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# Status, role, and performance of emergency medicine specialists in Iran: A qualitative study

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## Abstract:

**INTRODUCTION:** The performance of the emergency department (ED) as one of the main parts of hospitals, have a great impact on the performance of the whole-hospital. In Iran, the official education program of this discipline was started in 2001 and has expanded in most medical universities. Given the unprecedentedness of emergency medicine (EM), there are limited studies about this specialty. Thus, this study aims to explore the status, role, and performance of Iranian EM specialists.

**MATERIALS AND METHODS:** This qualitative study was conducted using content analysis of 19 semi-structured interviews with EM specialists and key informant. Purposive sampling was conducted, and some teaching and nonstate hospitals in different geographic regions of Tehran city were selected. Conducting interviews continued until reaching the data saturation. Thematic analysis was employed. Extracted themes were reviewed and confirmed by some of the participants.

**RESULTS:** The study results were categorized within five main themes; included the role of ED from EM specialists' viewpoint, EM specialists' viewpoint on their discipline, performance of EM specialists (including medical, managerial, and economic performance), and role of EM specialists in patient satisfaction; and opportunities and challenges of EM specialists.

**CONCLUSION:** Overall, the study findings highlighted the effectiveness and positive medical, managerial and economic impacts of EM in Iran, inside and beyond hospitals. However, the study addressed significant opportunities some solvable challenges in educational, professional and economic domains, and interdisciplinary relationships. Further studies are recommended for comprehensive exploring viewpoint of other disciplines and stakeholders.

## Keywords:

Emergency department, emergency medicine, hospital, Iran

## Introduction

Hospital is composed of several components to provide services to patients and relationships between the components must be coherent to function.<sup>[1]</sup> Meanwhile, the emergency department (ED) of a hospital has a unique and important position providing comprehensive treatment for emergency patients.<sup>[2,3]</sup> Given this role, the management of this department is of great importance.

However, in Iran like in many countries in the world, for many years, there have been

several challenges in the management of EDs, such as the lack of clarity of direct responsibility of patients' management in ED which causes that a patient needs to be visited by different specialists from various disciplines with no clear clinical leadership function. In response to these challenges and to provide services to preserve patients' lives, the emergency medicine (EM) specialty has been launched in many countries. Given the management of ED in some hospitals by EM graduates, the quality of care and responsiveness have been improved.<sup>[3,4]</sup> Evidence available indicates that in many low- and-middle-income countries, EM

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residency training is in its early stages, and therefore, there are limited reports on the strengths and weaknesses of this program.<sup>[5]</sup>

In Iran, residency program for EM was launched in 2001 and currently, most of the medical universities have this residency program.<sup>[3]</sup> Several studies have been also conducted on various areas of this field including medical, managerial, educational, economic, and occupational dimensions and most of them indicated that the program had a positive impact on the above-mentioned areas.<sup>[5-9]</sup> Given the unprecedentedness of this specialty in Iran, there are limited studies to explore the performance of Iranian EM specialists. Furthermore, filed observations from hospitals with EM showed that there are different complicated issues and questions to be answered. Thus, the current study aims to explore and clarify the status, role, and performance of Iranian EM specialists in the health platform.

### Materials and Methods

To gain a more in-depth understanding of experiences of relevant providers, a qualitative program evaluation approach was conducted.<sup>[10]</sup> Data were gathered using face-to-face, semi-structured interviews. Purposive sampling approach using maximum variation method

was adopted and continued until reaching the data saturation. Nineteen semi-structured in-person interviews were conducted with key informant EM specialists. Most of them are working in hospitals and also have a managerial or policy-making a role in different organizations such as the Ministry of Health and Medical Education and the Iranian Society for EM. They were selected based on the level of their information and experiences, type of hospitals in which they have worked; both genders and different working histories were included in the study. Table 1 presents more details about the study participants and their interviews. All interviews were conducted by one of the trained members of the research team. Participants were informed about the aims of the study in advance.

Interviews were performed using a topic guide which was developed based on the review of the literature and consultation with the experts. Interviewees were asked about their viewpoints and experiences on the status and duties of EM specialists in different areas and also the challenges and opportunities facing this field.

