

# The Jordanian Health Sector

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## 1.0 EXECUTIVE SUMMARY

Jordan is renowned, both regionally and internationally, for its high quality healthcare services. In 2010, Jordan was ranked as the leading medical tourism destination in the Arab World by the World Bank, and fifth globally.

Rapid globalization has facilitated in bringing down language barriers, reducing the costs of travel, and heightening the availability of information, allowing consumers to make price comparisons across borders. The highly competitive pricing of receiving medical treatment in Jordan, which is a fraction of the cost of treatment in the United States and Europe, in addition to no-wait periods for treatment, the presence of world-class internationally qualified doctors, as well as accredited hospitals equipped with the latest machinery and equipment, all feature as reasons for the rising attractiveness of Jordan's healthcare sector. Within the region, Jordan has been at the forefront of medical procedures, performing its first open heart surgery back in 1970 as well as performing various organ transplants in the 1970s, in addition to delivering its first IVF baby in 1987.

Jordan is a country with limited natural resources, and consequently places a high reliance on its human capital, which is highly educated. The Kingdom boasts a physician density of 25.5 physicians per 10,000 capita, higher than the average level in the region and similar to density levels in the United States. It also has high densities of nurses and pharmacists, which are on par with global leaders in the field. The Kingdom's position as a leader in medical tourism places it on the receiving end of further investment and development, and the sector has seen a surge in the number of hospitals and beds available over the last decade. The number of hospitals under the Ministry of Health rose from 23 in year 2000 to 31 in 2011, taking up the number of beds to 4,572 from 3,229. Impressive growth was also evident in the private sector with the addition of 9 new hospitals over the past decade, raising the number of beds available from 3,212 in 2000 to 3,918 beds.

### Number of Hospitals and Beds in Year 2011 versus Year 2000

	2000	2011	# of Beds in 2011
Public Sector			
Ministry of Health	23	31	4,572
Royal Medical Services	10	12	2,428
Jordan University Hospital	1	1	547
King Abdullah Hospital	0	1	526
Private	52	61	3,918
<b>Total</b>	<b>86</b>	<b>106</b>	<b>11,991</b>

Source: Ministry of Health

Inbound tourism for medical purposes has spillover effects on the rest of the economy. Patients rarely travel alone, increasing the number of individuals requiring accommodation, food and beverage, and transportation, all of which increase the level of spending and help boost economic growth. Since efforts are also being made by other countries to attract tourists, Jordan has to be vigilant in its efforts to maintain its attractiveness as a medical tourism destination. In 2010, some 234,000 patients arrived in Jordan for treatment, making up 23.0% of the total patients for that year, generating revenues of USD1.2 billion. In 2011, however, as a repercussion of the Arab Spring, the number of incoming patients declined to 180,000. On the bright side, medical tourism appears to have begun to pick up this year, with the first four months witnessing a 7% increase in the number of medical tourists, according to the Private Hospitals Association (PHA) President, Mr. Hammouri.

Efforts are being made to combat the effects of the Arab Spring, publicising the safety of Jordan by promoting it as a standalone destination, rather than as part of a package with one of its neighbouring countries. Conferences are being held, as well as two major international health expos in 2012. Moreover, collaborations with tour operators and the Jordan Hotels Association by the PHA and other medical providers to offer full package deals to inbound medical tourists are hoped to boost the sector further.

Jordan has a lot to offer in terms of medical tourism. Aside from the high standard of medical care and advanced machinery and technologies in the hospitals, Jordan is clean, low on occurrence of infectious diseases, and is home to natural healing wonders, such as the Dead Sea and Ma'in Springs.

Healthcare in Jordan is provided through both the private and public sectors, with private expenditure on health making up 32.3% of the total expenditure of health in 2010, with the remainder being supplied by the Government. As a percentage of GDP, total expenditure on health amounted to 8.0% in 2010 according to WHO statistics, surpassing the average level of expenditure in the Middle East, which stood at 4.5% that year. With regards public sector spending, the Jordanian Government's expenditure on health as a percentage of total government expenditure amounted to 18.6%, substantially higher than the next highest country in the region, Bahrain at 11.4%, and falling only slightly short of the 22.4% government expenditure in the United States. Given the continued growth in the population, not to mention the number of refugees from Palestine, Syria and Iraq, and the surge in cases of chronic health conditions, the current level of government expenditure on health care as a percentage of GDP is likely unsustainable. Rising oil prices and inflation, alongside the Kingdom's weak economic performance and rising and already stretched Government budget foretell a decline in the level and quality of services provided in the longer term, unless private sector participation, both in terms of healthcare provision and health insurance, rises sufficiently to compensate for the increased healthcare demand.

A key goal of the government is to provide health insurance for the entire population of Jordan. For 2010, it is estimated that 69.6% of the population were insured, with 8.2% insured by more than one party. Ministry of Health (MoH) insurance is the most prominent, with 30.7% of the population insured solely with the Ministry. A further 17.8% of the population is insured with the Royal Medical Services (RMS), 7.0% dually insured with MoH and RMS, 2.6% dually insured with the Ministry and the private sector, and 1.7% insured with the Ministry and UNRWA. While being dually insured helps to cover any gaps in benefits as well as increase the choice of healthcare providers, it can also lead to excess use, inefficiencies and increased costs.

Another challenge for the sector is that of "brain drain". The comparatively low salary scale for qualified physicians compared to the GCC countries, Europe and the U.S. means that Jordan faces the problems of qualified and experienced physicians relocating outside the Kingdom.

Going forward, the sector must find ways to remain competitive, as countries in the region, such as the UAE, have jumped on the bandwagon of boosting their medical tourism. Standards of care and ease of entry into the Kingdom must be maintained and improved, whilst keeping costs low. Raising salaries for qualified physicians will help reduce the extent of brain drain, but will add to the financial burden facing the sector. In order to sustain the level of healthcare service, the Government must find ways to subsidise its spending on health, to compensate for the anticipated increase in demand for health care going forward.

## 2.0 HEALTH SECTOR BODIES AND SECTOR SIZE

### 2.1 Health Sector Bodies

The health sector in Jordan is comprised of the following:

- The Ministry of Health
- Royal Medical Services
- Medical Services provided at Universities – the Jordan University Hospital and the King Abdullah University Hospital
- Medical services provided in Ministries and Government Institutions
- The National Center for Diabetes, Endocrinology and Genetics
- Private hospitals, clinics, diagnostic and therapeutic centers
- Charitable organisations, such as the United Nations Relief and Works Agency (UNRWA)
- Councils and Organisations, such as the Private Hospitals Association (PHA)

#### The Ministry of Health (MoH)

The Ministry of Health was established in late 1950 and commenced operations the following year. Its role is to maintain public health by offering preventative treatment and health control services, providing health insurance for the public, managing the health educational and training institutions, as well as supervising health services offered by both the public and private sectors. The Ministry is the single largest financier and provider of health care in Jordan. The bulk of its annual budget is provided by the Ministry of Finance, and it receives additional funds in the form of insurance premiums from the Civil Insurance program, the largest public insurance program in the Country.

Under the umbrella of the MoH are the Jordan Medical Council, responsible for training and certification of general and specialist doctors through planning, executing and supervising the educational curriculum, the Higher Health Council, whose role is to formulate and supervise the execution of integrated national health policies for the provision of health care in the Kingdom, the Ministry of Health hospitals, the health centers, and the Food & Drug Administration (FDA).

#### Royal Medical Services (RMS)

The Royal Medical Services provides health care services to the members of the Jordanian Armed Forces, security personnel as well as their families, in addition to civilians. It receives the bulk of its funding from the Ministry of Finance, but also receives reimbursements for treatment of patients referred to it by the Royal Court. Through its eight hospitals, the largest of which is the King Hussein Medical Center, RMS offers a wide range of health care services, including its ability to treat complex medical cases and those of high cost referred to it by the Ministry of Health, the University Hospital, and the private sector.

RMS also provides comprehensive insurance for around one-quarter of the population.

#### University Hospitals

The Kingdom boasts two university hospitals; the Jordan University Hospital (JUH), one of the most specialised and technologically advanced medical centers in the public sector, alongside the King Hussein Medical Center, and the King Abdullah University Hospital (KAH).

The JUH's patients are referrals from the MoH and RMS, employees of the Jordan University and their families, as well as employees of companies with whom JUH has contractual agreements. JUH also receives private patients.

The KAH was established by the Jordan University of Science and Technology in 2002 to serve as a teaching hospital, as well as a referral hospital for the public sector. The bulk of the patients represent referrals by the MoH and the RMS, and the MoH and RMS represent the Hospital's primary source of funding.

