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Review Article

Overview of Procurement and Reimbursement of Pharmaceuticals in Saudi Arabia, United Arab Emirates, Qatar, and Egypt: Challenges and Opportunities

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ABSTRACT

Introduction: There is an increased interest in cost consciousness concerning healthcare spending worldwide. In the Arab world, a major transformation is underway in the healthcare sectors to achieve national and government visions to attain better outcomes with optimal value. This article contains expert recommendations on how decision-makers can implement pharmacoeconomic principles at a national level in the Arab world. **Methods:** A multidisciplinary panel of experts was formed of policymakers, clinical pharmacists, health economists, and chronic disease control and public health experts from different countries and healthcare sectors. The panel developed consensus recommendations for different stakeholders using a framework analysis method. **Results:** The experts discussed the limitations and opportunities of implementing the pharmacoeconomics concept in evaluating new technologies in their respective countries. Common limitations recognized in the included countries were a lack of infrastructure to support the adoption of the concept in practice, challenges in obtaining data to support the decision-making process, and the lack of human resources to raise awareness among decision-makers and the public to use health economics in making informed decisions in reimbursing new technologies. **Conclusion:** The expert panel recommendations will guide relevant stakeholders at a national level per country. Adapting these recommendations to each setting is essential to accommodate the situation and needs of each country.

Keywords: health technology assessment (HTA), Arab countries, healthcare policy, pharmacoeconomics

INTRODUCTION

Faced with rapid advancements in various disease areas and staggering healthcare expenditures, even the wealthiest countries around the globe have raised concerns about providing and sustaining access to new medicines.[1] Healthcare payers are often under pressure to make early decisions when the available evidence is imperfect. They must also consider the equitable distribution of resources between therapeutic areas.[1] Tools to help healthcare payers reach transparent and objective decisions include economic evaluations and assessments of the effectiveness of drugs in real-world settings.

A related issue was uncertainty in clinical benefit, cost-effectiveness, and budget impact as a health technology assessment (HTA) tool. In part, the result of the efforts to promote early and rapid approval for new medications is often based on clinical trials not designed to provide evidence relevant to informing decisions on coverage and payment. In practice, healthcare payers in different countries vary in their adopted approaches for reimbursement and formulary listing decisions. The key to sound decisions in healthcare is to go beyond the results of clinical trials and assess the incremental benefit of a new treatment versus the treatments available in real-world settings and their budgetary impacts.

Health economics and outcomes research are new concepts in the Arab world. Different stakeholders and institutions have carried out several initiatives to raise awareness

Table 1. Summary of healthcare systems domains in GCC countries and Egypt

	KSA	UAE	Qatar	Egypt
Healthcare system	Universal coverage	Universal coverage	Universal coverage	Primary care
Service providers	MOH, MODA health affairs, MNGHA, MOI medical services, employer-based health insurance, and others	Private sector	Governmental sector	Governmental sector
Payers	Mainly government entities	Mainly private entities	Mainly government entities	Mix of government and semi-government entities
Regulators	MOH	Governmental entities	Governmental entities	Governmental entities
Reimbursement scheme or funding	Government and different private employers	Private sector	Public sector	Out of pocket
Pricing strategy	Reference pricing	Reference pricing	Reference pricing	
HTA agency status or role	Under establishment	Not available	Not available	Not available
Private insurance	Covers ~30% of the population	Covers 60% of the population	Not available	Not available

GCC: Gulf Cooperation Council; HTA: health technology assessment; KSA: Kingdom of Saudi Arabia; UAE: United Arab Emirates; MOH: Ministry of Health; MODA: Ministry of Defense and Aviation; MNGHA: Ministry of National Guard Health Affairs; MOI: Ministry of Interior.

among decision-makers. Efforts have been made to highlight the importance of pharmacoeconomics (PE) and HTA at different levels for assessing health technologies' value. PE is defined as the "description and analysis of the costs and consequences of pharmaceutical products and services and their impact on individuals, health care systems and society."[2] The forum specializes in attracting critical experts in the PE field and key opinion leaders in diverse domains and institutions. The main aim of this assembly was to provide a roadmap to key stakeholders to guide them through practice on how and when it is suitable to adopt and implement PE in health technology assessment.

METHODS

A group of health outcomes and economics experts and decision-makers were assembled from November 12 to 13, 2021, to discuss the current situation in their respective countries and possible solutions for better implementation. Bringing experts from different regions to represent different nations in the Arab world will help identify the problem of using PE methods in their settings and present possible solutions to guide healthcare providers to adopt PE principles in reimbursement decisions.

The objective of this session was to understand the current situation in the previously mentioned countries, discuss the future of health economics (HE), and list the challenges in implementing this concept in the countries of interest.

