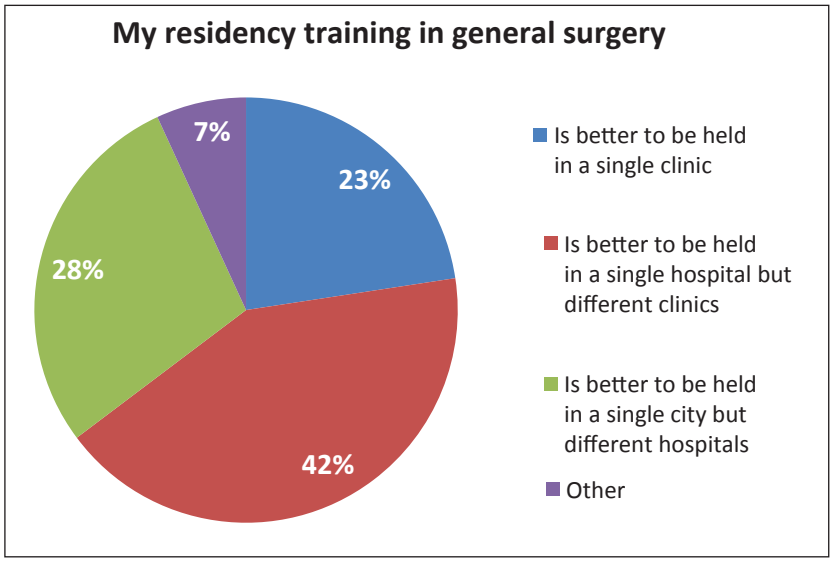
Sixty three percent of the residents reported that exams were conducted in a certain period to evaluate the residents' progress, but only 22% of them stated that these examinations were designed to measure both theoretical and clinical surgical skills. Whilst 73% of the residents have believed that residents training should be evaluated with midterm exams, 45% have defended national standard (central) exams.

Thesis subjects of 9% of the residents have been determined in the first year and 22% in the second year. Despite the rate of the residents indicating that the infrastructure of their institution was not sufficient to conduct the study was 32%, only 26% of them were directed to another institution for thesis study. Sixty one percent of the residents stated that they have of involved in the clinical researches.

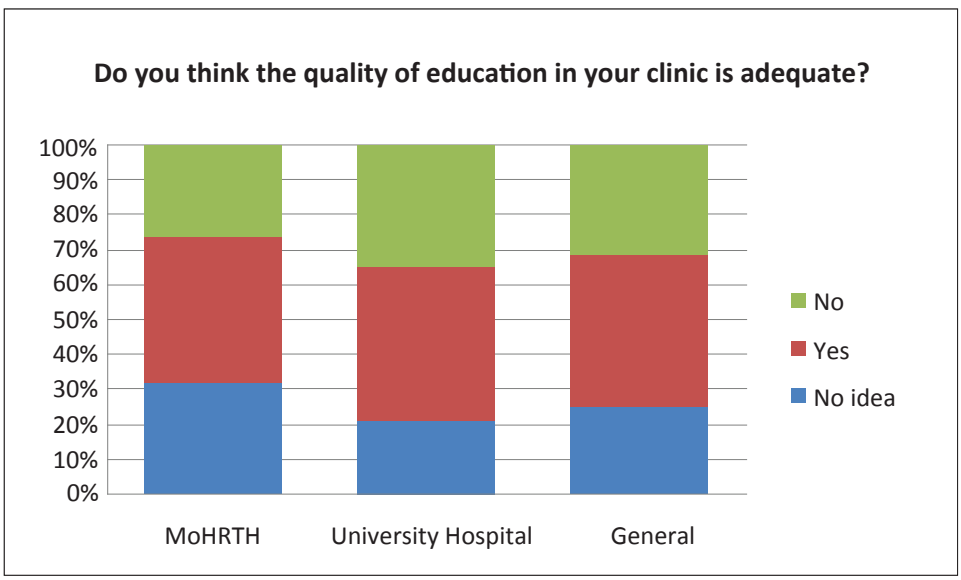
Where is the general surgery residency training being held?



Where do you prefer to take your general surgery training?



General surgery residency training has been held in a single hospital and its general surgery clinic in the rate of 51%, although 64% of the residents indicated that it would be useful to take their training in different general surgery clinics.



p=0,033

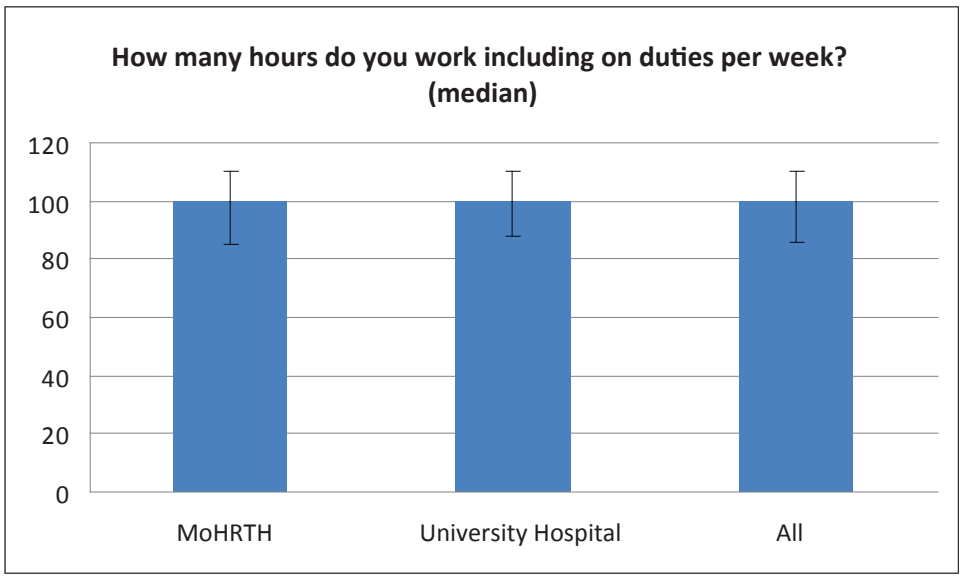
Thirty two percent of the residents have reported poor quality in residency training in their clinics. While 26% of residents in MoHRTH described the quality of education as poor this proportion was 35% in university hospitals, and the difference was significant (p=0,033).

