



The Efficiency of Healthcare Resources in the Kingdom of Saudi Arabia: An Overview

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Abstract: An increased demand for healthcare services from the growing population in the Kingdom of Saudi Arabia (KSA), together with a significant rise in expenditure, has led to an urgent need to develop a more efficient, fair and effective healthcare service delivery system through proper resource management. The delivery of the current healthcare system faces many challenges, including a healthcare workforce that is unable to meet the demand for services. In addition, approximately 60% of the healthcare workforce is composed of expat workers, which results in instability in the sector, as well as increased costs. Another challenge is the fast rise in healthcare spending and the payment methods used for healthcare providers, including the pay-for-service method, which should be substituted with a pay-for-performance (P4P) one. Furthermore, the level of accessibility to healthcare services and the centralised healthcare system seem to cause dissatisfaction for patients receiving these services. The currently adopted solutions, such as complete privatisation, are mostly ineffective, and new ways should be considered. Resource management is considered to be a continuous process of resource utilisation enhancement to optimise patient well-being. For everyone's benefit, all stakeholders should participate in the solutions proposed in order to confront the existing challenges facing the healthcare sector. In addition, we should stress the importance of the role of public-private partnership (PPP) in handling escalated healthcare expenditure due to the increased demand for healthcare services, which is caused by the aging population; an increase in the annual population growth rate and increased life expectancy; a high occurrence of lifestyle-related illnesses as well as an increase in incidences of communicable diseases; and an increased demand for a high level of technology to be used in the healthcare sector. The application of eHealth, the adoption of value-based care, increasing the population's awareness about the importance of preventive rather than curative approaches in the improvement of public health, and investment in medical education, seem to benefit all related stakeholders, including patients, healthcare providers, public and private payers, suppliers and the community.

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Introduction

KSA is the largest country in the Middle East, and because of its oil capital, it is a dominant power among the Arab nations [1]. This extraction of oil in considerably profitable amounts has boosted the development of the national economy, with a subsequent positive impact on various areas of the local community, especially regarding healthcare provision for its citizens [2]. The country is the leading healthcare sector in the Middle East and North Africa. In addition, it has the region's biggest and fastest population growth [3], reaching a total

population of 34,110,821 in the year 2021 [4]. Recently, KSA has faced an increase in the demand for and cost of healthcare provision. This is due to the considerable rise in the aging population, together with an increased average life expectancy of 75, and a high occurrence of both lifestyle-related illnesses and communicable diseases [5].

KSA's budget for 2023 for the Ministry of Health (MOH) has increased by 4% to reach SR 80.8 billion (\$21.4 billion), representing 7% of the state budget. However, in 2019, health expenditure in KSA represented only 5.69% of GDP, which is considered

low compared to that of the UK and the US, which was 10.15% and 16.77% respectively [6] (Figure 1). Concerning the infrastructure of the healthcare system, in 2019, the available hospital beds per 1,000 people in KSA was 2.2, which could be considered low when compared to the UK (2.5 beds per 1,000 people) in the same year, and the US, where there were 2.9/1,000 in 2017 [6] (Figure 2).

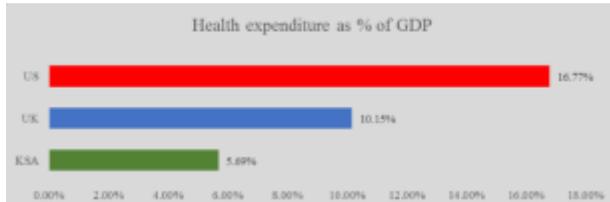


Figure 1: Health expenditure as a percentage of GDP

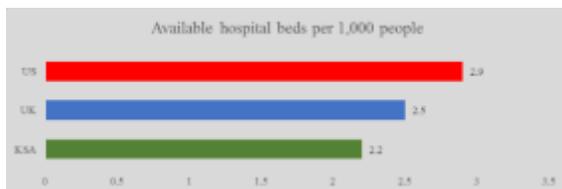


Figure 2: Available hospital beds per 1,000 people

Regarding the workforce, in 2021, KSA employed 3.59 physicians and 5.91 nurses per 1,000 people [4], which is somewhat lower than the UK, which employed 5.8 physicians and 10.3 nurses per 1,000 population, as per the newest accessible indicators of 2019 [6] (Figure 3).