The authors discussed different aspects in the session, including:

- Each country's healthcare system structure
- Reimbursement scheme for different settings and services
- Limitations in practice that might prevent HE from being used
- Opportunities to support the implementation of the concept in practice rather than theory

The research questions were:

1. Are the countries of interest implementing HE principles in their settings? And how?
2. If not, to which level is the healthcare system in each country ready for using the HE methods in evaluating and reimbursing medications, services, and devices?
3. What are the gaps in each country's health system hindering HE principles from being used?
4. What is the proposed framework to guide policymakers and support using the concept in the healthcare system?

RESULTS

Key Findings From Health Economic Sessions

Despite the variation in geographic and economic status of the Middle Eastern and North African (MENA) countries, the region has witnessed a significant reduction in morbidity and mortality rates and an overall improvement in other health indicators.[3] Healthcare access expansion and promotional programs are instrumental in any national healthcare improvement plan for that development. However, cost containment and disparities in health outcomes and health coverage in public and private healthcare sectors in most of the MENA countries have been observed with some unique obstacles to address the rising cost of healthcare improving patient access to quality care in each of these countries. Therefore, adopting and implementing HE evaluations for different health technologies and interventions should address the quality of care and spending efficiency. However, the experts found numerous opportunities in which it may contribute to the development and growth of HTA's better usage of health resources. Tables 1 and 2 summarize the

Table 2. Identified challenges and opportunities in applying health economics

Challenges and Limitations (Saudi Arabia and Egypt)	
Healthcare system infrastructure	• Fragmented healthcare system, which makes it difficult to implement any healthcare policy at a national level
Human resources	• Poor collaboration between experts from nonacademic and academic institutions • Reluctance and sometimes resistance among some policymakers in providing local training and education for their subordinates
Policy making/ institutional level	• Disinterest among some policy makers in adopting and applying health economics in evaluating any health technology • Lack or poor engagement of local health economic experts in any health policy formulation • No local pharmacoeconomic (PE) evaluations are conducted at hospital level despite the presence of few specialists in health economics; however, their role is largely absent • Lack of awareness about the role of PE in assessing the cost effectiveness of different prescription drugs and improving spending efficiency
Data (availability and accessibility)	• Fragmented healthcare system • Poor documentation of healthcare data • Lack of data governance and management policies • Poor collaboration and coordination between different healthcare institutions • The absence of any influential role of the Saudi Health Council in gathering healthcare data from different health sectors • Poor use of electronic healthcare data in generating local evidence on the efficacy of different health technologies • Cost data of different healthcare services are mostly unavailable
Education and research	• No local programs to support national graduates and experts • Lack of data and limited accessibility • No official CE threshold exists despite some efforts
Communication between involved parties	• Although good communication between different health sectors under the umbrella of the Saudi Health Council, no tangible efforts are followed through
Opportunities and Possible Solutions (Saudi Arabia)	
Government support / initiatives	• The Kingdom's 2020 National Transformational Program (NTP) was developed to help fulfill the country's 2030 vision and to identify the challenges faced by government bodies in the economic and development fronts • One of the main objectives of the NTP is to invest in healthcare to ensure better access to care, improve quality of services, and promote for preventive healthcare measures • An important strategic objective for healthcare transformation is to increase the efficient use of resources and improve spending and allocation efficiency
Growth in generics market	• Strengthening local pharmaceuticals capabilities and capacities and the rising need for cost containment will support future growth of Saudi Arabia's generic drug market. We expect the pace of this growth to accelerate on the back of programs, such as generic substitution and government support for initiatives that seek to reduce import reliance
Education and research	• Rising interests among newly graduates and healthcare providers to learn and implement the concept of HE • Several schools are seeking integration and accreditation of PE courses and diplomas in their curriculum • Trend toward patient-reported outcomes research • The launch of the first graduate program in pharmaceutical outcomes and policy at King Saud University in 2022

key elements of each country's health system and major challenges and opportunities for HE implementation.

Before summarizing the Kingdom of Saudi Arabia's (KSA) HTA experience, the section below will briefly elaborate more on the Saudi healthcare system's structure and reimbursement scheme despite the major transformation facing the country's economy and investment sectors. The Saudi Ministry of Health (MOH) is still the country's major provider of health services. According to Almalki et al,[3] 60% of total health services in Saudi Arabia are provided by MOH hospitals and primary health centers. Governmental and semi-governmental institutions cover the rest; approximately 20% of the services are covered by private sectors. The latest Business Monitor International report has estimated that the total healthcare expenditure in KSA reached SAR 152.5 billion (bn) (USD $40.7 bn) in 2018, which amounts to approximately 5.19% of the gross domestic product (GDP). Moreover, the government expenditures for health and social services have significantly increased from 9.2% (USD $7.2 billion) in 2005 to 15.4% (USD $42.4 billion) in 2019 of the total Saudi government budget.[4] Through 2023, healthcare spending is expected to grow at a 5-year compound annual growth rate of 5.7% in both local currency and US dollar terms,

