

# Health-care professionals' perceptions and expectations of pharmacists' role in the emergency department, United Arab Emirates

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مدركات المهنيين في الرعاية الصحية وتوقعاتهم حول دور الصيدالفة في قسم الطوارئ، في الإمارات العربية المتحدة  
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الخلاصة: يتمثل هدف هذه الدراسة التي أجريت في الإمارات العربية المتحدة بتقييم مواقف ومدركات المهنيين في الرعاية الصحية نحو قيمة بعض الوظائف التي يؤديها الصيدالفة في قسم الطوارئ. وقد شملت الدراسة 396 طبيباً وممرضة وغيرهم من المهنيين الصحيين الذين يعملون في أربعة مستشفيات حكومية وعشرة مستشفيات خاصة في دبي. واتضح للباحثون أنه مع أن 83.6% من المستجيبين للدراسة أبلغوا أن خدمات الصيدالفة تتوافر في قسم الطوارئ؛ إلا أن 30.7% من أقسام الطوارئ فحسب يعمل فيها صيدلي سريري دائم. وقد اتفق معظم المستجيبين (75.7%) على أن توافر صيدالفة سريريين في أقسام الطوارئ سيحسن من جودة الرعاية. وحول دور الصيدالفة السريريين في عملية مراجعة إعطاء الأدوية، فضّل 45% من المستجيبين الاقتصار على مراجعة طلبات الأدوية ذات الخطورة العالية في أقسام الطوارئ. ووجد الباحثون أن كثيراً من وجهات النظر تفضّل وجود دور للصيدالفة السريريين في أقسام الطوارئ من أجل ضمان وصف الأدوية الملائمة وإعطائها ومراقبة امتثال المرضى للمعالجة، وتقديم المشورة والمعلومات حول الأدوية، ومراقبة استجابة المرضى لها، وحصائل المعالجة بها.

ABSTRACT The objective of this study was to assess health-care professionals' attitudes and perceptions towards the value of certain pharmacist functions in the emergency department (ED). The study was conducted among 396 physicians, nurses and other professionals in 4 government hospitals and 10 private hospitals in Dubai. While 83.6% of respondents reported that pharmacy services were available in the ED only 30.7% had a permanent clinical pharmacist working there. A majority (75.7%) agreed that the availability of clinical pharmacists in the ED would improve quality of care. On the role of clinical pharmacists in the medication review process, 45.0% of respondents favoured the review of only high-risk medication orders in the ED. The study found favourable views towards a role for clinical pharmacists in the ED for assuring appropriate medicine prescribing and administration, monitoring patient adherence, providing drug information consultation and monitoring patient responses and treatment outcome.

Perceptions et attentes des professionnels de santé vis-à-vis du rôle du pharmacien dans des services des urgences (Émirats arabes unis)

RÉSUMÉ La présente étude visait à évaluer les attitudes et les perceptions des professionnels de santé vis-à-vis de certaines fonctions des pharmaciens dans des services des urgences. L'étude a été menée auprès de 396 médecins, infirmières et autres professionnels dans quatre hôpitaux publics et dix hôpitaux privés à Dubaï. Si 83,6 % des répondants ont déclaré que les services d'un pharmacien étaient disponibles aux urgences, seuls 30,7 % pouvaient compter sur un pharmacien clinicien en poste de manière permanente. La majorité (75,7 %) reconnaissait que la disponibilité de pharmaciens cliniciens dans les services des urgences serait un facteur d'amélioration de la qualité des soins. Concernant le rôle des pharmaciens cliniciens dans le processus de contrôle des médicaments, 45,0 % des répondants préféraient une vérification uniquement lorsque les commandes de médicaments portaient sur des produits à haut risque dans les services des urgences. L'étude a révélé que les perceptions vis-à-vis du rôle des pharmaciens cliniciens dans les services des urgences étaient positives, notamment pour la garantie de la prescription et de l'administration appropriées de médicaments, pour le suivi de l'observance du patient, pour la fourniture d'informations sur les produits proposés en consultation, pour la surveillance de la réponse du patient au traitement et du résultat thérapeutique.

