

December 2019

# Kuwait Healthcare

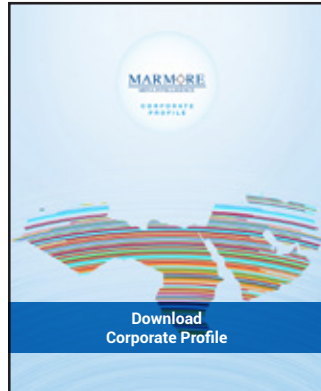
Emerging Era of Advanced  
Care, Efficiencies, Market  
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## Research Highlights:

The report examines Kuwait's healthcare sector performance measured by healthcare indicators, its infrastructure and productivity, across time, ownership, and country's borders, assesses where it stands and where it is heading, which healthcare needs are growing, government initiatives to enhance private participation, and challenges to be addressed to reach the government's goal for universal quality healthcare coverage.



# About Marmore



## Organizational Background

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Marmore is a fully-owned research subsidiary of Kuwait Financial Center 'Markaz'. Since 2006, Markaz Research has been at the forefront in disseminating thought-provoking, hard-data backed research reports. Marmore continues that legacy with a focused approach to providing actionable solutions for business leaders and policymakers.

Since its inception, Marmore has published over 700 research reports and covered more than 25 varied industries and infrastructure segments; all focused primarily on the GCC economies. (To view our Research Library, please [click here](#))

With over 30 policy and regulatory research studies published, Marmore has partnered with renowned regional think-tanks and opinion-leaders to publish some of these intellectually provoking policy research papers. These research studies aim to initiate dialogue and propose better solutions to existing economic conundrums. (To view our Policy & Regulatory research report, [click here](#))

Almost on a weekly basis, Marmore publishes thematic economic, industry, policy and capital market reports. Marmore has been recently conferred **"Research Provider of the Year - 2018" award by Global Investor, a Euromoney Group company**. To learn more, visit [www.marmoremena.com](http://www.marmoremena.com)

## Experience/Qualifications

Marmore is the only regional firm providing niche research based on strong analytics in areas that are less researched. Marmore provides full range of financial market, sector specific and economic and policy researches, as well. The different types of researches are availed based on the client's requirements. It is notable that Marmore research reports have regularly been used by various renowned institutions to better understand the MENA region.

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# Executive Summary

Kuwait healthcare sector has been nurtured for many decades by the government through the Ministry of Health (MOH) and Ministry of Defense and Petroleum Company hospitals. Though not at the top in global rankings, the country's healthcare sector has reached a fair degree of maturity whether it is the number of beds installed, the number of physicians, dentists or nurses available. The same can be said of other health indicators for the country's population like life expectancy at birth, child mortality rate, measures of eradication of communicable diseases, professional assistance available for child birth, deaths due to injuries, and availability of health insurance (including insurance provided by private & government). The country compares favorably with its GCC peers on many counts. No doubt, scope for further enhancement exists.

Kuwait is categorized as a high-income country by World Bank for comparing healthcare indicators globally. Comparison of Kuwait with its peers in North American and European countries, shows that there is a need to address many challenges that leave gaps in its healthcare ecosystem. The country's healthcare system depends to a large extent on services of expatriate doctors and nurses. The country's medical educational institutions require to be developed so that the national pool of medical professionals, that form the backbone of the country's healthcare needs, is sufficiently created and sustained.

While the country has successfully controlled fatalities from communicable diseases like malaria, tuberculosis, fatalities from non-communicable diseases like heart disease, stroke, cancer are increasing due to lifestyle, dietary and genetic disorders. This points towards requirement of greater investment in the local hospitals to treat these diseases and deploying more specialized medical professionals to handle such treatment. Also, the country provides large financial support for its citizens for healthcare treatment at overseas hospitals. This is done if the treatment cannot be administered within the country. This shows there is need for greater sophistication and expertise in the local hospitals.

