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Health Financing Policies in Jordan: The Allocation of Public Expenditures in Global Context

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Abstract

Background: This article aimed to clarify the adequacy of government financial resources toward furnishing the provision of efficient healthcare for fulfilling the health challenges in the light of worse economic scenario in Jordan. **Methods:** This analytical and prognostic study of healthcare spending in Jordan focuses on the public sectors that finance healthcare. Hence, all the available studies and posted materials in the nearby and global levels were used to analyze the government abilities to proceed with presenting healthcare within the current constraints. **Results:** Our results revealed that, in any case, the Jordanian government is not organized to proceed or prepared to continue providing health services at the present trend: fast increase in demand over publicly funded services in the absence of efficiency gains. **Conclusions:** For the healthcare system to be significantly efficient and equitable, the cash burden of contributions ought to be progressive toward preserving long-term sustainability. There is a progressive impact of the reform on healthcare provision and finance systems once the contributor's expenses are used to construct it; however, these findings do not seem to be conclusive.

Keywords: equity, efficiency, expenditures, health status, reform

Introduction

In the 1990s, Jordan's total health expenditures accounted for 9.6% of the gross domestic product (GDP), which has gradually reduced over years to 8.7% as of 2016.¹ In 2013, the public sector was the largest source of funding (65.75%) for the entire healthcare system (Table 1), followed by the private sector (31.75%), with the balance coming from various donors. The main emerging policy issue is the high level of total health expenditures as a percent of GDP in comparison to several other countries and to the actual effectiveness of this expenditure in achieving the desired levels of quantifiable healthcare outcomes, which is the ultimate goal. The current mix of expenditure, at 85% for illness treatment and 15% only for illness prevention, is a closely related strategic policy issue.^{2,3}

The Jordanian health delivery system is the main sector that is affected by the massive influx of refugees, that is, Iraqis, Syrians, and Palestinians. The past two decades has witnessed a high demand on health services due to several factors, such as the high rate of population growth, the country's restricted resources, epidemiological transitions generated by the lower prevalence of communicable diseases and high prevalence of non-

communicable disease, re-emergence of several entirely eradicated diseases such as tuberculosis (TB) and malaria, as well as the poor quality of care, the substantial rise of both the young and elderly populations, and the rapid increase in the cost of healthcare provision.

Owing to these various facts, presently, a colossal effort is currently required by the government to provide a satisfactorily operating healthcare system while also managing important assets to help ensure the future continuation of a secure, effective, efficient, equitable, and affordable healthcare delivery system.⁴⁻⁶ This article aimed at determining the optimal funding and management strategy for the provision of healthcare through the public sector to enable the country to meet this challenge, despite the realities of both severe economic recession and the millions of refugees whose future in the country is still unclear.

Methods

The analysis in this paper and the related policy proposals were informed by an extensive review of data regarding the Jordanian healthcare system as well as those of several neighboring countries to gain an informative context. We also conducted extensive interviews with numerous

Table 1. Health expenditures in Jordan during 2008–2014

	2008	2009	2010	2011	2012	2013	2014
Health expenditures, nominal (million JD)	1381	1610	1537	1580	1665	1880	
Per capita healthcare expenditures (JD)	236	269.3	251.5	252.5	260.6	231.8	
Per capita GDP	2753	2882	3069	3275	3438	2939	
% of government budget allocated to healthcare	10.16	10.52	9.76	9.14	10.50	11.00	
Public expenditures % of total health expenditures	60.78	69.17	67.94	66.85	66.17	65.75	
Private expenditures % of total health expenditures	38.24	29.80	30.27	31.34	31.88	31.75	
UNRWA	0.69	0.59	0.75	0.67	0.75	0.74	
NGOs	0.29	0.43	1.04	1.14	1.20	1.93	
Public expenditures % of GDP	5.21	6.59	5.57	5.16	5.02	5.18	5.19
Private expenditures % of GDP	3.37	2.93	2.62	2.56	2.56	2.70	2.26
Total expenditures % of GDP	8.58	9.52	8.19	7.72	7.58	7.88	7.45
Pharmaceuticals expenditures as a % of total health expenditures	35.94	27.91	27.56	27.07	26.75	26.60	
Pharmaceuticals expenditures as % of GDP	3.08	2.66	2.26	2.09	2.03	2.10	

Source: NHA, 2015²⁸

senior officers at health authorities in Jordan and neighboring countries as well as with the key sources at the World Health Organization (WHO), World Bank, and the local sources such as the Ministry of Health (MOH), Royal Medical Services (RMS), Jordan University, and Jordan University of Science and Technology Teaching Hospitals (JUH, JUST), and National Health Account (NHA). Similarly, discussions with numerous private sector organizations and the Supreme Health Council were also included.

The Jordanian Healthcare Financing System.

Jordan's government is committed to creating health services that are accessible to everyone. The national health strategy is geared toward making a comprehensive healthcare system by utilizing both public and private service providers and covering all levels of care as well as the advanced healthcare provision given to the poor.^{1,6,7} This includes having expanded health insurance coverage from 60% to 80% of the population since 1990, upgrading primary healthcare facilities and improving hospital administration to speed up admissions, reducing duplication and the fragmentation of services, and helping eliminate the waste of scarce and highly productive resources.^{8,9} Therefore, at this point, there is a need to develop and debate varied policy choices to determine the best policies that can facilitate reaching the country's health goals most effectively.¹⁰⁻¹²

The Jordanian Demographic Profile. Jordan is a low-middle-income country with limited resources and a high population growth rate. Table 2 depicts how the population expanded from 5.4 million in 2003 to 10.2 million in 2018, largely due to the influx of refugees and a relatively high birth rate. The current population growth rate of 3.2% per year reflects the realities of a reproduction level that is far higher than that in

economically more advanced countries. The current fertility ratio of 3.5 children per woman, and the relatively low mortality rate, coupled with the huge number of migrants from the neighboring countries, especially Syria and Iraq, have all resulted in producing a roughly 89% increase in the total population over the past 15 years.^{1,3,13}