### **The National Center for Diabetes, Endocrinology and Genetics (NCDEG)**

NCDEG was established in 1996 to provide health care services, as well as education and training in the fields of diabetes, endocrinology and genetics.

### **United Nations Relief Works Agency (UNRWA)**

UNRWA is a relief and human development agency established in 1984 by the United Nations, catering to Palestinian refugees. The Agency provides health care, social aid, and education. It is financed from outside sources, and refers patients to MoH and private hospitals.

### **The Private Hospitals Association (PHA)**

The PHA is a non-profit, private organisation established in 1984 to represent the interests of private hospitals in the Kingdom. It is structured as a trade association, with seven member hospitals making up its Board of Directors. PHA aims to enhance the quality of medical services through local accreditation programs and partnering in the establishment of the Health Care Accreditation Council, and promoting the private hospitals and medical centers that are internationally accredited, have adopted international standards, and are equipped with the latest medical equipment and technology.

## **2.2 Health Sector Size**

### **2.2.1 Number of Hospitals and Beds**

#### **Primary Health Care Services**

Primary health care services are provided by the Ministry of Health, which include a diverse range of health centers, as shown below. The total number of centers has risen sharply over the past decade, particularly with regards the MCH centers and dental clinics.

#### **Health Centers Provided by the Ministry of Health**

	2000	2011
Ministry of Health Comprehensive Health Centers	47	86
Ministry of Health Primary Health Centers	333	371
Ministry of Health Peripheral Health Centers	265	220
Ministry of Health MCH Centers	345	435
Ministry of Health Chest Disease Centers	N/A	12
Ministry of Health Dental Clinic	237	377

N/A: Information not available

Source: Ministry of Health



## Secondary and Tertiary Health Care Services (Hospitals)

There are five providers of secondary and tertiary health care services in hospitals, as shown in the table below.

	# of Hospitals		# of Beds
	2000	2011	2011
Public Sector			
Ministry of Health	23	31	4,572
Royal Medical Services	10	12	2,428
Jordan University Hospital	1	1	547
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Private	52	61	3,918
<b>Total</b>	<b>86</b>	<b>106</b>	<b>11,991</b>

Source: Ministry of Health

The public sector is comprised of the Ministry of Health (MoH), the Royal Medical Services (RMS), and the two University Hospitals, the Jordan University Hospital and the King Abdullah University Hospital. The MoH currently has a total of 31 hospitals distributed across the Kingdom, providing a total of 4,572 beds as of 2011. This compares favourably to the 23 hospitals and 3,229 beds provided by the MoH back in year 2000.

Another key provider of health care is the Royal Medical Services, which offers some 2,428 beds across 12 hospitals. A key component of RMS is the King Hussein Medical Centre, which is a compound of five hospitals, in addition to a reference center for laboratory studies. The King Hussein Medical Center provides around 600 beds. With the 547 and 526 beds provided by the Jordan University Hospital and the King Abdullah University Hospital, the public sector supplies 77.0% of the total beds in the Kingdom. The remaining 3,918 beds are provided by the 61 private hospitals across the Kingdom.

The Jordanian demographics, with a young and growing population, coupled with the influx of Iraqis after the war on Iraq and the more recent inflow of Libyans and Syrians, in addition to the rise in medical tourism to the Kingdom, has spurred the establishment of new hospitals over the last decade. The public sector, primarily through the Ministry of Health, has added a total of 11 new hospitals since year 2000, while the private sector has seen an addition of 9.

The total number of beds provided by the public and private sectors translates into 18 beds per 10,000 population. By governorate, the table below highlights the Capital, Amman, as the most adequately supplied in terms of number of beds, at 27 beds per 10,000 people, followed by Karak, at 19.

### Number of Beds by Governorate in 2011

Governorate	Population	Total Beds	Number of Beds					Beds per 10,000 People
			Ministry of Health	Royal Medical Services	Jordan Uni. Hospital	King Abdullah Hospital	Private	
Mafrq	293,700	235	195	-	-	-	40	8
Tafeileh	87,500	120	-	120	-	-	-	14
Irbid	1,112,300	1,951	793	306	-	526	326	18
Amman	2,419,600	6,455	1,486	1,504	547	-	2,918	27
Jerash	187,500	170	155	-	-	-	15	9
Ma'an	118,800	203	203	-	-	-	-	17

Governorate	Population	Total Beds	Number of Beds					Beds per 10,000 People
			Ministry of Health	Royal Medical Services	Jordan Uni. Hospital	King Abdullah Hospital	Private	
Balqa	418,600	360	360	-	-	-	-	9
Karak	243,700	457	209	150	-	-	98	19
Aqaba	136,200	207	-	127	-	-	80	15
Madaba	156,300	188	158	-	-	-	30	12
Zarqa	931,100	1,020	454	221	-	-	345	11
Ajloun	143,700	130	130	-	-	-	-	9
<b>Total</b>	<b>6,249,000</b>	<b>11,496</b>	<b>4,143</b>	<b>2,428</b>	<b>547</b>	<b>526</b>	<b>3,852</b>	<b>18</b>

Note: Statistics for Amman do not include the 150 beds in Al-Karameh Hospital and the 40 beds of the National Center for Addiction, while the statistics for Balqa do not include the 239 beds of the National Center of Psychiatry and the 66 beds of Al-Rasheed Psychiatric Hospital.

Source: Ministry of Health, Department of Statistics

On the opposite end of the spectrum is the Governorate of Mafrq, with 8 beds per 10,000 people.

### 2.2.2 Health Sector Employees

The sector employs over 57,000 people based on the statistics for 2011 as issued by the Ministry of Health, the bulk of which are physicians and nurses. Strikingly, 56.0% of the total sector employees work for the private sector, in spite of its smaller size.

#### Health Sector Employees in 2011

	Ministry Of Health	Royal Medical Services	King Abdullah Uni. Hospital	Jordan Uni. Hospital	Private Sector	UNRWA	Total	Average / 10000 from Population
Physicians	3,973	1,460	399	507	9,504	119	<b>15,962</b>	25.5
Dentists	730	283	4	121	4,973	30	<b>6,141</b>	9.8
Pharmacists	469	239	29	21	7,091	2	<b>7,851</b>	12.6
Registered Nurses	4,020	2,785	526	537	8,088	45	<b>16,001</b>	25.6
Midwives	1,997	2,056	36	82	-	-	<b>4,171</b>	6.7
Assistant Nurses	2,685	149	46	99	1,958	186	<b>5,123</b>	8.2
Associate Degree Nursing	1,312	207	18	1	432	35	<b>2,005</b>	3.2
<b>Total</b>	<b>15,186</b>	<b>7,179</b>	<b>1,058</b>	<b>1,368</b>	<b>32,046</b>	<b>417</b>	<b>57,254</b>	<b>91.6</b>

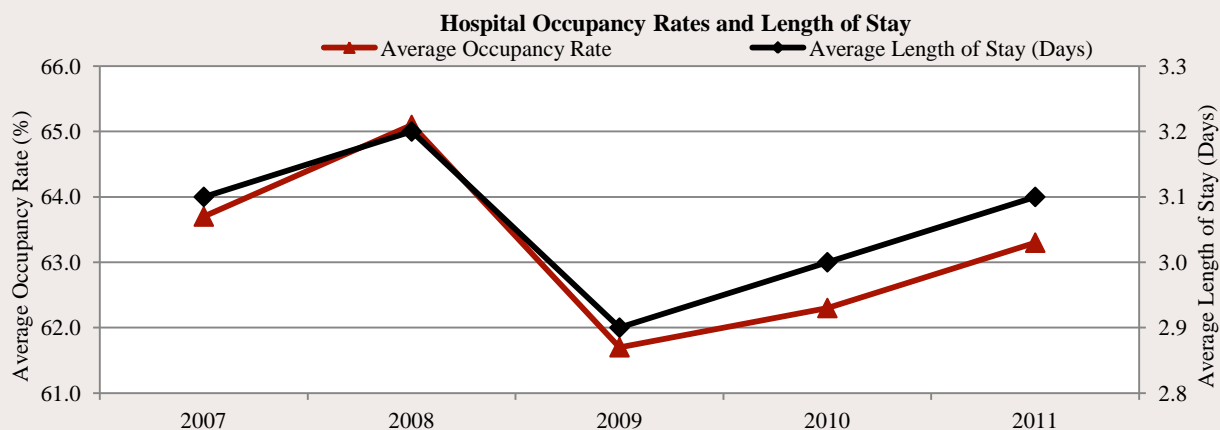
Source: Ministry of Health

According to statistics in the Medical Tourism Magazine, the density of physicians in Jordan, at 25.5 per 10,000 population is higher than any country within the MENA region, and is on par with that of the United States. Moreover, Jordan's density of nurses (registered and assistant nurses) of 33.7 per 10,000 population falls only slightly short of that in Thailand, which is 34 nurses per 10,000 population, which is one of the leading country in this regard.