Kuwait has several private hospitals due to the government's initiative for encouraging private sector participation. However, a lot needs to be done on this front, as about 80% of the health expenditure continues to be met by government. The government recognizes the need for action to reduce dependence of the sector on government finances. Experience shows that private sector hospitals are preferred over government hospitals by many nationals. This is despite nationals having access to free medical care at government hospitals. The government on its part has taken public private partnership for the sector seriously as demonstrated by forming Dhaman a partnership with private sector that is setting up 3 hospitals and several clinics exclusively for handling the healthcare needs of the over 2 million expat population employed in the private sector. Expatriates account for over three fourths of the country's population. The progress that has been made in private sector participation in the sector can be further taken forward by privatizing some of the government hospitals.

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## Drivers Influencing Healthcare Industry Growth in Kuwait

Health insurance is open to private sector and government sponsored health insurance schemes are also in place. The recent policy to restrict access for expatriates to government hospitals that were providing subsidized healthcare, has yielded greater interest in private sector health insurance schemes from the residents. Information & Communication Technology (ICT) has a big role to play in healthcare and this is at an infant stage currently in Kuwait.

Kuwaiti pharmaceutical and medical equipment industry are still very small and need to grow many times for a self-sustainable healthcare system in the country.

The MOH hospitals have in place arrangement with advanced healthcare institutions overseas for imbibing the spirit of research in its hospitals. However, research and development infrastructure for the sector may need to be enhanced and accelerated through both private and government institutions.

All in all, government's role in Kuwait's healthcare sector may be at a turning point, as it has set in place initiatives for greater public private partnerships in healthcare, and for adopting wider coverage of health insurance, and greater use of ICT in healthcare. If, funds are freed from lower investments in hospital infrastructure, the government can be expected to do more in other areas of healthcare. These are the likes of medical education, medical research and development of the pharmaceutical and building engineering skills required by medical equipment sector. The steps taken or being taken currently, bode well for the sustainability of the sector and its transition to the next stage of enhanced quality, and higher productivity.

The healthcare industry globally and in Kuwait will continue to expand due to common factors like population growth, increases in standard of living that result in consumer willingness to incur more per capita expenditure for healthcare. Also, governments world over are assigning priority to achieve Universal Healthcare Coverage. In addition, increases in education levels, happening globally, increases denizens' awareness of available healthcare solutions which leads to higher frequency of referrals to hospitals, clinics and doctors. Higher research spending on healthcare solutions that is turning out better solutions to healthcare challenges also brings, greater participation of the population in seeking healthcare assistance. This section addresses the main drivers for Kuwait healthcare sector, in order to understand the likes of capacity growth prospects, expected requirement of infrastructure for physicians, nurses, and para medical staff, gaps in Kuwaiti healthcare sector for some of the growing healthcare needs, occupational risks confronting population and areas that require to be focused by the medical research community in the country.

### 2.1 Kuwait Demographic Factors Influencing Healthcare Needs in Future

The population of Kuwait that stands at 4.13 million in 2018, has grown at a CAGR of 4.4% over the past fifteen years. It is expected to grow at a lower CAGR of 1.28% over the next five years to reach 4.42 million by 2023. Though the expected population growth is lower than that in the past, some segments of the population are expected to grow faster than the overall growth. This is resulting in higher need for some of the healthcare services. However, some segments may not grow, which is resulting in saturation of demand for some health needs that are solely dependent on demographics. The different changes expected due to demographic shifts are explained in this section.

