

A review of healthcare system in Saudi Arabia

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Abstract— This paper has reviewed the healthcare system in Saudi Arabia from different perspectives. The study conducted in this paper is divided in to three parts. The first part focuses on identifying and analysing the current status of healthcare system in Saudi Arabia with a focus on the resources, budget, public health status, structure, and health activities. The second part of the study focuses on identifying and analysing the various challenges faced by the Saudi healthcare sector which includes technology implementation, privatization, lack of workforce, MOH transformation, insurance, accessibility to healthcare, technology integration and change in the disease patterns. The third part of the study focused on analysing the new healthcare strategy developed as a part of Vision 2030 initiative. The study has found that there are many challenges that have to be addressed in the healthcare system including lack of resources, workforce; increasing healthcare expenditures; lack of technology resources; need for improving accessibility to healthcare in rural and border areas.

Keywords— Saudi Arabia, Healthcare review, Challenges, resources

I. INTRODUCTION

Healthcare is one of the important sectors of a nation which determines its growth and future opportunities [1]. It is very important that developing countries must focus on implementing effective healthcare services, as the well-being of a country depends on the well-being of its population. Saudi Arabia is one of the fastest developing countries which have been undergoing rapid transformation in various fields in the recent years. Its Vision 2030 programme [2] to shift towards knowledge-based economy from oil dependent economy has led to major changes in the policies across various fields including the healthcare sector. The country's estimated population as of 2017 is 33 million with Human Development Index (HDI) of 0.847 which is termed to be very high. The country ranks 39 among the world countries in terms of HDI [3].

The Saudi Vision 2030 program aim to bring many changes across the healthcare sector which includes privatization of healthcare sector; establishing public-private partnerships; procurement of key healthcare resources including technology, medical facilities, and knowledge; initiate new healthcare programs; attract foreign direct investments in healthcare. With such rapid changes being initiated in near future, it is very essential to review the current healthcare sector, which not only helps in understanding the current status, assess needs for future

demands, and to form a basis for initiating the changes by developing an effective implementation strategy. Identifying this importance and the need, this paper reviews the current healthcare services in Saudi Arabia.

II. HEALTHCARE SYSTEM OVERVIEW

One of the major developments in the Healthcare sector in Saudi Arabia started with the establishment of Ministry of Health (MOH) in 1950, which gradually overseen all the developments and management of healthcare services since then [4]. About 60% of all the hospitals are owned by MOH, which provides basic healthcare services and also specialized care. These services in healthcare units under MOH are slowly being shifted towards Saudi nationals, while the expatriates are being forced towards private healthcare sector except for specialized treatments in rural areas [2]. There are other quasi-governmental organizations which provide healthcare services specifically for their employees, such as Royal Commission, Ministries of Defence and Aviation etc. In addition to these healthcare facilities there are private hospitals which provide healthcare services in Saudi Arabia. The healthcare services in Saudi Arabia are delivered through these three main channels including MOH, quasi-governmental organizations, and private organizations [2, 4]. Saudi Red Crescent Authority (SRCA) is one of the major non-governmental humanitarian agencies that provides emergency medical services through first-aid centres and ambulance facilities across the country [5].

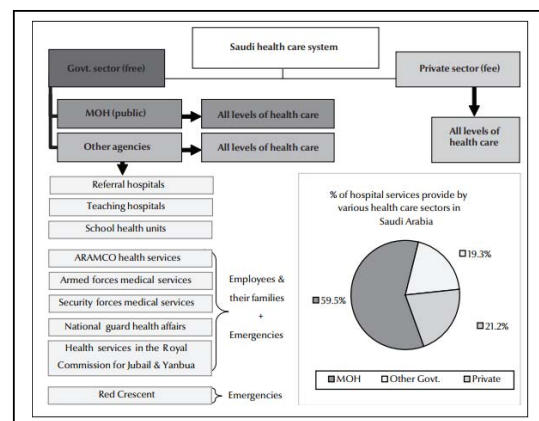


Fig. 1. Example of a figure caption. (figure caption)

The country has been progressing slowly in meeting the rising demands, and has been improving the healthcare performance through the time. Currently, the life expectancy in Saudi Arabia is 74.8, which exceeds the global average by 3.4 years. Infant mortality rate (4.82), crude birth rate (17.23), and crude death rate (2.9) per 1000 population were observed in 2016. More than 98% of the population was covered in immunization program, however high incidence rates were observed for pulmonary TB and Extra-pulmonary TB [5]. The overall HDI in the country was rated as very good [3]. The other aspects related to healthcare are discussed in the following sections.