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## Introduction

Over the years, the role of the pharmacist has progressively changed from a mere dispenser towards more involvement in patient care [1]. This expanded role, resulting in greater interaction between physicians and pharmacists, has culminated in safer, more effective and less costly therapy in the new era of patient care [2]. Pharmacists, as integral members of the multidisciplinary team in the emergency department (ED), have also demonstrated their contribution to reductions in morbidity and mortality as well as in drug costs [3]. Various studies have demonstrated that participation of pharmacists in intensive care units and internal medicine teams contribute to improved patient outcomes through reduction of preventable adverse drug events by 66% and 78% respectively [4].

Pharmacy services in the ED have been documented since the 1970s [5]. Nowadays clinical pharmacy is an established component of ED services in many developed countries [6,7]. In Eastern Mediterranean Region countries pharmacy education and pharmacy practice continues to evolve. While changes in pharmacy education have been relatively rapid over the past decade, the advancement of pharmacy practice, particularly in the private sector, appears to be slower [8]. The commencement of pharmacy education in the United Arab Emirate (UAE) dates back to 1992 with the establishing of Dubai Pharmacy College. Since then more pharmacy training programmes have been put in place to meet the high demand for pharmacists in the country [9].

Health-care services have been radically redesigned in UAE following government policy and establishment of the health authorities in Abu Dhabi and Dubai, which highlighted a clear need to improve the quality of care

delivered and transform patients' experiences. To be licensed and work in hospital settings in the UAE clinical pharmacists should have a bachelor degree in pharmacy with postgraduate qualifications in clinical pharmacy from an accredited college of pharmacy, preferably with residency in clinical pharmacy [10]. Clinical pharmacists have significantly expanded their role as critical members of the health-care team in the UAE. However, sustained efforts are required to further develop clinical pharmacy services to all EDs in UAE hospitals, and to set optimal standards of performance and excellence in practice.

This descriptive survey was the first in the UAE to examine the perceived value of this role from the perspective of health-care professionals across public and private sector health-care facilities. The aim of the study was to describe the current hospital pharmacy services in EDs in the UAE and to identify potential roles and possible benefits pharmacists may bring to the ED. The study also intended to assess the perceptions of health-care workers towards pharmacists working in the ED.

## Methods

### Study design and participants

The study was conducted during a period of 3 months from December 2009 to February 2010 at all the 4 government hospitals and a random selection of 10 out of the total 18 private hospitals in Dubai, UAE. The participants in the study were limited to health-care professionals working in these hospitals, including physicians, nurses and other allied health-care professionals. A clinical pharmacist in the context of this paper is a pharmacist who has a bachelor degree in pharmacy with a postgraduate degree in pharmacy (PharmD).

### Data collection

The questionnaire consisted of 25 closed questions in 3 sections. The first section recorded general demographic information about the respondents. The second section focused on assessing the respondents' interactions, if any, with clinical pharmacists in their day-to-day practice within the ED. The third section assessed respondents' perceptions towards the role of clinical pharmacists in the ED and exploring the possible benefits that pharmacists may bring to the ED. Questions were answered either using yes/no/don't know or always/often/sometimes/rarely/never options. The questionnaire was distributed to participants after a direct interview with the researchers and completed under their direct supervision to ensure clarity and therefore limit response bias.

The test-retest reliability of the questionnaire was assessed on 2 different occasions by administering the questionnaire to 12 randomly selected health-care professionals. The second testing took place 2 weeks after the initial one and was not included in the final survey analysis as the survey was modified based on the feedback obtained from the participants in the pilot testing. Test-retest reliability was calculated and the resulting Spearman correlation coefficient ( $r = 0.86$ ) implied acceptable test-retest reliability.