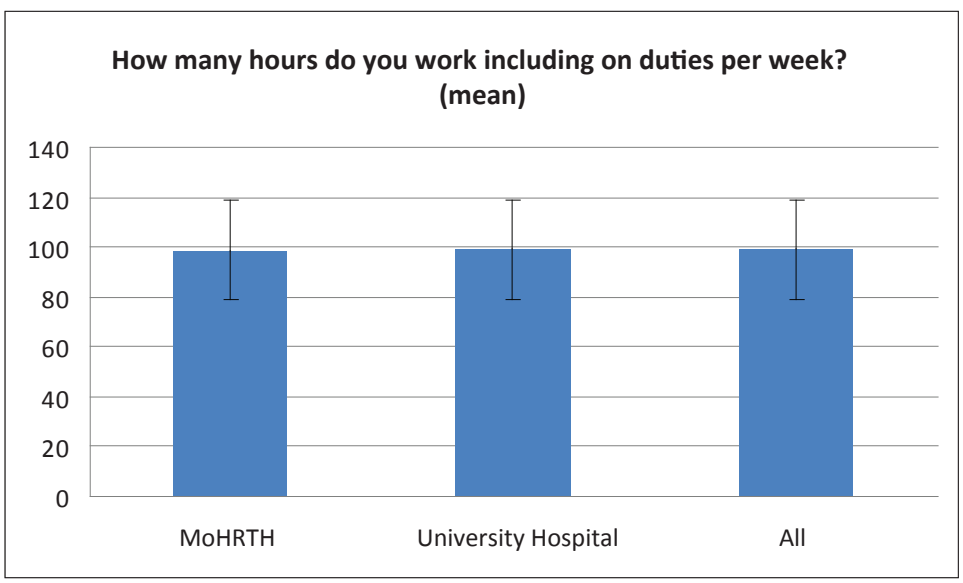
Eighty three percent of residents have stated that their clinics should be assessed regularly in terms of quality of education and 64% have approved this assessment to be carried out by TSA.

5. Working environment and duration, on duties/on calls

Thirty three percent of the residents stated that they had been unable to share any problem about work life with faculty or attending surgeons, and 34% noted that they had not or very rarely been motivated by the faculty.

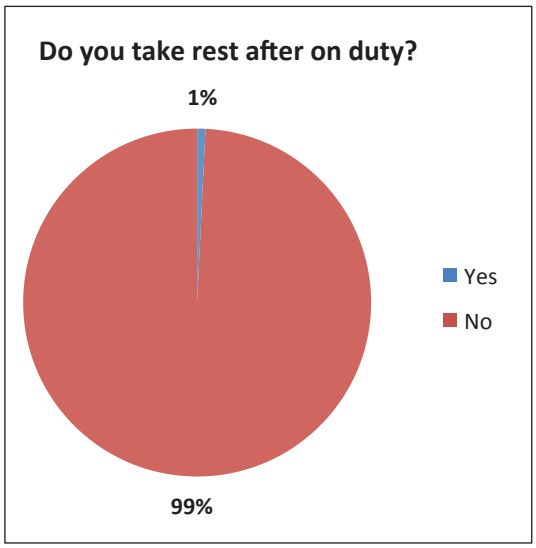
Fifteen percent of all residents stated that they were not satisfied at all throughout the training.



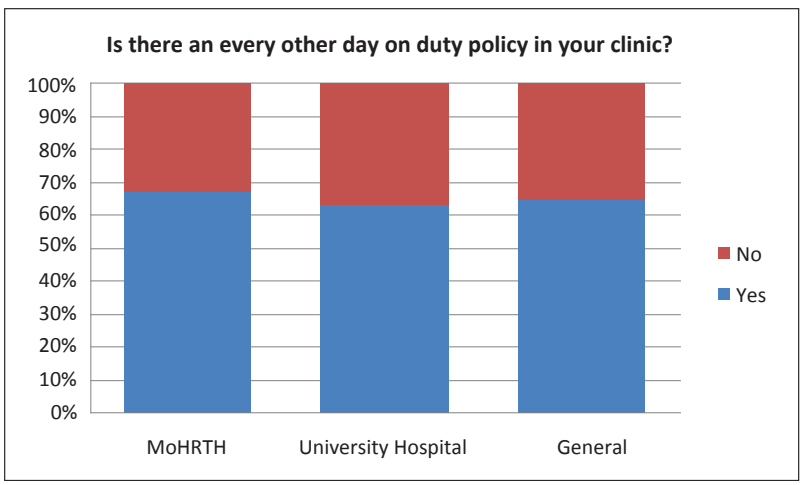


The median weekly work time of residents, including on duties, is 100 hours.

Eighty four percent of the residents do not know the legal working time of our country. The longest median duration of work without any break was 60 hours and the median work time of routine daily activities is reported as 12 hours.