With the percent of population aged ≥ 65 years remaining about the same during the entire period (3.5 prior to 2003 and 3.45 afterward), the dependency ratio, calculated as the percent of people aged <15 years and >65 years, was high in 2003, but decreased by 2017–2018¹³, and, according to the Department of Statistics projections, is projected to fall steadily to 33% by 2050.^{3,14-18}

Healthcare Financing and Delivery System. Jordan is divided into 12 governorates, which have recently been organized into three regions: North (Irbid, Jarash, Ajlun, and Mafraq), Central (Amman, Balqa, Madaba, and Zarqa), and the South region (Karak, Tafileh, MA'an, and Aqaba)—a relatively less developed area as compared to the other two. The capital city Amman is home to approximately 2.5 million residents.¹⁶

The Jordanian healthcare system is currently a mixture of private sector providers and a quite fragmented array of public sector organizations. There are two major public programs: the MOH and the RMS. These organizations finance and deliver healthcare services to approximately 70% of the population, including civil service employees and members of the military as well as their dependents.^{8,17} It also includes numerous smaller public sector programs, including several based at universities, such as the Jordan University Hospital and King Abdullah the First/Jordan University of Science and Technology Hospital, as well

as the Center for Diabetes, Endocrinology and Genetics, and other NGOs, such as the UN Relief and Works Agency (UNRWA), which offers primary healthcare services to some of the Palestinian refugees. These smaller public organizations also include the King Hussein Cancer Center and numerous charity association clinics.

In addition, preventive (from MOH only) and therapeutic services are provided fairly and compare favorably with the international standards. The recently established national vaccination programs and the implementation of recent health strategic policies have helped achieve material progress against key communicable diseases, such as the eradication of polio in 1992, and reaching a 100% immunization rate against measles. Subsequently, as a result of these numerous efforts, Jordan is now free of cholera, malaria, and schistosomiasis. However,

cross-border refugees have placed a huge impediment on the country's ability to meet its strategic healthcare goals, including one of the most important ones, which is eliminating the presence of secondhand TB by 2025.^{19,17-20}

Health Expenditures

Levels and Trends. Similar to other lower-middle-income countries, Jordan provides extensive information on expenditures by source and uses of healthcare expenditures. As Tables 3–5 show, the NHA, which was launched in 1998 within the Health Economics Directorate of the MOH, reports that Jordan's annual spending on individual health doubled the average value of other middle-income countries between 2000 and 2014.

Table 2. Projected population by specific age groups

Year	Total Population (million)	Children <15 Years		Elderly 65>		Dependency Ratio
		(million)	(%)	(million)	(%)	
2003	5.48	2.08	38.0	0.19	3.5	71
2008	6.13	2.14	34.9	0.26	4.2	68
2013	8.114	2.15	31.9	0.33	4.9	67
2016	9.798	3.36	34.3	0.36	3.7	65
2018	10.24*	3.55	34.7	0.35	3.5	66
2019	8.08	2.19	29.5	0.37	5.0	53
2025	8.54	2.07	25.9	0.24	5.3	45
2030	9.10	2.67	29.4	0.53	5.9	40
2050	11.71	2.93	25.1	1.20	10.3	33

Sources: Jordan, Higher Health Council Report, 2017; Jordan Statistics Yearbook, 2016 & 2017; and Population Pyramid.^{7,31}

Table 3. Total health expenditure (% of GDP)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
High-income country	10.9	10.9	10.9	11.2	12.1	12.0	11.9	12.1	12.1	12.2
Arab world	3.5	3.5	3.6	3.5	4.5	4.1	4.0	4.3	4.6	4.8
Egypt, Arab Rep	5.0	5.2	4.9	4.8	5.0	4.7	5.0	5.2	5.4	5.6
Kuwait	2.3	2.	2.1	1.9	3.8	2.7	2.6	2.5	2.5	3.0
Jordan	8.8	8.0	8.3	8.7	9.5	8.4	8.3	8.0	7.2	7.4
Lebanon	8.4	8.8	8.9	8.0	7.4	7.1	7.1	6.9	6.6	6.3
Iran, Islamic Rep	5.9	5.8	6.2	7.6	8.0	7.1	6.9	6.4	6.8	5.9
Iraq	4.1	2.9	3.6	3.9	4.6	3.8	3.3	5.2	5.9	5.5
Saudi Arabia	3.4	3.5	3.4	2.8	4.0	3.4	3.5	3.8	4.2	4.6
Sudan	3.	3.9	4.7	8.1	8.0	7.9	8.0	8.2	8.4	8.4
Syrian Arab Republic	4.1	3.7	3.7	3.3	3.5	3.2	3.2	3.2	3.2	3.2
Low-income countries	5.6	5.9	5.5	5.5	5.9	6.4	6.2	5.9	5.7	5.7
Lower-middle-income countries	4.2	4.2	4.3	4.3	4.4	4.2	4.2	4.3	4.5	4.4
Low & middle income	5.3	5.2	5.2	5.4	5.8	5.6	5.5	5.6	5.7	5.7
Middle-East & North Africa	4.3	4.2	4.2	4.1	5.3	5.0	4.8	5.0	5.1	5.3

Source: NHA, 2015²⁸

Table 4. Comparison of health expenditures in neighboring and regional countries (% of GDP)

Countries	Year										
	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016
Egypt	5.1	4.6	4.6	4.3	4.5	4.9	4.5	4.0	4.1	5.1	4.6
Iraq	..	3.0	3.7	3.3	2.8	3.1	3.1	3.3	3.3	..	3.0
Jordan	9.6	8.7	9.5	8.0	8.3	7.9	7.3	7.4	6.2	9.6	8.7
Kuwait	2.5	1.9	3.8	2.7	2.6	2.5	2.5	3.1	4.0	2.5	1.9
Oman	3.0	2.0	2.8	2.7	2.5	2.5	2.8	3.4	3.8	3.0	2.0
Qatar	2.0	1.6	2.1	1.7	1.5	1.7	2.0	2.4	3.0	2.0	1.6
Saudi Arabia	4.2	2.8	4.0	3.4	3.6	3.9	4.3	5.0	5.8	4.2	2.8
Yemen Rep.	4.1	5.1	5.3	5.1	5.0	5.7	5.7	5.6	5.9	4.1	5.1

