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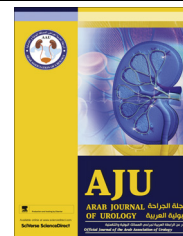
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ORIGINAL ARTICLE

# Urology training in the developing world: The trainees' perspective in Kurdistan, Iraq



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## KEYWORDS

Residency;  
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Training schemes;  
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## ABBREVIATION

EBM, evidence-based  
medicine

**Abstract Objective:** To analyse the advanced systems of urology residency in the developed world, to compare them to a system in the developing world, and thereby identify the shortcomings and make recommendations to improve residency programmes for urology in the Kurdistan Region of Iraq.

**Methods:** A survey was conducted amongst the urology Residents (55) in the three governorates of the Kurdistan Region of Iraq, to assess the accessibility of the training programme, the types of the residency programmes, skills acquisition, the use of modern technology for teaching and assessment, the environment of the settings of practice, and the status of research in their training.

**Results:** An overwhelming majority (88%) of trainees reported difficulty in securing a training position. A high proportion (43%) felt disappointed at the beginning of their training. There is no unified curriculum of training, and more than two-thirds of the respondents reported a lack of a proper evidence-based medical education. There is no formal subspecialty training programme. Of the respondents, 65% referred to the difficulties in the environment for training, and that there was a low level of research involvement (12%).

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**Conclusions:** Urology training is not easily accessible, there is no unified programme of residency, there are limited facilities, and a minimal assessment of practical skills. The environment for practice needs enormous improvements and a strong foundation for research should be created.

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## Introduction

The specialty of urology in the Kurdistan Region of Iraq now is an entirely independent and established branch of surgery, and although it is <25 years old it has progressed markedly over the period. Most types of operations are performed, except for robotic surgery. The Kurdistan Region is an example of 'the developing world', and has started to advance, this being largely attributable to economic improvement and relative political stability. Currently, three University-affiliated hospitals, along with numerous public and private hospitals, provide care for patients with urological problems. These settings also serve as a basis for the training of Residents in urology. The training system in the Kurdistan Region follows various pathways and it is very different from many other programmes in the world. After graduating from a 6-year course in a medical school the graduates undertake foundation training for 2 years in various departments of medicine. They have to serve for 1 or 2 complementary years in non-training positions in the areas of need. They then enter a competitive examination to be admitted to formal urology training. There are three pathways of training in the country, i.e. Practitioners, a Masters and a Board training programme. The responsibilities, training curricula and job descriptions differ greatly from each other. These three types of training programmes are devised to meet the needs of urban centres as well as other areas of need (areas remote from the major cities). They are not the final destinations in patient treatment, as those urological conditions that are more difficult to treat are usually referred by the urologists in the areas of need to the tertiary centres in the main cities. The areas of need are usually covered by the urologists trained in the Master's or Practitioner's schemes, whereas those who have completed the Board scheme serve mostly in the main centres, and even if they are drafted to the areas of need, their stay will be shorter. The urology Practitioners, after completing 2 years of training, are able to work independently in areas of need, performing minor surgical procedures. Practitioners can follow further training if they wish, by applying for the other two programmes, but they are required to sit the corresponding competitive examinations.

The Masters training programme is a 2-year full-time work and training post. It has a curriculum comprising both theoretical lectures and practical training, and a

research project is required at the end of the course for the trainee to graduate. This particular scheme of residency offers the graduates a greater ability than the Practitioners in carrying out common urological operations. The Board training programme is a 5-year full-time work and training post with a 1-year pre-admission training in urology. Only the Board trainees have to do 1 year of training in general surgery and 3–9 months of training in branches such as nephrology, cardiothoracic surgery, and neurosurgery.

With this background of the three different training pathways, we assessed aspects of urology practice and training in the Kurdistan Region as an example of a system in the developing world.