### 3.0 VOLUME OF BUSINESS, HOSPITAL OCCUPANCY RATES AND LENGTH OF STAY

The average occupancy rate in the Kingdom's hospitals, as well as the average length of stay, has been relatively stable over the past five years, hovering at around 63% and 3 days, respectively.





Source: Ministry of Health

The hospitals experienced a slight drop in both occupancy rates and length of stay during 2009, which can be attributed to the decline in medical tourism in light of the global financial crisis and economic slowdown. Since then, the rates of occupancy and length of stay have been steadily rising, but still leaving some one-third of beds vacant.

	# of Beds	Admissions		Mortality Rate	Average Length of Stay	Occup. Rate	Clinic Visits	Surgeries	Births
		Number	% of Total	%	Days	%	% of Total	% of Total	% of Total
Ministry of Health	4,422	332,607	38.0%	1.7%	3.1	66.8%	36.2%	23.5%	43.6%
Royal Medical Services	2,428	181,819	20.7%	2.7%	4.0	80.3%	45.5%	28.9%	19.5%
Jordan Uni. Hospital	547	33,992	3.9%	1.7%	4.3	72.0%	4.9%	5.0%	2.6%
King Abdullah Hospital	526	37,957	4.3%	1.5%	3.4	61.2%	3.2%	4.0%	1.9%
Private Sector	3,591	289,875	33.1%	0.9%	2.2	48.2%	10.3%	38.6%	32.4%
<b>Total</b>	<b>11,514</b>	<b>876,250</b>	<b>100.0%</b>	<b>1.6%</b>	<b>3.1</b>	<b>63.3%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: Ministry of Health

In terms of the public sector, the Royal Medical Services hospitals registered the highest occupancy rate, at an impressive 80.3% for 2011, followed by the Jordan University Hospital, with 72.0%. The poorest performance was for the private sector hospitals, with an occupancy rate of 48.2% and a low 2.2 days average length of stay, attributable to the higher costs of treatment, as well as non-inclusion of these hospitals in a substantial proportion of the population's insurance. According to a report produced by USAID, the Jordan Fiscal Reform Project II – Health Public Expenditures Working Paper August 2011, the largest health service coverage was provided by the Civil Health Insurance program, which is administered by the Ministry of Health and the Royal Medical Service. Together, they provided health coverage for over 60% of the population. The Civil Health Insurance program provides direct coverage for public sector employees, but also allows non-public sector employees to buy into the program. Moreover, other individuals deemed eligible may also receive health services under the program, with payment for the services being provided by the Royal Court.

With respect to clinic visits, the public sector services attracted the larger part of the patient market, but the private sector gained ground in relation to its share of surgeries and births, at 38.6% and 32.4% of the total, respectively.

#### 4.0 HEALTH INSURANCE

The Civil Insurance Program was established in 1965 and is administered by the Ministry of Health. It is the largest insurance program in the Kingdom and provides cover for civil servants and their families, as well as those determined as poor, disabled, or below the age of six years. The Royal Medical Service also provides insurance coverage to individuals that qualify, as do the university hospitals and the UNRWA. Private insurance, meanwhile, is provided by either private insurance companies or by self-insured firms. There are 27 private insurance companies licensed to offer medical insurance, and only 18 licensed to sell life insurance. Self-insured firms, meanwhile, pay directly for health care services for their employees and families.

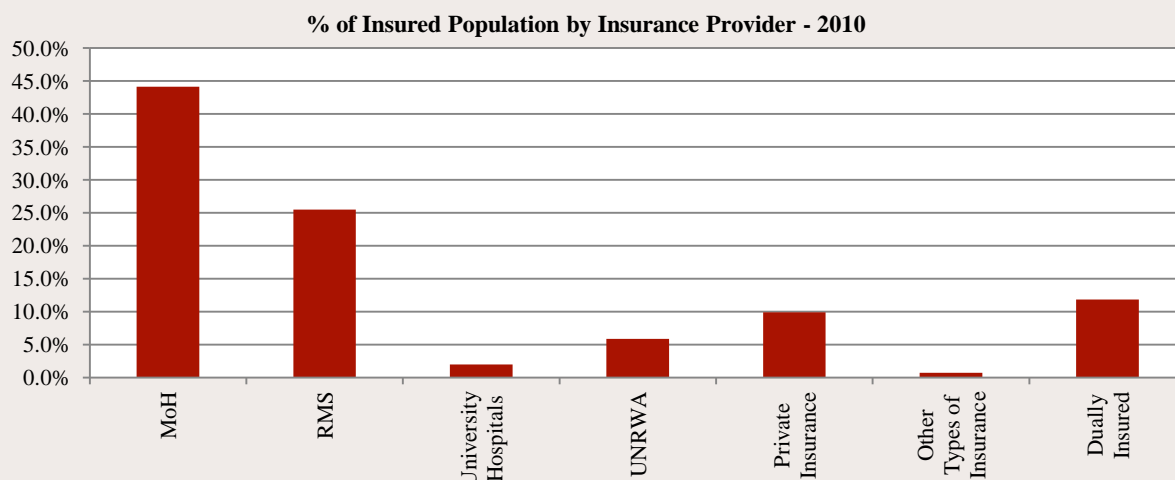
The inclusion of all citizens under a health insurance umbrella is a key priority of the Jordanian Government, and is included in the High Health Council's National Agenda and National Health Strategy for 2008-2012. A survey was carried out by the Department of Statistics in collaboration with the High Health Council during the final quarter of 2010 to determine the percentage of the population covered by insurance, as well as highlight the type of insurance most prominent, the type of health service providers most utilised, in addition to the percentage of insured individuals being covered by more than one insurance provider.

	Insured		Uninsured		Total = 100
	Number	%	Number	%	
<b>Grand Total</b>	<b>41,277</b>	<b>69.6%</b>	<b>18,014</b>	<b>30.4%</b>	<b>59,290</b>
<b>By Gender</b>					
Male	20,817	68.6%	9,531	31.4%	30,348
Female	20,460	70.7%	8,482	29.3%	28,942
<b>By Governorate</b>					
Amman	13,023	54.9%	10,709	45.1	23,732
Al-Balqa	2,745	73.5%	989	26.5%	3,734
Zarqa	5,789	70.9%	2,375	29.1%	8,164
Madaba	1,016	77.3%	297	22.6%	1,313
Irbid	8,958	82.8%	1,863	17.2%	10,822
Mafrq	2,225	80.7%	531	19.3%	2,755
Jarash	1,577	84.3%	293	15.7%	1,870
Ajloun	1,152	90.2%	125	9.8%	1,277
Karak	2,111	87.9%	291	12.1%	2,401
Tafleeh	781	89.1%	95	10.9%	877
Ma'an	930	83.2%	188	16.8%	1,117
Aqaba	970	79.0%	258	21.0%	1,228
<b>By Age</b>					
0-5	8,441	97.1%	255	2.9%	8,696
9-6	3,635	67.5%	1,748	32.5%	5,383
10-19	8,875	66.6%	4,452	33.4%	13,327
20-29	6,311	59.5%	4,298	40.5%	10,609
30-39	5,083	61.1%	3,237	38.9%	8,320
40-49	4,007	67.0%	1,969	32.9%	5,976
50-59	2,243	67.8%	1,065	32.2%	3,308
+60	2,681	73.0%	989	26.9%	3,670
<b>By Nationality</b>					
Jordanians	40,206	73.5%	14,520	26.5%	54,726
Non-Jordanians	1,071	23.4%	3,494	76.5%	4,564

Source: Medical Insurance and Medical Expenditure in Jordan 2010 – High Health Council

The survey reveals that around 70% of the population have health insurance, with the lowest levels of insurance coverage appearing in Amman, at 54.9%. A look at nationality reveals that 73.5% of Jordanians are insured, while only 23.4% of non-Jordanians are insured. The Ministry of Health provides health insurance for all children of Jordanian nationality below the age of 6 years.

The survey also shows that the MoH insurance coverage is the most prominent in the Kingdom, with around 30.7% of Jordanians insured solely with the Ministry of Health, while 17.8% are insured with RMS. Meanwhile, 8.2% of the population are dually insured, with around 7.0% being insured with both MoH and RMS, 2.6% being insured with the MoH and the private sector, and 1.7% insured with the MoH and the UNRWA.