Interviews took between 30 and 70 min and were conducted at the participants' workplaces. All interviews were audio-record and transcribed verbatim. The study was approved by the Research Ethics Committee

**Table 1: Profile of study participants and interview time**

<i>n</i>	Professional experience (year)	Working background and experiences	Type of workplace hospital
1	1	Medical doctor, recently graduated	Military hospital
2	8	Faculty member - precedent director of national emergency management center	Teaching hospital
3	10	Faculty member - precedent head of the hospital emergency administration of the ministry of health	Teaching hospital
4	3	Faculty member - precedent head of the hospital emergency administration of the ministry of health	Teaching hospital
5	4	Specialty board member - precedent head of the hospital emergency administration of the ministry of health	Charity hospital
6	17	Faculty member - precedent director of national emergency management center	Teaching hospital
7	4	Faculty member	Military hospital
8	12	Faculty member - precedent director of a hospital emergency department	Teaching hospital
9	11	Faculty member	Teaching hospital
10	14	Faculty member - one of the founders of emergency medicine specialty	Teaching hospital
11	10	Faculty member - precedent director of a hospital emergency department	Teaching hospital
12	9	Precedent director of the department of the university - specialty board member	Teaching hospital
13	10	Precedent director of the department of the university - specialty board member	Teaching hospital
14	10	Faculty member - precedent director of national emergency management center	Teaching hospital
15	5	Faculty member - precedent director of national emergency management center	Teaching hospital
16	20	Faculty member - one of the founders of emergency medicine specialty	Teaching hospital
17	8	Faculty member - precedent deputy of hospital	Military hospital
18	7	Medical doctor	Private hospital
19	2	Medical doctor	Military hospital

of Iran University of Medical Sciences (Code: IR. IUMS. REC.1393.24464), and ethical issues (obtaining informed consent, anonymity, and confidentiality) were considered carefully. On transcription, texts were reviewed by some of the participants, and the authenticity of the statements was confirmed. Relevant documents including the educational curriculum of the residency program, field notes, related protocols, and gray literature were purposively collected and analyzed. These documents were used to answer the study questions and as a resource for data triangulation and to increase the comprehensiveness and validity of the study. There was no difficulty in access to the documents. Data were analyzed using content analysis elucidating key pattern and themes. Thematic analysis was employed to analyze the interview data, which seeks to identify, analyze, and report patterns (themes) within a dataset. This approach uses inductive coding to identify categories (codes) and patterns (themes) in the data.<sup>[11,12]</sup> Initially, transcriptions were read and reread; and then codes, subthemes, and themes were extracted manually from the raw data. Five themes and three subthemes emerged from analysis, as shown in Table 2, were incorporated in the final analysis and it helped to ensure that the findings were congruent with participants' perceptions, beliefs, and opinions.

## Results

The participants' viewpoints were categorized into five themes that have been presented in Table 2.

### Role of emergency department from emergency medicine specialists' viewpoint

The participants, regarding to the variety of specialties and very diverse diagnostic and therapeutic methods available in the ED, described it as a small picture of the whole hospital and some kinds of "confederation" and as the main entrance for the new patients to the hospital and the place for disposition of the patients, it is an important base for creating the patient satisfaction or dissatisfaction that has symbolic impact on the satisfaction with the whole hospital.

**Table 2: Themes and subthemes extracted from data**

Themes	Subthemes
1. Role of emergency department from emergency medicine specialist's viewpoint	
2. Emergency medicine specialist's viewpoint on their discipline	
3. Performance of emergency medicine specialists	Medical performance Managerial performance Economic performance
4. Role of emergency medicine specialists in patient satisfaction	
5. Opportunities and challenges of emergency medicine specialists	

*P-7: "Emergency departments are the showcase of hospitals."*

ED was also described as a place for the most severe, anxious, and undiagnosed patients with the highest mortality rate. Simultaneously, it is the place for providing the most professional and specialized services for emergency patients in a full-time basis. Unlike other departments, the occupation of ED with chronic patients and patients awaiting beds to be hospitalized make it more crowded which even may lead patients to leave hospital due to long waiting. Continuous conflict with aggressive patients and the lack of legal protections from the medical staff causes a vicious cycle in crowding EDs that results in patient dissatisfaction. Furthermore, ED characteristics make it attractive for media, so even some problems might be more highlighted by the media. These reasons have made EDs as the priority of health system.

### Emergency medicine specialists' viewpoint on their discipline

The responsive specialists believed that in Iran, before launching this specialty, EDs were managed by physicians who did not necessarily have any special skills or experience related to emergency patients. In addition, patient health and management of critical patients are the most important functions of these specialists.

The participants believed that the identity of EM, based on the needs of the population, was gradually shaped; and despite serious disagreements among other specialties and some policymakers, after about a decade this specialty found its real position. Furthermore, there are some differences between EM and the other disciplines: Its team-based and intersectoral nature which may lead to conflict with others; being more frustrating and stressful specialty compared to other specialties; and the impossibility of patient selection.