### Data analysis

The participants' responses were analysed using SPSS, version 16. Three categories of responses were used so that 95% confidence intervals could be calculated. Descriptive analysis was used to calculate the proportion of each group of respondents who agreed/disagreed with each of the statements in the questionnaire. The chi-squared test was used to identify any significant difference among the participants' responses in the

questionnaire with a significant level of *P*-value of < 0.05.

## Results

### Participants' demographics

Among the 450 participants contacted, 396 respondents agreed and completed the questionnaire, a response rate of 88.0%. The respondents comprised 65.7% males and 34.3% females, with a median age of 37 years. Among the respondents 42.9% were ED physicians, 20.7% ED nurses, 16.4% inpatient hospital nurses and 19.2% were hospital pharmacists, and other allied health-care professionals. The majority of the respondents (40.2%) worked in teaching hospitals, 25.5% in tertiary-care public hospitals and 34.3% in private hospitals. Of the respondents 33.6% had either practised or resided in the UAE for more than 10 years and 47.7% had a workload of > 100 patient visits per week at their facility. Table 1 illustrates the demographic information of the participants.

### Current practice

The majority of the respondents (83.6%) reported that a certain level of pharmacy services were provided in the ED. However, only 122 (30.7%) had a clinical pharmacist working permanently in the ED and of these 28.6% reported having a clinical pharmacist in the ED on a 24 hours 7-days-a-week basis.

**Table 1 Demographic and practice characteristics of the study sample of health-care professionals in emergency department (ED) and hospital inpatient departments (IPD) (*n* = 396)**

Variable	No.	%
<b>Sex</b>		
Male	260	65.7
Female	136	34.3
<b>Profession</b>		
Physician ED	170	42.9
Nurse ED	82	20.7
Physician IPD	3	0.8
Nurse IPD	65	16.4
Other	76	19.2
<b>Hospital type</b>		
Teaching hospital	159	40.2
Tertiary care public hospital	101	25.5
Private hospital	136	34.3
<b>Years of work experience</b>		
< 2	73	18.4
2-5	88	22.2
5-10	102	25.8
> 10	133	33.6
<b>Health-care professionals' workload (patients/week)</b>		
< 50	119	30.1
50-100	88	22.2
> 100	189	47.7

Analysing the frequency of consultations revealed that 31.4% of the respondents had consulted a clinical pharmacist at least a few times during the last 5 shifts, while the majority (51.4%) reported not that they had not consulted a clinical pharmacist in the ED during their last 5 shifts (Table 2).

### Clinical pharmacists' role

A majority of the respondents (75.7%) believed that the availability of clinical pharmacists in the ED would improve quality of care and patient safety. Although 71.4% of the respondents believed that clinical pharmacists played a vital role in the ED, only 64.3% actually favoured their

**Table 2 Health-care professionals' current practice and involvement with clinical pharmacists in the emergency department (ED)**

Item	Yes		No		Don't know	
	No.	%	No.	%	No.	%
Do you have pharmacy services (provided) in the ED?	331	83.6	34	8.6	31	7.9
Do you have a clinical pharmacist in the ED?	122	30.7	218	55.0	56	14.3
Have you consulted a clinical pharmacist in the ED at least a few times during your last 5 shifts?	124	31.4	204	51.4	68	17.1

presence in the ED. Moreover, only 55.0% believed clinical pharmacists were capable of offering primary care to certain patients once the diagnosis had been made by the physician.

Only 46.4% of the respondents favoured levying additional charge (on patients) for using clinical pharmacy services in the ED. However, a majority of the respondents (64.3%) believed that clinical pharmacist intervention would reduce the overall health-care costs and provide health-care institutions with a financial advantage. To this end, 66.4% of the respondents also agreed that the presence of clinical pharmacists in the ED would contribute to better dispensing and use of ED and discharge (take-home) medications.