## Methods

This study was based on questionnaires sent to the three major residency training centres in the Kurdistan Region of Iraq, in each of the three comprising governorates of the Region, Sulaimani, Hawler and Duhok. These training centres are all affiliated to the State Universities in corresponding cities. The questionnaires were directly distributed in the Sulaimani Teaching Hospital to the urology trainees, and completed in a direct interview, whereas those of Hawler and Duhok were sent by e-mail to representatives of the residents, and they printed the questionnaires and distributed them amongst the trainees. The survey comprised 31 questions designed to be easily understandable and with clear (closed) answers. No identifying information was kept from the questionnaires, to ensure the anonymity of the respondents, and participation was voluntary. The study is descriptive and the results are presented as proportions.

## Results

In all, 55 questionnaires were distributed, of which 31 (56%) were returned; 17 were distributed in Sulaimani and all of them were returned, 28 in Hawler and eight were returned, and 10 in Duhok with six returned. Of all Residents, 41% were training as Practitioners, 22% as Masters or High Diploma students, and 38% as Board students.

All the forms returned were answered completely; the full results are given in [Table 1](#). An overwhelming majority (88%) of respondents stated clearly that obtaining a urology training position was not easy. Even

after being accepted into a residency programme, 44% of those sampled felt disappointed during their first 6 months in the urology residency. The disappointment expressed might be related to the lack of an appropriate

framework to introduce Residents to the Department of Urology, in terms of supervision and initial training. After completing the residency and being qualified, 72% of respondents indicated that there might be no

**Table 1** The response of Residents to the factors related to training.

Question	n (%)
Is obtaining a training position in urology easy?	
Yes	4 (13)
No	28 (88)
What did you feel during the first 6 months of training in urology?	
Disappointed	14 (44)
Good	18 (56)
Is EBM a formal component of your training curriculum?	
Yes	11 (38)
No	19 (62)
What are the barriers for EBM?	
Time	3 (12)
Administration	3 (12)
Facility	2 (8)
All	18 (69)
Are the training objectives regularly reviewed?	
Yes	3 (9)
No	29 (91)
Do you think a unified formal training curriculum enhances urology skills?	
Yes	31 (97)
No	1 (3)
What do you feel about the environment of training as related to practical learning?	
Bad	11 (36)
Good	20 (65)
What do you feel about the operating room regarding the seniors supervising your training?	
Not academic	7 (22)
Friendly and academic	25 (78)
How do you feel about colleagues co-operating with you?	
Uncooperative	6 (19)
Cooperative	25 (81)
What do you feel about the anaesthetic staff in the operating room?	
Uncooperative	11 (36)
Cooperative	20 (65)
What do you feel about the assistant staff in the operating room?	
Bad	11 (34)
Satisfactory	21 (66)
What do you feel about the administrative cooperation in training?	
Bad	15 (47)
Good	17 (53)
What do you feel about the operating lists?	
Busy	6 (18)
Adequate	26 (71)
Factors that helped you in training?	
Administration	19 (61)
Curriculum	8 (26)
Colleagues	3 (10)
Supervisors	1 (3)
The common procedures	
Open	8 (25)
Endourology	23 (72)
Laparoscopy	1 (3)
Are technical skills evaluated during the training programme?	
Yes	15 (48)
No	16 (52)
Are you confident with your training?	
No	11 (34)
Yes	21 (66)

opportunity for further training. Only 13% expected to find a postgraduate training position.

In terms of the training structure, 38% reported that evidence-based teaching was present as a formal component of their training curriculum. The great majority of residents (69%) attributed the barriers to evidence-based teaching to administration, time limitation and lack of facilities for the trainees. As to the methods of training, 97% reported that they had done no training on any training models before they started training on patients; 75% thought that there were areas in the training objectives that required increased emphasis to better reflect practice on real patients, and 31% thought that the training objectives represented the reality of practice. Most (97%) thought that a unified formal training curriculum enhanced urology skills, but 91% reported that the training objectives were not regularly reviewed.