Source: World Bank, 2017a¹

Table 5. Comparison of health expenditures, life expectancy at birth, infant mortality rate, crude death rate, and maternal mortality rate ratio in 2016 among different countries

Countries	Health expenditures (% of GDP)	Life expectancy at birth (total, male and female) years	Infant mortality rate (per 1000 live births)	Crude death rate (per 1000 population)	Maternal mortality rate ratio (modeled estimate, per 100,000 live births)
Arab World	4.8	71.1	28.6	5.5	156
East Asia & Pacific	6.7	74.5	13.5	7.3	59
Euro area	10.1	81.5	3.1	9.8	6
European Union	9.9	80.6	3.4	10.0	8
Europe & Central Asia	9.3	77.2	8.3	10.0	16
Latin America & Caribbean	7.3	75.5	13.8	5.9	67
Least developed countries: UN classification	4.7	64.4	48.1	7.7	436
Middle-East & North Africa	5.4	73.4	20.1	4.9	81
OECD members	12.4	80.1	5.9	8.4	14
South Asia	3.7	68.7	38.8	7.1	182
Sub-Saharan Africa	5.3	60.3	53.3	9.2	547
World	9.9	72.0	30.5	7.6	216

Source: World Bank, 2017a¹

Health expenditures by the public sector increased from 60.78% of the total in 2008 to 65.75% in 2013 (Table 1), while the private sector's share dropped during this period from 38.24% to 31.75%. This substantial shift from private to public sector activity was due largely to the increasingly unaffordable cost of services offered in the private sector. More broadly, as Table 4 shows, total health spending as a percent of GDP gradually decreased from 9.5% in 2008 to 8.7% in 2016.^{5,21,22}

Moreover, the per capita health expenditures also fell slightly from 236 Jordanian Dinar (JD) in 2008 to 231.8 JD in 2013. In comparison, the spending on pharmaceutical as a percent of all health costs dropped more substantially from 35.94% in 2008 to 26.60% in 2013 (Table 1). After adjusting for inflation, these costs (as the total GDP), fell from 3.08% in 2008 to 2.10% in 2013. In contrast, as Table 1 details, during this period, the real percent of the government budget allocated to the healthcare sector grew by approximately 2% per year

from 10.16% in 2008 to 11% in 2013, whereas private expenditures diminished at a median annual rate of 1.3%.

International Comparisons of Health Expenditures.

Due to the general absence of reliable NHAs, evaluation of the healthcare programs and their costs across countries in the developing world is challenging. Nonetheless, from a straightforward perspective, Jordan compares favorably in both healthcare spending and effectiveness with some other countries that clearly belong to the middle-income and developed world categories.²³

As is evident from Table 3, unlike other countries mentioned here, the total Jordanian public healthcare expenditures as a percent of GDP declined by nearly 1% point from 8.8% in 2005 to 7.4% in 2014, despite the numerous increases in capital investment and operating expenses.^{5,21,22} However, the distribution of these expenses has shifted only slightly, with a gradual decline in the proportion of operating costs and an increase in

capital investment due to the need for several more facilities caused by the huge number of refugees.^{17,24} In these assessments, the operating costs included items such as salaries, drugs, supplies, and maintenance, as well as training, consulting contracts, treatments provided abroad, among others. The capital items here included not only new construction but also expenditure on medical and non-medical equipment.^{12,25}

Trends of Public and Private Health Expenditures.

In Jordan, approximately 75% of the population receive healthcare via the public sector, with 21% rely on the private sector, and, interestingly, in comparison with developed countries, approximately 4% of the population utilize missionary care.

Public health expenditures increased by 10% from 2005 to 2014 (Table 6), and, in 2014, the general public expenditures on this sector were 5.1% of the GDP. This share of expenditures within the overall health sector as a percent of GDP is high, although it reflects that of the nearby regional countries. In comparison with other middle-income countries, Jordan has extremely high rate of expenditures on health at 7.4% of the GDP. Table 3 provides further comparisons with the other areas.²²

Nevertheless, the government remains, by far, the biggest supplier of healthcare services in Jordan. Its role in funding health expenditures has been increasing from 4.7% in 2005 to 5.1% in 2014 (Table 6). During the same period, the share of the MOH has remained steady at approximately 60% of the total government expenditures. There has been an additional fluctuation within the shares of the RMS and also in the university-based programs. It is important to recognize here that capital expenditures (that is, on construction, major maintenance, rehabilitation projects, and larger medical equipment purchases) account for less than one-fourth of the total government health budget.

In terms of GDP and GDP per capita, Jordan lies within the middle of the spectrum of Middle-East and North African (MENA) countries. However, as Table 6 shows, in terms of expenditures on healthcare, Jordan surpasses most of these countries. Indeed, it spends slightly >7.4% of its GDP on healthcare, nearly the double of the regional average. In addition, from a different perspective, public expenditure as a share of the total health spending (public and private) is higher in Jordan than in most other countries in the region.^{22,23}

Table 6. Health expenditure of public and private sector (% of GDP)