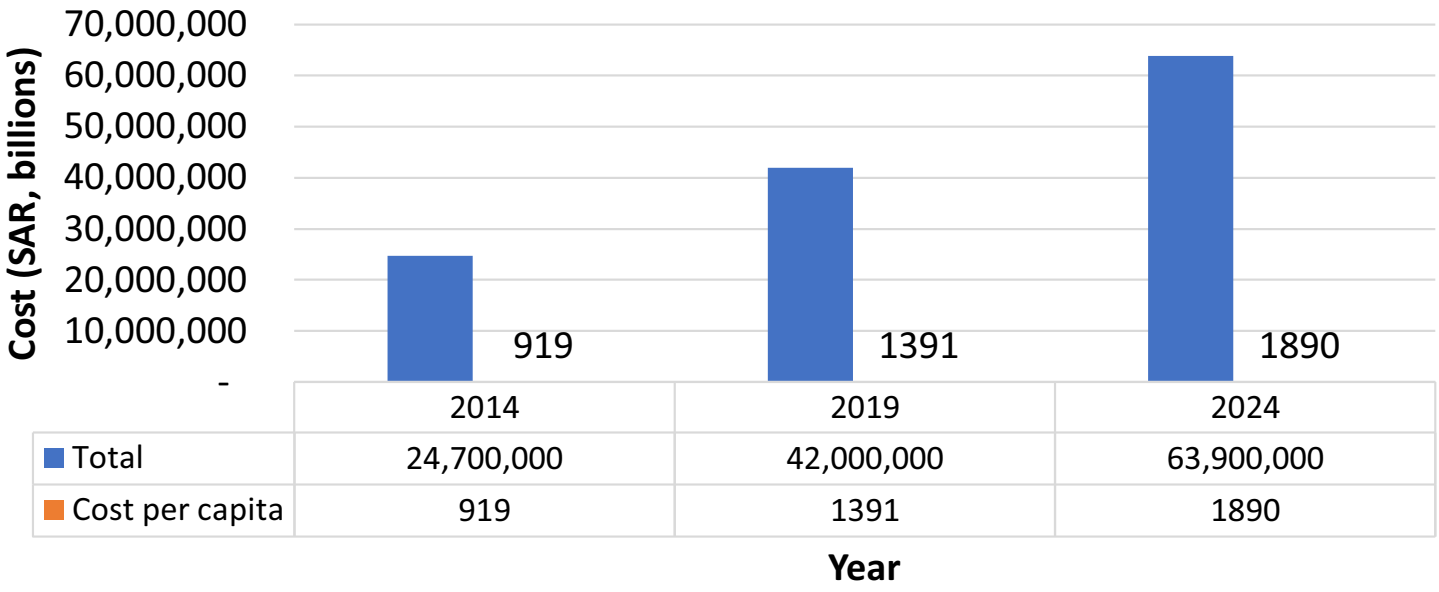

Figure 1. Total pharmaceuticals expenditure in the Kingdom of Saudi Arabia. Based on data from Saudi Arabia Pharmaceuticals & Healthcare Report.[6]

with the market reaching SAR 201.3 bn (USD $53.7 bn) in value (~6.5% of GDP).[5] Additionally, pharmaceutical spending was also forecasted to reach up to SAR 63.9 bn (USD $17 bn) (Fig. 1).[6]

Saudi Arabia Experience

The Saudi expert (YA) highlighted the importance of implementing HTA in the Kingdom. Implementing HE evaluations is imperative in light of the rising pricing of health technologies and the uncertainty about their actual value, especially in the context of the current National Transformation Program 2020 and the Saudi Vision 2030. An important strategic objective for the 2020 transformation plan was to improve resource management and allocation and ensure the efficiency of government spending.[6] The government expects cost inflations post–COVID-19 pandemic, especially with the scarce resources and rapidly growing population.

The population growth rate is increasing at a rate that makes the oil revenues insufficient to ensure the Saudi population's prosperity in the foreseeable future. Alongside the inflation that affected all commodities, these demographic changes will make it very difficult for the public healthcare system to continue its current spending rate for different health technologies. The fast rate of innovation for different health technologies and the improvement in different diagnostic tools paved the way for faster diagnosis and treatment of multiple diseases, and the rising incidence rates of rare diseases with their costly medications have put a massive strain on the public healthcare system in Saudi Arabia. Therefore, as part of the Saudi Economic Vision 2030, the Local Content and Government Procurement Authority is encouraging multinational brand and generic manufacturers to move to the country and invest in the industrial sector in return for tax breaks, relaxed public pricing of their products, and better chances of winning government procurement tenders. Moreover, the Commission for Spending Efficiency oversees the public procurement of different health technologies and encourages switching to cheaper generic medications and biosimilars for off-patent medications. Additionally, the National Unified Procurement Company online marketplace platform allows no direct purchasing from individual public healthcare institutions. Moreover, the prevalence of prescription drug users for various chronic health conditions, such as diabetes and hypertension, is believed to be as high as 12% of the population.[7] In addition, the rates of medication usage and expenditures are believed to increase significantly over the next decade because of the relatively high incidence rates of genetic diseases that did not have approved therapies in the past and now have approved therapies with labeled indications as well as the aging population with significantly lower fertility rates compared with the past 2 decades.[8]