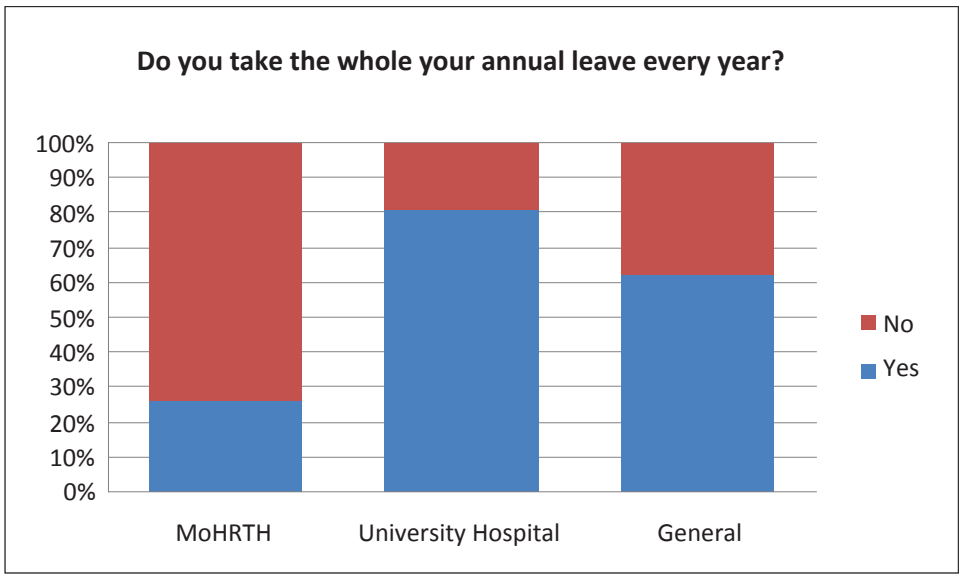
p=1.000



p=0,406

The median monthly number of on duties was 10, and the rate of every other day on duty was 65% (without any rest permission for following work day).

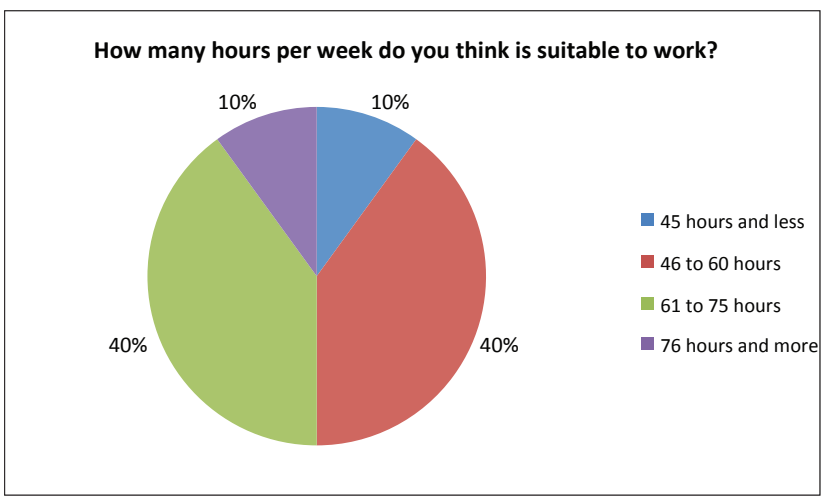
Forty eight percent of the residents have agreed with the statement "I think my workload is too heavy in terms of responsibility of patients as a surgical resident" and 34% of them were responsible for 20 to 30 patients within working hours.



p=0,001

The median duration of an annual leave was 20 days. The rate of residents that able to take the whole annual leave was 75% in university hospitals and 23% in MoHRTH (p=0,001).

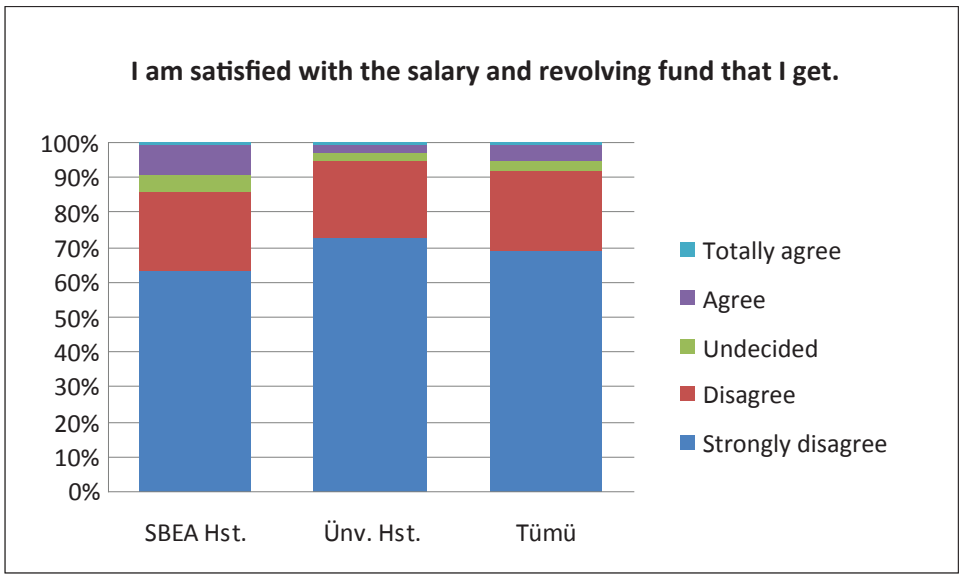
Eighty percent of the residents were not aware of the legislation in EU countries to restrict the working time, although 85% of them stated that such an arrangement was necessary for our country. The rate of the residents who believe that such an arrangement will not adversely affect the surgical training was 66%.