#### Maternity, Neonatal, & Pediatric Needs reaching Saturation

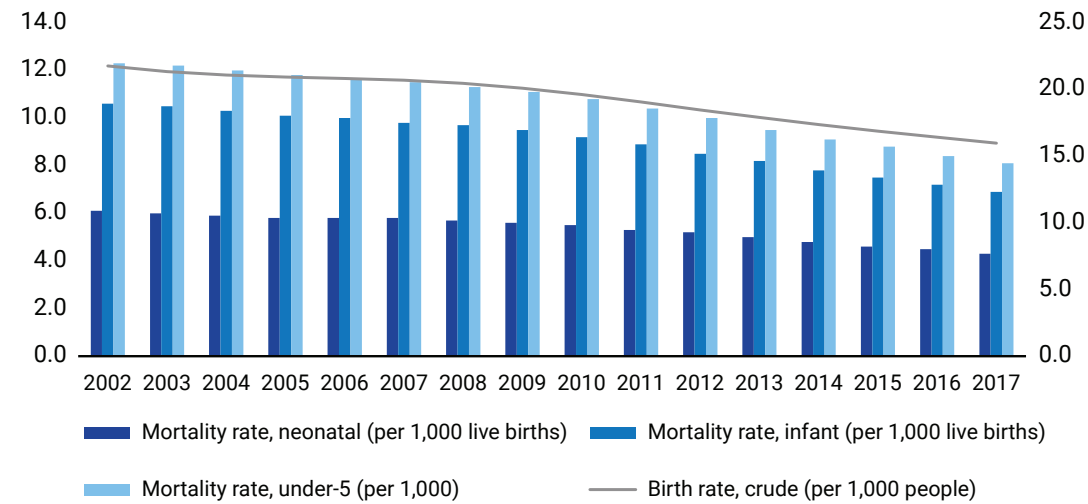
The birth rate (per 1000) has come down steadily from 21.8 per thousand in 2002 to 16 per thousand in 2017. The fertility rate measured by births per woman has decreased from 2.69 in 2002 to 1.96 in 2017. Births attended by skilled health staff is near 100%. The total number of births, derived from the birth rate, has remained almost stagnant at around 65,000 in the three years of 2015-2017, because of the declining birth rate. This means the healthcare needs for managing deliveries and maternity care maybe saturated and therefore only limited growth by volumes can be expected in the coming years. Therefore, additional revenue growth on this account can only come from value added services and infrastructure differentiation like added luxury for patients which some of the private Kuwait hospitals are introducing.

In Kuwait mortality rate for neonatal (per 1000 live births) has reduced from 6.1 in 2002 to 4.3 in 2017 and is close to that of 3.6 for a developed country like US in 2017. Mortality rate for infants (per 1000 live births) has also reduced from 10.6 in 2002 to 6.9 in 2017 and is marginally higher than that of 5.7 in US in 2017. Both indicators show substantial improvement over the period for Kuwait Healthcare sector. As the increase in



volumes for such care may not happen in future, the focus for the players providing these treatments should be to further tighten the success rates to gain competitive advantage and sustain their business.

**Figure 2.1: Mortality Rate Improvements in Kuwait**



Source: World Bank Health Statistics, Marmore

Another, demographic segment is 0-14 years population whose health care needs can be expected to be addressed by pediatric care. The under 5 years child mortality rate (will include infant mortality mentioned above) has come down from 11.2 (per 1000) in 2002 to 8.1 (per thousand) in 2017 which is marginally higher than that of 6.6 in 2017 for a developed country like USA. This market also appears to have reached saturation levels at around 450,000 persons in this category during 2015-2017. This shows the likelihood of competitive environment emerging for players operating in this segment. Therefore, competitive advantage may need to be obtained through cost or differentiation strategies. Also, it shows a need for investing resources by the health care sector in these segments of healthcare to obtain better success rates.

### Some Adult Healthcare Needs may see lower Growth

Another demographic indicator is the change in proportion of adults (18 years and above) in the population, as they are exposed to lifestyle diseases like Diabetes a risk factor primarily in the case of adults who are overweight. As per World Health Organization data for Kuwait, adults who are overweight has increased from 67.1% in 2002 to 73.4% in 2016. The rate has stabilized in the three years ended 2016, but it constitutes a big share of the population. However, this segment of the population that grew at 2.8% during 2014-2017, is expected to grow slower at a CAGR of 1.3% up to 2023 reaching 3.3 million. Advances in diabetes care and also growing consciousness of taking preventive measures in patients, coupled with the low growth in target population, indicate that this healthcare segment may see low growth in future. Capacity has already been created in Kuwait for diabetic care and with a likelihood of low or marginal growth for such treatment needs, the players in this segment may witness competitive conditions. Those hospitals that differentiate diabetes services, say by providing, new or specialized treatment methodologies may have a competitive advantage. However, the adult population is also faced with other risk factors that are proving fatal and need attention.