### Reduce incidence of adverse reactions and medication review

A majority of the participants (68.6%) agreed about the role of clinical pharmacists in possibly reducing the incident of adverse drug reactions in the ED. Of the respondents 65.7% also preferred a clinical pharmacist to be available during peak volume hours including evening shifts and weekends. However, 45.0% of participants favoured limiting the medication review process in the ED to only high-risk medication orders. Nevertheless, the value of having a clinical pharmacist at all times during resuscitation (to provide clinical advice) was reinforced by a majority of the respondents (60.0%). It is also worth mentioning that 36.4% of the respondents were resistant to the idea of having a clinical pharmacist in the ED (Table 3).

The perception of different professionals who participated in the study did not reveal marked variations when assessed about their perception towards the role of clinical pharmacists in the ED ( $P > 0.05$ , chi-squared test) on all questionnaire statements (Table 3).

### Cost savings

The response of the participants about the perceived financial reduction in health-care costs through clinical pharmacists' interventions varied among health-care professionals when compared among different types of facilities. A significant difference ( $P = 0.035$ , chi-squared test) was found when comparing the opinion of the participants among those working in teaching hospitals and private hospitals. A comparatively high percentage of respondents in the public sector (76.7%) accepted the pharmacists' role in reducing health-care costs compared with only 50.4% of those working in the private sector (Table 4).

### Improving quality of care

Additionally, there was no statistically significant difference between the responses when the perceptions of different health-care professionals with different workloads were assessed about the role of clinical pharmacists in improving quality of care and patient safety in the ED ( $P > 0.05$ , chi-squared test) (Table 4).

## Discussion

The pharmacy profession has evolved slowly in the UAE, with more and more pharmacy schools and pharmacists making efforts towards providing more patient-centred services. This has necessitated a change in education and training, and may require allocation of more time and resources to better prepare clinical pharmacists to take up additional responsibilities at the prescribing and dispensing stages [11].

### Current practice

Ensuring a round-the-clock supply of medicines for patients in the ED is still a challenge. Out of 30.7% of the respondents who reported to have a permanent clinical pharmacist working in ED, only

28.6% of had this service available on a 24/7 basis.

This lack of clinical pharmacists particularly in the private sector may be attributed to the limited/unavailability of institutions providing clinical pharmacy courses in the region, and in particular in the UAE. It is worth mentioning in this context that the first pharmacy college in the UAE was established only in 1992 and that only 2 postgraduate clinical pharmacy programmes are currently offered through colleges in UAE. A previous study done in the UAE had also reported a shortage of clinical pharmacists in UAE hospitals [12], with the very few available pharmacists deployed in hospitals managed by international institutions, such as Johns Hopkins Hospital and the Cleveland Clinic [13]. This lack of clinical pharmacists in UAE hospitals is similar to the situation in other countries, as reported by the Institute of Medicine in 2006, which demonstrated the need for clinical pharmacists as part of the ED team to improve safety but also recognized the lack of pharmacists as part of interdisciplinary emergency medicine teams at most institutions [14].

### Health-care professionals' perceptions

Interestingly, the study demonstrated that there was a strong belief and consensus among all health-care professionals on the collaborative role of ED clinical pharmacists to be able to contribute to enhanced and comprehensive patient care. It also revealed that health-care professionals expected pharmacists to have a shared responsibility in disease management especially by providing patient education, monitoring adherence to medication therapy, detecting adverse events, etc., in order to facilitate earlier determination of therapeutic outcomes [15].

### Reducing adverse events

Unlike most health-care settings, medications in the ED are usually ordered,



**Table 3 Health-care professionals' beliefs and perceptions towards the role of clinical pharmacists in the emergency department (ED) based on respondents' profession**