However, the healthcare system still needs to adopt a practical HE evaluation of health technologies and is merely considering the acquisition prices of different medications and medical devices. Unfortunately, most drug therapy decisions are based solely on the clinical outcomes (eg, safety and efficacy) associated with a treatment alternative without regard for their cost effectiveness despite the establishment of PE centers in many prominent public healthcare institutions. Nonetheless, these centers' role in the decision-making process for adopting any health technology is limited. There is good news. The number of HE researchers and

their research outputs have significantly increased over the past 5 years. However, the quality of the local research publications could be better according to a recent literature review that assessed the quality of 22 local HE-published papers from 2015 to 2019 using the Consolidated Health Economic Evaluation Reporting Guidelines checklist.[9,10] Furthermore, many public healthcare institutions apply budget impact models to assess the affordability of different health technologies, particularly prescription medications. However, these budget impact models are not transparent and do not include cost offsets that the new health technologies might offer. Additionally, a locally or nationally published budget impact threshold must be identified.[11]

There are numerous limitations to adopting a full economic evaluation at a national level. These hurdles include data scarcity and limited accessibility; the fragmented healthcare system; the poor documentation of healthcare data and limited acceptability and completeness of retrieved data from the electronic health records; the difficulty in gaining access to cost data of healthcare utilization resources; limited number of trained healthcare researchers and economists; the absence of local graduate programs in health outcomes and economics; the disinterest of some local policy makers to implement any HE evaluations as these evaluations are viewed as obstacle to access new and innovative health technologies; the poor awareness of the consequences of not adopting and implementing HE evaluations; the poor collaboration of between public healthcare institutions and local academic institutions where most health economics experts are employed; the dominant role of physicians in the pharmacy and therapeutics committees; the lack of cost effectiveness threshold, the absence of local health utility estimates for various disease conditions; the symbolic rather than enforcing role of some regulatory and advisory bodies in fostering collaboration between different public health sectors and ensuring the validity of documented healthcare data and building national databases for different disease states; the poor awareness of the importance of patient-reported outcomes; and assessing different health technologies. Ongoing efforts are to set a local cost-effectiveness threshold and validate health utility measures among the Saudi population. Moreover, the development of multicriteria decision analysis is underway to facilitate the evaluation of orphan medicinal products. Additionally, multiple disease registries are being established to inform the policymakers about the size of the patient populations affected by different disease states, particularly burdensome diseases, and examine the impact of different health technologies on patients' use of healthcare resources. In summary, the adoption and implementation of HE is necessary to ensure the realization of the ultimate goal of the Saudi Vision 2030: having value-based healthcare.

Figure 2. United Arab Emirates healthcare system segmentation.

SEHA: Abu Dhabi Health Services Company; DHA: Dubai Health Authority; MoH: Ministry of Health; MoF: Ministry of Finance; FHIA: Federal Health Insurance Authority.

United Arab Emirates Experience

The Emirati Expert (SA) presented the United Arab Emirates (UAE) experience. She briefly discussed the World Health Organization (WHO) health system framework and major dimensions (Fig. 2). The UAE healthcare system comprises two central regulatory authorities, federal and local. The UAE healthcare sector is divided between public and private healthcare providers.[12] Public healthcare services are managed and regulated by federal and emirate-level government entities, such as the MOH, Dubai Health Authority (DHA), the Health Authority Abu Dhabi (now called the Department of Health, DOH), and the Abu Dhabi Health Services Company.[13] These entities often partner with foreign healthcare organizations to run the daily operations of hospitals and clinics throughout the UAE. Private healthcare service providers, such as the New Medical Centre, are nongovernment-run hospitals and clinics that provide specialty and full-spectrum care for the UAE population. In Dubai and Abu Dhabi, approximately 70% of outpatient visits are made to private healthcare facilities. In contrast, for inpatient activity in private facilities, the proportion is 40% in Abu Dhabi and 60% in Dubai.[12] The UAE spends approximately $1200 per person each year on healthcare, ranking it among the top 20 countries in the world for healthcare spending per capita.[8] The UAE national health account of 2017 showed that the health sector had grown 11 times faster than the annual growth rate of the GDP in 2020 versus 2017 (26% vs 2.3%).

The current health expenditure in the UAE comprised 4% of the GDP in 2017 compared with 3.5% in 2016. Total government revenue accounted for 54.6% of health funding in 2017. More recent reports show a further increase, with an expected budget of USD $25.7 bn by 2024.[12] The domestic general government health expenditure accounts for 50% to 70% of the total health spending in the country. According to the 2017 national health account, the share was reduced by 27% because of the introduction of compulsory health insurance plans all over the UAE. The trends in health financing have drastically changed since 2012.