*P-1: "Emergency departments is an ocean of about one meter depth! But be careful not to drown in this one meter."*

EM has some clinical and managerial duties such as; systematic patient evaluation to identify and stabilize high-risk cases and if necessary, to perform essential procedures, playing a central role in patient's clinical team and ability to make final decisions about patients, despite other experts' views to prevent mortality and morbidity, managing wandering patients. Furthermore, they have nonclinical duties such as round-the-clock safety network and emergency patients' access to specialized services; all-round surveillance and quality control of emergency services from triage to observation unit; comprehensive managerial improvement of ED through stewardship building; training of patients, their families, and residents; research and development of scientific products; being the front-line in disasters,

trauma system and intoxications system. Therefore, the Supreme National Security Council, considered EM as a “national strategic storage.”

### Performance of emergency medicine specialists

This theme, addresses the performance of EM in medical, managerial and economic domains, as three subthemes.

Regarding the medical performance, some respondents, by making a comparison, believed that medical care for emergency patients was provided by nonspecialists, i.e. general practitioners, residents and interns, before the EM establishment; other specialists were not permanently present in ED and even ED was a place to gain experience by them. Furthermore, prior to the establishment of EM, were poor diagnosis for some patients and higher rate of mortality due to the preventable reasons, lack of on-time paraclinical services, and referring patients to the private sector.

However, after the establishment of EM, the participants stated that quality and effectiveness of their medical services in hospitals have improved because of reasons such as acceptance of responsibility and stewardship of patient by these specialists instead of several medical professionals, fulltime presence of the specialists. Furthermore, the shortened treatment process because of having expertise and skill and prompt guidance of emergency patients to the operating room and discharge unit were of reasons for such improved effectiveness.

The participants mentioned some examples of the improved medical effectiveness, including improved patient safety because of the less diagnosis errors, more implementation of necessary procedures, shorter length of stay, and reduce unnecessary hospitalization.

*P-7: “EM specialist can alone carry out 5 specialists’ tasks; e.g. when an accident victim comes, he or she performs sonography, while in the past, ED nursing should call a sonographer to come from home and if internal bleeding was the case, the patient might have been lost during this time.”*

In contrast, some participants expressed concern about increasing performing procedures by EM due to economic benefits; they emphasized the noninvolvement of EM in the procedures due to the priority of critical care services and also the development of clinical guidelines to unify the treatment of emergency cases.

However, the participants believed that certain factors can influence the effectiveness of treatment by EM specialists such as patient personality, specialist’ individual idea about treatment method, access to para-clinic, no crowding and sufficient facilities.

Regarding the managerial performance, the participants stated that in the past, ED did not have a certain organizational structure as a hospital department. Other causes of unfavorable conditions of ED before EM establishment included the lack of defined specialized stewardship for emergency, inappropriate physical environment, the lack of request for equipping ED with specialized instruments.

*P-9: “They did not care, because (ED)] was not their department, it was a broken bridge for others. Everybody used to cross it and go his own way.”*

The participants believed that deploying the EM specialists improved EDs. For instance, the increase in the number and specialization of ED staff, improved teamwork spirit and increase in their income were positive changes occurred regarding to human capital management.

Furthermore, the participants believed that following the deployment of EM specialists, low-cost modification of the physical design of EDs, because this is a part of EM educational topics. In addition, they believed that EM establishment resulted in important changes in ED processes (such as triage) that had a positive impact on the reduction of mortality and morbidity, and increased patient satisfaction, because of related educational background.

Regarding the economic performance of EM, all participants believed that EM establishment has been cost-effective for health sector at macro level. Some participants, through a comparison, mentioned that EDs, before EM, were uneconomical because of unproductive view due to lack of stewardship by other specialties, and lack of service recording by them. Therefore, the establishment of EM had a positive effect on ED revenue and in some hospitals, it has become the most profitable department. Furthermore, in most hospitals, the payment model is fee for service and there is direct relationship between ED revenue and income of EM physicians. Hence, some respondents considered EM as one of the top one-thirds in terms of income in the specialties.

The interviewees mentioned other reasons for EM to be influential on increased hospital income, including increased number of patients referring to ED because of quality and quantity improvement of services, accurate record of services provided, calculation of costs of services as specialized ones, increased number of hospitalization (bed occupancy rate) in the whole hospital. They also mentioned other causes for such positive economic influence, including increased monitoring and avoidance of “loosing patient” due to inappropriate encounter with patients by residents or

selling patients and indirect reasons such as increased prescription of medicines and paraclinical services such as ultrasonography and laboratory.