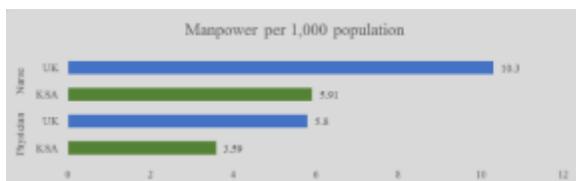


Figure 3: Physicians and nurses per 1,000 people

The aforementioned figures in comparison to other developed countries suggest that healthcare resources have been inefficiently utilised, as noticed in the disparity between the expenditure in the health sector in KSA and the accessibility of services at the required level. Moreover, despite elevated healthcare spending compared to other high-income nations, there is a scarcity in the availability of the offered services, thus indicating incompetence in healthcare provision. This suggests that those resources could be better utilised to ameliorate the efficiency of the current healthcare system [7]. This could also be attributed to the numerous challenges currently facing the Saudi healthcare system, which reduce the sustainability of high performance [2]. Accordingly,

resource management, including time, finance, amenities, data, medications and long-term tangible resources is becoming an area of interest to healthcare providers as a response to public demands for cost-effective, high-end care [8].

Review

Healthcare services in KSA

Delivery of the service

Healthcare in KSA is always regarded as a right. The healthcare system could be classified as a national one, as the service is presently supplied for free to all Saudis and expats employed in the public sector, mainly via the MOH and supported by other governmental health facilities. In addition, the law obliges employers in the private sector to provide healthcare insurance coverage for all their employees, whether foreigners or Saudis [1]. The MOH is the chief governmental department that is accountable for the organisation, growth, funding and governing of the healthcare sector [3]. It delivers its free service through 287 hospitals, representing 59% of the total available beds [4]. The semi-governmental hospitals serve the citizens working in specific governmental sectors, such as the National Guard, the military and universities, as well as employees of those hospitals and their families [9]. This is achieved through 51 hospitals, representing 18% of the total hospital beds in KSA [4]. The rest of the services are offered through the private sector, mainly to serve the expats and Saudi citizens who cannot be served via the public sector [9]. This is attained via 159 hospitals, comprising 23% of the total available beds [4] (Figures 4 and 5).

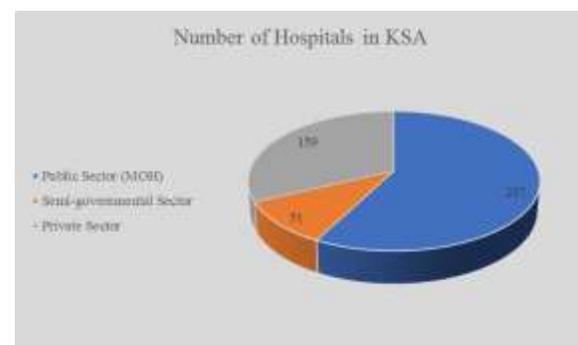


Figure 4: Number of hospitals per sector

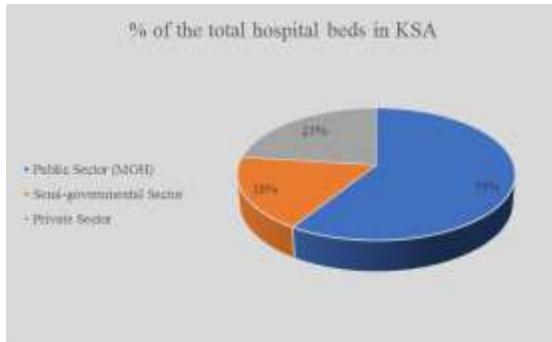


Figure 5: Percentage of total hospital beds per sector

It is clear that KSA healthcare expenditure is mainly funded by the governmental agencies, which represent about 69.17% of the overall domestic healthcare spending in the kingdom, and this falls between the universal healthcare scheme of the UK, with 79.47% public funding, and the US non-national scheme, with only 50.84% governmental expenditure share. The rest of the spending is through the private sector, either through private insurance or out-of-pocket expenditure in private facilities [1]. As per the latest available indicators of 2019 [6], out-of-pocket expenditure in KSA represents 16.50% of current health spending, which is comparable to that of the UK at 17.07% but higher than that of the US, which is only 11.31% (Figure 6). Furthermore, these data reveal the low stake of the private insurance sector in the delivery of healthcare services in KSA [1], thus giving an opportunity for this sector to grow, especially with the encouragement of the government to fill the gap for increased demand of healthcare services [3].