According to the latest reports, over the past 10 years, the UAE private health sector has occupied the majority (85%) of the total healthcare services. The evolution of the private insurance landscape has been driven by mandatory insurance coverage across Dubai and Abu Dhabi. More than 60 insurance companies serve a

population of only 9.3 million, which creates a complex ecosystem for drug reimbursement. Each Emirate has its formulary, which is drawn by separate pharmacy and therapeutics committees at the Emirate and hospital levels. Access to innovative medicine through private insurance depends on the decision pyramid, with various activities at each step and based on the insurance plan. At the top of the pyramid (regulatory level), the MOH provides drug approvals, market authorization, and pricing using an international reference–based pricing system. At the Emirates level, the DOH and DHA are the main stakeholders for market access and reimbursement in Abu Dhabi and Dubai. For the northern Emirates, the MOH drives market access and reimbursement of medications. Daman (the UAE National Health Insurance Company) in Abu Dhabi and 12 insurance companies in Dubai determine the inclusion of a specific item in the formulary or insurance plan. At the payer and provider level, prescribing and reimbursing medications in the public sector is straightforward; the government will fund treatments for all Emiratis, and low-income expats could also benefit from government support, such as DHA, and so on.

There are three types of reimbursement schemes in the private sector. The first level is the essential benefit plan, a basic DHA and DOH plan. These plans typically cover the Dubai and Abu Dhabi blue-collar (typically earning less than AED 4K per/month) category expat population. This segment has limited access to expensive treatment because of the low value/limited benefits covered. The second level is the pre-underwritten plans for individuals or small- and medium-scale companies (typically > 1 to 20–50 employees).[12] In this segment, expensive treatment and biologicals are affordable due to the higher value of benefits covered, but pre-approval is required; for example, if the condition is not preexisting, then the benefits are subject to a waiting period. The third level is the corporate plans. Corporate plans are typically offered to companies with more than 50 employees. They are tailor-made for each corporation depending on various factors, such as the number of employees, sex, age demographics, exposure to chronic conditions, previous claim history, and so on. Corporate plans typically include preexisting conditions without waiting periods and cover expensive treatments. Despite the evolution and coverage level of UAE citizens and expats, some limitations may impact access to innovative medicines. At the MOH level, new medical technologies and drugs must be approved first by the US Food and Drug Association (FDA) and European Medicine Agency (EMA). At the Emirates level, the overall process of allocating reimbursement codes is not streamlined, and there is a lack of consistency among payers/providers in approving and reimbursing new technologies. Additionally, there needs to be more consistency in the prescription pattern and authorization/approval process around the UAE. At the patients' level, the complexity of insurance plan selection and coverage level makes it hard to access new technologies, especially for individuals with basic plans (focusing on general reimbursement). Thus, establishing a national or local HTA agency to oversee and provide insights on the real value of new health technologies and rationalize reimbursement decisions is essential.

Qatar Experience

The expert for Qatar (AH) provided a brief introduction about the state of Qatar and the health indicators profile of the country. The state of Qatar is a peninsula located on the western coast of the Arabian Gulf. Qatar's population is approximately 2.8 million, with a fertility rate of 1.85 and an average life expectancy of 77 years (78 years for males vs 76.6 for females).[14] According to the WHO, Qatar spends 11% of its annual budget on healthcare and has the highest health expenditure per capita in the Gulf Cooperation Council Countries (GCC) at $1827.[14] Qatar also scored highest among the GCC countries in the healthcare access and quality index.[15] The Ministry of Public Health (MOPH) serves as the regulator of health services in Qatar. The Department of Healthcare Professions is a sector under MOPH is influential in maintaining, achieving, and implementing the ministry's healthcare facilities, programs, and workforce objectives. The Pharmacy and Drug Control Department is responsible for registering health products, inspecting pharmacy and pharmaceutical facilities, and drawing up drug policies in Qatar. The functions of the department are shown in Figure 3.

As in most other GCC countries, Qatar's healthcare providers are primarily the government (public) and private sectors. Two government-owned entities are responsible for providing public healthcare in Qatar, Hamad Medical Cooperation (HMC) and Primary Health Care Corporation (PHCC); each has its own budget.[16] HMC and PHCC serve more than 90% of the country's population, although private healthcare providers are becoming increasingly popular. The PHCC covers most primary care services, while HMC provides secondary and tertiary care. HMC has 13 hospitals in its portfolio—nine specialist facilities and four general hospitals—with approximately 2500 beds. It also manages the national ambulance service and at-home and residential care services.[14] As of 2019, there were eight private hospitals in the country, more than 200 private polyclinics, and a range of clinics, laboratories, pharmacies, and medical centers. In June 2019, Dr. Hanan Al Kuwari, the minister of public health and managing director of HMC, announced that the MOPH was looking to expand the role of private healthcare providers to achieve its ambitious expansion plans. By 2022, the MOPH aimed to increase the number of private hospital beds by 25%.[15] The Qatari health system reimbursement model is similar to other GCC countries. The public sector provides free coverage for citizens and offers comprehensive medical care. Expats can also have unlimited access to public hospitals and clinics with