Furthermore, some participants pointed to reasons such as more prompt treatment and decreased mortality rate, optimization, and reduced loss in services in emergency, were not previously provided properly, reduced hospitalization and unnecessary surgery and reduced nursing costs; and they believed that EM specialists have had an effective role in reducing costs; for patient, hospital and insurance.

*P2- "Previously... all cases of fracture had to be sent to operating room. Now it does not happen. When such cases are treated in emergency, it speeds up the work, costs of hospital, patient and insurance reduce because the patient is not hospitalized."*

Although, some minor "financial violations" was reported, such as income-centered view, the financial relationship between specialists and patients, procedure dependence of EM income and as a result, additional procedures. They believed that this phenomenon is due to disadvantageous circumstance for EM specialists and their inappropriate payment model, more effortful workloads, round-the-clock schedule, lack of medical office and sponsorships by commercial companies compared to other specialties, and also the comparison of the income of specialists of this new specialty with old professional in other specialties.

### Role of emergency medicine specialists in patient satisfaction

Based on the participants' viewpoint, the main aim of treatment processes is to improve patients' health and their benefit. Therefore, patient satisfaction is the main performance evaluation indicator in EM. Most participants believed that before the establishment of EM, patients were generally dissatisfied with the emergency and this dissatisfaction had several factors such as patient exposure to multiple therapists, crowding ED, bad encounter, neglect, and lack of responsiveness to the patient.

*P-7: "If a nurse asks a patient to wait till the radiologist arrives to check if it is brain hemorrhage; if asks to wait till the neurosurgery specialist arrives to see what he says, well, this makes the patient and also nervous the work is delayed."*

Overall, after EM establishment, patient satisfaction has increased due to the increased number of patients referring to EDs with reduced tension and crowding, management of wondering patients, correction of emergency processes, and improved responsiveness with providing continuous feedback to patients and their accompanies.

### Opportunities and challenges of emergency medicine specialists

The most important opportunities were the unprecedentedness of this specialty, benefiting from supports at strategic and policy-making level, reduced resistance to this specialty over time, possibility to continue education at higher levels for the graduates, and EM existence in most teaching hospitals.

In addition, EM faces several challenges such as the lack of achievement to initial goals of EM, the unprecedentedness of this specialty and some actions resulted from the lack of experience among young specialists and tactical and nonstrategic view to this specialty.

Furthermore, this specialty faces some challenges in the education domain. The inappropriate method of acceptance of assistants merely based on scientific examination and without the evaluation of interests and capabilities of applicants and immethodical development of the specialty was among the most important challenges. The participants believed that these specialists in the ED also face challenges such as not considering their opinion about the design of hospital emergency, hoteling in the department, services and installation issues, and patients with several accompanies.

*P-11: "All problems... emergency department... it is like there is no glass of water, number of WC is limited, the specialist did not come to visit, why the guard told that to me? I, as a specialist faculty member, should response to all of these, if I do not answer, there will be a crisis, they do not calm down till I show up and they see my label and face."*

However, inter-disciplinary conflict mentioned as the main challenge of EM, which is due to insufficient interactions and lack of clinical practice guidelines.

The participants also mentioned the economic challenge. The most important challenges stated were the payment system for EM specialists, physician, and hospital, the lack of integrity in insurance payments, revenue-centered view to the specialty and questioning the totality of the specialty due to some opportunistic behaviors.

### Discussion

The first theme showed that the EM specialists described hospital emergency as a showcase of the whole hospital, a place for the most severe patients, with the highest medical malpractice and mortality rate, mainly crowding with several shortages and continuous tension and therefore attractive for media; meanwhile it was described as a place for providing the most professional and specialized services round-the-clock. In previous

investigations, no study was found that assessed emergency atmosphere as a separate variable while investigating ED. In most of the studies, the emergency was briefly mentioned while investigating the specialty and they mainly addressed problems related to the job, profession, employment, duration of program, training, and conflicts with other specialties as well as change of performance indicators after the establishment of this specialty. Several studies confirmed the issue of crowded EDs<sup>[12-14]</sup> and occurrence of violence<sup>[15,16]</sup> in the EDs of Iranian hospitals which is consistent with the findings from other countries.<sup>[17-19]</sup> Evidence indicates that several environmental factors contribute with overcrowding and high level of tension in the ED environment.<sup>[20-22]</sup>

This study highlighted that the establishment of this specialty was essential as a strategic decision and EM specialty enhanced emergency patients' health through better stewardship and delivering timely, effective and efficient diagnostic and treatment services, compared with before the introduction of EM specialty. The EM specialists also contribute to managerial issues inside and outside the ED such as prehospital.<sup>[23]</sup> However, a study shows no difference in reduction of unsuccessful cardiopulmonary resuscitation before and after the introduction of EM specialty in a hospital in Iran.<sup>[7]</sup>

Paltved and Musaeus considered collaboration and leadership as two main professional roles of EM specialists promoting teamwork;<sup>[24]</sup> however, this study did not explicitly show team building and teamwork as the ED specialists' task. It might be related to the lack of awareness, collaboration, and team working among different disciplines.