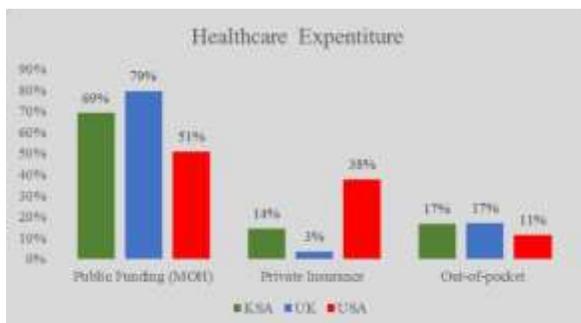


Figure 6: Healthcare expenditure as a percentage per payer

Challenges currently facing the sector and analysis of currently applied solutions

The healthcare workforce

Due to the rapid modernisation of the country, the infrastructure of medical education has not been able to cope with the increased demand for doctors, nurses and ancillary health personnel. Even with the

recently increased capacity of medical education and enforced legislative Saudization initiatives, expatriates dominate the field [1]. Saudi physicians comprise about 40.3% of the total number of physicians in the country, while Saudi nurses accounted for 42.6% of the total number of nurses in the year 2021 [4] (Figure 7). The main problem of such a high percentage of expats is the instability in the workplace, which also results in financial loss due to the demand for new CAPEX by each new physician, which is either left outdated or unexploited after his departure [1]. Another observation is that Saudi physicians tend to work in the governmental sector rather than the private one, which attracted only 16.40% of the total of 49,300 physicians around the country in 2021 [4].

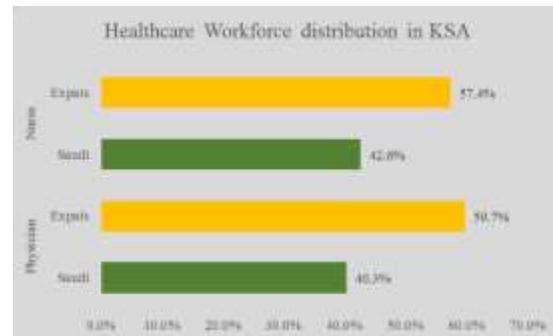


Figure 7: Healthcare workforce distribution in KSA

The fast rise in healthcare spending

Like many modernised nations, KSA has suffered lately from a fast rise in healthcare spending. The escalated costs of healthcare services are mainly due to the fast-expanding population, which is at an annual growth rate of 2.38%. Seventy-two percent of the population is young (15–64 years old) [4]. Another reason for such an escalation in the cost of the national healthcare system is because all Saudis and workers in the public sector are receiving health services free of charge, without any type of premium, deductible, co-insurance or co-payment; in addition, there are no financial restraints on the provider. Moreover, increased patient awareness has increased the demand for state-of-the-art technology, with subsequent elevated costs. All the above-mentioned reasons have led to an upsurge in demand for healthcare services at a higher rate than the infrastructure capacity, leading to prolonged waiting times of months or even years [1].

This explains the high out-of-pocket expenditure in KSA and the initiatives published by the Saudi government to encourage private partnerships in the healthcare sector to fill the gap in the public sector and gain benefit from such a

profitable sector. However, private investment in such a sector is still challenging due to the enormous funds required [3].

Moreover, as the economy of the country greatly depends on the exhaustible resource of oil, and with the recent reduction of its price, the government decided to leave some of the economic responsibilities to the private sector to aid in its development and assure the sustainability of the delivery of high-end healthcare services to all citizens [10]. This is referred to as privatisation, which is the complete or partial ownership handover from the public sector to either a for-profit or non-profit private one [11].

Health strategies applied by the Saudi administration to finance, organise and provide communal healthcare services gradually resulted in a healthcare system that was centralised, unstable and disjointed. Privatisation of the sector seemed to be the solution of choice in order to improve efficiency, value and patient satisfaction in the healthcare services delivered, while enabling the government to accomplish its public responsibilities [10].

The government is gradually extracting itself from its usual role in the delivery and organisation of the healthcare sector. There are different forms of privatisation, comprising the provision of services via private providers, out-sourcing management, and decreasing the burden to be taken by individuals or insurance companies [12].

Privatisation was aimed to rectify the deficiencies found in the public sector, for example inadequate management, patient dissatisfaction, inequitable access and incompetence. However, it has led to the escalation of costs, deepening of inequality of healthcare services provision, inadequate accessibility, poor quality of care and general patient dissatisfaction [10].