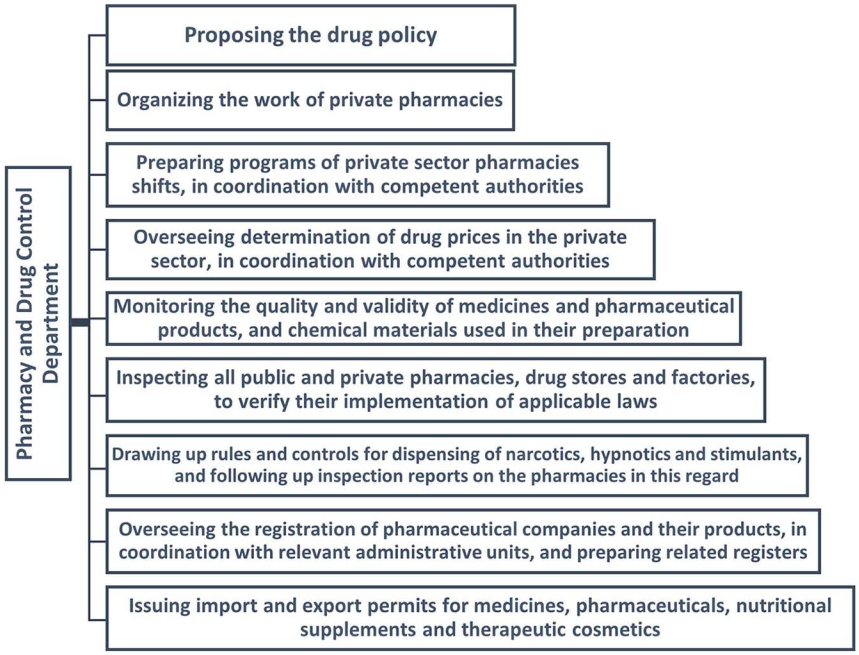

Figure 3. Functions of Pharmacy and Drug Control Department, Ministry of Public Health, Qatar.[27]

minimal copayments. Insurance companies and out-of-pocket cover the reimbursement of health services in the private sector. In the WHO's most recent Universal Health Coverage Service Coverage Index, released in 2017, Qatar scored 68 of 100, placing it above the global average of 65.69.[17] Though health services in the country are sound, the high costs associated with operating a Universal Health Coverage system have come at a significant financial cost for the Qatari government. As a result, the national health strategy 2018 to 2022 plan in Qatar was introduced to maintain high-quality medical care and try to contain the cost of services. Although the Qatari health system has gone through a momentum transformation in the past years, there are several challenges they still have to overcome. Of mortality cases, 69% occur because of chronic conditions, such as cardiovascular diseases (24%), cancer (18%), and diabetes (7%).[15]

The main challenge is that the healthcare system must adopt strategies to control chronic conditions and prevent early death by increasing the supply of health services for those individuals. Obesity and low physical activity are considered public health concerns in Qatar. Of adults, 70% and 44% are overweight and have low physical activity, consecutively, contributing to the development of major chronic health conditions. In addition, 23% of mortalities in Qatar are due to injuries. Integrating primary health services across different sectors is also a challenge in the Qatari health system to address public health concerns. The lack of data collection, analysis, and dissemination is a hurdle in promoting public health. Finally, the MOPH has estimated that more than 32% of men, 1.2% of women, and 16% of adolescents use tobacco. Enhancement of health and awareness campaigns is needed for the early prevention of deadly diseases. The strategic goals of the National Health Strategy (NHS) plan are to focus on 12 priority areas of focus through 2022, including seven priority populations and five system-wide priorities. These priorities reflect the needs of specific population groups in Qatar and the health system requirements to deliver improved health outcomes to these groups.[14,15,17]

To achieve successful outcomes for the priority populations, as well as all citizens and residents of Qatar, health will be promoted and healthcare services delivered through an integrated system, focusing on the following three main domains that serve to deliver the objectives of the NHS program:

1. Better health: The strategy will focus on improving population health outcomes and recognize that health encompasses physical and mental well-being.
2. Better care: Providing high-quality health services that are accessible, timely, and effective is central to the aims of this strategy.
3. Better value: The strategy is committed to continually seeking more excellent value from health system investments, as measured by outcomes that matter to the patient and society.

