

# Resource availability for care of hypertensives at primary health settings in Southwestern Saudi Arabia

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## ABSTRACT

**Objective:** To assess the availability of resources required for hypertension care at primary health care centers in Aseer region, Southwestern Saudi Arabia.

**Methods:** This study was carried out at primary health care settings in Aseer region, Kingdom of Saudi Arabia (KSA), during during September 2001 by distributing a questionnaire to all the technical directors of primary health care centers (PHCCs) in Aseer region, KSA. The questionnaire composed of 4 main parts that dealt with profile of these PHCCs and the degree of availability of the essential resources for care of hypertension. Data of the questionnaire was entered and analyzed by using statistical package for social sciences.

**Results:** Ninety-nine percent of PHCCs responded to the

questionnaire. The total served population was more than 970,000. The total registered hypertensive patient was 13087 patients. Seventy-five percent of PHCCs have chronic diseases mini-clinics, 90% have appointment system and management protocol for hypertension. Availability of health education materials, diagnostic tools and antihypertensive drugs ranged from 10-81.4%.

**Conclusion:** This study found that many essential resources for hypertension care were not adequately available. Urgent provision of these items is considered a priority in order to introduce good health care for hypertensive patients in Aseer region, KSA.

Saudi Med J 2003; Vol. 24 (5): 466-471

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Hypertension (HTN) is a common health problem among Saudis. Many national and regional studies conducted in the Kingdom of Saudi Arabia (KSA) during the last decade revealed that prevalence of Hypertension is increasing.<sup>1-5</sup> In Aseer, KSA, the prevalence of HTN ranged from 2.6-11.1%.<sup>1,2,6</sup> Other studies, and reports found that even most of that known to have HTN were poorly controlled, physicians and nurses who care for those patients lack essential knowledge with regards to management of HTN.<sup>7,8</sup> In order to introduce good health care, Ministry of Health in the KSA in corporation with the World Health Organization Regional office issued a practical manual

in PHC which specified one chapter for HTN care.<sup>9</sup> This chapter gives practical guidelines for diagnosis, treatment follow-up and provides the ideal standards for hypertension care at PHC settings. Despite these facts, there are a few studies concerned with the process, outcome and structure for hypertension care in KSA.<sup>10</sup> The objective of this study was to assess the availability of resources for HTN care at primary health care settings in Aseer region, Southwestern KSA.

**Methods.** Aseer is one of the administrative regions of KSA with a population of 1.2 million. The health

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Received 29th October 2002. Accepted for publication in final form 18th February 2003.

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services in this region are provided through a network of PHCCs, general hospitals and one central hospital. In order to make health services accessible to everyone; the region is divided into 14 health sectors. Each sector consists of a group of PHCCs and one general hospital. Those patients who need secondary care are referred from PHCCs to general hospitals through formal referral forms to the concerned specialists. Hypertension Care in Aseer region, KSA as other health care services, is provided by the governmental agencies (Ministry of Health, Ministry of Defense & Aviation, Ministry of Interior, private hospitals and polyclinics). To achieve the objective of this study, the investigators designed a questionnaire based on the quality assurance manual issued by the Directorate General of Primary Health Care Centers.<sup>9</sup> This questionnaire consisted of 4 main sections; the first section dealt with essential data regarding PHCCs; namely; the total served population, distance from the nearest general hospital, type of road, number of served hypertensive patients at each PHCC, number of working physicians, nurses and availability of laboratory services. The second section consisted of presence of the (mini-clinic, appointment system, recall system, hypertensive files, hypertensive registers, protocol for diagnosis and management of HTN, attending HTN training courses by the working physicians, ability of a doctor to perform fundoscopy, presence of coordination between the PHCC and the referral general hospital, ability to do the essential investigations such as blood sugar, urine analysis, complete blood count. The third part discussed the degree of availability of the essential drugs for HTN. This section was assessed as follows: always available, often available, rarely available and never available. The 4th section discussed the degree of availability of the health education means for hypertension (booklets, pamphlets, posters, videotapes and health education program for hypertensives). The second and the forth sections were assessed by using Yes-No question types. (**Appendix 1**). The questionnaire was delivered by the mail during September 2001 to working technical supervisors at all sectors who distributed it to all PHCCs in their sectors, collected the response and returned it within 4 weeks to the technical directorate of PHC in Health Affairs, Aseer, KSA. To obtain reliable data, the name, the signature of technical director of PHCC and the stamp of the PHCC were asked to be put in this page. Data of this questionnaire were entered and analyzed by using Statistical Package of Social Science.

