

Primary health care emergency services in Abha district of southwestern Saudi Arabia

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خدمات الطوارئ الخاصة بالرعاية الصحية الأولية في منطقة أبها بالجنوب الغربي من المملكة العربية السعودية

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الخلاصة: قام الباحثون بجمع المعطيات حول المعدّات والمرافق، وممارسات الأطباء ومواقفهم، ومدى استخدام المرضى لخدمات الطوارئ ورضاهم عنها، وذلك من أجل دراسة إيتاء خدمات الطوارئ في ثلاثين مركزاً من مراكز الرعاية الصحية الأولية في منطقة أبها بإقليم عسير. وتبيّن من الدراسة أن هناك مركزين لا يوجد مكان بهما لخدمات الطوارئ. كما كان هناك نقص واضح في بعض المعدّات والأدوية الأساسية. أما أكثر الاحتياجات الخاصة بالثقيف الطبي المستمر للأطباء فتمثّلت في التدبير العلاجي للطوارئ القلبية الوعائية (72.3%). فقد كان 40.4% من الأطباء يرون أن معظم الحالات لا تعتبر حالات طارئة حقيقية. وبلغت نسبة من يلجأ إلى خدمات الطوارئ 43.7% من المرضى، وكانت أكثر الحالات شيوعاً هي الرضوح، والحروق وجراحات تقويم العظام (47.8%). وأعرب معظم المرضى (82.2%) عن رضاهم بصورة عامة عمّا تقدّمه خدمات الطوارئ.

ABSTRACT To study emergency services delivery in all 30 primary health care centres in Abha district of Asir region, Saudi Arabia, data were collected about equipment and facilities, physicians' practices and attitudes, and patients' utilization of and satisfaction with emergency services. Two centres had no devoted place for emergency services. Lack of some essential equipment and drugs was evident. The greatest continuing medical education need for doctors was the management of cardiovascular emergencies (72.3%). Many doctors (40.4%) did not consider the majority of cases as true emergencies. Many patients (43.7%) used the centres for emergency services, the most common being trauma, burns and orthopaedics (47.8%). Most patients were satisfied overall with emergency services (82.2%).

Services d'urgences en soins de santé primaires dans le district d'Abha au sud-ouest de l'Arabie saoudite

RÉSUMÉ Afin d'étudier les prestations des services d'urgences dans chacun des 30 centres de soins de santé primaires du district d'Abha dans la région d'Asir (Arabie saoudite), des données ont été collectées sur les équipements et locaux, les pratiques et attitudes des médecins, ainsi que sur l'utilisation des services d'urgences par les patients et le degré de satisfaction de ces derniers. Deux de ces centres ne disposaient d'aucun local spécifiquement réservé aux urgences. L'absence de certains matériels et médicaments essentiels était manifeste. En ce qui concerne les praticiens, le besoin le plus criant en matière de formation médicale continue se situait au niveau de la prise en charge des urgences cardio-vasculaires (72,3 %). De nombreux médecins (40,4 %) ne considéraient pas la majorité des cas comme de véritables urgences. Les patients étaient nombreux (43,7 %) à faire appel à ces centres pour des urgences, principalement pour des traumatismes, des brûlures et l'orthopédie (47,8 %). La plupart des patients se déclaraient globalement satisfaits des services d'urgences (82,2 %).

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Introduction

Primary health care (PHC) is defined by the World Health Organization (WHO) as essential health care made universally accessible to individuals and families in the community by means acceptable to them through their full participation and at a cost the community and the country can afford [1]. Saudi Arabia started implementing this approach in 1980. It abolished its former health offices, maternal and child health centres and dispensaries and amalgamated these services into PHC centres (PHCCs), which provide both curative and preventive aspects of care [2].

Due to the imminent danger to life or permanent physical damage from emergencies, attention must be given to the delivery of emergency care at all levels of health services whether it is at PHC level or hospital [3]. Data regarding emergency services at PHC level in the southwestern region of Saudi Arabia are scarce. Relevant data from health service providers and recipients are very important to health care policy-makers for effective and optimal management of the current services.

The overall aim of the present work was to study emergency health care services delivery at PHC level in Abha health district of Asir region of Saudi Arabia. Asir region (population of 1 200 000) is located in the southwest of Saudi Arabia covering an area of more than 80 000 km². The region extends from the high mountains of Sarawat (3200 m above sea level) to the Red Sea, and lies a few kilometres from the northern border of Yemen. The region is divided into 15 health districts. PHC services delivery in Abha health district are provided through a widespread network of 30 urban and rural PHCCs providing services to 129 465 people.