Ninety five percent of the residents approved to work 80 hours per week.

6. Quality of life and income

Working hours have a negative impact on social life of 84% of residents and on relationship with spouse/girl or boyfriend of 77% of them.

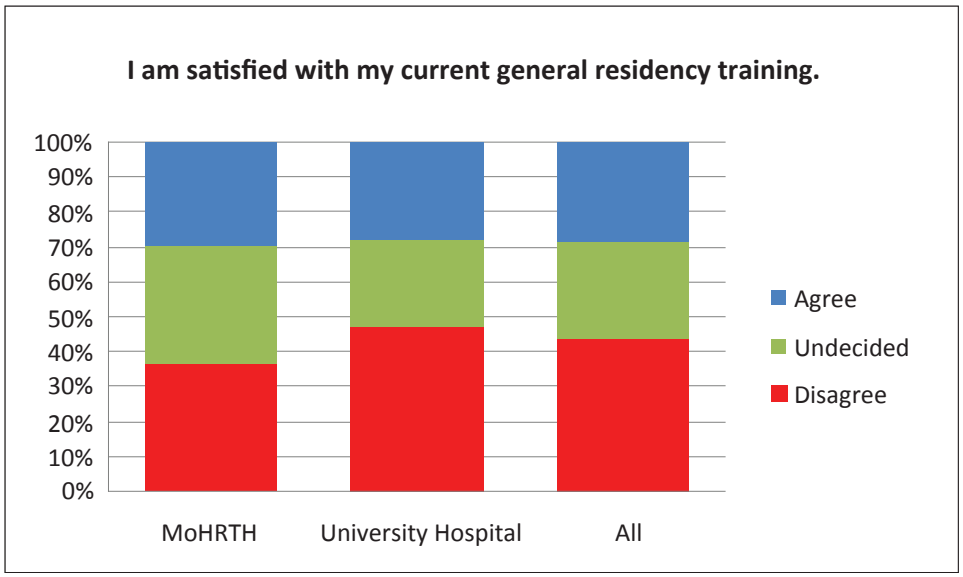


p=0,024

p=0,958

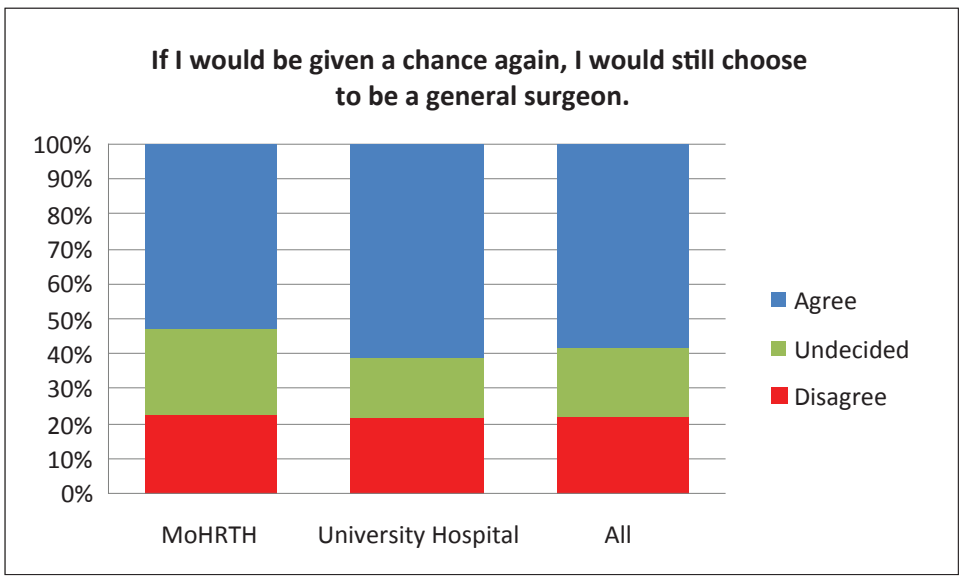
The rates of the residents who receive 1000 to 1499 TL per month as a salary and 500 to 599 TL as a revolving fund were 56% and 59%, respectively, and 92% of residents were not satisfied with this income. Twenty percent of the residents specified that they had to do additional work to earn more money to make both ends meet. In addition 84% of the residents explained that none of the expenditures related to their CME activities were met by their institutions.

7. Summary



p=0,017

Almost 43% of the residents were not satisfied with the training they have received. This negative impact is significantly higher in university hospitals (p=0,017).



p=0,136

Only 58% of the residents have agreed with the statement that "If I was given a chance to choose my career again, I would still choose to be a general surgeon".

Determinations and recommendations

There is need for reform in general surgery residency training

When we consider how general surgery residency training is carried out in the world and evaluate the results of our residents survey, the primary finding of this study is an urgent need for a serious reform for the modernization of general surgery residency training in our country. This report revealed that the general surgery residency training has major shortcomings, lacks basic standards, and general surgery residents were not happy with the education they receive.

Recommendation: A comprehensive reform, meeting the current needs in general surgery residency training, in line with the opinions and suggestions of all parties, including MoH, the Council of Higher Education, Medical Faculties, Turkish Medical Association and TSA is required.

The following conclusions and recommendations were designed as a road map for the reform of the general surgery residency training.