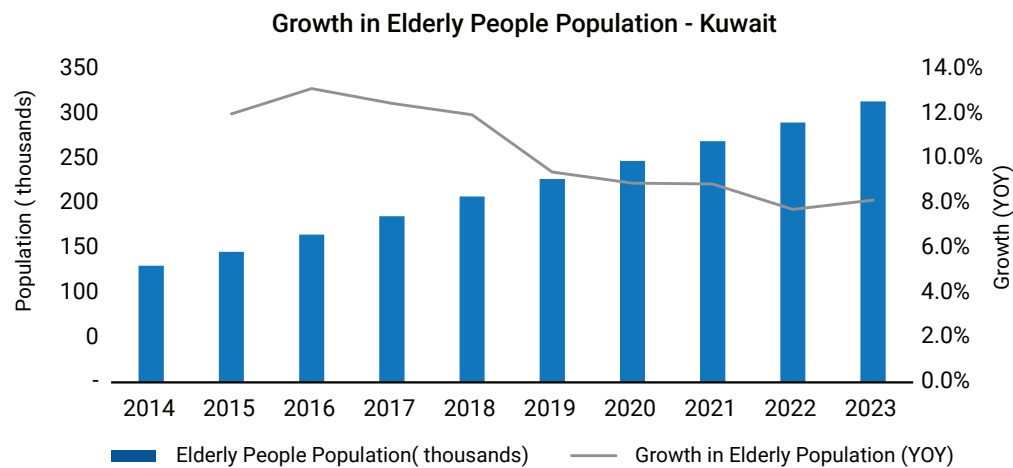
These factors are caused not by age alone but also due to other factors like lifestyle changes, dietary habits and genetic disorders as discussed in discussed later under section "Kuwait Healthcare Needs that are largest by Patient Numbers.

### Healthcare needs of Elderly Population in Kuwait to grow rapidly

Another important demographic shift that will influence healthcare sector in Kuwait, is the growth in elderly people, say 65 and above, who are subject to non-communicable diseases like Alzheimer's disease. Not only are these diseases prolonged i.e. require long periods of hospitalization or care but are also more expensive compared to some of the other conventional diseases. Hospitals need more investment in financial and human resources to effectively serve the patients afflicted by them. In Kuwait the life expectancy is high at around 73 years and compares favorably with many other countries. As a result, the elderly population (65 years and above) has increased from 130,000 in 2014 to an estimated 185,000 in 2017 (i.e. CAGR of 12.5%) and in next five years is expected to increase at a CAGR of 9.2 % to reach 314,000 in 2023. This segment of the population therefore presents a high growth and high cost healthcare need to be addressed by the Country's healthcare sector.

Therefore, demographic analysis presented above shows that some healthcare treatment needs like Elderly care will increase at a faster pace and require greater resources to be deployed. Some needs like maternal care, infant care and child health will stabilize in the future or grow at a low pace as large capacity and infrastructure for such needs has been created in Kuwait over the past many years, so requiring minimal additional resources. Some needs like diabetic care will grow at low pace as growth in excess of the available capacity for such healthcare is likely to be limited, thus indicating small additions to existing resources might be adequate. Also, though some treatments involve high costs of treatments, in case of some of the needs the treatment costs may not grow beyond inflation rate in the economy. This is due to developments taking place in medical science and technology (like lower cost of vaccines and some drugs going off patent leading to lower drug costs, as well as likely stabilization of salaries for physicians in traditional fields of medicine).