The specific objectives of the study were to evaluate emergency health care services at PHC level in terms of structure and outcome, to study the knowledge, attitudes and practices of PHC physicians (service providers) and identify their felt needs for continuing medical education in emergency care and to study the satisfaction with and pattern of utilization of PHC emergency services of the health care recipients (consumers).

Methods

All 30 PHCCs in Abha health district were included in the present study; 7 (23.3%) were urban centres and the remainder were rural centres. The tools used were structured observation and interview questionnaires.

Tools

The Donabedian triad of structure, process and outcomes was used as a framework for assessing the quality of primary care emergency services [4,5]. The structured observation tool was developed using the Delphi technique [6]. The observation sheet was created using the Saudi Ministry of Health *Quality assurance manual* [7], the *Saudi essential drug list at primary health care level* [8], and the Saudi Ministry of Health *Primary health care manual* [9]. A panel of experts from Abha College of Medicine and Asir General Directorate of Health Affairs comprising specialties in primary health care, emergency medicine, community medicine and health administration was asked to assess the preliminary observation sheet and provide structured comments with respect to face and content validity and comprehensiveness. The amended questionnaire was refined to address:

- Physical description: presence of a dedicated place for dressings and/or minor surgeries, location in the centre (floor, separate entry, presence of sloped entry for the trolley, etc.).
- Available emergency equipment: dressing trolley, dressing drum, mouth gag, oxygen cylinder with standard fitting, etc.
- Available drugs for emergencies: calcium gluconate injections, antitetanic serum injections, morphine hydrochloride injections, etc.
- Presence of supporting facilities: X-ray facilities, laboratory, ambulance car, etc.
- Manpower structure: number of available nurses and physicians.
- Outcome: total number of emergency cases attending the centre during the previous 3 months and number of emergency cases referred to the district hospital in the same period.

Donabedian's model was used for studying patients' satisfaction with aspects of care [4]. The model includes 6 parameters defined as follows:

- Accessibility: the possibility of the patient obtaining the services he/she needs at a time and place where he/she needs it, in sufficient amounts, and at a reasonable cost.
- Continuity of care: the relationship between past and present care in conformity with the therapeutic needs of the patient.
- Informativeness: giving information in relation to care or services to the patient.
- Thoroughness: the extent to which the patient receives complete care and services.

- Humaneness: the respect, concern, friendliness and the amount of courtesy shown by the providers to the patient.
- Effectiveness: the degree to which the services provided are high quality.

Data collection

The fieldwork for the study was carried out during April to May 2003. Well-trained community health workers visited each PHCC for a full working day (morning and afternoon sessions) and collected data using the structured observation sheet.

All primary health care physicians were interviewed using a self-administered questionnaire including data regarding emergency practices, attitudes towards emergencies at PHC level, their perceived needs for continuing medical education in primary health emergency care and their preferred methods of continuing medical education.

During the visit, a sample of a minimum of 10 patients attending the PHCC for any reason was randomly selected (a systematic random sample of every fifth patient). Each selected patient was interviewed regarding their experience and utilization of PHC services for emergencies. Those who used PHC emergency services in the past year were interviewed regarding their satisfaction with the emergency services provided at PHC level.

Analysis

Data were coded and analysed using *SPSS* PC+ software package. Univariate analysis methods were used. Student t-test, chi-square, Mann-Whitney U and Fisher exact tests were used as tests for significance at the 5% level of significance [10].

Results

Structure

The study showed that there was no devoted place for emergency services in 2 (6.7%) of the 30 centres. Emergency services in most of the centres (90.0%) were located on the ground floor and in 43.3% of PHCCs they were near the entrance. Sloped and separate entry was found in 23.3% of the centres. Separate drug cabinets for emergency services were found in 76.7% of the centres. The study showed that 16.7% had no devoted registry for emergency cases.

Table 1 shows the availability of equipment and drugs and facilities in the centres. The 3 least available equipment necessary for emergency services were: nasogastric tubes (30.0%), cannulas (43.3%) and urinary catheters (56.0%). On the other hand the following surgical equipment was available in all PHCCs: dressing drum, forceps, scissors, suture material and intravenous stands. There were no tracheostomy sets in any PHCCs. Sterilization equipment (autoclaves and hot-air ovens) was available in 66.7% and 80.0% of centres respectively.