Countries		Year									
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
High-Income Country	Pub	6.6	6.6	6.6	6.9	7.6	7.5	7.5	7.5	7.5	7.6
	Pri	4.3	4.3	4.2	4.2	4.5	4.4	4.4	4.5	4.5	4.5
Arab world	Pub.	2.1	2.1	2.1	2.1	2.8	2.4	2.5	2.6	2.8	3.0
	Pri.	1.4	1.3	1.4	1.4	1.7	1.6	1.5	1.7	1.7	1.8
Egypt, Arab Rep.	Pub.	1.9	2.2	2.0	2.0	2.0	1.8	1.9	1.9	2.0	2.1
	Pri.	3.0	2.9	2.9	2.7	2.9	2.9	3.0	3.3	3.4	3.4
Kuwait	Pub.	1.8	1.8	1.6	1.5	3.3	2.3	2.2	2.1	2.1	2.6
	Pri.	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4
Jordan	Pub.	4.7	4.4	4.9	5.4	6.6	5.9	5.9	5.5	4.8	5.1
	Pri.	4.1	3.5	3.3	3.3	2.8	2.4	2.4	2.4	2.3	2.2
Lebanon	Pub.	3.7	3.5	3.7	3.1	3.1	2.7	2.7	3.2	3.0	3.0
	Pri.	4.6	5.1	5.1	4.9	4.3	4.4	4.3	3.7	3.5	3.3
Iran, Islamic Rep.	Pub.	2.3	2.5	2.4	2.4	2.8	2.6	2.4	2.6	2.7	2.8
	Pri.	3.7	3.3	3.4	3.8	4.7	5.3	4.6	4.2	3.7	4.0
Iraq	Pub.	2.7	1.9	2.5	2.9	3.4	2.8	2.4	3.2	3.7	3.3
	Pri.	1.3	1.0	1.1	0.9	1.1	0.9	0.8	1.9	2.2	2.2
Saudi Arabia	Pub.	2.4	2.6	2.5	1.8	2.7	2.2	2.4	2.7	3.1	3.4
	Pri.	0.9	0.9	0.9	0.9	1.2	1.2	1.0	1.1	1.1	1.1
Sudan	Pub.	1.0	1.2	1.5	2.6	2.3	2.6	2.5	1.8	1.8	1.8
	Pri.	2.0	2.6	3.2	5.5	5.6	5.2	5.4	6.3	6.5	6.6
Syrian Arab Republic	Pub.	2.0	1.8	1.7	1.5	1.6	1.5	1.5	1.5	1.5	1.5
	Pri.	2.0	1.9	1.9	1.8	1.9	1.7	1.7	1.7	1.7	1.7
Low-Income Countries	Pub.	2.4	2.6	2.2	2.3	2.4	2.6	2.6	2.5	2.3	2.4
	Pri.	3.2	3.3	3.2	3.2	3.5	3.8	3.6	3.4	3.3	3.3
Lower-Middle-Income Countries	Pub.	1.4	1.5	1.5	1.5	1.6	1.5	1.5	1.6	1.6	1.6
	Pri.	2.8	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.8	2.8
Low & middle income	Pub.	2.4	2.4	2.5	2.7	2.9	2.8	2.8	2.9	2.9	3.0
	Pri.	2.8	2.7	2.6	2.7	2.8	2.7	2.6	2.7	2.7	2.7
Middle-East & North Africa	Pub.	2.4	2.4	2.4	2.3	3.0	2.7	2.7	2.8	3.0	3.2
	Pri.	1.9	1.7	1.8	1.8	2.2	2.3	2.1	2.1	2.0	2.1

Source: NHA, 2015.²⁸

It is clear from both a major survey in 1997 (Rawabdeh) and the 2015 National Health Funds records that the population has shown its ability and willingness to obtain a replacement insurance program if it were offered by the MOH and if it would cover all necessary healthcare needs. For these surveys, it was explained that the MOH program would cover the directly insured persons as well as their close family relations and that this program would cost less than private insurance.

Equity in Healthcare Service Provision. The poor people in Jordan pay a higher percent of their income on healthcare than the wealthy do. Generally, in addressing the concept of equity within the health sector, the goal is to reduce the discrepancy in health status across several diverse socioeconomic, ethnic, geographic, and gender categories. In contrast, addressing the straightforward financial equity issues is generally more about transferring resources from the wealthy to the poor, while hopefully not diminishing the capability and willingness of the former group to remain in the country and continue being productive. In other words, the healthcare challenge is more nuanced, and, from this perspective, there are three key issues affecting the Jordanian situation: (1) The uninsured: 32% of the population in Jordan is not covered by public insurance programs; (2) private sector provision: surveys showing that the uninsured express their personal choice to pay out-of-pocket to alternative providers for health services due to the perceived inferior quality of care, longer wait times, and other troublesome drawbacks of the services provided at the MOH facilities; (3) Reverse Robin Hood: to government health services who are the subject to a means test; however, this has not been implemented, presumably due to unacceptable political implications.

Public Sector Health Insurance Premiums. The health insurance premiums paid by public servants vary considerably across the numerous public systems (MOH, RMS, JUST/JUH, and UNRWA). In any case, most of the population had access to healthcare services in Jordan. In particular, people beneath the poverty level are entitled by the law to have access to the MOH facilities. In other words, there is a safety net for those who are poor and who can apply for a health insurance card. In unusual cases, the poor could transfer to the appropriate facilities if the services they need, such as open-heart surgery, are not available at locations near their homes. In addition, the poor people can approach the Prime Ministry or the Royal Court for subsidized care at various other public facilities outside of the MOH environment, irrespective of whether they carry an insurance card.^{11,18}

Results

Presently, the government of Jordan is not prepared to continue providing health services at the current pace.

More directly, the recent tremendous increases in the demand as compared to the available resources that can currently be devoted to publicly funded healthcare services, in the absence of major reforms, is unsustainable under virtually all forecasts of the near-term future. This paper spotlights the importance of employing reallocation methods (reforms) to strengthen the capability of both the public and private sectors to effectively deliver healthcare services, utilizing six types of efficiencies, improving the quality of care and increase accessibility, and to enhance patient satisfaction as well as improve long-term financial sustainability. A prompt intervention addressing these issues, coupled with monitoring programs to evaluate success or failure, would help turn the currently rapid and unsustainable increase in the percent of GDP being devoted to healthcare around.

The wider availability of public insurance coverage has dramatically contributed to the rise in spending on healthcare. Perhaps, half of this increase has arisen from developments in the availability of funding. This, in turn, suggests that the best target of policy would be to slow the expansion of public health funding through the use of macro-instruments. The major challenge facing the Jordanian health system today is the development of an overhaul of the health funding policy by providing effective intervention coupled with clear performance metrics.