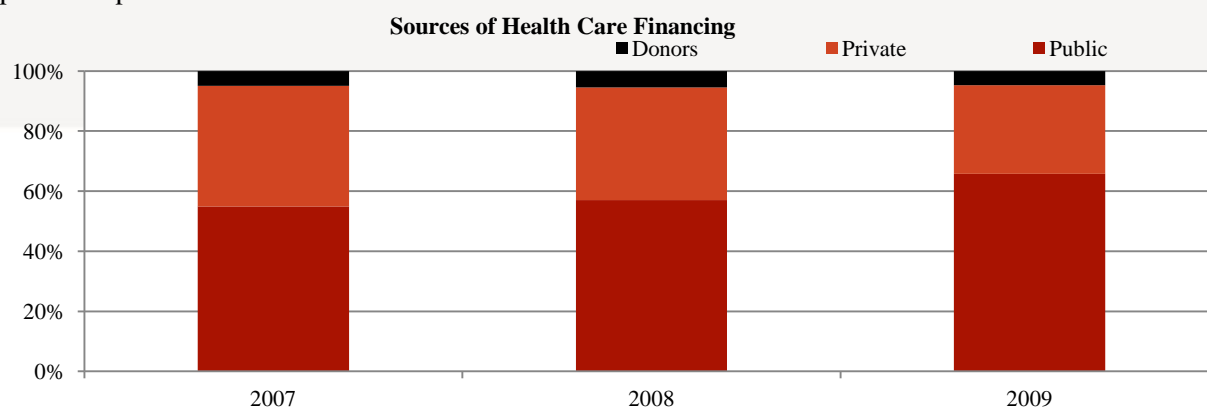


Source: Medical Insurance and Medical Expenditure in Jordan 2010 – High Health Council

With regards costs of treatment on the individual, the survey concluded that around 97% of those insured pay towards the cost of their medication, while 44% pay towards their doctor's consultation fees.

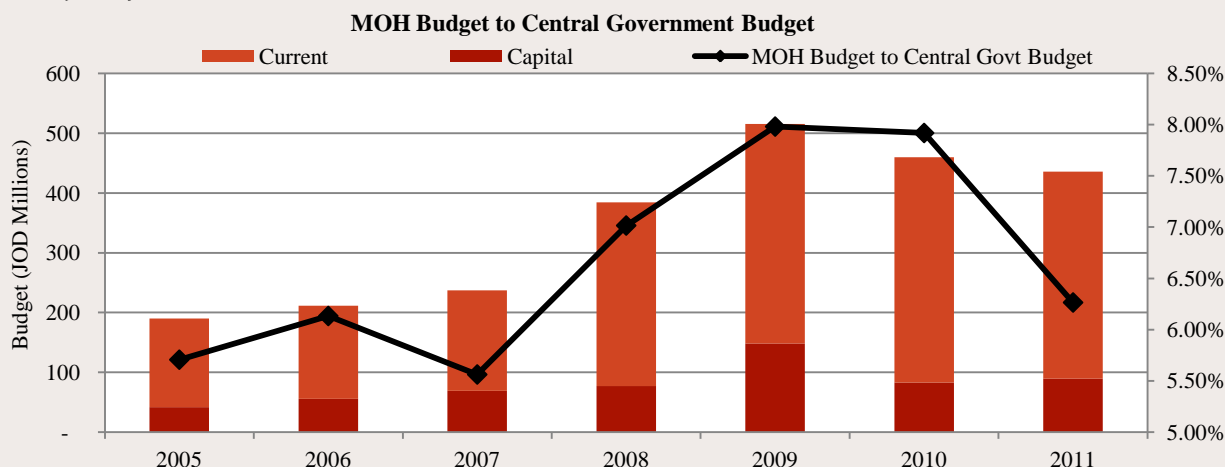
## 5.0 HEALTH SECTOR FUNDING, EXPENDITURE & CONTRIBUTION TO GDP

Funding for the health sector comes from the Ministry of Finance, the Ministry of Health, the Royal Medical Services, and the university hospitals, on the public side, while on the private side, the funding comes from insurance companies, companies that are self-insured, in addition to out-of-pocket expenditures.



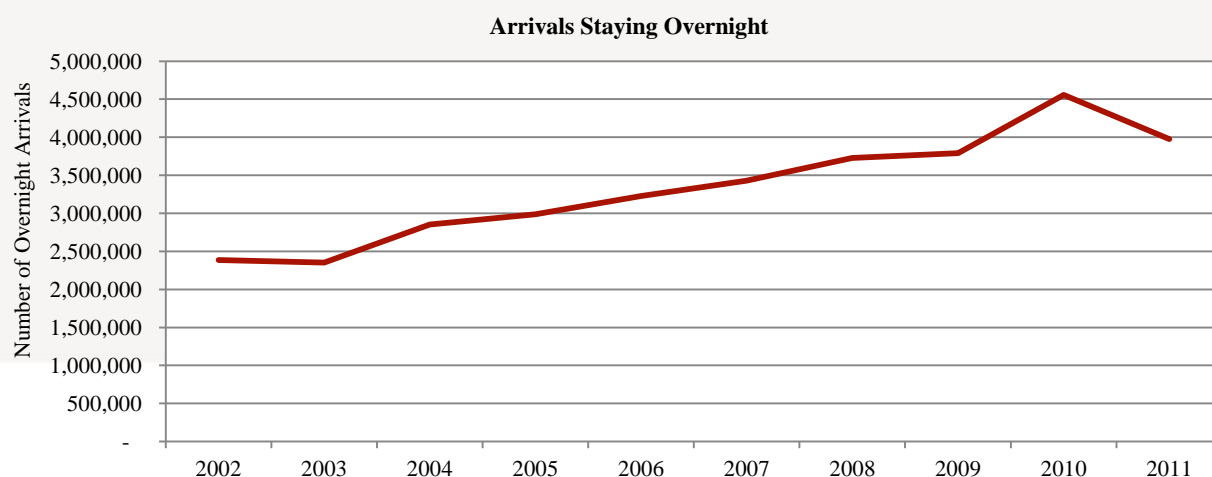
Source: High Health Council / Ministry of Health

Up until the eruption of the global financial crisis and economic slowdown, the Ministry of Health budget had been on the rise, both in absolute terms, and as a percentage of the Central Government budget, barring year 2007, where the MoH budget rose to JOD237.15 million from JOD211.49 million in 2006, but declined as a percentage of the Central Government budget to 5.6% from 6.1% over the same period. In 2009, the rise in the MoH budget surpassed the growth in the Central Government budget, causing it to peak in both absolute terms, registering at JOD515.58 million, and as a percentage of the government budget, reaching a high 8.0%. The following year witnessed a drop in the budgets overall, but it was in year 2011 that the allocation to the sector experienced the sharp decline, dropping to 6.3% of the Central Government budget, and declining to JOD435.56 million from JOD460.11 million in 2010.



Source: Ministry of Health

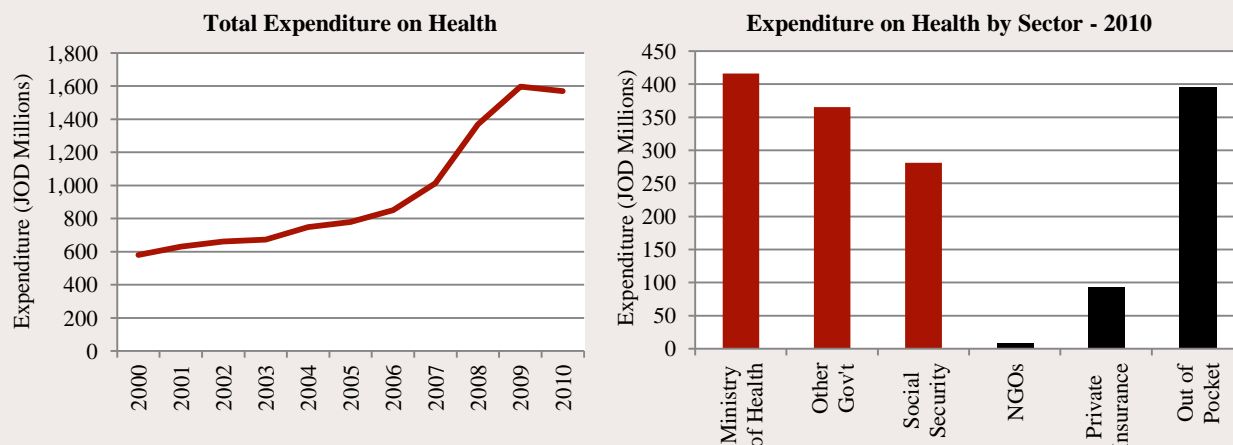
Meanwhile, expenditure on health care has been steadily rising in recent years, in line with the growth in the population, the influx of refugees to the Kingdom, the rise in inbound medical tourism, as well as an increase in demand for more and better quality services.