The 3 least available emergency drugs were: activated charcoal (3.3%), naloxone injections (6.7%) and antihistamine injections (33.3%). On the other hand, the following drugs were available in all PHCCs: dextrose, normal saline, adrenaline, anti-scorpion venom and tetanus toxoid.

The study showed a deficiency in support facilities. Only 26.6% of PHCCs had X-ray facilities, 53.3% had laboratory facilities and 23.3% had equipped ambulance cars.

As for manpower, the total number of physicians per centre ranged from 1 to 6 with a median of 1. For nurses, the figure ranged from 1 to 10 with a median of 3.5.

Physicians' knowledge, attitudes and practices about emergency care

The present study included 47 primary health care physicians. The majority of physicians were males (74.5%). Sudanese physicians (38.3%) were the highest percentage followed by Egyptians (34.1%), while Saudi physicians were a minority (4.3%). The mean age of physicians was 39.5 (standard deviation 7.9) years, with an average of 14.8 (SD 7.8) years since graduation. The average duration spent in PHCCs in Saudi Arabia was 8.7 (SD 3.4) years. Only 14 physicians (29.8%) worked in hospitals for a mean duration of 2.7 (SD 1.7) years. As for qualifications, 38.3% of physicians had postgraduate degrees. No statistically significance differences were found among physicians by rural/urban distribution of the PHCCs.

Most doctors had practised in primary health care the management of wounds (95.7%) and burns (93.6%). The least practised emergency situations were: convulsions during pregnancy (14.9%), status epilepticus (21.3%), psychiatric violence (23.4%), drug poisoning (25.5%) and cardiopulmonary resuscitation (29.8%).

When asked about their attitudes towards emergency cases, most doctors (59.6%) thought that the majority of emergency cases treated at PHCCs were true emergencies. However, 40.4% of them did not consider that the majority of emergency cases were true emergencies. The majority of doctors (78.2%) believed that emergency services were an essential component of primary health care. As for self-confidence, only 20.0% of physicians felt that they were not competent to deal with emergency cases at primary health care level.

Table 1 Emergency facilities, equipment and drugs available at primary health care centres (PHCCs) in Abha District, Saudi Arabia

Equipment	No. of PHCCs (n = 30)	%	Drugs/facilities	No. of PHCCs (n = 30)	%
Dressing drum	30	100.0	Calcium chloride injection	16	53.3
Dressing trays	28	93.3	Antihistaminic injection	10	33.3
Urinary catheter	21	70.0	Sodium bicarbonate injection	20	66.7
Dressing table	29	96.7	Hydrocortisone injection	29	96.7
Side lamp with stand	27	90.0	Naloxone hydrochloride injection	2	6.7
Forceps	30	100.0	Dextrose	30	100.0
Scissors	30	100.0	Normal saline	30	100.0
Suture materials	30	100.0	Ringer lactate	28	93.3
Needle holder	29	96.7	Activated charcoal powder	1	3.3
Suction apparatus	25	83.3	Metergotamine	22	73.3
Mouth gag	13	43.3	Metoclopramide (Plasil®)	20	66.7
Blades	29	96.7	Adrenaline injection	30	100.0
IV stand	30	100.0	Ventolin	29	96.7
Splints	23	76.7	Anti-scorpion	30	100.0
Nasogastric tubes	9	30.0	Anti-snake	28	93.3
Cannulas	16	53.3	Anti-tetanic serum	27	90.0
Cervical collars	4	13.3	Tetanus toxoid	30	100.0
Oxygen cylinder with standard fitting	30	100.0	Rabies vaccine	17	56.7
Oxygen mask	29	96.7	Diazepam	14	46.7
Airways equipment	19	63.3	Furosemide (Lasix®)	28	93.3
Manual resuscitator (Ambu bag®)	28	93.3	Hyoscine	29	96.7
Nebulizer	27	90.0	X-ray	8	26.7
Tracheostomy set	0	0	Laboratory	16	53.3
Autoclave	20	66.7	Equipped ambulance cars	7	23.3
Hot-air oven	24	80.0			

n = total number of centres.

Physicians reported that their greatest needs for continuing medical education were in the management of cardiovascular emergencies (72.3%), central nervous sys-

tem emergencies (59.6%) and orthopaedic emergencies (42.6%).

That most preferred training methods for receiving continuing medical education

training in emergency care were practical training (91.5%), followed by hospital training (76.6%). The least preferred method were printed materials (25.5%) and lectures (31.9%).