The need to ensure the efficient and effective use of resources, whether monetary, human, or infrastructure capital, is of great importance. Financial resources spent on healthcare should be viewed as an investment, and the return on that investment is qualitative and quantitative. Maximizing efficiency in the system will be a priority. Health funding models and financial incentives throughout the system must be aligned with the model of care and

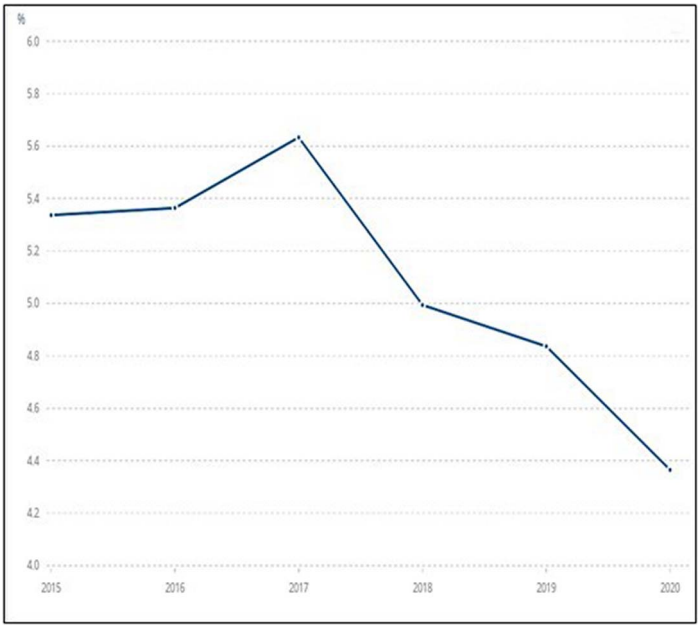

Figure 4. Total health expenditure as a percentage of GDP in EGYPT, 2015-2020 (4.36% per GPD in 2020). GDP: gross domestic product.

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desired outcomes.[14,16,18] The current situation in Qatar is improving, aligning with the goals of the NHS. According to law No. 22 for the year 2021 of mandatory health insurance, one of the law elements is the best use of financial and other resources available in all healthcare sectors.

The Qatari ISPOR chapter was established to oversee the research activities conducted on HE. However, the chapter needs to be fully involved in the value-assessment practice. Despite the increased number of health-economic research and cost-effectiveness publications in Qatar, implementing these tools in the reimbursement decision-making process still needs to be improved. Similar limitations were observed in the Saudi system to adopt the concept in Qatar. Thus, recognizing the concept implementation in the health system is highly valuable.

Egypt Experience

The Egyptian expert (GE) reported that Egypt has experienced significant improvements in its health indicators in the past few years. The average life expectancy at birth is 70.9 years, with a lower life expectancy for males versus females (68.8 vs 73.2 years), respectively.[19] With more than 100 million people, Egypt is the second most populated country in the Middle East and North Africa. The health expenditure as a percentage of GDP was almost constant, if not decreasing over 8 years. It ranged from 5.6% to 4.3% (Fig. 4). While the most recently reported value, average was 4.6% in 2017.

The health system in Egypt is governed by the Ministry of Health and Population (MOHP), Universal Health Insurance Authority, General Authority for Healthcare (GAHAR), and Egyptian Authority for Unified Procurement, Medical Supply and Management of Medical Technology (UHIA). The government sector represents the activities of ministries and authorities that receive funding from the Ministry of Finance. The government health services in Egypt are currently split into the following three independent functions: payer, provider, and accreditor. Egypt has a fragmented healthcare system, with many different public and private providers and financing agents, but they are moving to universal healthcare coverage. Health services in Egypt are currently managed, financed, and provided by agencies in all three sectors of the economy—government, a government-owned corporation, and private.[15,17] The administrative organization of the MOHP comprises the central headquarters and the governorate-level health directorates. The main functions of the central headquarters include planning, supervision, and program management. The responsibilities of these undersecretaries include preventive care, laboratories, primary health care, endemic diseases, curative care, research and development, dentistry, family planning, and nursing, while the Egyptian Drug Authority is responsible for all pharmaceuticals.

The MOHP is currently the major provider of primary, preventive, and curative care in Egypt, with around 5000 health facilities and more than 80,000 beds spread nationwide. There are no formal referral systems in the MOHP delivery system in the meantime.[20–22] The most important are the Ministry of Interior, which operates health facilities for police and the prison population; the Transport Ministry, which operates at least two hospitals for railway employees; the Ministry of Agriculture; the Ministry of Religious Affairs; and the Defense Ministry, which is responsible for health facilities run by the Armed Forces.[20]

The private sector covers between 1% and 10% of the population. While the most recently reported value in 2019 was 5% of Egyptian citizens.[15] Out-of-pocket payments are considered the largest source of healthcare financing in Egypt. It ranged from 41% to 72%; and the most recent reported value in 2017 was 56%. Private clinics consume the most at 38.4%, followed by pharmaceuticals at 33.1%. Concerning hospitalization services, private hospitals receive the largest share, with 8.2%, followed by MOHP hospitals at 3.5%.[20–22]

The new insurance law aims to provide individuals with the freedom to choose between healthcare providers with minimum copays. The new Social Health Insurance (SHI) law is targeting 92% coverage by 2030, in which Army Medical services will cover 8%.