Source: Ministry of Tourism & Antiquities

The chart below on the left highlights year 2006 as the commencement of an upshoot in expenditure, corresponding to strong economic performance, and a rise in the incoming overnight tourists, from 2.99 million in 2005 to 3.23 million the following year. The expenditure on health peaked in 2009, at JOD1.60 billion, before dropping slightly to JOD1.57 billion in 2010, in spite of a continued surge in

incoming tourists to the Kingdom, with overnight tourists reaching 4.56 million in 2010 from 3.79 million the previous year.



Source: WHO

The chart on the right, meanwhile, reveals that the bulk of the expenditure on health care comes from the public sector (highlighted in red) at 67.7% of the total, with the larger contribution being made by the Ministry of Health, at JOD415.9 million in 2010. The private sector, meanwhile, is responsible for around one-third of the total health expenditure, with the bulk being in the form of out-of-pocket expenditure.

Comparing Jordan's expenditure on health to those of a few key countries reveals that government expenditure on health as a proportion of total expenditure on health, at 67.7% in 2010, registers slightly above the average for the Middle Eastern countries, which lies at 63.6%. Important to note is that the average is being pulled up significantly by the richer GCC countries, such as Kuwait, with 80.4% of health spending being made by the Government. Moreover, the government's expenditure on health as a percentage of its total expenditure is the highest in the region and is on par with the levels in Europe. As a poorer country with a large budget deficit, this high public sector spending is arguably unsustainable in the long run.

#### Expenditure on Health by Country - 2010

	Social security exp. on health as % of general govt. exp. on health	Out-of-pocket exp. as % of private exp. on health	Total exp. on health as % of GDP	Private exp. on health as % of total exp. on health	General govt. exp. on health as % of total exp. on health	General govt. exp. on health as % of total govt. exp.	Private prepaid plans as % of private exp. on health
Bahrain	1.3	54.3	5.0	26.7	73.3	11.4	29.0
Egypt	22.4	97.7	4.7	62.6	37.4	5.7	1.7
Iraq	-	100.0	8.4	18.8	81.2	9.0	-
Jordan	26.5	77.6	8.0	32.3	67.7	18.6	18.3
Kuwait	-	90.6	2.6	19.6	80.4	6.9	9.4
Lebanon	59.7	73.5	7.0	60.8	39.2	9.5	22.1
Qatar	-	71.0	1.8	22.5	77.5	5.5	27.9
Saudi Arabia	-	50.2	4.3	37.1	62.9	7.0	33.4
Syria	-	100.0	3.4	54.0	46.0	5.6	-
UAE	-	73.3	3.7	25.6	74.4	8.8	15.7

	Social security exp. on health as % of general govt. exp. on health	Out-of-pocket exp. as % of private exp. on health	Total exp. on health as % of GDP	Private exp. on health as % of total exp. on health	General govt. exp. on health as % of total exp. on health	General govt. exp. on health as % of total govt. exp.	Private prepaid plans as % of private exp. on health
France	90.5	33.1	11.9	22.2	77.8	16.3	60.1
Germany	88.4	56.6	11.6	22.9	77.1	18.7	40.3
Italy	0.2	87.6	9.5	22.4	77.6	14.7	4.6
Spain	6.0	76.1	9.5	27.2	72.8	15.2	20.3
Turkey	60.1	64.4	6.7	24.8	75.2	12.8	7.3
UK	-	62.0	9.6	16.1	83.9	16.0	6.5
USA	74.8	25.1	17.9	46.9	53.1	22.4	67.8

Source: World Health Organisation

As a percentage of GDP, health care expenditure reached 8.0% of GDP in 2010, with expenditure reaching JOD1.57 billion that year, according to the World Health Organisation (WHO). This surpasses the average levels of expenditure on health as a percentage of GDP for the Middle East, which stood at 4.5%, with the level for non-GCC countries amounted to 5.9% and that for GCC countries at 3.5%. Health care expenditure in the seven non-Middle Eastern countries listed in the table above comprised an average of 11.0%, pulled up largely by the expenditure on health in the United States. Noteworthy is the fact that social security expenditure on health registers higher in these countries than the Middle East, and out-of-pocket expenditure registers lower.

## 6.6 MEDICAL TOURISM

Increased globalization and the ease of travel, coupled with the availability of information, have facilitated the growth in medical tourism. Long waiting lists, high treatment costs, in addition to unavailability of treatments can spur patients into travelling abroad for treatment. Countries, realizing the potential of a global market, are developing their health care systems, acknowledging the economic benefits that can be reaped both from the increased incoming tourism and the improvements made to the health care sector. Thus, efforts are being made to attract medical tourists, which is quickly turning medical tourism into a multi-billion dollar industry, estimated in a report by KPMG to reach USD100 billion this year, up from USD78.6 billion in 2010.

Jordan is widely recognized as a leading medical tourism destination, ranked by the World Bank as the top ranking destination in the Arab world, and fifth globally. A number of factors played into this ranking, including the quality of medical services offered and the local and international accreditation of a number of the Jordanian hospitals. The highly qualified workforce, which includes 25.5 physicians per 10,000 people, a significant proportion of which are specialists board certified in the United States, the United Kingdom, and Germany, as well as the level of training of nurses and standard of care offered is another strong feature of the health sector, as well as the widespread use of the English language, not to mention the therapeutic natural resources available, such as the Ma'in Springs and the Dead Sea. Most importantly, however, is the competitive pricing for the medical services offered. The table below highlights the cost of a variety of procedures in Jordan in comparison to other countries with quality health care. With the exception of India, the costs of surgical procedures in Jordan are significantly lower than the other counties in the table.



**Cost Comparison between Countries for Selected Procedures**

(Approximate Costs in USD)	USA	Israel	Costa Rica	India	Jordan	Korea
Heart Bypass	144,000	27,500	25,000	5,200	14,400	28,900
Angioplasty	57,000	8,000	13,000	3,300	5,000	15,200
Heart Valve Replacement	170,000	29,712	30,000	5,500	14,400 + valve	43,500
Hip Replacement	50,000	25,250	12,500	7,000	8,000	14,120
Knee Replacement	50,000	24,850	11,500	6,200	8,000	19,800
Spinal Fusion	100,000	35,000	11,500	6,500	10,000	15,400
Dental Implant	2,800	2,150	900	1,000	1,000	4,200
Rhinoplasty	8,000	9,500	4,500	4,000	3,000	5,000
Face Lift	15,000	16,000	6,000	4,000	4,400	15,300
Hysterectomy	15,000	14,000	5,700	2,500	6,000	11,000
IVF Treatment	14,500	2,800	2,800	3,250	2,700	2,180

Source: Jordan Health & Wellness Destination Guide – Medical Tourism Magazine

According to statistics by the Private Hospitals Association, some 234 thousand patients entered the Kingdom in 2010 to receive medical care, generating around USD1.20 billion in revenues. The bulk of the patients originate from the MENA region.

In a recent interview with The Jordan Times, Private Hospitals Association (PHA) President Fawzi Hammouri claimed that the first four months of the year witnessed a 7 per cent increase in the number of patients who came to the Kingdom for treatment, the majority of whom were from Libya, Saudi Arabia, Sudan, Iraq and Palestine, and are expected to reach around 250 thousand by year-end. He also stated expectations of a rise in medical tourism revenues to USD 1.50 billion, up from USD 850 million in 2011. In contrast to the region, Jordan appears to be reaping benefits from the turbulent region, remaining as one of the safer tourism destinations. Moreover, the MoH has signed agreements and protocols with countries in the region, such as Sudan and Yemen, to receive medical patients from these countries.