Manpower status in general surgery should be considered

There is 3594 active general surgeon by December 2007 in Turkey. General surgeons accumulate in metropolitan cities. Although such accumulation is common in many countries, the magnitude of the situation is significant in Turkey: More than one-fifth of general surgeons in Turkey work in İstanbul. Forty percent of general surgeons in Turkey work in Istanbul, Ankara and Izmir. More than half of the surgeons in Turkey accumulate in 8 cities, i.e. Istanbul, Ankara, Izmir, Antalya, Bursa, Konya, Kocaeli and Adana. 56% of surgeons work in 8 cities (44% of total population) and 44% work in other cities (56% of total population). Based on the standard of 1 general surgeon per 25.000 population: This value is 1.27 in Turkey, which is 27% higher than the standard in total. The ratio of general surgeons per 25.000 population in the public sector alone is 1.09. The number of general surgeons in the public sector is sufficient by the standard. The inequity of distribution has a huge impact on the population: The number of general surgeons per 25.000 population is sufficient for 15%, insufficient for 33% and excessive for 52% of the population.

As of 2009, 1005 physicians are taking specialty training in general surgery in our country. The number of general surgeons per 25.000 population in 2007 is even higher than the need in 2009. In 2009, 2.876 general surgeons are needed for the population of Turkey. 2007 data suggests that 3.594 general surgeons are active. In other words, the number of general surgeons in Turkey according to 2007 data is 700 more than needed. As mentioned earlier, the MoH has a dominant role in the employment of general surgeons. Therefore, it is necessary to look into the responsibility of MoH in this unbalanced distribution: in the 2003-2007 period, MoH has employed an average of 220 general surgeons in its institutions every year. A minimum of 3.400 general surgeons will be working in the public sector by 2020. This number is expected to reach at least 3.800 considering retirements and residents completing their training by the end of this period. It was estimated that the population of Turkey at 81 million by 2020. In this case, Turkey will need 3.200 general surgeons by that time according to the standard of 1 general surgeon per 25.000 population. In short, the number of general surgeons to be redundantly included in the health system by 2020 will be at least 250 by employment and 400 by the standard.

As one general surgeon serves an area population of about 25000 in any country, the number of active general surgeons by the year 2007 (3594) is even over the year 2009 requirements. In 2009, the population of Turkey should have 2876 general surgeons. If the abnormality in the distribution of general surgeon in Turkey is cor-

rected, it can be said that 700 surgeons are more than needed by the year 2020. There is not a lack of general surgeon, but a disorder in the distribution of the surgeons throughout the country and in health infrastructure in Turkey (12).

Recommendation: In Turkey, health workforce and workload studies are needed for use in planning at central level. These studies need to be taken into consideration by the national health authority. The basic problem is not the shortfall in the number of general surgeons but problems in their distribution around the country. The focus should be placed on correcting unbalanced distribution in order to improve health services in the field of general surgery.

The interest in general surgery changes

The interest in general surgery appears to be decreasing in many countries. Approximately 20% of medical students in the United States have abandoned general surgery residency to switch to any other surgical specialty or non-surgical specialty areas that offers a more predictable lifestyle. This attrition rate in the number of general surgery residents in the United States is expected to have a significant impact on future workforce needs. The staff of general surgery residency, declared by Student Selection and Placement Center of Turkey, is fully occupied. Since general surgery has been rated very low in the ranking of preferences, and the ceiling scores for general surgery were very low (in the order of 24 of the total 25 specialty areas) it is understood that the number of general surgery residency preferences has been decreasing. In our study, 29% of the residents have started general surgery residency even though they had not put it in their first six choices, and approximately one-third of the residents has started the residency although not really preferred, as a result of low Medical Specialization Examination score and center placement.

Recommendation: Some additional efforts should be taken to render general surgery attractive again in our country. The mission falls mostly to TSA, medical schools and MoH. Further improvements should be achieved in working conditions and employee personal rights of general surgeons by taking into account the weight and complexity of workload. General surgery field should be introduced and endeared to undergraduate medical students with the establishment of early and guiding relationships.

The number of female surgeons is increasing

In parallel to the current trends in the world, a significant proportion of female doctors (12%) have chosen general surgery in our country. Female residents are more interested in working in breast and endocrine surgery in the future. However some fields such as transplant surgery, and trauma and emergency surgery are not preferred by female residents. Gender, quality of life, and academic expectations are well known factors that have impact on the selection of subspecialty (34). Female residents in our country also plan more controlled work life.

Recommendation: As the number of women entering medical profession and general surgery has continued to increase, studies should be conducted to understand whether the educational needs and expectations of female residents differ from male residents. Projects should be developed to encourage women to enter general surgery and to support them during residency training. Rearrangement efforts should be performed for working environment by taking into consideration the special position of women in family and community life (nursing leave, parental leave for free, etc.). The tendency of female surgeons to work in different areas should be taken into consideration in planning the country's manpower and workload.

There is a tendency of subspecialization in general surgery

In our study, more than half of residents (58%) were planning to enter subspeciliaziton exam. As it is put forward with other questions the rate of the residents who want to work in a limited area in general surgery is approximately 50%. The trend toward subspecialization is not unique to us but common in all over the world. Several studies in the literature show that the surgeons working in specific areas get more income, are able to live more controlled life, and are employed in developed provinces. In 2009 US National Survey of General Surgery Residents, 64% of general surgery residents have indicated that they have planned to take subspecialization training to compete in the market in the future (35). According to the US data, 70% of general surgeons plan to subspecialize, and this lead to a deficiency of general surgeons in the US (36). In our country subspecialization after general surgery training is seen in very limited areas (gastroenterological surgery) in small numbers. Therefore the need for and benefits of as well as the problems of subspecialization should be carefully evaluated by taking care the examples of other countries into account (37,38). When considering the accumulation of general surgeons in three major cities of our country, if necessary measures are not taken the imbalance in the distribution of surgeons throughout country despite of compulsory service will continue with similar trends of surgeons. Subspecilization offers many possibilities including an increase in scientific quality, following the world standards, creating an open system to progress, and improvement in the quality of surgical services offered to the community. However, uncontrolled subspecilization may cause to a deficiency of general surgeons, and failure in surgical health services provided to community in our country.