Another facet influencing training is the setting in which the training takes place; 65% reported that the environment of training related to teaching of theory was poor. Similarly a slightly higher proportion (68%) of respondents viewed the environment of training related to practical learning as not optimal.

The senior staff were trained to various levels; 45% were at Board level, 26% were Assistant Professors, 13% had a Higher Diploma, 10% were Professors and 6% of respondents had more than one supervisor. Overall, 78% of respondents thought that the senior staff provided an academic and comfortable environment, and an almost equal proportion (81%) of colleagues were reported as cooperative in ward activities and in the operating theatre. This degree of satisfaction decreased to 64% when related to the anaesthetic staff during operations, and the operating assistants were considered equally cooperative (65%) in comparison with other elements in residency settings. In addition, more than half (53%) of respondents implied that the administration was helpful in fulfilling the requirements of training.

A quarter of residents thought that the provision of the service in urology was not equal to the demands that should be met. More than two-thirds (72%) felt that the operating list was adequate in terms of workload, and provided enough cases for gaining practical skills. The category of procedures that are commonly performed ranged from 72% in endourology, followed by open surgical operations (25%) and finally laparoscopy (3%). Of the respondents, 52% reported that technical skills were not evaluated during the training programme; 66% were confident with the skills they were gaining in their training.

Less than half (47%) of the respondents reported that there was dedicated research time within their residency curriculum, but 25% reported that they had been involved in research activities (Table 2). Despite the relatively low rate of Residents being involved in research,

more than three times as many (84%) perceived that participating in research during the residency would be important for them if they followed an academic career within their specialty in the future.

## Discussion

In the Kurdistan Region of Iraq there has been a dramatic improvement in surgical knowledge and skills, but all the subspecialties have not yet been established. Currently, such developments have been initiated, but need further structuring and refinement. This is true for most developing countries, and thus cooperation with developed centres of urology training would assist greatly in achieving the aim of establishing subspecialties. Our survey showed that the admission to the urology residency should be made easier, as a high proportion reported difficulty in gaining access to a programme of training.

The disappointment initially expressed by most respondents in the training programme justifies better planning and rearranging the priorities of the training programme. Efforts are needed to create a better environment for learning and for developing surgical skills. This can be done by a slower introduction of the entrants to the programme, and providing a programme of training that can keep the residents motivated, e.g., in the form of a logbook and a training curriculum.

Although there is an acceptable exposure of trainees to daily clinical practice, in the long term the continuing postgraduate training falls far short of expectations, as there is no formal postgraduate training. Only a small proportion of respondents were optimistic about being able to find Fellowship training, and that is mostly available outside the country. A study of urology surgeons operating on uro-oncology patients [1] showed better patient outcomes with Fellowship-trained urologists. This showed that subspecialty training helps to speed learning and to gain superior skills. Therefore, a subspecialty training programme must be included in a stronger programme of urology training.

Evidence-based medicine (EBM) can be defined as the use of the best available medical evidence to manage illnesses and clinical decision-making. It requires a combination of clinical competency and the medical knowledge available in the literature to meet the best interests of patients. Its significance has been identified by the vast majority of urology Residents [2] and there is much evidence suggesting the need to integrate EBM effectively into every training scheme [3]. Hence, despite its status as an integral component of training, an education based on EBM is under-represented in our system. Furthermore, the barriers identified by the respondents, such as time limitation, facilities and lack of cooperation of the administration in the hospitals, require serious efforts to ensure improvements.