## 7.0 ACCREDITATION

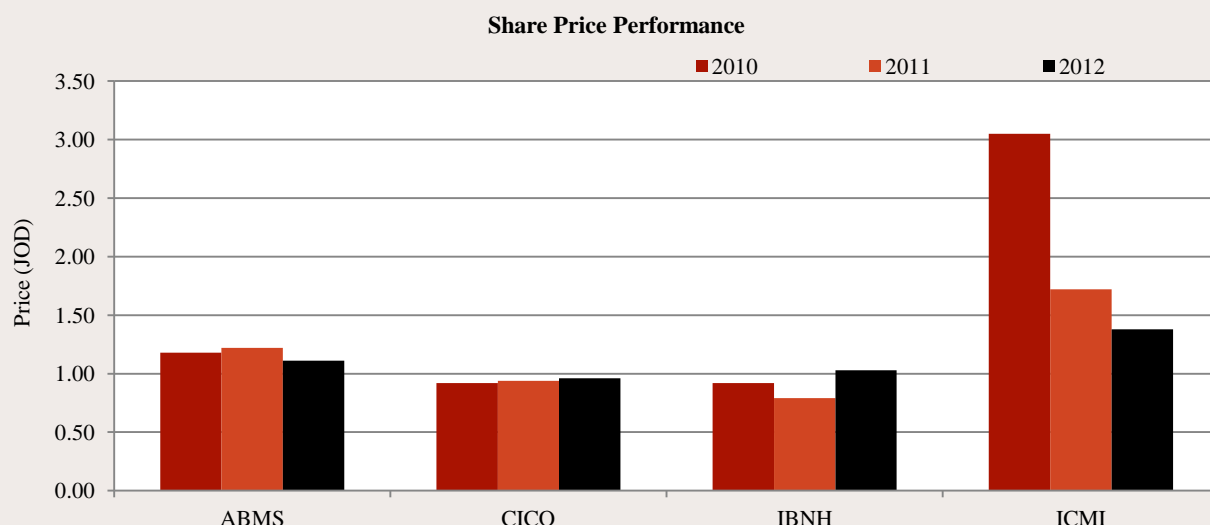
Accreditation is a voluntary process by which hospitals, medical centers and clinics meet certain standards established by the accrediting board, which ensure the delivery of quality health care.

A total of nine hospitals are internationally accredited with the Joint Commission International; these are the Al-Essra Hospital, Istiklal Hospital, Istishari Hospital, Jordan Hospital and Medical Center, Jordan University Hospital, King Abdullah University Hospital, King Hussein Cancer Center, Luzmila Hospital, and the Speciality Hospital. The Oncology program at the King Hussein Cancer Center is also accredited as a Clinical Care Program Certification, and Biolab is accredited as a clinical laboratory.

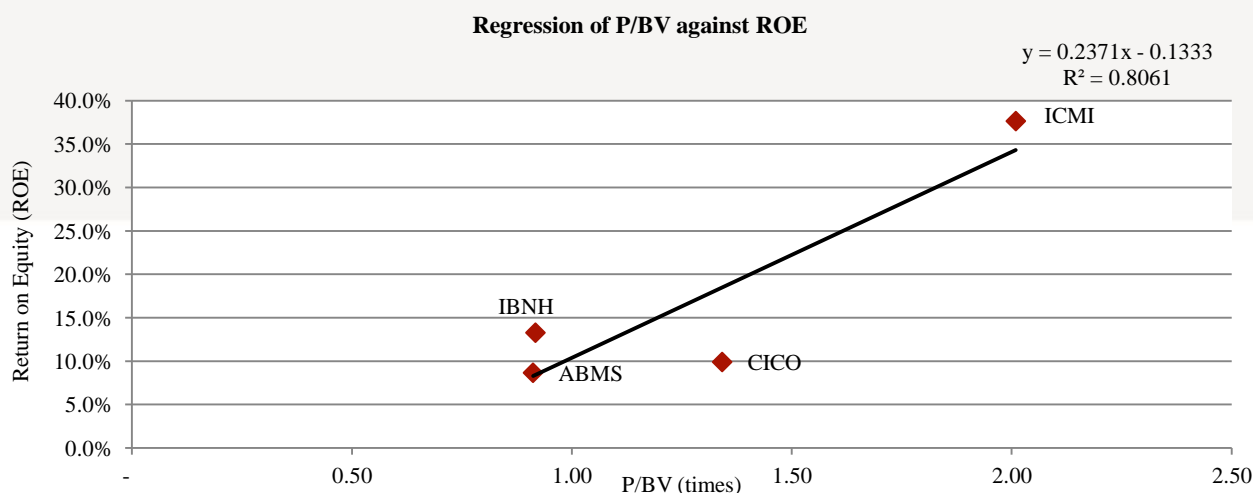
With the Jordanian Health Care Accreditation Council, nine hospitals are accredited; namely, the Istiklal Hospital, Jordan Hospital, Princess Badeaa Teaching Hospital, South Shouneh Hospital, Princess Rahma Teaching Hospital for Pediatrics, Speciality Hospital, Queen Alia Military Hospital, King Hussein Cancer Center, and the Jordan University Hospital.

## 8.6 SHARE PERFORMANCE AND VALUATION

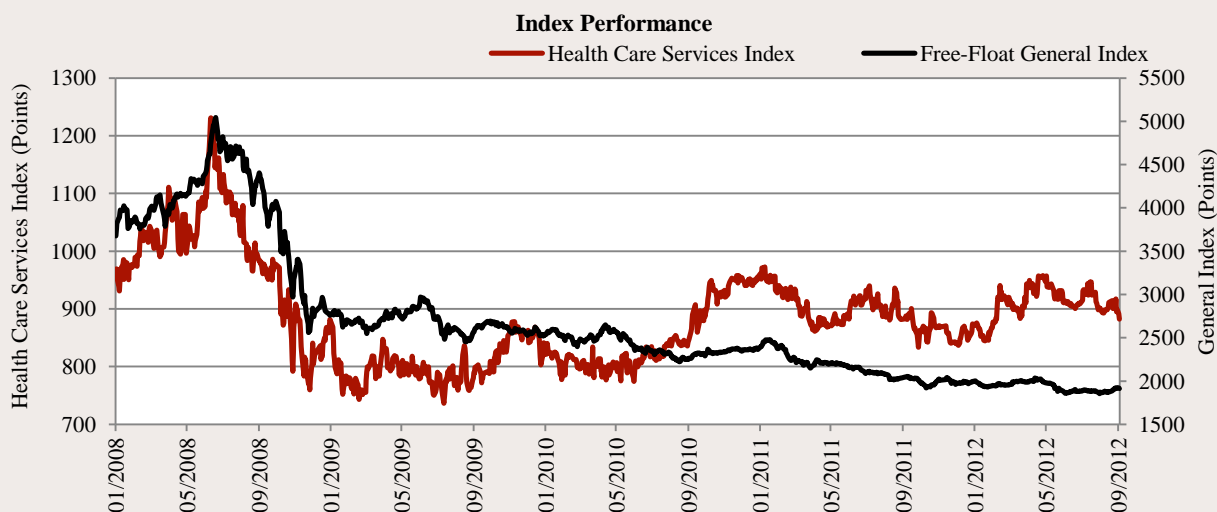
The weak economic conditions have taken their toll on the stock market, in terms of excessive drops in stock prices and poor trading activity. For the health sector, the slumps in share price were, for the larger part, less substantial, with only the International Company for Medical Investment (ICMI) experiencing significant falls in price. In 2011, ICMI registered a whopping 43.6% decline in share price, followed by a further 19.2% decline in 2012 to date. Ibn Al-Haitham Hospital (IBNH) also registered a drop in share price in 2011, falling by 14.1%, which was more than compensated for by the 29.1% price recovery in 2012.



The chart below illustrates the regression of the P/BV for the four listed health sector companies, based on current price and book value per the H1 2012 financial results, against their return on equity (ROE) ratio, using annualised H1 2012 profits. Based on the particularly high R<sup>2</sup> for the line of best fit, at 80.6%, it would appear that the regression plotted indicates a strong correlation between the return on equity for these companies and their P/BV. A word of caution, however, is that the low number of companies included in the regression may cause an invalid skew of the line of best fit. Assuming that the relationship plotted is accurate for the average, the chart can highlight stocks that are over- and under-priced based on their position on the chart. The companies that plot above the line can be deemed relatively overvalued, while those that plot below the line are undervalued.



## 9.0 HEALTH SECTOR INDEX PERFORMANCE



In line with the overall capital markets performance, the health care services index rose sharply in 2008, reaching its all-time high of 1,231.0 on June 11<sup>th</sup>. The eruption of the financial crisis in the United States, which triggered a global financial crisis and economic slowdown sent the market into free-fall. Panic overcame the market, with investors liquidating positions to cut losses. By year end, the General Index had dropped by a whopping 24.9%, while the Health Care Services Index slumped by 8.3% to 881.7 points, down from 961.8 points at the start of the year. Noteworthy is that the decline in the six months between the General Index and Health Care Services Index peaks and their respective end of year closing prices amounted to 45.3% and 28.4%.

The indices continued to struggle in 2009, as bad news on the global economic front continued to stream in. Nonetheless, the General Index was hit harder, primarily due to the heavy weighting of the banking sector, which was the first sector to be impacted by the financial crisis, declining by a further 8.2% compared to the Health Sector's 6.9% drop. The commencement of year 2010 did not bode well for either Index, as they continued to follow a downward trend. However, by mid-year, the Health Sector Index began to recover, spurred on by a strong recovery in the share price of the International Company for Medical Investment (ICMI) stock which rose from JOD1.70 at the end of June to JOD3.05 by year-end, as well as the rise in the Consultant and Investment Group (CICO) stock, which increased from JOD0.82 at the end of June 2010 to JOD0.92 by year end, a 12.2% increase, in addition to a rise in the price of the Ibn Al-Haytham Hospital Company (IBNH) stock from JOD0.92 to a high of JOD1.10 as of September 22<sup>nd</sup>. The Health Sector Index outperformed the General Index significantly by rising 16.3% over the year compared to the General Index's decline of 6.6% over the same period.