Recommendation: Encouraging preventive measures must be taken immediately to keep general surgery as a main specialization. First of all standardization and improvement efforts toward the available general surgery training throughout the country should be accelerated. TSA and TSA Board Committee (Board of Surgery-TBoS) should be seen as important opportunities for these efforts. Preventing excessive subspecilization and providing certification methods to allow surgeons to focus on specific areas should be considered as a new option. Certification programs for advanced specialty training will be developed in the needed areas and appropriate surgical clinics. In this context, a subspecilization certificate and a certification document which can be defined as 'Advanced Specialty Training' in certain areas must be described separately.

General surgery clinics are not focused on postgraduate training

Traditionally, priorities and expectations of general surgery clinics of MoHRTH are focused on patient care, while those of general surgery clinics of university hospitals are directed to the patient care and research. The daily activities of clinics were held completely in line with these priorities. Postgraduate training is carried out in an unplanned and uncontrolled way in the shadow of health services offered to patients.

Recommendation: Postgraduate training responsibilities of general surgery clinics should be renewed both in MoHRTH and university hospitals: The clinics should make the same organization for postgraduate training as they do for health service delivery. All faculty, including clinic chiefs and head of departments should be taken to 'training of trainers' programs oriented to postgraduate training. The faculty of medical education departments of medical faculties may contribute in this issue.

The clinical work load of faculty disrupt their training responsibilities

The residents participated to our study have stated that private patient system, which is implemented in university hospitals for a long time, and *performance-based pricing system*, used in recent years in MoHRTH, adversely affect their training.

A successful training program always needs high quality and dedicated faculty. University hospitals and MoH hospitals of our country, both acting as public hospitals, are transformed into "health enterprises" especially in recent years with the transformation program of health. In this case, the faculty are increasingly becoming less accessible and residents' training is seriously neglected due to daily practice. Today a few of faculty are available as trainers and mentors. The performance-based additional payment system, which has been being implemented in MoH hospitals since 2004, and also planned to be implemented in university hospitals starting from 2011, has a negative impact on surgical training (39).

Recommendation: Private patient system and performance-based pricing system should be terminated in training hospitals. Instead, training and research duties should be remunerated. Additional financial support mechanisms must be developed to compensate the faculty's additional work and stress in order to provide high quality surgical healthcare services and to maintain the quality of surgical training. Such a strategy is required to employ the high quality faculty in hospital. Additional charging mechanisms, which are provided for some administrative positions, should be developed for faculty's educational activities.

Postgraduate training is performed without a curriculum

According to our survey, many residency training in surgery clinics are conducted without a curriculum. Many of the faculty do not take the curriculum seriously enough. Although four years have passed of proposal there are still problems related to information and application of the curriculum of TSA. Some of the residents were not aware of the curriculum of TSA. In some clinics it has not been taken into account at all. Determination of theoretical knowledge goals of general surgery training is as important as determination of surgical skill targets. In the US a total of 750 operations in 15 different categories must be performed over five years as a national standard in order to take general surgery specialty exam. The residents are not obliged to perform a minimum number of operations in each category; a total number of 750 operations is a sufficient condition (40). In our country, TSA expects from residents who completed the postgraduate training to have performed 350 operations, of which 150 are major operations, in order to take the qualifying exam. Some procedures have been identified as major operations (41). However, our study suggests that there are still problems related to information and application of surgical experience offered by TSA. The number and type of operations performed by residents are not monitored in some clinics, and even if they are recorded, not used to cause any changes in some other clinics .

Recommendation: Undoubtedly a well-defined curriculum must take place on the basis of surgical training. The reform of postgradute training in general surgery should focus on, a progressive training program including formal and informal elements together. In this context, an appropriate balance should be established between hospital services and training with minimizing non-educational hospital services (such as patient transport, secreterial work etc.), but trying to maximize educational opportunities. All surgery clinics providing education should develop a contemporary curriculum. This study should be based on the curriculum of TSA and Resident's Log Book Operation List.

Residents' operation experiences are insufficient

Our study showed that residents had insufficient experience in some index operations of general surgery training. The rate of residents who has not performed thyroidectomy in the fourth or fifth year of education was 23% and 11%, respectively. Also the rate of the residents who has never performed colectomy in the fourth and fifth year was 33% and 21%, respectively. The residents working in MoHRTH were more fortunate in terms of surgical experience. Sufficient variety and number of operation is a key criterion for evaluating the performance of a general surgery training program. A lack of experience in surgery is an international problem, but also the dimension of the problem is important. When we compare 2009 US National Survey of General Surgery Residents with our study overall operative experience of surgical residents is clearly very low in our country. Especially the difference in the median number of colectomy (44 in the US, 4 in Turkey) is intimidating. In the US a total of 750 operations in 15 different categories must be performed over five years as a national standard in order to take general surgery specialty exam (40). In our country that surgical experience is not evaluated in this context to enter license examination is an important deficiency. In our study surgical experience has been perceived as being insufficient by the half of the residents. Twenty six percent of the residents were not sure about the adequacy of surgical experience. In 2009 US National Survey of General Surgery Residents, the rate of residents who found their surgical experience as insufficient was only 9%. Seventy six percent of the residents in the US felt that their operative experience was sufficient (35). Our country has a high proportion of residents who find their surgical experience insufficient compared to the US. In a study from the United Kingdom in particular the junior surgical residents have been shown to be very seriously disappointed for not being provided a structured surgical experience (42). Dissatisfaction with the surgical experience is a serious problem of junior residents as well as senior residents in our country. The residents working in MoHRTH would be more to believe that the number of operations is sufficient for their own level compared to the residents trained in university hospitals (53% vs. 24%). The number of operations performed by residents in university hospitals is small. On the other hand, there may be problems in terms of the spectrum of the surgical procedures in MoHRTH. For example, a resident, who begins to work in a clinic focused for breast and endocrine surgery, may spend five years at the same clinic. The knowledge, skills and experience in other surgical procedures are gained with emergency cases and in on duties. This makes it very difficult to accord curriculum with educational process. MoH has issued a notice about a rotation system between different surgical clinics in its affiliated hospitals to resolve this problem, but has not been implemented.

