Review

Organization of the Saudi health system

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SUMMARY Using existing data, we reviewed the organizational structure of the Saudi Arabian health system: its demography and history, principal health indicators, organization and management, type and distribution of facilities, financial base, and the impact on it of the Haj. We noted duplication of services, inadequate coordination between some health industry sectors, and the need for a more extensive and rational health centre network with improved information systems and data collection. We also noted scope for a greater role for the private health sector and increased cooperation between it and the public sector to improve health service delivery and population health.

Introduction

A health system includes all those activities whose primary purpose is to promote, restore or maintain health [*1*]. The organization of a health system varies from country to country and within the same country. It also varies over time as nations develop and modify their health systems to accommodate new health priorities within the limits of sociocultural and economic determinants and population expectations [2].

The Saudi health system has experienced a series of changes over the years as it has sought to respond to the demands of its citizens. This paper presents an analysis of the structure of the Saudi health system and its inter-relationships at the national, regional and local levels and makes recommendations for improvement.

Methods

This report was based on information from the following primary and secondary sources:

- a literature review, including:
  - publications of the Saudi Arabian Ministry of Health (MOH), including annual health reports, planning reports, the Saudi Family Health Survey, and quality assurance newsletters;
  - demographic and health indicators for countries of the Eastern Mediterranean Region;
  - electronic database searches;
  - relevant journal articles;
- personal interviews with health care policy-makers and decision-takers; and

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- the authors' personal observations and experiences with the Saudi health system.

Background

Demography

The Kingdom of Saudi Arabia is on the Arabian peninsula and occupies a total area of 2 149 700 km^2. In 1998, the population was estimated to be 19.4 million, of whom approximately 66% were nationals, 80% were urban residents of the cities of Riyadh, Jeddah and Dammam, and less than 5% were semi-settled or nomadic [*3*].

For the purposes of health services planning, approximately 66% of the population are categorized as 'vulnerable', that is, children < 15 years of age, women of reproductive age and the elderly.

History

Organized preventive health services in Saudi Arabia began in the early 1950s when the MOH, the Saudi Aramco oil company and the World Health Organization (WHO) launched the first campaign against malaria in al-Qatif and al-Hassa Oasis in the Eastern Province, the success of which led to the expansion of the malaria control programme to other provinces in the country. The health system developed slowly until the mid-1960s, when there followed a period of rapid expansion during the years 1965–85.

From 1970 to 1980, health services were predominantly curative as most health personnel had received their formative training in patient-oriented, hospital-based medical institutes. Furthermore, there was a general population expectation of curative care [*4*]. This care was delivered through a network of hospitals and dispensaries, while preventive care was delivered by health offices and to some extent through maternal and child health care centres. Disease control activities, such as for malaria, tuberculosis, leprosy, schistosomiasis and leishmaniasis, were handled by vertical programmes. Episodic outbreak control activities were managed through the health offices [*5*].

In the early 1980s, the concept of primary health care (PHC) became popular, with the WHO slogan 'Health For All' (HFA) gaining recognition. A ministerial decree [No. 257/1459/50, dated 17/8/1400H (1980)] led to the establishment of the health centres, administratively integrating the existing dispensaries, health offices and maternal and child health (MCH) centres into one unit. At the same time, health posts were upgraded to health centres, thus paving the way for the delivery of integrated health services, i.e. initiation of the PHC approach.

Health indicators

Currently, the principal health issues in the country range from communicable diseases such as malaria and schistosomiasis to those resulting from the abundance of psychological and environmental stresses of modern societies, and injuries sustained from ever-increasing motor vehicle accidents [*4,5*].

Despite the emergence of these so-called 'lifestyle' diseases and injuries, rapid socioeconomic development in recent decades has had a visible impact on the health status of the population of Saudi Arabia (Table 1), increasing life expectancy, changing morbidity patterns, decreasing mortality rates and improving quality of life.