Jordan now spends 8.7% of its GDP (2016) on health, which compares favorably with the spending of most of the developed world, and is notably higher than that in neighboring countries, the MENA states, the Arab world, Latin America and Caribbean, and also the Sub-Saharan countries. As Tables 4 and 5 detail, this significant portion of the national budget has been steadily rising since the 1990s and has produced some significant improvements in health outcomes, such as reductions in the IMR & MMR.²⁶

The question that remains is whether Jordan can continue providing such a large portion of its budget to this sector in the light of the numerous outstanding issues, such as the low-contributions to healthcare provided by a substantial part of the population (26%), massive duplication of services, unnecessary system fragmentation, limited access to services by certain segments of the population, frequent wastage of scarce and productive resources, poor referral system, and rapid growth of the private sector in the health field. Other issues include the under-spending on primary and preventive healthcare as well as the need to develop cost-effective measures that will coax the public facilities who now choose to rely on private providers, although free and extremely subsidized public facilities are now readily available to them.^{5,27}

The current population growth rate of 3.2% is extraordinarily high in Jordan, and it is estimated that the population will double itself in nearly 15 years,^{13,16} which will impose further demands on the health system due to an increase in the chronic health conditions which come with an increase in the population aged ≥ 65 years (Table 2). In addition, this population growth will likely change the disease profile faced by Jordan. Unless the economy was to double within the predictable future, it will be unable to continue providing healthcare services at the current levels of quantity and quality.^{18,19}

The above analysis has led to numerous policy proposals: [1] Jordan ought to be raising funds for healthcare by obtaining more funds from those currently paying low rates in the various health insurance programs; [2] impose insurance coverage that will cover all residents of the country; [3] utilize investment methods in the health sector that generate extremely long-term operating cost reductions to better ensure perpetual delivery of health to all; [4] determine how to apportion resources toward the services of the highest value in terms of quality-adjusted life years and optimize the mix of health services to achieve the greatest health value for the neediest and thereby help maximize the social utility generated per dinar invested;³¹ [5] reduce spending on curative care and increase efforts to reduce avoidable and costly issues, such as road accidents, obesity, smoking, unwanted pregnancies, depression, drug addiction, and suicides, to curtail spending on curative care; [6] build public-private partnership health programs to measure and capture the synergies and other economic gains that may be generated from such cooperation; [7] improve efficiency by reducing the excessive use of medications while preventing self-purchasing of drugs and encouraging the utilization of generic medicine;^{5,30} [8] better manage, and audit, public payment systems, and monitor “medical behavior,” that is reduce the unnecessarily expensive choices made by both physicians and patients;²⁹ and [9] improve the standards of public facilities by adopting national and international certification programs that would likely facilitate redirecting the utilization of private healthcare toward public facilities.^{27,30}

Discussion

The two main drivers of our quality of life are our physical and mental health. To improve the quality of the healthcare system in Jordan, the government is currently focusing on improving the quantity and quality of the key inputs required in the healthcare delivery system, as indicated by the 8 Ms: money, materials, manpower, management, methods, means, manufactures, and milieu. At this point in the 21st century, perhaps, we can regard publicly funded healthcare systems as a bequest of the modern age, where the governments are frequently obliged to supply

and fund healthcare as a public right. As usually happens in such contexts, in Jordan, the total health expenditures began to rise dramatically in response to the availability of insurance coverage and also because of the new and effective, but costly, array of treatments, equipment, and medications. As Table 1 details, Jordan’s public sector health expenditures, as a percent of the total health spending, increased from 60.78% in 2008 to 65.75% in 2013. In contrast, private health expenditures actually declined as a percent of the total, from 38.24% in 2008 to 31.75% in 2013. Worldwide, the expenditure on healthcare rose substantially over the last two decades because of the rapid increase in the cost of delivery of healthcare services due to the increase in demand for healthcare and increase in expensive, but effective technologies.^{1,2} Nonetheless, as a percent of GDP Jordan spends more on healthcare than the Arab, East Asia, and Pacific countries, as well as those in Latin American and North Africa do, and is explained in further detail in Table 5.^{23,31}

As compared to the higher income countries, Jordan’s public share of health funding is lower (Table 6), while, in contrast, spending on out-of-pocket for healthcare is almost double the level in the more developed areas (Table 7), while still being less than that in Egypt, Kuwait, Lebanon, and Iraq.

Interestingly, since at least 2008, the per capita health expenditures in JD had an inverse relationship with the per capita GDP. While the national income rose to approximately 7% from 2753 in 2008 to 2939 in 2013, the health spending per capita decreased roughly by 2% from 236 in 2008 to 231.8 in 2013.

Several experts agree that the relationship between health outcomes and healthcare spending represents an important indicator of effectiveness and of the return on public sector investment in healthcare,^{1,2} although, of course, several other variables can affect the general health of a population, such as smoking, obesity, and traffic accidents. In this regard, Jordan, although it has not received substantial assistance from international health organizations, has a noteworthy record of increasing positive health outcomes, especially in the fields of infant and child mortality, maternal mortality, HIV/AIDS, malaria, and TB. The consequences of these successes are clearly showing up in the life expectancy at birth data, which improved from 69.8 in the 1990s (Table 8) to 74.3 by 2016. These values are higher than that in several neighboring countries, the Arab world in general, North Africa, the Middle-East, Egypt, Iraq, and Yemen, and compare favorably with that in East Asia and Pacific as well as with the Latin American and Caribbean countries (Table 5).^{23,28,32}

As Table 9 shows, Jordan’s performance was also quite good in the area of infant mortality. The numbers here

decreased from 29.9 per 1000 live births in the 1990s to 15.1 by 2016, which is notably lower than that in Egypt, Iraq, Yemen, as well as in the Arab world, the world's

average, the least developed, and in the Middle-East, South Asia, and Sub-Saharan African countries (Table 5).^{1,23}

Table 7. Annual out-of-pocket health expenditure (% of private expenditure on health)