A. Healthcare Resources

The healthcare resources in the country can be assessed through the following tables. Nearly 60% of the hospitals in the country are under MOH; about 10% under quasi-government; and about 30% under private ownership. These results reflect, majority of the healthcare services are provided by the government, and there is limited role of private organizations. The number of hospital beds in private hospitals is low compared to government hospitals.

The total availability of hospital beds per 10,000 population is very low, which needs to be increased considerably by building new units. Considering the rising population, there is a need to increase the role of private entities in healthcare, and also public-private partnerships.

TABLE I. HOSPITALS DISTRIBUTION IN SAUDI ARABIA [6]

Factors	No. of Hospitals	No. of Beds	Availability (beds) per 10,000 population
Total Hospitals/Beds	470	70,844	23.3
MOH Hospitals	274	41,835	13.2
Quasi-Government Hospitals	44	11,581	3.6
Private Hospitals	152	17,428	5.5
Primary Healthcare Centers	2325		
Private PolyClinics	2754		
SRCA First Aid Centers	387		
SRCA Ambulances	1352		

The number of healthcare personnel is another important resource which need to be effectively managed for providing better healthcare services.

TABLE II. HEALTHCARE PERSONNEL DISTRIBUTION IN SAUDI ARABIA [6]

Personnel	MOH	Quasi-Govt.	Private	Availability/10,000 population
Physicians	42,768	17,206	29,701	28.3
Nurses	101,256	36,927	42,638	57
Pharmacists	3588	2285	19,309	7.9

Allied Health Personnel	57,474	29,871	19,978	33.8
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Additionally, there are 30 colleges of medicine, 20 colleges of dentistry, and 21 colleges of pharmacy operated by government. There are six colleges of medicine, six colleges of dentistry, and seven colleges of pharmacy operated by private institutions [6].

B. Health Activities

As per the report published by MOH, there were 138 million out patients visits; 3.5 million in-patients; more than 1 million surgical operations; 319million lab investigations recorded in the year 2016, which is expected to increase rapidly in the million coming years. The average number of visits by a person in a year was found to be 4.4; and the average number of admissions per 100 persons in a year was found to be 10.8 [6]. The country has achieved more than 98% immunization coverage relating to various categories including polio, MMR, BCG, Hexa, PCV etc. [5].

C. Current Health Status

The major diseases that the Saudi population is suffering with, include ischemic heart diseases, cerebrovascular diseases, chronic kidney disorders, respiratory infections, Alzheimer disease, diabetes, congenital defects, and cancer [7]. Diabetes (7%), Ischemic Heart Diseases (7%), Depressive disorders (5%), congenital anomalies of heart (5%), skin disorders (3%), chronic kidney diseases (2%), and cancer (2%) are the major diseases causing deaths in Saudi Arabia [8]. Obesity, malnutrition, air pollution, tobacco use, dietary risks are some major factors identified for the rise in various diseases [7].

D. Healthcare Budget

The healthcare sector in Saudi Arabia is projected to grow at 13.7% by 2025. With fast changing policies, reforms in the roadmap for Vision 2030, there are many issues that are needed to be addressed in healthcare. Accordingly, the healthcare budget for 2017 was increased to \$ 32 billion [9]. The country is aiming to build one of the world's most prestigious healthcare system with a base of efficient homegrown and highly trained healthcare personnel [10]. The budget expenditure for training and skills development has increased and many MOH employees were offered a chance to pursue higher studies abroad as part of the strategy to reduce the dependency on expats in healthcare [11]. Accordingly, the budget has seen an enormous increase for healthcare sector.

III. CHALLENGES IN SAUDI HEALTHCARE

Though the country is progressing towards rapid transformation across various sectors including healthcare, there are many challenges that need to be addressed. The major challenges investigated in this study are explained in the following sections.

A. Workforce

The shortage of healthcare personnel in Saudi Arabia is one of the major challenges that the country is facing. The country has to depend mainly on the expats for improving healthcare services. As of 2016, the percentage of Saudi

nationals working in various healthcare [6] units are presented in the table 3.

TABLE III. HEALTHCARE PERSONNEL DISTRIBUTION IN SAUDI ARABIA [6]

Personnel	MOH	Quasi-Govt.	Private	Total Manpower in Healthcare
Physicians	33.4	50.5	3.3	26.7
Nurses	57.6	14.9	5.3	36.5
Pharmacists	91.5	65.1	4.2	22.0
Allied Health Personnel	93.2	70.0	26.9	74.4

The percentage of Saudi nationals is very low compared to the total healthcare workforce in the country with lowest being the pharmacists. There is very few Saudi's working in MOH hospitals, and negligible Saudi's working in private hospitals. This over dependence leads to high expenditures and instability in workforce [12]. The total number of medical college graduates in 2016 was 2339 [5], which can be very low compared to the rising needs and growing demand in healthcare sector. Going by the demand, the percentage of Saudi workforce in healthcare may be reduced in the future, if more realistic and long-term strategies are not put in place [13, 14].