The tables turned in 2011 as the Health Sector Index began to drop once again, falling to 861.1 points on April 4<sup>th</sup> from 955.0 at the start of the year, equivalent to a 9.8% slump in value, but managed some recovery in the second quarter of the year, ending the first half of the year at 932.0 points. In July and early August, however, the Index fell below the 900.0 point mark, but re-emerged in mid-August above 930.0 points. The Index dipped again during the second half of August and began to trade horizontally at around 880.0 points, but it wasn't until mid-September that the Index declined sharply, falling to a low 833.7 points as of September 27<sup>th</sup>. After a slight recovery, the Index continued to oscillate, with a brief recovery in October, but began to slump once more in mid-November,

reaching another low point of 836.8 points on December 4<sup>th</sup>. Nonetheless, by year-end, the stock had risen once again to 873.8 points, registering a year-to-date decline of 8.5%.

Year 2012 took off to a bad start for the Health Sector Index, with the Index dropping to its low to date for the year of 844.4 points on January 18<sup>th</sup>. The downward trend did not last, however, as the Index began to climb back up over 940.0 points in February, before dipping once more to below 900.0 points the following month. By mid-March, the Index had begun to climb, reaching an impressive 957.9 points, the highest level reached by the Index since the start of 2011. The second quarter of 2012 saw the Index slump once again, staying, nonetheless, above the 900.0 point mark. In July, the Index rose once again, but by the date of this report, the Index had dropped to 71.7 points, registering a minor 0.2% drop versus the General Index's decline of 4.5%.

In terms of trading activity, the table below highlights the values and volumes of trading for each of the health sector's listed stocks. As is evident, the sector stocks are not very liquid, with low numbers of transactions and shares traded.

#### Sector Trading Statistics

	Value Traded (JOD)	# of Transactions	# of Shares	Daily Average		
				Value Traded (JOD)	# of Transactions	# of Shares
ABMS						
2011	3,073,695	406	2,688,099	30,433	4	26,615
2012*	674,424	399	523,977	7,842	5	6,093
CICO						
2011	705,887	374	779,687	5,515	3	6,091
2012*	686,731	253	710,204	9,407	3	9,729
IBNH						
2011	728,794	1,891	854,336	3,590	9	4,209
2012*	2,106,259	2,581	2,148,589	13,677	17	13,952
ICMI						
2011	936,068	1,132	454,313	8,667	10	4,207
2012*	98,617	353	67,082	1,060	4	721

\*Up to the date of this report

## 10.0 LISTED HEALTH SERVICE COMPANIES

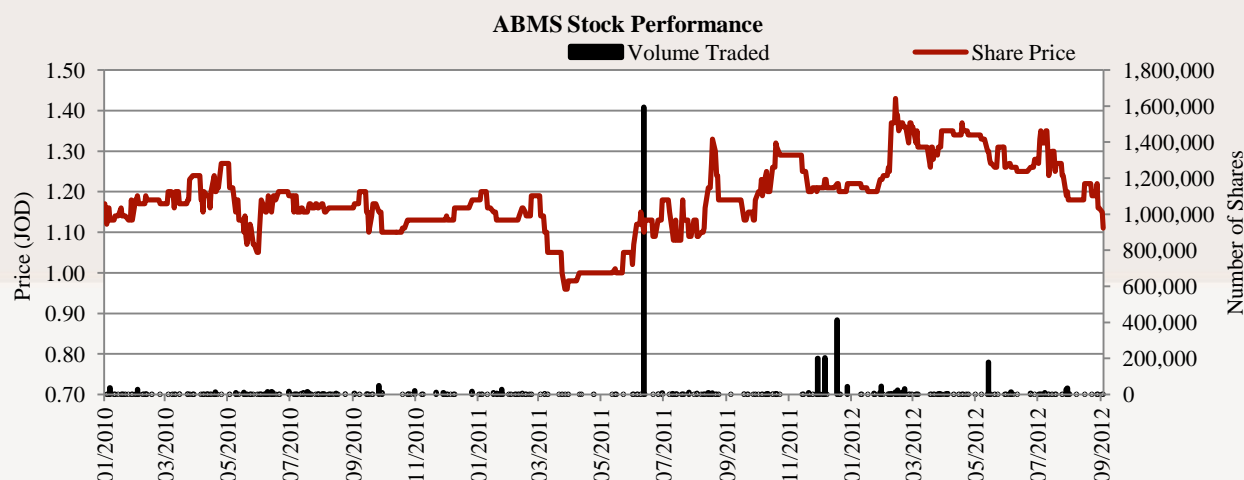
### 10.1 Al-Bilad Medical Services (ABMS)

Al-Bilad Medical Services (Istiklal Hospital) was established as a public shareholding company in 1996 for the purpose of founding a general hospital in Amman offering medical services in the form of preventative, diagnostic and curative treatment, in addition to trading in medical equipment in and out of the Kingdom. The hospital commenced operations on December 1<sup>st</sup> 2000, and boasts 114 beds.

Stock Highlights			
Ticker Symbol	ABMS	Value Traded (JOD)*	3,073,698
Share Price**	1.08	Volume Traded*	2,688,099
Year-to-Date Change**	(11.5%)	Average Daily Value Traded (JOD)*	30,433
52-Week High / Low**	JOD1.47 / JOD1.05	Average Daily Volume Traded*	26,615
Market Capitalisation**	JOD18,900,000	Turnover Ratio*	15.36

\*For 2011

\*\*As of the Date of this Report



Financial Indicators	2011	H1 2012
Total Assets (JOD)	29,309,427	39,060,534
Equity Attributable to Shareholders of the Bank (JOD)	19,840,478	20,730,396
Sales (JOD)	10,486,314	6,598,430
Gross Profit (JOD)	4,225,587	2,682,385
Operating Profit (JOD)	1,863,197	1,012,035
Profit after Tax (JOD)	1,470,585	898,174
EPS (JOD)	0.084	0.051
P/E (times)	14.5x	10.6x*
P/BV (times)	1.1x	0.9x
ROA (%)	5.0%	4.6%*
ROE (%)	7.4%	8.7%*

\*Based on annualised Earnings

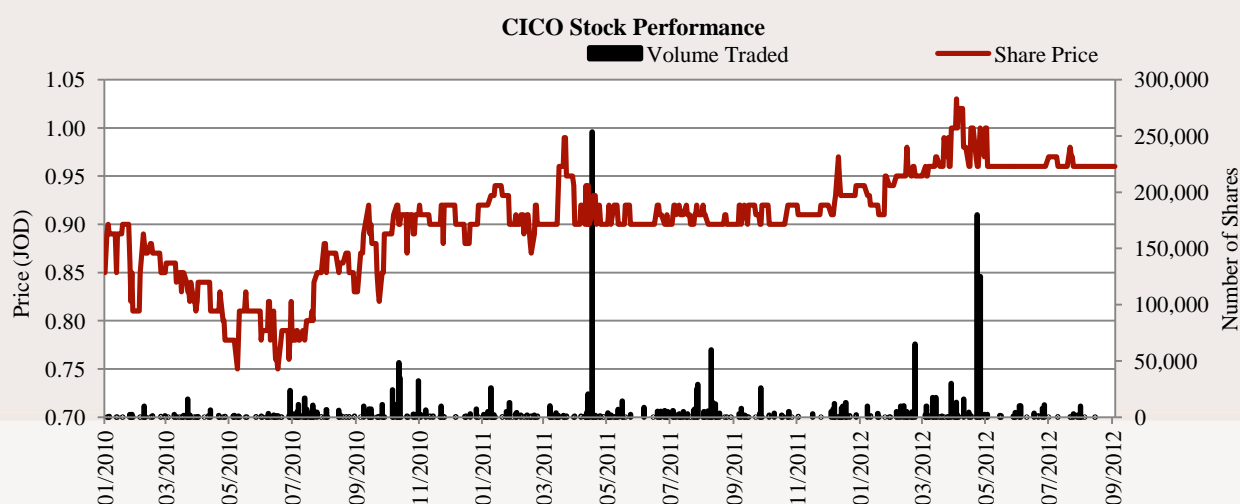
## 10.2 The Consultant and Investment Group (CICO)

The Consultant and Investment Group (Istishari Hospital) was established as a public shareholding company in 1995. The purpose of the Company is to promote investment in all fields, whether medical, industrial or in trade. The Istishari Hospital has 108 beds.