Recommendation: The surgical experience of residents should be monitored centrally as spectrum and number in all surgery clinics. Every training clinic should take precautions to meet national standards. The training programs that do not meet these standards should not be accredited and alternative programs should be developed for the residents trained in these clinics to overcome the deficiencies. The rotation of residents among surgical clinics should be considered as a new model. Each surgical clinic put the rotation model between clinics on the agenda to actualize core curriculum and minimum operation list. MoH should allow the necessary arrangements, ensure the relationships between institutions. One of the requirements to enter the qualifying (license) exam in our country should be to reach the predetermined minimum operating experience. For solving this problem the standard of TSA Board Committee, which is used before the board examination (provided that at least 350 operations, of which 150 are major surgeries, performed personally during residency education) can be adopted.

Formal training meetings are not held on a regular basis

Nearly half of residents stated that didactic / formal meetings for residency training have not been performed. In the clinics where meetings have been performed the time allocated for this training was very low (2 hrs /

week) and found to be insufficient. Also, some of the residents have stated that they couldn't find the opportunity to participate in these activities. All this data demonstrate that the process of specialty training in our country is disorganized, lack of standards, and open to arbitrary applications.

Recommendation: It should be audited whether didactic / formal education meetings are held in surgery clinics. The residents should not be assigned to work in clinical and administrative jobs which is not directly related to education, and their participation in well planned formal educational meetings must be ensured.

The residents are not sent to formal rotations

In our study, more than half of the residents stated that formal rotation fields and times have not been complied with. The weaknesses in the implementation of regulations regarding legally mandatory rotations in an another indicator that shows the general surgery residency training in our country is disorganized, carried out through clinical work load and manpower rather than residents' needs, doesn't have a standard, and open to arbitrary applications. Also the majority of the residents noted that they could not find a chance to work actively in the clinics where they were at rotation.

Recommendation: This situation is unacceptable. It should be audited whether all residents have performed the rotations established by postgraduate training regulations. This audit should go beyond the control of rotation documents. Curriculum and assessment system should be improved in the areas of rotation in order to ensure the residents to take proper education.

Midterm examinations are not available

The midterm examination held at various times during general surgery residency training is an effective evaluation method and is a useful guidance tool. According to our survey results midterm examinations are not available in some training programs. This is a serious defect in the assessment of training. It is also important how midterm exams are held and how the results are used.

Recommendation: The surgical clinics must be controlled regarding the exams for the evaluation of residents. These examinations should be configured not only to assess the theoretical knowledge of residents, but also their clinical and surgical skills, reasoning and problem solving skills, and attitudes.

The theses are not devoted the needed attention

Our study has shown that the determining of the subject of thesis has been delayed. This situation negatively affects the quality of the thesis. One third of residents stated that the infrastructure of their institutions were not enough for conducting thesis research.

Recommendation: The subject of a thesis should be identified preferably within one, at most within two years, and the later years should be dedicated to the development of clinical knowledge and skills. The national standards should be set to improve the quality of thesis.

Residents are unable to adequately participate in research

Only a part of the residents reported that they had participated research studies in their clinics. General surgery residents should fully understand the methods of basic scientific research. General surgery residency training should include knowledge and skills about how a research is conducted and how the findings are evaluated. As general surgery specialty training is based on a clinical education traditionally, requisite importance is not given to research education. However, each resident makes a research for thesis in our country. The prerequisite for upgrading the scientific qualities of these theses is having a research education during residency training. The improvement of quality of these researches is an opportunity for our country and medical science in general. Turkey, who has come to a good point in the total number of articles in the medical field (quantitative accumulation), should orient to the articles with high potency for publication in journals and to increase H-index, ie which may lead to obtain a patent (qualitative transformation), rather than the articles written for academic advancement (43). For such a qualitative leap in addition to research education, surgical research funding is also needed. Especially in MoHRTH there isn't any special system of financial support for research. The qualitative transformation of theses can not occur if surgical researches are not funded enough. Project support applications of general surgery residents should meet the required scientific attention and originality in order to achieve the project supports of The Scientific and Technological Research Council of Turkey and The European Union.

Recommendation: All residents should be trained in basic research methods and biostatistics during their residency training. General surgery residents should have clinical research education and this education should be certificated. Standards, assessments and control mechanisms should be established for surgical research training. A special financial support system should be established for researches in MoHRTH. The institutions should establish support units for surgery residents to reach the project support of The Scientific and Technological Research Council of Turkey and the European Union. Further studies are required to train surgeon-scientist targeting master's and / or PhD degree.

Surgical clinics are not supervised/audited in terms of postgraduate training

The statement of residents that the quality of education is inadequate indicates the importance of the audit of surgical clinics. The inspection of teaching programs is supported by residents and TSA seems to be the most preferred institution in this regard.