B. MOH Transformation

The MOH is completely owned and financed by the government. Though there were major improvements made by the MOH since it was formed, the rapid changes across the technology in the healthcare sector and the rising needs and expectations of the people and many other issues made it a complex task for MOH for planning and implementation of various healthcare programs [11, 12]. There is an immediate need to restructure different areas of operation and liquidate roles and responsibilities among the regional directorates. Such distribution of power ensures greater autonomy in making decisions and simplifies the planning and implementation processes. However, there is no policy of assigning individual budgets and authority over spending for regional directorates, which is not only delaying the operational implementation and effective decision making but also hampering the delivery of healthcare services. All the budget allocations must be authorised by MOH, and then the regional directorates can get access to the funds [15].

Additionally, there is a need to launch cooperative insurance schemes, and encourage privatization [11], which is recognised as a part of Vision 2030 initiative.

C. Health Insurance

Increasing expenditure in healthcare sector is one of the major challenges faced by the government of Saudi Arabia. There was an 8% increase in healthcare budget for 2017 compared to the previous year. Almost 60% of the healthcare services are funded by the government with additional perks including treatments and services for free of cost. This approach towards healthcare services is increasing the burden on the government [10]. Additionally, rapid growth in the population, changing pattern of diseases, increasing costs in adoption of new technologies, growing needs and expectations of the people etc. are creating more pressure on the government [11]. Health insurance can be one of the effective solutions to tackle this problem.

To meet all these demands, a society for Cooperative health insurance was established in 1999, which oversees the functions like launching, implementing, and regulating health insurance strategies in the country. Annually 20,000 Saudi's travel abroad for health treatments which are also available in the country, and the costs are borne by the government. As a part of its strategy for Vision 2030, reducing the travel for medical treatments that are available within the country, the Council has made it mandatory for all the Saudi employees working in private organizations to take one contract health insurance policy. This policy includes insurance for the whole family including wife and children. This process was completed in four phases by 2017. It was identified that there are 1.6 million Saudis working in private organizations. Assuming four members per family, it can be said that over six million Saudis are covered under health insurance scheme. Additionally, the Council has made it mandatory for all the expats and foreigners to have health insurance [16, 17].

Health Insurance thus can be one of the most effective approaches to reduce the burden on the government. Moreover, attracting FDIs in Insurance sector can further boost the process if implemented effectively.

D. Privatization

Privatization was one of the most suggested approaches in order to reform the healthcare system in Saudi Arabia. In formulating its strategy for Vision 2030, the country has adopted privatization as one of the important objectives, with an aim of making private sector in healthcare to borne 50% of healthcare costs. The role of private entities in the healthcare sector is to be increased by integrating with the public sector in the process developing, managing, and regulating the healthcare services and projects in the country [18].

The country is expected to raise \$200 billion from privatization in various sectors including healthcare in the next few years. The government considers the healthcare sector has the best potential for privatization, and is studying whether to sell off all public hospitals and pharmacies [19]. The privatization has already gained momentum in the country's healthcare sector. Already six bids were received for privatization of 55 Saudi healthcare centres in Riyadh. Assuming the healthcare costs to reach SR 250 billion by 2030, the government considers privatisation as an effective means to tackle the rising costs [20]. However, few studies have identified some issues with privatization. The privatization in healthcare sector may create problems in the management of existing healthcare insurers and the companies in integrating with the newly entered private entities, which may cause rigidity in providing healthcare services. Therefore, a systematic approach of integration and an effective strategy for implementation with a focus on creating value can be a good approach [21]. Another study [22] identified weak evidence in support of privatization as an approach to increase access to medical care [22]. Therefore, it is essential to consider all the factors in the process of formulating the strategy for privatization.

E. Accessibility to Healthcare

The accessibility to healthcare services must be made available equally cross all the regions in the nation. At the

same time, the cooperation between the entities is essential to provide better services through referrals, and such cooperation levels may affect the accessibility to services [1]. There is a need to integrate the primary healthcare centres, emergency units, general and specialist hospitals to ensure the maximum reach of services. It was observed that many people are still deprived of having access to healthcare facilities, especially those living in border and rural areas [23]. Considering the country's large geographical area, the use of mobile and e-health technologies can improve the healthcare access evenly across all the regions. While Riyadh has 424 health centres, other regions like Qurayyat, Al-Jouf, Hafr Al-Baten has only 19, 21, and 47 healthcare centres respectively [6]. This shows the highly uneven distribution of the health centres in the country.