Payment methods for healthcare providers

The adoption of fee-for-service payment methods for the private sector without the proper governance from the government has led to inconsistent quality of provided services, together with over-usage of resources beyond patients' needs [1].

The Council of Cooperative Health Insurance strategy [13] published a white paper on value-based payment applications in Saudi Arabia. It stressed the benefits of payment schemes using the P4P method to all related stakeholders. Patients would benefit from satisfactory cost-effective, improved-outcomes care provision. Healthcare providers would experience higher customer satisfaction from the high-end services while refining their profitability and patient

retention. Payers could assure stronger cost control and quality of the services given to their beneficiaries while preventing unnecessary cost escalation and better managing the risk-pooling entity. At the same time, suppliers are more aligned with healthcare patient-centred services' prices and patient outcomes. Finally, at the societal level, the entire community would benefit from improved health outcomes at a reasonable cost [14].

Increasing rivalry

For the past decades, government hospitals have not felt any threat from nearby private hospitals, as they have seen the situation as beneficial for them to fill the gap in services that they cannot perform and as an opportunity to decrease expenses, as they depend on an annual budget. Recently, public hospitals were allowed to create primary to tertiary care 'business centres' to directly generate money from paying customers, whether citizens or expats. However, although the implementation of such a model is still ineffective due to the lack of proper experience in revenue cycle management, which makes it hard to compete with their private peers, it is a positive step in their preparation towards privatisation [1].

Accessibility to healthcare services

MOH hospitals are mainly concentrated in large cities and are not evenly distributed in smaller rural areas. This reduces the accessibility of healthcare for people who are not living in cities. This also results in overcrowding and lengthening of the waiting period to receive proper care at the right time for most citizens. Another problem is that healthcare workers are less attracted to these places than to big cities. These areas are still underdeveloped, without proper education facilities, and therefore, not appealing to either physicians or nurses, who are mostly expats due to the modest quality of life offered. This could be considered a major threat to the decentralisation of healthcare services across the country. The whole country needs to have more entertainment and a better lifestyle, and healthcare will follow. In addition, the Ministry of Education, along with the MOH, should create appealing medical programs for citizens to incrementally replace expats for more sustainability of the service. However, wage incentives seem like an efficient solution to attract healthcare workers to less developed areas [9].

Al Asmri et al. [15] addressed another issue in the accessibility of healthcare in that the contemporary system is mainly based on curative rather than preventive services, thus neglecting primary healthcare. El Bcheraoui, et al. [16]

highlighted that the problem is not the availability of facilities but rather the mentality of the Saudi population, who do not seek healthcare unless sick.

Centralised healthcare system:

Regardless of the attempts of the MOH to give autonomy to the regional directorates in terms of strategy creation, talent acquisition and supply chain control, failure was doomed as those activities must be finally approved by the MOH itself. However, some autonomy was given to several municipal hospitals in a trial to improve their efficiency in terms of quality of care, and to give them more experience in the running of their finances as a step towards full privatisation [17].

Recommendations

Currently, KSA possesses the need and willingness to enhance the healthcare services for its population. This can only be attained through the collaboration of consumers, proficient training of healthcare workers, and inclusion of health informatics within its setting [18]. Alasiri and Mohammed [19] mentioned that this was also sensed by the Saudi administration in its 2030 vision to reduce its sole reliance on oil income and to vary its finance via various socio-economic transformative improvements to grow community service sectors like healthcare, education, entertainment and the vacation industry. The healthcare transformation program relies on value-based care, assuring financial sustainability, and improving the equity of the accessibility and quality of service provision via digitalisation and the implementation of eHealth.

Regarding the healthcare workforce scarcity and a dependence on expats of approximately 60%, AlMalki et al. [17] recommended the establishment of an additional number of medical colleges and training programs in different locations of the country and emphasised the urgency of innovative legislation through the MOH to manage human resources in the medical field.

As for escalating expenditure, disappointment with the currently applied version of privatisation has led to suggestions to strengthen the governance of the state to control private inadequacies and fight the incompetencies of the public ones to assure value-based, high-end services [10].

Concerning the accessibility to the healthcare system and the poorly distributed care centres, Alasiri and Mohammed [19] emphasised the importance of the availability of primary healthcare centres to stress the importance of disease prevention and amelioration of community health as an effective method for disease control, and also to act as a gatekeeper to control referrals to secondary and

tertiary centres, which are poorly distributed across the state. On the other hand, El Bcheraoui, et al. [16] recommend the implementation of a national comprehensive educational plan, stressing the benefit of a preventive rather than a curative approach in healthcare, as they claimed that the availability of centres was not the problem.