Countries	Year									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
High-income country	36.6	36.7	36.9	37.3	36.5	36.6	36.8	36.1	35.8	35.3
Arab world	83.4	84.0	84.6	84.2	83.7	82.2	81.3	81.7	81.7	81.6
Egypt, Arab Rep	98.2	98.0	97.7	97.3	96.8	95.7	93.6	90.0	90.0	90.0
Kuwait	90.5	90.5	90.5	90.5	90.5	90.5	90.5	90.5	90.5	90.5
Jordan	86.2	88.4	89.4	83.5	75.8	73.4	70.1	69.1	68.9	68.8
Lebanon	77.1	75.2	73.4	71.9	73.1	73.1	74.7	69.5	69.5	69.5
Iran, Islamic Rep	89.2	88.5	88.3	86.6	87.2	86.7	85.2	81.2	81.2	81.2
Iraq	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Saudi Arabia	59.9	61.3	60.8	58.6	60.6	56.4	54.3	54.9	55.5	56.1
Sudan	88.9	91.3	92.9	95.8	95.8	95.8	95.8	95.8	96.0	96.0
Syrian Arab Republic	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Low-income countries	73.4	70.9	71.1	70.7	67.7	65.1	64.9	66.1	64.2	64.5
Lower-middle-income countries	88.5	88.1	88.2	87.9	87.8	87.0	87.2	86.7	87.1	87.2
Low & middle income	79.3	78.3	77.7	78.0	77.8	75.7	75.6	75.9	76.0	75.1
Middle-East & North Africa	83.7	83.3	83.5	82.3	82.6	81.7	80.7	79.5	79.3	79.1

Source: NHA, 2015²⁸

Table 8. Comparison of life expectancy at birth in neighboring and regional countries ([total, male and female] years)

Countries	Year										
	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016
Egypt	64.5	68.6	69.9	70.1	70.3	70.5	70.7	70.9	71.1	71.3	71.4
Iraq	66.1	69.1	68.1	68.2	68.4	68.7	68.9	69.2	69.4	69.6	69.8
Jordan	69.8	71.7	73.0	73.2	73.4	73.5	73.7	73.8	74.0	74.1	74.3
Kuwait	72.0	73.1	73.7	73.8	73.9	74.0	74.2	74.3	74.4	74.5	74.6
Oman	67.1	72.1	75.1	75.4	75.6	75.9	76.1	76.3	76.5	76.8	77.0
Qatar	74.9	76.2	77.0	77.1	77.3	77.4	77.5	77.7	77.8	78.0	78.1
Saudi Arabia	69.0	72.4	73.3	73.4	73.5	73.7	73.8	74.0	74.2	74.4	74.5
Yemen Rep.	57.8	60.3	62.8	63.2	63.5	63.7	64.0	64.2	64.5	64.7	64.9

Source: World Bank, 2017a¹

Table 9. Comparison of infant mortality rate in neighboring and regional countries (per 1000 live births)

Countries	Year										
	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016
Egypt	63.0	37.3	26.3	25.3	24.3	23.4	22.5	21.6	20.9	20.1	19.4
Iraq	42.4	36	31.4	30.8	30.2	29.5	28.9	28.2	27.4	26.7	25.9
Jordan	29.9	23.4	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.1
Kuwait	15.1	11.0	9.7	9.5	9.2	8.9	8.5	8.2	7.8	7.5	7.2
Oman	31.8	14.3	10.3	10.1	10.0	9.9	9.8	9.6	9.5	9.3	9.2
Qatar	17.8	10.8	8.1	7.9	7.7	7.6	7.5	7.4	7.4	7.4	7.3
Saudi Arabia	35.8	18.8	14.4	14.0	13.5	13.1	12.7	12.3	11.9	11.4	11.1
Yemen Rep.	88.4	68.9	47.2	45.2	43.8	43.3	43.2	43.2	43.2	43.2	43.2

Source: World Bank, 2017a¹

Correspondingly, the crude death rate for Jordan (Table 10) has reduced from 5.1 per thousand population in 1990 to 3.8 in 2016, and this ranks it superior to the performance of Egypt, Iraq, Yemen, the world's average, the Arab world, and that in the East Asia Pacific, the Euro Area, the European Union, Europe, Central Asia, and the remainder of the comparable international countries.^{1,23}

In addition, in the area of maternal mortality, the data summarized in Table 11 indicates that Jordan has reduced this value per hundred thousand live births from 110 in the 1990s to 58 in 2015, and this more recent figure is lower than the corresponding data in Yemen, and the Arab world, as well as lower than the world average, the average in the least developed countries, as well as in the Middle-East, South Asia, and the Sub-Saharan African countries.^{1,23}

As Table 4 shows, the trend of health expenditures as a percent of GDP in Jordan decreased notably from 9.6% in the 1990s to 6.2% in 2014. However, in 2015, this pattern was sharply reversed, and now appears to begin decreasing again in 2016. Considering that, as a medium-low-income country, these fluctuations in spending have a relatively huge impact, and that the enormous recent increase in the number of poor people

living in the country has generated much of this increase in costs, the ability of the Kingdom to maintain its level of healthcare spending is seriously questionable.^{12,27}

Regarding the previous short disruption of Jordan's healthcare funding systems, some queries could be posed, the answers to which could help resolve numerous pitfalls in the current system: [1] how will the country handle the new demands being placed on healthcare resources by the current high rate of population growth and the several likely epidemiological transitions involved; [2] how long can the Jordanian economy supply the ever increasing amounts of health resources to the health sector in the absence of efficiency gains; [3] what are the most cost-effective measures to be taken to sustainability improve the health outcomes; and [4] how to address the high rate of growth of the private healthcare sector. Overall, the question being raised regards the viability and sustainability of the Jordanian healthcare funding system within the predictable future.^{5,33}

Clearly, the entire country of Jordan is now at many crossroads, as reflected from the need for new investments, privatization, trade liberalization, and the substantial list of other essential major structural changes to compete in the rapidly evolving new-world order.