**Figure 2.2: Growth in Elderly Population (65 years and more)**



Source: World Bank Health Statistics, Marmore

2.2 Healthcare Needs in Kuwait -Segments of High & Low Growth

Death is caused by the incidence of several risk factors or diseases or injuries and inability of hospitals to cure all such cases as and when it happens. The frequency of incidence of a risk factor depends on several reasons like demographics changes, lifestyle changes, occupational changes, environmental changes, dietary shifts, and genetic disorders. The seriousness of the risk factor and the success with which the healthcare system is able to treat this risk has been examined using statistics of proportion of deaths caused by the risk factor as well as the changes in the proportion of deaths caused by this risk factor over time .

Kuwait Healthcare Needs that are largest by Patient Numbers

The principal risk factor that caused death in 2017 was Ischemic Heart Disease (IHD) which is same as Coronary heart disease and it accounted for 258 deaths out of 1000 deaths in that year. IHD is one of the most common cardiovascular diseases and occurs in adult population and it is partly attributed to lifestyle and dietary effects. The next important risk factor causing deaths in Kuwait is “Stroke” (81 deaths out of 100 deaths), which results from poor blood flow to the brain leading to cell death. The estimated deaths on this account worldwide in 2015 were estimated at 6.5 million. The third largest risk factor are Lower respiratory infections (LRTI) accounting for 74 deaths out of 1000 deaths in Kuwait. LRTI includes pneumonia, lung abscess and acute bronchitis and an estimated 2.74 million died on this account globally in 2015. The fourth in order of size is Road Injuries accounting for 68 deaths out of 1000 deaths, is an area of importance and traffic regulations and human caution can mitigate the occurrence.

The occurrence of Alzheimer’s disease (42 per thousand deaths) already discussed in the previous section, is a neurological disease that causes dementia and commonly occurs after 65 years age. This is fifth largest risk factor for deaths in Kuwait. Sixth largest in Kuwait is Hypertensive heart disease which is due to high blood pressure that effects the heart and is partly attributed to dietary patterns and lifestyle influences. Genetic disorders causing congenital birth defects is also an important risk factor in Kuwait accounting for 28 deaths out of 100 deaths and is seventh largest in Kuwait. Diabetes mellitus (discussed partly in the previous section) is explained partly by dietary and lifestyle factors and is eighth in size in causing deaths. Chronic kidney disease, neonatal disorders, and liver diseases are also large in the country.

There are several types of cancers causing deaths in Kuwait, which are individually smaller in size, but collectively taken will be large, around 85, placing them second after IHD which is ranked first. More details can be seen from the Table 2.1.

Table 2.1: Top 20 Causes of Death in 2017 in Kuwait

Risk Factor	Rank	Cause per 1000 deaths
Ischemic heart disease	1	258
Stroke	2	81
Lower respiratory infections	3	74
Road injuries	4	68
Alzheimer's disease and other dementias	5	42
Hypertensive heart disease	6	31
Congenital birth defects	7	28
Diabetes mellitus	8	28
Chronic kidney disease	9	23
Neonatal disorders	10	22
Cirrhosis and other chronic liver diseases	11	21
Tracheal, bronchus, and lung cancer	12	20
Colon and rectum cancer	13	17
Self-harm	14	17
Breast cancer	15	15
Falls	16	12
Liver cancer	17	12
Leukemia	18	11
Chronic obstructive pulmonary disease	19	11
Other cardiovascular and circulatory diseases	20	11

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore

Healthcare Needs in Kuwait that are growing at faster pace

An analysis of causative risk factors for death carried out for the period 2002-2017 shows that some risk factors account for larger deaths per thousand in 2017 as compared to 2002. The risk factors identified in the analysis show the areas where incidence of disease is increasing. These areas will therefore require greater attention and focus so as to take preventive measures and provide health education. The higher incidence of such diseases maybe a case of treatments being administered being not fully efficacious, pointing to need for greater focus by the healthcare industry to improving their treatments. This may be done through improved quality of human resources deployed or collaborative research with leaders in the field globally.