No statistically significant differences were found by sex, nationality and area (rural/urban) among primary health care physicians regarding their attitude and practices, their perceived needs for continuing medical education or their preferred means of continuing medical education

Patients' utilization and satisfaction with primary health care emergency services

The present study included a total of 412 interviewed patients: 69.4% were from rural and 30.6% were from urban areas. The age of the interviewed persons ranged from 13 to 86 years with a mean of 34.6 (SD 15.8) years and a median of 32 years. The most common job was government employee (30.8%) followed by student (29.2%) and army or police soldier (19.1%). Education status was as follows: 12.1% were illiterate,

26.2% had reached secondary and 22.8% had reached intermediate level.

When asked about their pattern of utilization of PHCC emergency facilities, only 180 (43.7%) of the interviewed patients had used the relevant PHCC for emergency services in the past year. People living in rural areas (51.4%) used emergency services in PHCCs significantly more than those living in urban areas (26.2%) ($P < 0.05$). Figure 1 shows that the 3 most common reasons for visiting PHCCs for emergency services were for trauma, burns and orthopaedics (47.8%), respiratory problems (33.3%) and coma (11.1%). No statistically significant differences were found between rural and urban areas.

Among those who did not use PHCCs services in the past year, 53.9% used other emergency services. The majority of this group received the services in government hospitals (87.2%) and rarely in private hospitals (9.6%). The most frequently mentioned reason for not using PHC emergency services was that the PHCC's working hours were unsuitable (60.8%). No statistical

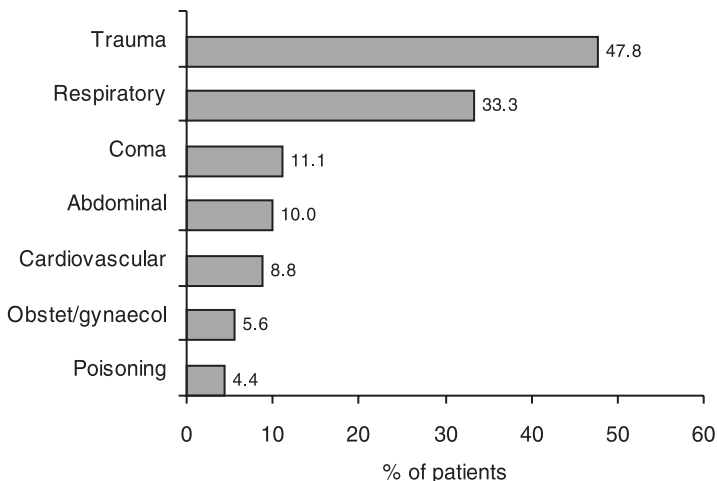


Figure 1 Patients' reasons for using primary health care centres in Abha District, Saudi Arabia for emergency services (n = 180 patients interviewed)

significant differences were found between rural and urban areas.

The 180 patients who used PHC emergency facilities (33 from urban PHCCs and 147 from rural PHCCs) were interviewed about their satisfaction with the services. Overall, 82.2% of them were satisfied with the emergency services provided by the centres. The urban population (69.7%) was significantly less satisfied by the emergency services given by PHCCs than rural populations (85.0%).

Table 2 shows the satisfaction among health care recipients by rural/urban centres. When asked about the accessibility of services, the most unsatisfactory factor in the opinion of patients were lack of signs to emergency rooms (35.0%) and insufficient parking places (19.4%). The proportion of patients from urban areas (30.3%) dis-

satisfied with the working hours of the centres was significantly higher than the corresponding figure (11.6%) among rural patients. Regarding the humaneness of services the proportion of dissatisfied patients from urban areas (18.2%) was significantly higher than the corresponding figure (6.1%) among rural patients ($P < 0.05$). Almost one fifth of patients (21.7%) were dissatisfied because of the lack of ease of referral to hospital. The proportion of patients from urban areas who were dissatisfied due to lack of thoroughness of the service (30.3%) was significantly higher than the corresponding figure (15.6%) among rural patients ($P < 0.05$). The item about informativeness showed that 25% of the interviewed patients were dissatisfied because they felt they were given insufficient information.