Table 10. Comparison of crude death rate in neighboring and regional countries (per 1000 population)

Countries	Year										
	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016
Egypt	8.4	6.8	6.3	6.3	6.2	6.2	6.1	6.1	6.0	6.0	5.9
Iraq	7.0	5.6	5.7	5.6	5.6	5.5	5.4	5.3	5.2	5.1	5.0
Jordan	5.1	4.1	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8
Kuwait	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7
Oman	5.5	3.5	2.9	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.5
Qatar	2.2	2.1	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Saudi Arabia	4.9	3.7	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5
Yemen Rep.	11.5	9.1	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.5	6.4

Source: World Bank, 2017a¹

Table 11. Comparison of maternal mortality rate ratio between neighboring and regional countries (modeled estimate, per 100,000 live births)

Countries	Year									
	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015
Egypt	106	63	45	43	40	39	37	35	34	33
Iraq	107	63	52	52	51	51	51	50	50	50
Jordan	110	77	58	58	59	59	59	59	59	58
Kuwait	7	7	6	5	5	4	4	4	4	4
Oman	30	20	18	18	18	18	18	18	18	17
Qatar	29	24	17	17	16	15	14	13	13	13
Saudi Arabia	46	23	15	14	14	13	13	12	12	12
Yemen Rep.	547	440	417	417	416	413	410	406	398	385

Source: World Bank, 2017a¹

It ought to be noted that, in this challenging context, the country's health sector performs well in several regards, even in the light of its obvious glaring inefficiencies, and with about one-third of the population with no formal health insurance coverage. Several health outcomes can act as a good measure of how well a healthcare system is functioning, for example, the infant mortality rate (0.015), the maternal mortality rate (0.00058), and deaths from lung cancer per capita. Indeed, several of these metrics may be improved with little or no increases in the direct healthcare expenditures, as has been shown by the relatively inexpensive "propaganda" against cigarette smoking in Europe and North America. The public sector runs the danger of being affected by the rapid increase in the unregulated private sector and the increasing pressure on public sector budgets.³

In some countries, the direct payment by private citizens for healthcare represents an extremely important part of how their healthcare systems are funded. In contrast, for Jordan, the annual out-of-pocket health expenditure has fallen from JD86.2 in 2005 to JD 68.8 in 2014 (Table 7). As Tables 6 and 7 show, this result is almost double that of the developed countries, and yet smaller than that in the Arab states. In Jordan, only about 3-quarters of the overall out-of-pocket expenditure is incurred on medications, particularly for chronic health conditions. In contrast to the low-income countries where this category accounts for most of the overall healthcare cost, in high-income countries, these types of outlays represent a small fraction of expenditures on healthcare. The worldwide trend is as per capita income increases—the share of out-of-pocket and external assistances decreases.^{1,2,23}

As Table 1 details, the per capita GDP of Jordan increased from 2753 in 2008 to 2939 in 2013, which is equivalent to the annual growth rate of 1.06%. During this time, the health expenditures decreased from 9.6% to 8.7% of the GDP due to political reasons, such as refugees.

Efficiency in Public Spending: An Investigators Perspective. The effectiveness and efficiency in delivering healthcare services are crucial indicators of the degree to which health outcome goals are being met today, and, in the case of Jordan, they can help forecast whether sufficient progress has been made so that the Health for All Strategy for the year 2025 can be achieved. This initiative is especially important, both politically and health-wise, because it includes several key policies that would especially help the poor; for example, being an exemption from payment programs for low-income residents via the Green Health Insurance Card issued from the MOH.

Since 1994, there has been a significant enlargement in all categories of medical and allied health personnel, aside from nursing, to help achieve improved healthcare

delivery in the country. The number of doctors per 1000 of the population has increased by 38% from 1.6 in the 1990s to 3.4 at present. In addition, the corresponding number of pharmacists has grown from 0.8 to 1.2. In contrast, the corresponding number of nurses has reduced by 7% since the 1990s, which has resulted in substantial negative impact on the standard of care provided as well as the costs. This is akin to several nurses finding attractive opportunities within the Gulf and neighboring countries.³⁴

There were a total of 110 hospitals with 13731 beds within the Hashemite Kingdom of Jordan as of 2016. This figure implies a population/bed ratio of 714 (or 2.3 per 1000 population), of which the public sector accounts for 63%. The total number of beds has increased by 13% since 2008, in a largely unbroken pace of expansion.¹⁶ From an international perspective, these numbers are quite normal; however, these many beds require a corresponding number of physicians. The last recorded number of physicians was 4798 in 2016, which is roughly sufficient at present.

Actual Effectiveness The productive efficiency can often be assessed by the relationship between the outputs and inputs. As suggested in Table 1, public contributions to health services account for 21% of the total costs (public expenditures) within the civil service and 5% of the military aspect. This approximate total of 26% of health system revenues as compared to the public expenditures at 5.1% of GDP (Table 5) is generated from the foremost composite of public servants (MOH, RMS) that serve approximately 70% of the population, representing the failure of Jordan's healthcare finance system in terms of technical and/or productive efficiency.^{10,22}

The major improvements in technical efficiency in the health sector are likely to generate cost savings throughout the system. In addition, various organizational improvements may as well result in reduced duplication, fragmentation, and lower the extent to which access is currently limited to some portions of the Jordanian population. Such adjustments may be based on international standards and include a system of quality accreditation, which is a more equal distribution of resources, geographically weighted by population, as well as an improved usage of newer technologies such as CAT scanners and Cath labs.

The 374,818 (116 per 10,000) hospital admissions in Jordan is high, and 70% of these occur within the public sector. In addition, the common length of a hospital stay in the public sector is above the national average. This situation is clearly observable because of the hospitals' services abuse, which facilitate improper admissions to the public facilities. Due to the nature of the more severe cases tertiary hospitals treat or perform, such as open-heart surgery and organ transplantations, the

common length of stay in the tertiary hospitals is of course generally longer than that in the secondary/general hospitals. In Jordan, the hospital occupancy rate is 63%, which is lower than the international standards. The public sector component of the entire health system, at 73%, is consistent with that of several other countries, and, in the case of Jordan, it appears to be driven by the population growth, high demand for secondary services, absence of an effectively integrated referral system, and the occasional yet obvious misuse of the health services.^{6,7,16,35}

Allocative Efficiency. Allocative efficiency considers whether the distribution of outputs can be rearranged such that someone is better off, while no one else is worse off. In such a situation, the distribution of the existing resources can be considered optimal. Whether this solution also sets the stage to provide for substantial growth in the future is another matter of perusal.