Statement/Profession	Yes		No		Don't know		P-value <sup>a</sup>
	No.	%	No.	%	No.	%	
<b><i>Clinical pharmacists improve the quality of care and improve patient safety</i></b>							0.505
Physician ED	119	70.0	28	16.5	23	13.5	
Nurse ED	68	82.9	11	13.4	3	3.7	
Other	113	78.5	15	10.4	16	11.1	
Total	300	75.7	-	-	-	-	
<b><i>Clinical pharmacists are very important component of the ED team</i></b>							0.045
Physician ED	116	68.2	23	13.5	31	18.2	
Nurse ED	57	69.5	22	26.8	3	3.7	
Other	110	76.4	28	19.4	6	4.2	
Total	283	71.4	-	-	-	-	
<b><i>Favour the presence of clinical pharmacist in ED</i></b>							0.287
Physician ED	102	60.0	45	26.5	23	13.5	
Nurse ED	62	75.6	6	7.3	14	17.1	
Other	91	63.2	28	19.4	25	17.4	
Total	255	64.3	-	-	-	-	
<b><i>Clinical pharmacists are capable of offering primary care to patients</i></b>							0.832
Physician ED	88	51.8	62	36.5	20	11.8	
Nurse ED	48	58.5	23	28.1	11	13.4	
Other	82	56.9	39	27.1	23	16.0	
Total	218	55.0	-	-	-	-	
<b><i>Willing to have patients charged for clinical pharmacy services</i></b>							0.494
Physician ED	82	48.2	74	43.5	14	8.2	
Nurse ED	40	48.8	25	30.5	17	20.7	
Other	62	43.1	62	43.1	20	13.9	
Total	184	46.4	-	-	-	-	
<b><i>Involvement of clinical pharmacist will reduce costs</i></b>							0.786
Physician ED	111	65.3	42	24.7	17	10.0	
Nurse ED	59	72.0	14	17.1	9	11.0	
Other	85	59.0	40	27.8	19	13.2	
Total	255	64.3	-	-	-	-	
<b><i>Involvement of clinical pharmacist will ensure proper dispensing of ED take-home medicines</i></b>							0.659
Physician ED	107	62.9	49	28.8	14	8.2	
Nurse ED	54	65.9	25	30.5	3	3.7	
Other	102	70.8	28	19.4	14	9.7	
Total	263	66.4	-	-	-	-	
<b><i>Involvement of clinical pharmacist will reduce adverse drugs reactions</i></b>							0.55
Physician ED	121	71.2	42	24.7	7	4.1	
Nurse ED	51	62.2	26	31.7	5	6.1	
Other	99	68.8	34	23.6	11	7.6	
Total	271	68.6	-	-	-	-	

**Table 3 Health-care professionals' beliefs and perceptions towards the role of clinical pharmacists in the emergency department (ED) based on respondents' profession (concluded)**

Statement/Profession	Yes		No		Don't know		P-value <sup>a</sup>
	No.	%	No.	%	No.	%	
<b><i>Clinical pharmacist should be available during peak volume hours</i></b>							0.16
Physician ED	122	71.8	42	24.7	6	3.5	
Nurse ED	45	54.9	26	31.7	11	13.4	
Other	93	64.6	28	19.4	23	16.0	
Total	260	65.7	-	-	-	-	
<b><i>Clinical pharmacist should review only orders that contain high-risk medications</i></b>							0.16
Physician ED	91	53.5	65	38.2	14	8.2	
Nurse ED	42	51.2	34	41.5	6	7.3	
Other	45	31.3	88	61.1	11	7.6	
Total	178	45.0	-	-	-	-	
<b><i>Clinical pharmacist should be present at all resuscitations to provide clinical advice</i></b>							0.344
Physician ED	99	58.2	51	30.0	20	11.8	
Nurse ED	59	72.0	14	17.1	9	11.0	
Other	79	54.9	54	37.5	11	7.6	
Total	273	60.0	-	-	-	-	
<b><i>Resistant to clinical pharmacists' presence in ED</i></b>							0.478
Physician ED	71	41.8	91	53.5	8	4.7	
Nurse ED	28	34.2	42	51.2	12	14.6	
Other	45	31.3	79	54.9	20	13.9	
Total	144	36.4	-	-	-	-	

<sup>a</sup>Chi-squared test.