Obviously, it seems that healthcare spending, accessibility, workforce and quality of care could be improved via the implementation of eHealth and the efficient use of health informatics. The use of innovative technology could play an important role in healthcare cost control, efficacy, efficiency, and management of 'big data' could help in the need for care prediction. Although the adoption of technological innovation in the healthcare sector seems to positively affect the outcome, the field seems to be very promising, and there is still plenty of room for further achievements [3]. However, strategies need to be developed to ensure the quality of delivered services while controlling the escalated costs related to such adoption [20]. Furthermore, the solutions offered by eHealth would impact the present structures and procedures, thus resulting in optimum resource utilisation and, hence, the transformation of the healthcare sector [21]. Sajjad and Qureshi [3] assumed that, with the activation of privatisation of the public health sector, the number of beds would increase and the use of high-tech robotics would be essential to operate more efficiently. They further claimed that the adoption of such innovative technology would not only result in decreasing the dependence on expats in the healthcare workforce but also would elevate the number of Saudi healthcare workers, including physicians, nurses, ancillary healthcare personnel and pharmacists, in both governmental and private sectors. Moreover, the installation of cutting-edge performance management systems would improve the quality of management and aid in reaching the desired level of automation. They further stressed the importance of PPP to create a mixed service delivery process with cost-effective innovations, which would markedly help the application of value-based healthcare concepts and the eradication of diseases via 'big data' analysis.

Currently, most of the healthcare facilities in KSA seek international accreditation, which necessitates the application of eHealth to improve the efficiency of resources while delivering high-end quality care. The possible benefits of such technology would affect all stakeholders in the sector, most importantly, the enhancement of the quality of healthcare given to the patient due to their ability to access inclusive and trustworthy health information. This information could be shared through this

technology more rapidly, resulting in cost control, especially with chronic diseases, due to early intervention and, hence, decreased medication costs. Benefits for physicians: eHealth could improve the quality of care given by the physician. Electronic patient records save the time for the physician when compared to old handwritten ones. Electronic prescription negates the possibility of misinterpretation, and the system also alerts you when there is any possible drug interaction or allergy. Benefits for auxiliary departments: ancillary healthcare workers will have more time to serve patients with high-quality clinical care, as the administrative workload is decreased, and the time spent for verification of the doctors would be minimal. Accordingly, patients would benefit from improved quality of care due to the adoption of eHealth, which results in less medication error, more attentive care time, and, hence, higher medical quality and a safer level of care. On the management level, the adoption of eHealth would improve the overall efficiency and efficacy of resource utilisation, organisation of tasks and schedules, and standardisation of procedures through common evidence-based guidelines that result in clinical and financial performance improvement. Finally, at the state level, 'big data' connections from different healthcare providers would greatly contribute to early disease prediction, which could greatly affect the whole community's well-being [22]. However, the implementation process might be challenging, beginning with the allocation of specific funds for such projects, together with the personnel responsible for their application and management. The second challenge is the technological one, as the lack of such knowledge would make it difficult to install this innovative initiative. The third one is the difficulty of integrating such new technology within existing organisations' procedures without compromising patient confidentiality, as it seems that there is no solid policy for these issues. Finally, behavioural resistance towards the organisation regarding the adoption of a new system might be found among the employees, especially doctors.

Limitations

This review was desk-based research, with data being collected from different governmental portals, like the MOH, the World Bank and WHO, and published papers from trusted journals with recognised publishers, in sufficient amount to allow proper analysis, assortment, clarification, and organisation of this report. However, this research is based on secondary data solely, and future research based on primary data would be recommended.

Conclusion

In conclusion, resource management is a continuous process of resource utilisation enhancement to optimise patient well-being. All stakeholders should participate in the solutions proposed to confront the existing challenges facing the healthcare sector for everyone's benefit. Also, we should stress the importance of the role of PPP in handling escalated healthcare expenditure due to the increased demand for healthcare services, which is caused by the aging population, increased population annual growth rate, increased life expectancy, a high occurrence of lifestyle-related and communicable diseases, and the increased demand for high technology adoption in the health care sector. The application of eHealth, the adoption of value-based care, an increase in the population's awareness about the importance of preventive rather than curative approaches in the improvement of public health, and an investment in medical education seem to be beneficial for all related stakeholders, including patients, healthcare providers, public and private payers, suppliers and the whole community.

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