Recommendation: All the training surgical clinics should be required to demonstrate commitment to achieving high educational standards. Department heads and chiefs of clinics should be expected to have basic knowledge of education science. The standards should be established for qualifications and educations of department heads and clinical chiefs for both the education and the management. Department heads and clinical chiefs of general surgery should attend to training related to development and evaluation of program before taking responsibility for education programs. Training activities of trainers should be stepped and continuous. This should be conducted with cooperation with Turkish Medical Association. The accreditation of educational institutions, initiated by TSA Board Committee, should be considered as an important opportunity and should be supported by MoH. The visitation program, which is involved in the Regulation of Postgraduate Training published this year by MoH and tried to be established in Postgraduate Training Committee, must be associated with visitation program carried out by TSA Board Committee for a while. MoH can take a very important step to coordinate the

responsible institutions rather than increasing its own workload / doing the same thing again by adopting the visitation program of TSA Board Committee. All surgical clinics providing education must apply to the visiting program of TSA Board Committee as soon as possible and the first accreditation must be completed no later than two years.

There are major shortcomings in infrastructure and facilities in surgery clinics

Surgery clinics have major deficiencies in infrastructure and facility for specialty training. Less than a quarter of residents stated that the educational resources available in clinics were adequate to perform the postgraduate training curriculum.

Recommendation: Financial support is needed to strengthen and renew the infrastructure of education and biotechnology in clinics for patient care, education and scientific research. The governments should transfer more resources to increase the quality of general surgery training. MoH and medical faculties should create additional funding to overcome the shortcomings of infrastructure in postgraduate training, and to provide modern educational technologies and equipments. Skills training centers, supported by simulators, should be established in educational institutions. Virtual Academy of TSA should be seen as a great opportunity for e-learning and be supported.

Residents are not satisfied with their specialty training

In our country, the majority of residents are not satisfied with general surgery training. On the contrary the majority of residents, participated in 2009 US ational Survey of General Surgery, expressed a high level of satisfaction related to general surgery specialty training (n=3686, %85,2; CI:% 84,1–86,1) (35).

Recommendation: As we've found serious problems in almost every phase of the general surgery training this result was not surprising; but it emphasizes the importance of a very significant reform in order to modernize the postgraduate training in general surgery.

Residents have long working hours and insufficient rest periods

In our study the working hours of residents were found to be long, and the rest periods were inadequate in our country. This situation is not unique to us, some regulations were made for to improve in many countries in recent years. Pressures on the reduction of working hours of surgical residents in the world has emerged due to the concerns about patient safety and quality of life of surgical residents. Many government in European Union has confirmed that restrictions on working hours (44). Many studies have emphasized the negative effect of this significant decline in working hour on the current education system primarily in US as well as in Australia, New Zealand and the UK (24). Primary concerns consisted of such ideas as the working hours would extend training program, and cause a decrease in surgical experience. It is not easy to achieve the same educational objectives in less time in general surgery training. On the other hand, the studies conducted in these countries have shown that residents and the public have welcomed these restrictions upon working hours (24). European Union of Medical Specialists (UEMS) Section of Surgery recommends to increase of 45 hours weekly working time to 60 hours.

Recommendation: Legal regulations concerning standard working hours in accordance with national and international regulations is also a requirement for our country for the continuity of the patient care, educational and recreational needs of residents and patient safety risk. We think 80 hours working time per week will be appropriate for residents in our country as in the case in the US. The regulation as 80 hours / week will prevent the burnout in residents, will not risk the residents to take adequate training and will help patients to receive safe health care. Every other day and block on duty systems, which are still continued in some clinics, should be prohibited throughout the country. The procedures without any educational value (patient transport, secretarial work, etc.) should not be resident's task, and programs should be focused on patient care. Non-physician workforce should be employed by creating additional financial resources in educational institutions to maintain the services which are not related to education.

Residents' income is inadequate

One of the most important results of our study has demonstrated that low income is a reason for dissatisfaction of residents about general surgery training. Revolving fund revenue is higher in MoHRTH. It may be one of the reasons explaining the preference of residents in favor of these hospitals in recent years. More than half of Turkey's general surgery residents (52% married, 25% of children) have established a nuclear family. This should be taken into consideration in income and living conditions of residents. One of the most dramatic results of our study is that one for every 5 resident has an additional job to earn more money. It is not legal and has a very negative impact on residency training. In addition, participation of residents in CME activities is not supported by their institutions. This field is abandoned for the pharmaceutical industry support. Inappropiate relations between young surgeons and pharmaceutical industry set ground for conflicts of interest and ethical problems.

Recommendation: Every effort must be made to raise the resident salaries to support the adequate level of living standards.

Participation in CME activities is a right of resident, and a responsibility for continuous professional development. Institutional support in this field is a necessity in terms of both education and professional ethics. Each year one additional salary (13th salary) should be given to residents to participate in CME activities. The residents should submit Turkish Medical Association-CME Credit Score Certificate to show that they have actively participated in this event.

For the final word

Despite all odds, residents would like to be a general surgeon if they have a new chance!

Although the rate of dissatisfaction is seriously high among residents in our study, more than half of the residents stated that "once again given the chance I'd choose to be a general surgeon". This statement suggests that the residents enjoy surgery and want to be surgeon despite all the negativities.

In this case the leaders should do the necessary!

Many countries have carried out important reforms in the general surgery residency training recently. As our report clearly detected, specialty training that we have so far adopted is inadequate in many respects in our country.

Recommendation: A comprehensive reform in general surgery residency training that addresses and meets the requirements of today should take place as soon as possible in line with opinions and recommendations of all parties, including MoH, the Council of Higher Education , Medical Faculties, Turkish Medical Association, TSA and TSA Board Committee.

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