dispensed and administered at the point of care. There is also a higher prevalence of verbal orders, particularly in urgent and high-stress situations. As many as 98 000 people die each year in the United States (US) as a result of medication errors [13]. Similar studies done in the US also report that 3.6% of patients receive an inappropriate medication in the ED [16] and 5.6% are prescribed an inappropriate medication on discharge from the ED [17]. This is particularly important as several studies showed that, as members of an inpatient care team, pharmacists contribute to reducing the number of adverse drug events [18]. More than two-thirds of the physicians who participated in this survey also believed that the involvement of clinical pharmacists would

reduce the incidence of adverse drug reactions in ED settings.

### Disease management

Resistance of physicians to a greater role for clinical pharmacists in disease management has been reported in some studies [7,18]. It is important to note that the perceptions in the UAE in this regard are different from those in other Arab countries, such as in Kuwait, where physicians showed high resistance towards the involvement of clinical pharmacists in patient care [19]. This may be attributed to physicians' lack of knowledge about the role of clinical pharmacists and limited exposure in collaborative disease management. The perceptions of UAE health-care professionals in this regard are very much comparable to

those in the US, where the majority of the health-care professionals favour clinical pharmacists being a part of the patient care team. It is believed that incorporating relevant concepts of collaborative patient care in the existing medical and pharmacy curricula, with due emphasis on inter-professional relationships, would further enhance physician-pharmacist collaboration in the provision of patient care. We may conclude from our study that health-care professionals' resistance to the pharmacists' role in the ED in UAE should not constitute a barrier to instituting clinical pharmacy services in UAE hospitals.

### Cost analysis

Many authors have reported estimates of cost savings related to pharmacist

**Table 4 Health-care professionals' perceptions towards clinical pharmacists' role in reducing cost and improving quality of care in the emergency department (ED) according to type of hospital and workload**

Statement/Respondent's workplace or workload	Yes		No		Don't know		P-value <sup>a</sup>
	No.	%	No.	%	No.	%	
<b>Clinical pharmacist intervention will reduce costs and be financially advantageous for health care institutions</b>							
<b>Hospital type:</b>							
Teaching hospital	122	76.7	23	14.5	14	8.8	0.035
Tertiary care hospital	65	63.7	31	30.4	6	5.9	
Private hospital	68	50.4	25	31.1	25	11.4	
Total	255	64.3					
<b>Presence of clinical pharmacist in ED will improve quality of care and patient safety</b>							
<b>Workload:</b>							
< 50 patients/week	91	72.8	17	13.6	17	13.6	0.679
50-100 patients/week	62	72.9	17	20.0	6	7.1	
> 100 patients/week	147	79.0	20	10.8	19	10.2	
Total	300	75.7					

<sup>a</sup>Chi-squared test.

interventions in EDs and the available literatures also suggests that emergency pharmacist programmes have the potential to be cost-effective in EDs [20]. Physicians' beliefs about the role of ED pharmacists in reducing health-care costs (65.3%) clearly undermine the need to involve clinical pharmacists in the ED. These results also have implications for the ED, and hospital leadership teams may consider implementing an ED pharmacist programme in their facilities. However, respondents' reaction towards the idea of charging patients for availing pharmacy services were mixed, with around 48% of the physicians and nurses favouring the idea. This is very different

from the perception of physicians in the US, where 83% of the physicians were willing to have their patients charged for this service [5].

In summary, the findings from this study reveal that health-care professionals in the UAE acknowledged the role of clinical pharmacists in improving therapeutic outcomes in ED. This may have evolved from their own experience of interacting with clinical pharmacists as their responses clearly acknowledged the unique set of skills delivered by pharmacists. They expected pharmacists to play an important role in direct patient care by providing a supportive role in therapeutic treatment and in patient education

and counselling. They also accepted, as demonstrated in previous studies, that the involvement of clinical pharmacists in patient care in the ED setting would result in safer and more cost-effective medication use.

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