Stock Highlights			
Ticker Symbol	CICO	Value Traded (JOD)*	705,887
Share Price**	JOD0.96	Volume Traded*	779,687
Year-to-Date Change**	2.1%	Average Daily Value Traded (JOD)*	5,515
52-Week High / Low**	JOD1.03 / JOD0.82	Average Daily Volume Traded*	6,091
Market Capitalisation**	JOD21,120,000	Turnover Ratio*	3.54

\*For 2011

\*\*As of the Date of this Report



Financial Indicators	2011	H1 2012
Total Assets (JOD)	19,731,448	20,959,665
Equity Attributable to Shareholders of the Bank (JOD)	14,960,749	15,740,447
Sales (JOD)	10,086,890	8,031,322
Gross Profit (JOD)	1,618,302	3,061,314
Operating Profit (JOD)	(743,341)	779,698
Profit after Tax (JOD)	(743,341)	779,698
EPS (JOD)	(0.034)	0.035
P/E (times)	N/A	13.7x
P/BV (times)	1.4x	1.3x
ROA (%)	(3.8%)	7.4%
ROE (%)	(5.0%)	9.9%

\*Based on annualised Earnings



### 10.3 Ibn Al-Haytham Hospital Company (IBNH)

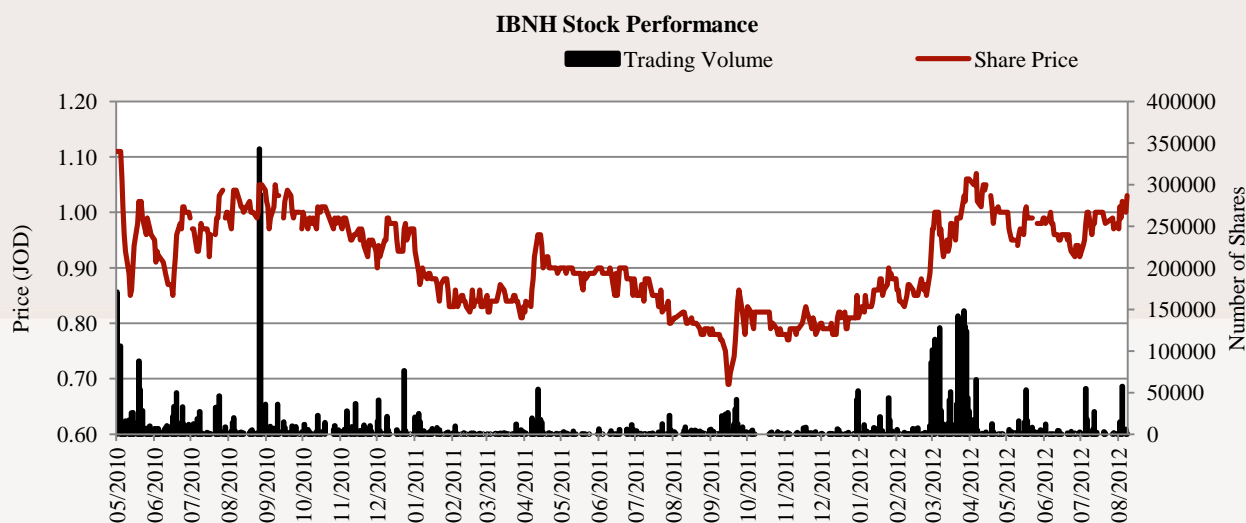
Ibn Al-Haytham Hospital Company was established as a limited liability company with a paid-up capital of JOD400 thousand in 1993, which has since been raised to JOD20 million. In 2007, the Company was transformed into a public shareholding company. The purpose of the Company is to found, build and manage a general hospital and import medical equipment and supplies.

The hospital has 74 rooms in place.

Stock Highlights			
Ticker Symbol	IBNH	Value Traded (JOD)*	728,794
Share Price**	JOD1.02	Volume Traded*	854,336
Year-to-Date Change**	29.1%	Average Daily Value Traded (JOD)*	3,590
52-Week High / Low**	JOD1.08 / JOD0.69	Average Daily Volume Traded*	4,209
Market Capitalisation**	JOD20,400,000	Turnover Ratio*	4.27

\*For 2011

\*\*As of the Date of this Report



Financial Indicators		
	2011	H1 2012
Total Assets (JOD)	29,961,820	33,033,938
Equity Attributable to Shareholders of the Bank (JOD)	20,427,430	22,240,048
Sales (JOD)	14,068,297	12,217,828
Gross Profit (JOD)	4,939,936	5,214,418
Profit before Tax (JOD)	743,530	1,901,173
Profit after Tax (JOD)	579,816	1,477,104
EPS (JOD)	0.028	0.074
P/E (times)	28.2x	6.9x
P/BV (times)	0.8x	0.9x
ROA (%)	1.9%	8.9%
ROE (%)	2.8%	13.3%

\*Based on annualised Earnings

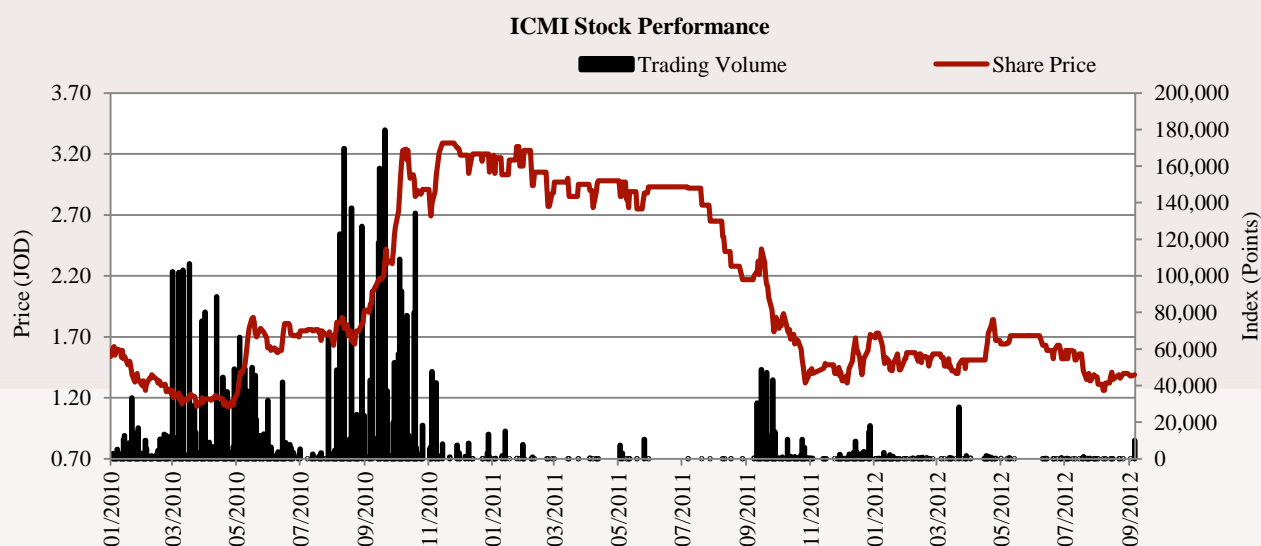
#### 10.4 International Company for Medical Investment (ICMI)

Ther International Company for Medical Investment was established in 1995 as a public shareholding company with the purpose of founding the Jordanian Center for Gama Treatment, a specialised center for the treatment of brain diseases, as well as trading in medical equipment, establishing hospitals, medical clinics, and emergency rooms.

Stock Highlights			
Ticker Symbol	ICMI	Value Traded (JOD)*	936,068
Share Price**	JOD1.39	Volume Traded*	454,313
Year-to-Date Change**	(19.2%)	Average Daily Value Traded (JOD)*	8,667
52-Week High / Low**	JOD2.46 / JOD1.25	Average Daily Volume Traded*	4,207
Market Capitalisation**	6,255,000	Turnover Ratio*	10.10

\*For 2011

\*\*As of the Date of this Report



Financial Indicators		
	2011	H1 2012
Total Assets (JOD)	4,354,151	5,450,695
Equity Attributable to Shareholders of the Bank (JOD)	2,195,884	3,112,733
Sales (JOD)	743,101	1,040,670
Gross Profit (JOD)	185,370	490,904
Operating Profit (JOD)	91,185	756,370
Profit after Tax (JOD)	(79,390)	586,070
EPS (JOD)	(0.018)	0.130
P/E (times)	N/A	5.3x
P/BV (times)	3.5x	2.0x
ROA (%)	(1.8%)	21.5%
ROE (%)	(3.6%)	37.7%

\*Based on annualised Earnings

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