**Table 2** Research as part of training, from the residents' perspective.

Variable	n (%)
Involvement in research during residency?	
Yes	8 (25)
No	24 (75)
Time dedicated for research as part of your training programme?	
Yes	15 (47)
No	17 (53)
Do you think that participating in research will play any role in motivating you to follow an academic path for your future career?	
Yes	26 (84)
No	5 (16)

In addition, training on models was shown to be rare, and therefore it is another part of training that should be incorporated. The recommendation of many developed centres is to teach residents on simulators before applying the knowledge in a clinical setting, and to be able to teach these skills in a stress-free environment; it is also clear that the risk of complications can be avoided in this way. However, sometimes this method of training has been used out of necessity, as the working hours of Residents have been restricted by regulations of practice and for reasons of patient safety, especially in the developed centres [4], whereas there is no limitation on Residents' working hours in our region or Iraq as a whole, and there is no shortage of patients.

As there are various forms of residency systems in our region, each differs in the duration of training, routes of admission and responsibility. These might be the factors that have driven the majority of 96% of respondents to call for a unified training programme. This could provide all the Residents with a similar exposure to training, and hence they will gain skills to practise confidently and independently. A unified programme will ultimately benefit patients, as they would receive a similar standard of care.

Similarly, most respondents expressed the need for a regular review of the training objectives, to reflect the reality of practice. A standardised structured training scheme has also been recommended in other developing countries, such as India [5]. A unified programme in terms of duration is also vital for Resident urologists to acquire sufficient skill and proficiency [6], as shorter schemes of < 5–6 years have been shown to be insufficient to provide enough time for exposure to training. The long-held dogmatic view links the acquisition of surgical skills to 'instinctive competencies' of individuals, but other studies have recognised the significant role of practice in obtaining and maintaining surgical skills [7].

In terms of the environment of practice, the supervisors, colleagues, anaesthetic doctors, staff and operative assistants were considered, as each constitutes a part of the training environment. Most (78%) of the supervisors were reported to provide an academic and friendly envi-

ronment for learning. As modern practice emphasises teamwork, so the milieu in which colleagues work is a significant contributing factor to the suitability of the practice setting. Both these values show that the rating is not low, but there is room for improvement. The degree of satisfaction was lower with the anaesthetic staff and assistants, and therefore more attention is needed to review the relationship between these aspects of the team. The role of the arena of practice has been corroborated by studies correlating the level of stress and the ability to attain knowledge and competence in medicine [8,9], and thus improving the work environment is pivotal in training.

The Residents indicated that they had enough exposure to different scenarios, but the highest proportion of procedures were in endourology, which comprised more than two-thirds, with the remainder in open surgical operations and the least in laparoscopy. Thereby, it is evident that the trend is towards less invasive procedures, which could be further improved by more training, and cooperation with advanced centres.

Although there was supervision of the Residents in their daily practice, there is no established system for evaluating technical skills. This is very important for ensuring safety and enhancing skills and proficiency. Assessments during training in urology have been used in some developed systems of training to evaluate the competencies that a trainee attains, to allow them to progress to the next phase of training [10].

It was reported that research as part of the residency is a crucial part of training [11]. It was also reported that dedicated research time during the residency correlates with higher productivity and an increased chance of an academic career [12]. Slightly less than half of the respondents reported that they had dedicated research time within their residency programme. However, most residents are required to participate in research to be able to qualify, but the quality of the research is very important. There is a severe shortage of the basic facilities for research. Many respondents had shown an interest in and valued the significance of research in determining their future academic path. More attention must be given to research, to transform the urology cen-

tres from service-providing centres into leading institutions of medical discovery.

In conclusion, the Residents in urology in the developing world face particular challenges; the most predominant issues are disorganised training programmes, administrative limitations, shortages in facilities and difficulty in obtaining a training position. However, exposure to many patients, and extended time in the operating theatre and emergency department, enables the trainees to gain much knowledge and skill. In the meantime, a unified curriculum, research programmes, EBM and further subspecialties must be put in place. Eliminating the administrative obstacles could play an important role in overcoming these issues. Changing the environment of training related to theory, practice and research should be considered, including training on models, simulators, human cadavers and animals. Establishing the subspecialty programme should be regarded as mandatory.

#### Conflict of interest

There are no personal and financial interests to disclose.

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None.

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