Table 1 Improvement of selected health indices in Saudi Arabia

Indicator	1960[a]	1989[a]	1998[b]
Crude birth rate/1000 population	49	43	35.2
Crude death rate/1000 population	23	8	5.1
Life expectancy at birth (years)	44	70	71.4
Infant mortality rate /1000 live births	170	30	21.4
Under 5 mortality rate /1000 live births	–	34	29.0
Maternal mortality rate/10 000 live births	–	–	1.8 (1993)
% Male literacy	15	70	85.0
% Female literacy	2	38	64.5
% Access to safe drinking water	–	84	93.0 (1994)[c]

[a]Source [3]; [b]Source [7]; [c]Demographic and health indicators for countries of the Eastern Mediterranean, 1999.

Organization and management of the health system

Saudi Arabia is a welfare state. The right to health of Saudi citizens has been provided for through the development of particular socioeconomic and health policies. Saudi health policy is generally committed to the HFA objectives. There is a three-tier health care system—primary, secondary and tertiary, corresponding respectively, to health centres, general hospitals and specialist hospitals. Three health sectors are considered in this review: MOH, other entities in the government sector and the private (for profit) health sector.

MOH, headed by the Minister of Health, is responsible for running the country's health system. It has a well-defined, decentralized organizational and administrative structure. Its functions include strategic planning, formulating specific health policies, supervising all health service delivery programmes, as well as monitoring and controlling all other health-related activities.

There are 19 health regions, each led by a Regional Director General of Health Services who is directly responsible to the Deputy Minister of Health for Executive Affairs [3,6]. Each health regional directorate has a number of health sections. Each health section supervises at least one general hospital and a number of health centres, school health services, health offices and the private health sector for that section. The policies, plans and programmes of the MOH are implemented through this structure. The directorates are reasonably autonomous in terms of staff recruitment and welfare, training, discipline, supervision and evaluation. However, some responsibilities are shared with the MOH as and when necessary. Links to other health-related sectors (e.g. education, agriculture, municipal and rural affairs) are maintained through sectoral coordinators (Figure 1). A health area policy will soon be introduced to provide greater decentralization of health services throughout the country.

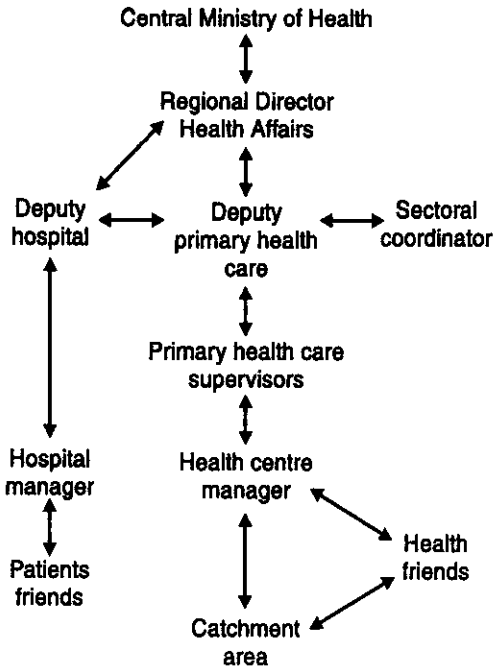

Figure 1 **Organization of health care, Saudi Arabia (Source [*14*])**

Health care facilities

Ministry of Health

The MOH is the biggest provider of health care, providing services through 186 (59%) of the country's 314 hospitals and 1756 (47%) of its 3756 health centres, dispensaries, health units and clinics. Each region has a dental centre that acts as a referral centre for the dental clinics attached to the health centres and hospitals. There are five chest hospitals providing inpatient care for chest diseases and three tuberculosis centres that handle case detection, follow-up treatment and rehabilitation through outpatient only services. There are eight medical rehabilitation centres for speech and hearing therapy, accident injury repair and physiotherapy. Five central laboratories serve as reference laboratories for the health centre and hospital laboratories. The 24 health quarantine centres located along the border with neighbouring countries conduct health checks and vaccinations and provide chemoprophylaxis as needed. Smoking is a serious problem in Saudi Arabia and there is at least one anti-smoking clinic in 17 of the 19 health regions for counselling, health education and rehabilitation [*7*].

Other government sectors

Under 'other government' sectors are grouped the health facilities of the military, National Guard, universities (and affiliated teaching hospitals), large multinational corporations such as Saudi Aramco oil company, and a number of specialist hospitals. Apart from the specialist hospitals, the health facilities in this sector are primarily designed to serve the workers of the different establishments and members of their families. As a rule, services are not extended to members of adjoining communities, and where such communities are lacking services, it is the responsibility of the MOH to provide them. The 'other government' facilities carry out similar functions to those of the MOH with respect to ambulatory care and inpatient care.