Lower Respiratory Infections, the third largest risk factor in 2017 is the risk factor that witnessed highest rise in number of deaths (1.8 X increase) per thousand deaths over the period 2002-2017. The next risk factor that witnessed higher deaths per thousand deaths (increase by 1.2 X) is "Stroke". Alzheimer's disease saw third largest increase in number of deaths (increase by 1.4X). IHD is ranked fourth among the risk factors that witnessed increase in deaths per thousand (though increased by only 1.03 X) over the fifteen-year period. Some of the risk factors falling in this category are shown in the Table-2.2.

**Table 2.2: Cause of death or injury (per 1000 deaths) that are Increasing**

Risk Factor	2002	2007	2012	2017	Change ( 2017-2002)
Lower respiratory infections	40	48	70	74	34
Stroke	67	97	86	81	14
Alzheimer's disease and other dementias	30	30	35	42	12
Ischemic heart disease	250	252	253	258	9
Colon and rectum cancer	12	14	16	17	5
Cirrhosis and other chronic liver diseases	16	18	19	21	4
Pancreatic cancer	6	7	8	10	4
Prostate cancer	5	6	7	8	3
Tracheal, bronchus, and lung cancer	17	18	19	20	3
Brain and nervous system cancer	5	5	7	8	3
Urinary diseases and male infertility	1	2	3	4	3

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore

#### Healthcare Solutions in Kuwait that are maturing in growth

The analysis of cause of death by risk factors in Kuwait over the period 2002-2017 also shows that in the case of some of the risk factors the number of deaths out of a total thousand deaths decreased over the fifteen-year period. This may be due to lower incidence of the risk factor either due to change in demographic profile of the country, or preventive measures taken by the population and administering authorities, or better medication and treatments offered by the healthcare institutions or an increase in the capabilities of the medical professionals or advancements in the medical science and their implementation in the local economy. While the improvement need not advocate complacency, it should lead to better efforts to enhance the improvements in future by identifying the known and unknown causes.

**Table 2.3: Causes of Death or Injury (per 1000 deaths) that are Decreasing**

Cause of death or injury (per 1000 deaths)	2002	2007	2012	2017	Change ( 2017-2002)
Congenital birth defects	51	41	39	28	-23
Chronic kidney disease	40	35	26	23	-17
Diabetes mellitus	44	34	29	28	-16
Road injuries	83	83	76	68	-15
Neonatal disorders	35	31	30	22	-13
Hypertensive heart disease	44	29	28	31	-13
Asthma	8	6	4	3	-5
Tuberculosis	7	5	4	3	-4
Interpersonal violence	9	8	5	5	-4

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore

The biggest improvement over the period 2013-2015 was in the number of deaths caused due to congenital birth defects (decreased by 44.2%) followed by reduction in deaths due to chronic kidney diseases (decreased by 42.2%). Diabetes mellitus (decreased by 36.1%) and Road injury deaths (decreased by 18.1%) were next in the risk factors that witnessed decrease in number of deaths per thousand deaths over the fifteen-year period. The changes in some other risk factors are given in Table-2.3. Reduction in number of deaths attributed to these risk factors is partly due to modified social practices like in the case of congenital birth defects. Or the case maybe due to steps taken to improve steps to improve lifestyle practices, like in the case of Diabetes mellitus and hyper tensive heart disease. Or it may be positive behavioral changes in the case of road injuries and due to reduction in interpersonal violence. All these changes are encouraging signs for witnessing further improvements in the future.

#### Healthcare Solutions that may result in higher per capita expenditure

There is increasing incidence of non-communicable and chronic diseases in Kuwait like Isthemic Heart Disease ( IHD), Stroke, Cancer affecting in different forms and Lower Respiratory Tract Infections (LRTI) and Hyper Tension (HT) and ailments like Alzheimers' disease like in other developed countries. These changes mean need for more sophisticated treatment facilities and greater resources as well as longer treatment days including more hospitalization and nursing care days. This will therefore drive growth in specialized health care capacities as well as increase in healthcare expenditure in future. Also, the increase in such healthcare needs, require more investment in new sophisticated medical equipment that will cost more as well as require employing new categories of physicians and para medical staff with higher qualifications who in turn are