As an illustration of this principle, we find that the cost per visit to the outpatient departments within hospitals in Jordan is substantially lower than the cost of having an individual visit a primary healthcare center, which is the logical alternative, to obtain presumably the same service. Sadly, this suboptimal situation is often attributable to the spoils system currently enforced in the healthcare environment and to the absence of a finely tuned referral system as well as the use of personnel connections. Unfortunately, until date, there is insufficient database information system to calculate the average cost per patient per day across the entire system to help identify where the allocative efficiency in primary, secondary, tertiary, and rehabilitative dimensions of the system may be improved and which may also help guide both the capital and operational investment strategies in the future.

Economic Efficiency. Economic efficiency, of course, involves the relationship between inputs and outputs. Unfortunately, yet again, no actionable database systems have been developed across the various health sub-sectors to facilitate research regarding economic efficiency in this field, particularly regarding the public sector organizations and more specifically at the RMS (military facilities).

It may seem that there are many inefficiencies at the microlevel within the Jordanian healthcare system, which generally adds tremendous costs to the overhead burden of operating the entire system. Merely a partial list of such issues would include realities such as the following: [1] a salary-based payment for the physicians, [2] lack of an effective referral systems, [3] almost zero financial accountability on the part of physicians or patients for services utilized, [4] lack of coordination among the private and public delivery systems, [5] obvious and widespread duplication of

services, [6] an overall occupancy rate of only 63% (73% public and 44% private), [7] restricted amounts of ambulatory surgeries (despite the availability of comprehensive health centers), [8] limited use of generic drugs, [9] lack of formal treatment protocols, [10] new construction is not based on the actual needs, and also, remarkably, [11] and the absence of a penalty system for cases of malpractice.⁸

Social Efficiency. A change in the allocation of resources can be regarded as socially efficient when the total benefits of those who gain outweighs the total losses of those who lose, even when these changes are impossible to measure objectively.

Jordan has a well-developed health delivery system with a significant amount of capacity. Therefore, financial and physical access is not a serious constraint to improving access to healthcare services, except for the localized problems, that is, reaching the rural geographic areas, which can be rectified by restructuring reform methods.

Horizontal Efficiency. The proportion of those requiring the service to those who actually receive it represents the concept of horizontal efficiency, which generally refers to the ability of a country to continue increasing the coverage of its health services (i.e., preventive and curative) within the limits of its binding constraints, such as financial resources and infrastructure, high cost of services, deficiencies within the current health system *per se*, such as frequent structural re-organizations, poor health service system integration (i.e., public and private partnership and global financing mechanism), and lack of efforts to reduce the unnecessary demand (especially by those who are insured in the public sector and, therefore, are the main cause of the service abuse). Similarly, how incentives are incorporated within the health delivery system will certainly affect the mode of delivery, as well as the quality and efficiency of health service provision. Recognizing these possible tradeoffs and considering them thoughtfully can facilitate the selection and prioritization of health services for the total population in a more efficient and effective manner,^{10,36} all for the ultimate purpose of obtaining superior actual health outcomes across the entire population.

Vertical Efficiency. A question about what proportion of services is provided to those who need them instead of to those who do not is also raised. Vertical enlargements of health programs are generally more expensive than horizontal ones are because of the need to draw more resources and management away from regular programs. However, vertical expansions may provide short-run solutions that could permit Jordan to shelve urgently required healthcare delivery and financing of system reforms. Tradeoffs in both the vertical and

horizontal efficiencies may be managed by the reestablishment of the objectives of the healthcare delivery and financing systems. The authorities supervising the public financing of health services in Jordan should pay considerable attention to these tradeoffs, since a system with poorly supported sub-components generates totally different incentives that those that would guide the choice between vertical or horizontal ways to expand the quality and quantity of health services available to the entire population.⁴¹

Despite the currently impressive infrastructure and operating capabilities that the Jordanian health system offers, a rigorously enforced reform strategy answer several of the issues raised, as mentioned above.³⁶

Financing Universal Coverage. To be clear and specific, developing and implementing universal coverage policies is not a straightforward endeavor, and it of course has major economic and political implications. Despite these realities, universal coverage appears to be the basic goal of several health systems across the world.^{10,35,37-39}

There are several major impediments to making such a change: [1] unavailable or nonexistent accurate health information systems; [2] one-third of the population is uninsured, but has access to public facilities and cost exemptions from the royal court, the prime ministries, and others authorities, although they generally do not provide any financial contributions to these systems; [3] there are currently no standardized contribution rates from the insured within the public sector; [4] the failure to fix the publicly funded health subsystems by reducing the unnecessary management levels to scale back duplications and avoid fragmentations; [5] the absence of laws to force health delivery and funding system unification as well as to unify subscriptions to realize the correct utilization of services by preventing abuse; and [6] the astonishing lack, since 1979, of completed plans for the design of a national health insurance system.^{6,7,11}

Conclusions

In summary, the government of Jordan is not prepared to continue providing health services consistent with the current trend lines owing to the fast increase in demand for publicly funded services in the context of almost zero efficiency gains. In other words, the current situation is both infeasible and unsustainable within the context of the most likely short- and medium-term economic scenarios. This paper aimed at highlighting the importance of developing a realistic reallocation strategy (i.e., reforms) that can strengthen healthcare as delivered by both the public and private sectors as well as improves the efficiency, equity, and long-term financial sustainability throughout the Jordan's healthcare

system. The acute nature of these challenges requires immediate direct intervention coupled with monitoring programs to quickly increase the share of GDP allocated to the healthcare sector such that it is both efficient and sustainable.

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