**Results.** Two hundred and forty-two out of 245 PHCCs in Aseer, KSA responded to the questionnaire, giving a response rate of 99%. Three PHCCs did not respond as their technical directors were having their annual vacation. These PHCCs served 970,306 people. The mean distance between PHCCs and the hospitals is 34.3 (median 25) kilometers, most of the roads between these PHCCs and hospitals are paved (82%). The total number of the working physicians and nurses of PHCCs

are 391 and 902. The total served hypertensive patients was 13087, more than 55% of them are females. **Table 1** shows the availability of essential resources in PHCCs in Aseer, KSA. Approximately, three-quarters of PHCCs have hypertension Mini-clinics, more than 90% have appointment system, special HTN files and registers for hypertensive patients. Meanwhile, physicians capable to perform fundoscopy were available in only 26% of PHCCs, and those attended special training were 28%. Moreover, 50% of PHCCs lack a well-equipped laboratory. Availability of diagnostic, health education and antihypertensive drugs resources are shown in **Table 2**. Diagnosis, management protocols and health education program for hypertensive patients were available in more than 90% of PHCCs while ability to do blood sugar was available in 81.4% of PHCCs. The most available drug was Beta-Blockers followed by diuretics while the least available drugs were angiotensin converting enzyme (ACE) inhibitors and calcium channel blockers.

**Discussion.** The objective of HTN care is to reduce its mortality and complications and to improve the quality of life for patients suffering from this chronic health problem. To achieve these aims, it is mandatory to have adequate diagnostic, therapeutic and educational resources in addition to competent physicians who can manage HTN by using continuing, comprehensive and coordinated approach.<sup>11</sup> This study revealed that the total served population in Aseer, KSA was more than 970,000 people, 1.4% of them suffer from HTN. This figure is very low in comparison with the figures reported from different regions including Aseer.<sup>1-6</sup> The main reason for this big difference could be due to under-diagnosis, under-reporting, follow up of HTN in different medical sectors and differences of the used methods in these studies. Proper care for HTN patients needs adequate numbers of physicians and nurses. The physician-population and nurse-population ratios were 1:2481 and 1:1075. These figures are lower than that reported by MOH on national level.<sup>12-13</sup> However, this ratio could be due to the geographical nature and scattered population of Aseer regions which were found to be significant barriers for conducting proper primary health care programs as reported by Al-Khalidi et al<sup>14</sup> in a previous study. Mini-clinic is a new approach to care for chronic health problems such as diabetes, hypertension and bronchial asthma in primary health care settings in KSA.<sup>15</sup> This approach has been found to improve some parameters of processes and outcomes of diabetics in one primary health care center in Aseer, KSA.<sup>16</sup> In this study, three-quarters of PHCCs have HTN mini-clinics. With absence of cost-effectiveness studies regarding impact of such approach, it is necessary to restrict mini-clinics to PHCCs of large numbers of patients suffering from chronic diseases. More than 90% of PHCCs have special files and registers for hypertensive patients. On the other hand, recall system was available in 85% of PHCCs. These findings are similar to that reported for diabetics in Aseer, KSA.<sup>17</sup>

**Table 1** - Frequency and percentage of resource availability for hypertension care at PHCCs in Aseer region, Kingdom of Saudi Arabia, 2001.

Resources	n (%)
Availability of hypertension mini-clinic	180 (74.4)
Availability of well-equipped laboratory for basic investigations	130 (54)
Availability of appointment system for hypertensive patients	220 (91)
Presence of recall system for defaulter hypertensives	205 (85)
Availability of special files for hypertension	233 (96.3)
Availability of special register for hypertension	236 (97.5)
Attending of hypertension training course by one of the physicians at primary health care centers	68 (28)
Co-ordination with district hospitals to care for hypertension (ie acceptance of the referred patient and doing the annual check-up)	152 (63)
Physicians ability to perform funduscopy	64 (26)
N=242 PHCCs	

**Table 2** - Availability of diagnosis, health education aids and anti-hypertensive drugs at primary health care centers, Aseer region, 2001.