Private health sector

The private health sector includes private hospitals, clinics, dispensaries and pharmacies. The facilities are mostly located in urban centres. The private sector has grown rapidly in recent years. It currently employs 28% of the nation's physicians and 19% of its nurses and provides 19% of all hospital beds (Table 2). Health services vary from basic medical care to highly organized specialist services.

Table 2 **Distribution of health resources by sector, Saudi Arabia, 1998**

Sector	Physicians		Nurses/midwives		Hospital beds	
	No.	%	No.	%	No.	%
Ministry of Health	14 786	49.0	36 340	55.5	27 794	60.8
Other government	6 891	22.8	16 920	25.8	9169	20.0
Private	8 495	28.2	12 266	18.7	8766	19.2
Total	30 172	100	65 526	100	45 729	100
Number per 10 000 population (1993)	10.4		22.8		27.0	
Number per 10 000 population (1998)	17.1		33.4		23.3	

Source: [7].

Distribution of government health facilities

Health centres

Health centres are the flagship of the Kingdom's health care system. They are distributed throughout the country and serve as the patient's first point of contact with the national health system. By 2000, there were 1756 health centres in the country. The centres form a network closely linked to the general hospitals, which in turn are linked to tertiary care services by a referral and feedback system. The health centres implement the various components of primary health care. They carry out population and family censuses within their catchment areas, maintain patient health files, form 'health friends' committees, survey schools in their areas and conduct routine home visits.

Each health centre serves a catchment area with a defined population. Services provided are essentially promotional, preventive, curative and rehabilitative. They include maternal and child health, immunization, management of chronic diseases (e.g. hypertension and diabetes), dental health, provision of essential drugs, environmental health (e.g. water and sanitation), food hygiene, health education and disease control. The number of health centres per region varies, as does the availability of selected services such as dental clinics, X-ray equipment and laboratories in each health centre. In 1998, 42% of health centres had dental clinics, 23% had X-ray machines and 60% had laboratory units. Most such facilities are in urban areas. The availability of these services determines the level of patronage of the health centre.

A defined group of health centres constitute the catchment of a hospital for services, referrals and coordination. The hospitals provide secondary care (medical, surgical, paediatric, obstetric and gynaecological, dental and emergency services) and some are affiliated to medical colleges for undergraduate and postgraduate clinical training. Service provision for pregnant women is shared between the health centre and the hospital. Antenatal care is provided at the health centre with two referrals to the hospital, at 16–18 weeks for ultrasound scan and at 34–36 weeks for final check-up. Over 90% of births in Saudi Arabia take place in hospitals [8]. The health services of the MOH are complemented by a weak

referral system, a reasonable level of community partnership, an emerging health information system and a growing quality improvement programme.

Emergency medical services

The MOH and 'other government' hospitals have emergency units that provide 24-hour services for emergencies related to medical specialties, as well as for trauma resulting from road accidents, falls, collapse of buildings, burns and drownings. The Saudi Red Crescent Society complementarily offers first aid to victims and transports them by ambulance to the nearest hospital emergency room. A similar arrangement is in place during the Haj at the permanent and seasonal hospitals, which also handle cases of heat exhaustion and sunstroke [7]. The patients are discharged for follow-up at outpatient clinics or admitted into the intensive care unit or the appropriate ward for further management.

Health financing

Overwhelmingly, health care financing in Saudi Arabia is provided for from government revenues, which account for approximately 87% of the total. The budgetary provision for the MOH has continued to increase—from 5.1% of the national budget in 1992 to 8% in 2001. The 'other government' sector also receives annual allocations to meet their health care commitments. The remaining health services financing is derived from private sources (e.g. personal out-of-pocket payments) and from occupational health insurance premiums mainly subscribed to by large private company employees [9]. Since the completion of the major hospital projects around 1990, capital expenditures have declined while recurrent expenditures for salaries, operations and maintenance continue to increase (Table 3).