In a recent study, it was found that the distance to reach primary healthcare centres, cleanliness in these centres, the process of receiving promotional services, costs incurred in accessing services are found to be the main barriers in accessing healthcare services in rural areas [24]. An integrated healthcare service model was developed by MOH [4] for improving the accessibility to healthcare and improving the operational processes as shown in fig 2.

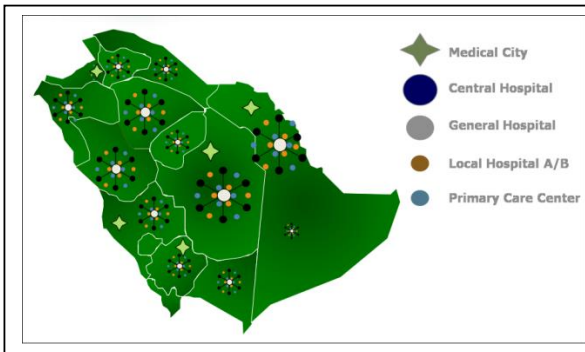


Fig. 2. Integrated Healthcare model in Saudi Arabia

However, the disruption in the healthcare services in rural areas have to be handled by developing new and effective strategies.

F. Change in Disease Patterns

In the recent years, the pattern of diseases has undergone a major shift. There are increasing number of diabetes population, smoking population, and obesity population [25, 26, 27]. The change in the diet, malnutrition, smoking, air pollution are the major factors leading to the rising number of diseases. Additionally, the large number of tourists visiting the country during the Hajj season can be a source to the transfer of new infectious diseases in the country. Such irregularities in changing patterns and occurrence of new diseases and the shift in the occurrence of diseases can create problems in developing and adopting the long-term health strategies. Therefore, a frequent reviews and updates of the healthcare policies and strategies are necessary to tackle the problem of changing disease patterns.

G. Healthcare Information Systems & Technology

The utilization of technology in healthcare sector has been rapidly increasing in the past few decades. New modes of healthcare delivery using m-health, e-health, and integrating theoretical concepts like CBT in smoking cessation, diabetes management has opened the new doors for the delivery of healthcare services. There were many studies being conducted in the context of Saudi Arabia for the implementation of technology in healthcare sector. Human and financial barriers were observed as main issues in the implementation of Electronic Health Records (HER) system [28]; the lack of availability of sustainable technology and financial resources, ambiguity in the healthcare approach and policies (vision and mission) are the major concerns raised for effective implementation of ICT in Saudi Arabia's health sector [29]. Another study has identified soft financial analysis, relative advantage, hard financial analysis, attitude toward change and pressure from partners in the business ecosystem as the most influencing factors in the adoption of technology in the country [30]. However, there is an increase in the number of research studies focusing on the utilization of technology in the Saudi Healthcare system, which can help the stakeholders to understand the needs and cultural aspects of the population, which can result in effective planning and decision making.

IV. REDEFINING HEALTHCARE STRATEGY

In order to meet the rising needs and expectations of its people, and to counter the drawbacks in the healthcare sector, the government has developed a new healthcare strategy as a part of its Vision 2030 program. The vision of the strategy is aimed at achieving the best possible health standard for the population by improving health and reducing diseases, death rates and disability. High importance is given to the implementation of effective information systems to minimize the operational costs and reduce budget expenditure, through the privatization of public hospitals. Additionally, the focus is laid on improving the local workforce in order to reduce the large dependency on the expats. A systematic development process is initiated which aims at achieving the objectives by 2030, with a periodic evaluation of the implementation process in every two years [18].

Many expectations were observed through the move for privatization in the healthcare. This move is expected to increase the capacity of beds from current 65,000 to 115,000 by 2020, with an increase of 50,000 adding 12,500 beds every year. A total of \$ 2.1 billion would be invested in various healthcare projects in the next six years [31].

V. CONCLUSION

The paper has reviewed various aspects related to the healthcare system in Saudi Arabia. In the initial part of the paper, the current status of healthcare system was analysed with respect to various attributes. Based on the findings, this review further analysed the major challenges faced by the Saudi healthcare system, which has found that rapid transformation, increasing budget, lack of effective strategies for implementation, accessibility to healthcare, lack of effective ICT strategy are some major challenges observed. In the last section, an overview of the new healthcare strategy was presented which mostly addresses the major challenges. The study has identified lack of native healthcare

personnel, rising health expenditures, and changing needs and expectations of the people as the main drivers for adopting the new healthcare strategy. The study has used only limited sources in collecting the information, which is one of the major limitations. The future research can include the developments of the new healthcare strategy in different areas.

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