Table 2 Patients' satisfaction with emergency services at primary health care centres (PHCCs) in Abha District, Saudi Arabia, by area

Item	PHCC area				Total (n = 180)		P-value
	Urban (n = 33)		Rural (n = 147)		No.	%	
	No.	%	No.	%			
Accessibility of service							
Unsuitable distance	4	12.1	21	14.3	25	13.9	NS
Insufficient parking	5	15.2	30	20.4	35	19.4	NS
Waiting time too long	10	30.3	17	11.6	27	15.0	$P < 0.05$
Insufficient signs to emergency room	13	39.4	50	34.0	63	35.0	NS
Humaneness of services							
Inhumane treatment	6	18.2	9	6.1	15	8.3	$P < 0.05$
Continuity of service							
Lack of easy referral to hospital	10	30.3	29	19.7	39	21.7	NS
Thoroughness of service							
Service not thorough	10	30.3	23	15.6	33	18.3	$P < 0.05$
Unsatisfactory management	7	21.2	26	17.7	33	18.3	NS
Informativeness of service							
Insufficient information given	11	33.3	34	23.1	45	25.0	NS

NS = not significant.

n = total number of patients interviewed.

Discussion

An emergency is a sudden incident that necessitates urgent and appropriate management to treat its results and avoid its sequelae. It becomes a health emergency if it results in an unexpected risk to the health of people or the physical environment in which they live. A systems approach to emergency health services is a way of thinking about the cause-and-effect relationship that influences the health and well-being of the population as a result of an emergency. It allows understanding and consideration of these relationships in a specific political, social, cultural and economic context to enable decision-makers to create new models of management by shaping new rules and boundaries. Systems thinking is critical to the process of health policy formulation and to the process of its management [11].

The present study showed that emergency services at PHC level in Abha health district are functioning reasonably well in terms of structure, process and outcome of services. Yet, the services need to be fine-tuned, and defects revealed by the present study should be taken into consideration hand-in-hand with available resources in order to upgrade the quality of the emergency services provided at PHCCs in the region. It is mandatory to monitor PHCCs regularly for the supply of essential drugs and necessary equipment for emergencies. Equipped ambulances should be provided to key PHCCs, especially those in remote areas. Over-utilization of emergency room services by patients with non-urgent complaints is a global problem. It results in a waste of resources, stress among the emergency room staff and an increase in waiting time for patients requiring attention. Similar to the findings in other countries, inappropriate utilization of the emergency room is a major problem in Saudi Arabia. Studies have shown that the majority of patients

come with minor self-limiting complaints [12,13] and that the maximum workload is at night time. There is a need for education of patients, as well as finding alternative solutions to out-of-hours care.

Primary health care in Saudi Arabia is provided by physicians who have no post-graduate training at all or who have been trained in other medical specialties. Most PHC physicians in Asir region, similar to other regions, were male, married, non-Saudi Arabian, 35–45 years of age and without postgraduate qualifications [10]. Continuing medical education therefore becomes a necessity to improve and maintain the professional skills of practising physicians. Previous studies in Saudi Arabia showed that the majority of PHC physicians would like to acquire more knowledge about emergency medicine [14,15]. Physicians working in Abha may need more training, taking into consideration the nature of Abha as a resort area especially during the summer [16,17].

The present study revealed an important need for a wide range of continuing medical education programmes targeting emergency medicine (particularly on the management of cardiovascular and central nervous systems emergencies) to be tailored to the needs of the primary health care physicians. In addition, so long as attending continuing medical education is not obligatory for promotion or seniority, there are no incentives for physicians to attend such activities. One of the methods of continuing medical education that was highly valued by physicians is clinical experience in hospitals. This may reflect a strong perceived need for further training in clinical emergency medicine, although few of them had actual experience in hospital clinical training.

The majority of the PHC clients were satisfied in general with the emergency services provided. Yet the study revealed

areas of dissatisfaction. Several studies in Saudi Arabia have revealed similar results to the present study and showed that physicians' communication skills were more satisfactory to patients than their professional skills [18–23]. Health care policy-makers will need to gain a better understanding of what contributes to people's satisfaction and well-being in order to be able to determine where funds should be allocated to promote both efficiency and client well-being. It is

mandatory to provide PHCCs with good signs leading to the emergency location and it is important to provide sufficient parking areas at or around the PHCCs. Physicians dealing with emergency cases should pay more attention to giving detailed information to their patients and more health education regarding their illness. Finally, humaneness and thoroughness of care should be stressed in training for service providers.

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A practical tool for the preparation of a hospital crisis preparedness plan, with special focus on pandemic influenza

When a health emergency happens, hospitals and health facilities, irrespective of all sizes and types, suddenly confront a huge demand for services. Not all facilities are prepared to deal with such crises. Few hospitals have a concrete plan for crisis preparedness, either general or tailored to a specific risk such as pandemic influenza.

Following two expert workshops in February and May 2006, WHO in September 2006 published guidance on hospital crisis preparedness planning, providing a checklist of all the measures that should be planned, outlining the main areas for consideration

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