Another reform movement was the establishment of the Egyptian Unified Procurement Authority (UPA). The UPA was established under Law act no. 151 of 2019, and its executive regulations of the law were issued under Decision no. 777 of 2020.[23,24] The UPA's role as an entity is to ensure efficient use of resources with sustainable and equitable access to care for all Egyptians.[25,26] To achieve budget sustainability, the UPA must (1) conduct an evidence-based technology assessment, (2) establish a

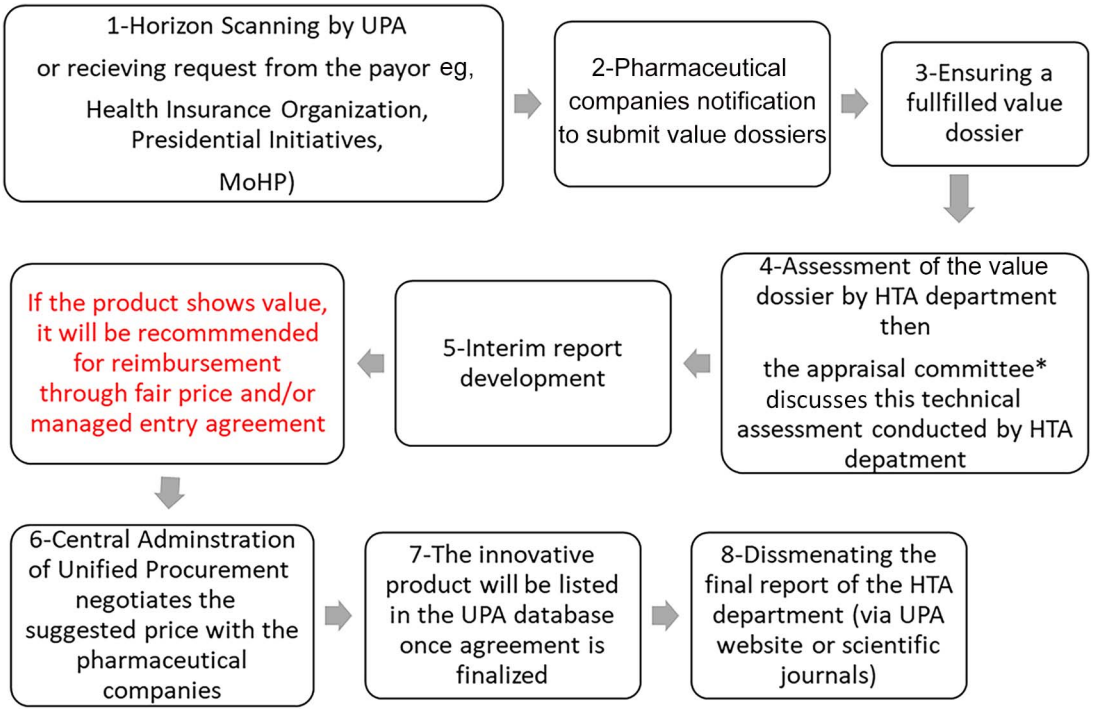

Figure 5. Structure of HTA appraisal process in UPA.

*The appraisal committee is comprised of clinical experts and key stakeholders from UHIA, MOHP. The total time period for the appraisal process of one value dossier is 3 months.

HTA: health technology assessment; UPA: Egyptian Authority for Unified Procurement, Medical Supply and the Management of Medical Technology; MOHP: Ministry of Health and Population.

value-driven procurement process, and (3) provide a robust sustainable supply chain. (Fig. 5). The main challenges of PE's full implementation in Egypt are the lack of timely available information, the small number of building capabilities training programs, and the structural and organizational issues in the Egyptian healthcare system due to the fragmented healthcare system and the existence of 4-PE units in different authorities.

The main opportunities of PE in Egypt are the readiness for international collaboration and working on initiating public–private partnerships between the government and the pharmaceutical companies. An additional important opportunity is the existence of knowledgeable experts who help expand PE knowledge across Egypt. The Egyptian health system has many opportunities to invest in healthcare reform. By focusing on the population's needs and priorities, the government and other stakeholders need to link healthcare spending with the disease burden, and, as a result, primary care preventive health programs will work efficiently to maintain health and control costs, especially for individuals with multiple chronic conditions and elderly population to ensure equity. Health promotion programs in rural areas will also achieve healthcare reform in Egypt because more than 40% of the population lives there. The unified implementation of an HTA entity will also help guide policy and decision-makers to promote PE use, effectively leading to a better pricing and reimbursement strategy.

CONCLUSION

In conclusion, the discussion showed that GCC countries, such as Saudi Arabia, Qatar, and UAE (except Egypt), have some commonalities regarding healthcare coverage and reimbursement schemes. However, the need and urgency to utilize health economics strategies to inform decision-makers about the value of different health technologies vary across these countries for different economic and social reasons, such as the GDP per capita and social preferences and priorities. Moreover, the pace of healthcare transformation to more accountable, efficient, equitable, and accessible healthcare is variable across different MENA countries, with the GCC countries being at the forefront of this race to modernize and improve the efficiency of their respective healthcare systems. However, each country has its own unique challenges and opportunities to realize its objectives in reaching a high healthcare coverage rate while maintaining or improving the quality of care.

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