Diagnostic aids	n (%)			
Availability of protocol for diagnosis and treatment of hypertension	227	(94)		
Ability to do blood sugar (FBS) by glucostiks	197	(81.4)		
Ability to do complete blood count	96	(40)		
Ability to do urine analysis by using urine stiks	166	(67)		
<b>Health education means and materials</b>				
Drug refill cards	211	(87)		
Booklets	96	(40)		
Pamphlets	122	(50)		
Posters	171	(71)		
Videotapes	23	(10)		
Presence of health education program in the primary health care center action plan	225	(93)		
<b>Drug availability</b>				
Drug groups	Degree of availability			
	Always	Often	Rare	Never
Diuretics	114 (47)	60 (25)	30 (12)	38 (16)
Beta-Blockers	208 (86)	18 (7)	1 (0.4)	15 (6)
Calcium channel antagonist	105 (43)	48 (20)	26 (11)	63 (26)
Angiotension Converting Enzyme Inhibitors (ACEI)	9 (4)	7 (3)	18 (7)	208 (86)

In this study, only 28% of the PHCCs physicians attended a training course on HTN care and only 26% reported their ability to carry out fundoscopy. These figures indicated that PHCCs physicians need Continuing Medical Education programs that contained practice based subjects as recommended by Al-Sharif and Al-Khalidi<sup>18</sup> in a previous study. Availability of clinical guidelines is important concerning HTN management. The study found that 94% of PHCCs have such protocol which indicates the positive impact of Quality Assurance Programs implemented since 1994.<sup>9</sup> Although most of patients suffer from HTN do not have known underlying cause, secondary causes of renal or endocrine origins or the co-morbidity such as diabetes, hyperlipidemia need an equipped laboratory for some important investigations like urine analysis, blood sugar and lipid profile. The study revealed that 60% of PHCCs could not do complete blood count, 33% could not do urine analysis and 19% were unable to do blood sugar. This shortage in laboratory facilities needs urgent action and good coordination between PHCCs and medical supply departments to provide PHCCs with adequate reagents and kits. Quality assurance committee recommended an annual check up of urine, blood sugar, lipid profile, fundi examination, electrocardiogram and kidney functions test for all hypertensives.<sup>9</sup> However, carrying out such procedures was difficult due to weak coordination between district hospitals, which was reported by one third of PHCCs. On the other hand, 74% of PHCCs physicians were unable to examine the eyes fundi due to poor experience. These obstacles were reported in a study conducted in the region to evaluate the diabetic care few years ago.<sup>17</sup> In order to solve the first difficulty, the referral system that was found to contribute significantly to the lower rate of doing these procedures in previous<sup>19-22</sup> studies should be corrected and the coordination offices must be equipped as suggested by Mahfouz et al<sup>23</sup> while training PHC physicians to carry out fundoscopy could solve the second difficulty.

Health education is the cornerstone of management chronic diseases including HTN.<sup>9</sup> However, this process cannot be executed in absence of its essential resources like booklets, pamphlets and posters. Health education program in the action plan was reported by 93% of PHCCs, however, pamphlets were unavailable in 50% of PHCCs; booklets were lacking in 60% of PHCCs and posters were unavailable in 29%. Similar shortage of health education material for diabetics was reported from Aseer, KSA in a previous study.<sup>17</sup> In order to make these health education programs successful; it is necessary to provide PHCCs with the different health education materials and means through coordination with the regional Health Education Department, Community Health Committee and Industrial and Trading Chamber (ITC). Drugs availability contribute significantly to good compliance to appointment and adherence to medications uses as found among diabetics in Aseer, KSA.<sup>24</sup> Degree of availability of anti-hypertensive drugs

of different pharmacological classes were widely variable. The least common available drugs were ACE inhibitors and calcium channels blockers. The reasons standing behind such shortage of medications could be due to that these medications were reserved for hospital use, or the PHCC physicians did not ask the medical supply department to provide them with these medications as a result of past experience of no supply of such drugs. Whatever the reasons, the PHCCs should be provided with an adequate amount of all classes of HTN medications in order to introduce good health services and to satisfy hypertensive patients.