This study highlighted a positive managerial impact of EM specialty in EDs which was mentioned is related to the nature of the training of this specialty. Increase in the number and specialization of emergency staff, job security and income, enhancement of physical environment, attraction of more resources and provision of specialized medical equipment, improvement of workflow and processes in EDs (e.g., triage improvement resulting in reducing crowding and mortality as an important process) and taking the position of the head of EDs, and playing a role in other managerial domains such as prehospital emergency are important examples of improvement of the management of EDs. Nicks and Nelson showed that 82% of the reviewed EM residency training programs included management topics.<sup>[25]</sup> Some studies also emphasize the positive managerial impact of EM specialists on reducing overcrowding of EDs, better bed management, enhancement of design of EDs, increasing patient satisfaction and disaster management planning.<sup>[8,14,24,26-29]</sup>

This study highlighted that EM specialty has a positive impact on financial performance and efficiency of EDs and hospitals accordingly. It was claimed that EM specialist caused growth in hospital revenue due to increases in a number of patients referring to EDs due to improved quality of services, accurate recording of emergency services, and higher bed occupancy rate in hospitals. Holliman *et al.*, also show the positive economic impact of EM specialty in EDs and hospitals.<sup>[29]</sup> Shahrami *et al.* attempted to explore methods to improve revenue in emergency using failure mode and effects analysis (FMEA) method.<sup>[30]</sup>

Higher patient satisfaction level among ED patients was claimed as another positive impact of EM specialty due to faster, better, and more effective patient management. Abbasi *et al.* in their study, in Iran, clearly showed higher patient satisfaction level in a hospital with EM specialists in comparison with a hospital with no EM specialists.<sup>[31]</sup> Welch introduces the main factors contributing to higher patient satisfaction in EDs including timeliness of care, empathy, technical competence, information dispensation, and pain management as main factors of patient satisfaction.<sup>[32]</sup> Our study findings also corroborate these findings.

Finally, the participants perceived opportunities and challenges faced by EM. The possibility to continue education, the presence in managerial areas, training programs and research areas were of the most important opportunities of the specialty; while educational challenges, professional issues and most important interactions with other specialties and some conflicts of interest were of the main challenges of EM specialists.

A study, conducted by Cydulka and Robert, in addition to the report of a high level of job satisfaction among more than half of the studied specialists, considered job burnout as an important concern.<sup>[33]</sup> These findings are in consistency with the professional challenge of EM in Iran. In addition, Francis *et al.* in their study stated the relationship between the quality of training and the quality of medical and managerial services in EM in ED.<sup>[26]</sup> This important point requires attention because it can be considered as an opportunity while it can create a challenge for the specialty. Finally; Geiderman *et al.* in their recent study (2017) confirmed the existence of a conflict of interest between EM and other specialties in various medical, managerial, educational, research, and organizational dimensions and they proposed solutions to reduce it.<sup>[34]</sup> These results strongly confirm the findings of the current study.

Finally, Yarmohammadian *et al.* in their study called ED as "Emergency Medicine Ward" that is consistent with our findings.<sup>[35]</sup>

The present study had, for the first time, a relatively comprehensive overview to EM in Iran. The access to the majority of founders and key informants of this specialty is the strength of the current study. This study was only based on viewpoints of EM specialists that may create bias and further study that seek the viewpoints of other disciplines, and stakeholders are recommended.

## Conclusion

The findings of the current study showed that EM in Iran, similar to most countries having this specialty, is a necessary specialty with hospital and beyond hospital missions, and totally has had positive effects on related indicators including medical, managerial and economic effectiveness, and patients' satisfaction. However, in the development of this specialty, there were challenges such as interaction with other specialists, education process, professional issues, and payment system. Given that this study was conducted based on viewpoints of medical specialists, it is necessary to conduct studies exploring viewpoint of specialists in other fields and policymakers in the health system on the performance of EM specialty.

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## Conflicts of interest

There are no conflicts of interest.

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