The Haj

Approximately 2 million pilgrims perform the Haj annually. The pilgrimage health service occupies a unique position in the country's health system. It provides care for acute illnesses (e.g. diarrhoea, gastroenteritis, pneumonia, asthma, bronchitis, and heat exhaustion), infectious and parasitic

Table 3 **Development of Ministry of Health (MOH) budget, Saudi Arabia, 1996/7–2000/1**

Year	MOH total budget (SR* millions)	Budget chapters as % of MOH budget		
		Chapter 1: Salaries and allowances	Chapters 2 and 3: Operations and maintenance	Chapter 4: Projects
1996/1997	10 480	55.75	41.74	2.51
1997/1998	10 750	53.16	43.14	3.70
1998/1999	12 070	51.78	45.14	3.08
1999/2000	12 801	51.42	46.09	2.49
2000/2001	13 809	52.83	42.31	4.86

**Saudi rial (US$ 1.00 = SR 3.75).*
Source: Planning Department, Ministry of Health, Kingdom of Saudi Arabia.

diseases (including epidemics) and chronic illnesses (e.g. hypertension and diabetes mellitus). It offers prevention through vaccination and chemoprophylaxis. The country's health system also provides for additional emergency medical services [7].

Discussion

Saudi Arabia, as a member state of WHO and a signatory to the Alma Ata Declaration, made primary health care the cornerstone of its strategic health policy. This policy guides the health system and health care delivery. The WHO 1997 estimates for quality of health services ranked Saudi Arabia's health system 26th of 191 countries worldwide and 2nd among Arab countries [*10*].

Primary health care

The emphasis on a PHC approach has resulted in a relative decline in the number of more costly outpatient visits to hospitals throughout the Kingdom. The registration of families and individuals in a single health centre has also helped to prevent duplication of consultations. The use of the essential drugs list and documentation of prescriptions in patient files has not only reduced expenditure on pharmaceuticals, but also improved prescription and medication practices. The comprehensive services provided by PHCs have reduced the overall cost of care.

Other improvements that will facilitate the development of a more efficient health sector include:

- reorganization of the MOH structure to cope with health service delivery reform in both urban and rural areas;
- improved communication between administrators and policy-makers at the central, regional and local levels;
- increased training of health professionals;
- reallocation of funds, with a shifting of emphasis in expenditure from capital to recurrent costs;
- employment of health economists and health systems researchers in health planning and in the delivery of health services;
- development of a health information base and the establishment of statistics units at all levels of the health service, linking the MOH and the regions with an automated health information system;
- greater coordination with the 'other government' and the private sectors;
- enhanced regional cooperation, especially with the states of the Gulf Cooperation Council, to exchange experience and information and to establish common projects and strategies [*11*].

These improvements have been identified in the current 5-year Health Development Plan and some are already being implemented.

Staffing

In Saudi Arabia, many health professionals are expatriates of various nationalities. Many do not speak Arabic, making communication with patients difficult. This has an important bearing on the quality of care [*12*]. However, a gradual change has been observable, with increased numbers of Saudi nationals becoming qualified and taking up employment in the health sector. In 1998, Saudi physicians constituted 20% of the total number of physicians and Saudi nurses, 27%. In the United Arab Emirates, data for 1995 show that 10% of physicians, 7.2% of dentists and 1.5% of nurses were nationals [*13*]. In terms of the health worker/population ratio, the country's 1998 figure of 17.1 physicians/10 000 pop-

ulation compares favourably with the WHO minimum recommendation of 1 physician/10 000 population for developing countries, and the WHO Eastern Mediterranean Region average of 9.4 physicians/10 000 population.

The annual large influx of pilgrims during the Haj season dramatically alters the health worker/population ratio as doctors, nurses, pharmacists and allied health personnel are drawn from the different parts of the country. The pilgrimage poses special problems, not only in terms of the number of people, but also the special health problems associated with this diverse group [*12*].

Referrals

A referral system is a continuum of health care, moving from the initial contact (i.e. the health centres) to completion of treatment (in the hospital) and referral back to the initial contact. At present, MOH is working to improve the referral system to minimize duplication of services and inefficient use of resources. MOH should be strongly committed to the referral system and should reflect this commitment in its policy-making. Community education should be provided to minimize self-referrals. Continuing medical education programmes should be provided for hospital specialists and health centre physicians (J.E. Perrin, unpublished report, 1999).