In conclusion, this study found that many essential resources for HTN care were not adequately available at PHCC settings in Aseer, KSA. Urgent provision of these resources is essential to introduce good health care for hypertensive patients.

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#### Search Word: hypertensives

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**Title:** Hypertension awareness: treatment and control among adult hypertensives  
**Source:** Saudi Med J 1998; Vol. 19 (6): 707-712

#### Abstract

**Objectives:** To estimate the prevalence of undetected hypertension among adults residing in Riyadh city and to study the non pharmacological modalities used by detected hypertensives and compliance with pharmacologic therapy.

**Methods:** A cross-sectional study conducted at Primary Health Care centres in Riyadh city selected by stratified random sampling. The subjects resident in each Primary Health Care centres catchment area were selected by systematic sampling from records in the Primary Health Care Centres. One thousand three hundred and ninety adults aged 15 years and more were interviewed and examined during March 1993 to March 1994. The average of 3 measurements of the participants blood pressure was taken to represent their current blood pressure. A subject is considered hypertensive if the average blood pressure reading is 160/95 mm Hg or more or currently under treatment.

**Results:** The total hypertensive subjects were 214 persons, 157 of whom were known hypertensive and were under some form of treatment but 49 subjects of them (31.2%) were apparently not well controlled. The other 57 subjects were not aware of their disease and were newly detected by the study. Almost 2 fifths of the hypertensives on drug therapy stopped their medication without medical advice or were not taking their medications regularly. Reduction in salt intake was the most common non pharmacological method used while physical exercise was least method used.

**Conclusion:** Detected and undetected hypertension is a problem among adults in Riyadh city, many patients are not taking their medications regularly and physical exercise is the least practiced non pharmacologic treatment modality. There is a need for activities to prevent, control and treat hypertension in Riyadh city. Educational programs are highly needed to help in primary prevention, and in secondary prevention by detecting new cases, controlling existing cases with emphasis on lifestyle modifications and compliance with pharmacologic and non pharmacologic therapies.

*Appendix -1*

**Section - A:**

- 1-Sector .....
- 2-PHCC .....
- 3-Total served population in your PHCC ( ).
- 4-Number of hypertensive males in your PHCC ( ).
- 5-Number of hypertensive females in your PHCC ( ).
- 6-Number of GPs at PHCC in your PHCC ( ).
- 7-Number of female nurses at PHCC ( ).
- 8-Number of male nurses at PHCC ( ).
- 9-Presence of laboratory in your PHCC: (YES) (NO)

**Section - B: Are the following items available or not in your PHCC?**

*Essential items/structures*

**Yes      No**

- 1-Presence of mini-clinic
- 2-Presence of appointment system for hypertensives
- 3-Presence of recall system for defaulter hypertensives
- 4-Presence of special files for hypertensives
- 5-Presence of special records for hypertensives
- 6-Did working physician attend training course of HTN?
- 7-Presence of protocol for diagnosis and treatment HTN

*Diagnostic tools (aids)*

- 8-Ability to do fasting blood sugar in your PHCC
- 9-Ability to do complete blood count in your PHCC
- 10-Ability to do urine analysis in your PHCC
- 11-Ability of physician to carry out funduscopy
- 12-Availabiity of drug refill cards
- 13-Presence of coordiantion between PHCC and referral hopsital in order to care for HTN

**Section - C: To which degree of the following groups of drugs are available at your PHCC**

Drug groups	Degree of availability			
	Always	Often	Rare	Never
Beta-Blockers Diuretics Calcium Channel Blockers ACE inhibitors				

**Section - D: Are there any of the following health education means on HTN at your PHCC?**

Health education means	Yes	No
1-Booklets 2-Pamphlets 3-Posters 4-Video-tapes 5-Health education program		