Unique aspects of the Saudi system

The Saudi health system is unique in that medical consultations are overwhelmingly doctor–patient encounters, unlike in other settings where there are different mixes of personnel. Examples of the latter include physicians, clinicians and nurse practitioners in the United States, physicians and barefoot doctors in China, and physicians and medical auxiliaries in most Asian and African countries. The burden of the Saudi approach can better be appreciated by the enormous workload of health centre physicians in some areas. Compared to the United Arab Emirates with its modern, purpose-built centres, most health centres and some hospitals in Saudi Arabia operate in rented buildings that were not designed to fit the model health centre structure. Some are old and unsuitable, and property owners often indulge in arbitrary increases in rent. However, there are a number of health care centres of excellence, such as the King Faisal Specialist Hospital and Research Centre and the King Khalid Specialist Hospital for Eye Diseases in Riyadh. The military hospitals, university hospitals and some private hospitals also have state-of-the-art equipment and well-qualified personnel. In addition, there is an air ambulance service that provides prompt transfer of patients from one part of the country to the other to optimize care. This arrangement helps to minimize the need for overseas treatment.

Conclusion

In our overview of the organization of the Saudi health system, we observed duplication of services between the MOH and the 'other government' health sector in some areas. This could be avoided through better coordination. In addition, there is a need to increase the number of health centres to cover the entire country and to rationalize their location and allocation of human resources. A workable link between the three tiers of health care delivery should be promoted through a functional referral system and continuing medical education. The health information system and data collection should be strengthened. Efficiency in

the allocation and use of health resources should be increased. The cooperative health insurance scheme should be actualized. The private health sector should be seen as a partner (not a competitor), working for a common goal, and should be encouraged to contribute more to the health care of the people. These measures will further enhance the delivery of health services in Saudi Arabia and greatly improve the health status of the people.

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References

1. What is a health system? In: *World Health Report, 2000*. Geneva, World Health Organization, 2000:5.
2. Hunponu-Wusu OO. *Organization of health systems: assessing health care of populations*. Master of Public Health lecture series. Lagos, University of Lagos, 1985.
3. Al-Mazrou Y, Khoja TA, Rao M. Health Services in Saudi Arabia. In: Health care worldwide. *Proceedings of the Royal College of Physicians of Edinburgh*, 1995, 25:263–6.
4. Sebai ZA. Introduction to Saudi Arabia health services. In: *Health in Saudi Arabia. Volume 1*. Riyadh, Tihama publication, 1985:35–37.
5. Al-Mazrou Y. Prologue. In: *Principles and practice of primary health care*. Riyadh, Kingdom of Saudi Arabia Ministry of Health, 1990:7–9.
6. Milaat W. Saudi Arabia. In: Public Health around the World. *Public health medicine*, 1999, 1:34–8.
7. *Kingdom of Saudi Arabia. Annual health report 1419/1420H*. Riyadh, Ministry of Health, 1999.
8. Baldo MH et al. Coverage and quality of natal and postnatal care: women's perceptions, Saudi Arabia. *Journal of tropical pediatrics*, 1995, 41(suppl. 1):30–7.
9. *Health strategic budget for the Ministry of Health Sixth Development Plan (1994–1999)*. Riyadh, General Directorate of Planning, Ministry of Health, Kingdom of Saudi Arabia [in Arabic].
10. Health system attainment and performance in all member states. Estimates for 1997 (Statistical annex). In: *World Health Report, 2000*. Geneva, World Health Organization, 2000:152–5.
11. Al-Bakr MS. *Health services financing and expenditure in the Kingdom of Saudi Arabia*. Country paper presented at the Intercountry Seminar on Cost Containment in National Health Care Systems, Muscat, Oman, 27–29, 1991.
12. Al-Swailem ARF. Assessing health care delivery in Saudi Arabia. *Annals of Saudi medicine*, 1990, 1:63–8.
13. Kronfol NM. Perspectives on the health care system of the United Arab Emirates. *Eastern Mediterranean health journal*, 1999, 1:149–67.
14. Baldo MH et al. Augmenting hospital support of maternal and child health care, Saudi Arabia. *Eastern Mediterranean health journal*, 1998, 4(1):11–20.