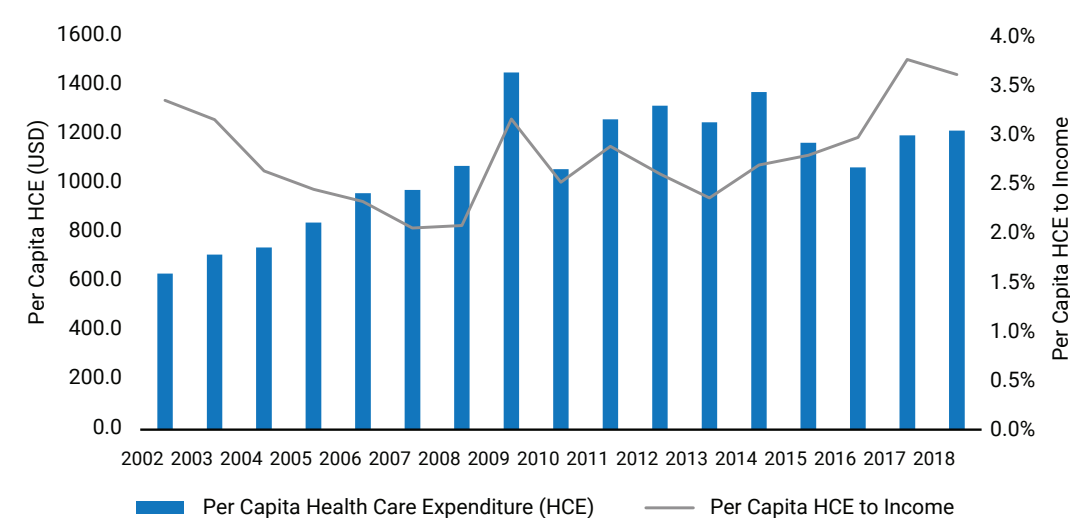
required to be paid more. Based on costs in US, based on data taken from multiple internet sources and Marmore analysis<sup>1</sup>, it is estimated that the costs of the treatments for these NCDs are as high as 11.2X times for heart bypass, 5.0X or many more times for cancer treatment, 7.7 X towards life time diabetes care and as high as 30.0X ( large part being nursing care) towards lifetime cost of Alzheimer's disease as compared to the average cost for child birth.

## 2.3 Higher Income to drive revenue growth for Kuwait Healthcare Sector

Kuwait with its high per capita income of around USD 33,690 is categorized as a High-Income nation by World Bank for the purpose of comparing healthcare indicators. As a result of the high income, governments policy goal of providing high quality healthcare and goal of Universal Health Coverage, Kuwait has witnessed a strong growth in its per capita health expenditure. On Purchasing Power Parity (PPP) basis the health expenditure is even higher. This high per capita income is expected to drive increasing revenues for the sector in the coming years. With higher standards of living, softer healthcare solutions in the fields of dentistry, dermatology, and ophthalmology may find wider reach among the Kuwait population leading to higher growth in such segments.

The chart below shows the Per Capita Income and Per Capital Health expenditure of Kuwait over the historical period of 2002-2018. Note 2017 and 2018 per capita expenditure numbers are estimates.

**Figure 2.3: Historical Trend of Per Capita Healthcare Expenditure versus Income**



Source: World Bank Health Statistics, Marmore

The per Capita Health expenditure reached its peak in 2009 after a steady increase over the period 2002 to 2009, declined in 2010 effected by low oil prices, but recovered thereafter and grew steadily during 2016-2018. It increased from USD 635 in 2002 to an estimated USD 1218 in 2018. The total health care expenditure increased from USD 1,358 million in 2002 to USD 5,039 million in 2018 at CAGR of around 8.0%.

As mentioned earlier, World Bank categorizes Kuwait in High Income category for comparison of global health care indicators. In unadjusted terms, Kuwait residents spent only 11.5% of US per capita expenditure in 2018, but this may not reveal the correct difference between the two countries. Since purchasing power of KWD is different from that of USD, it may be appropriate to compare Kuwait's per capita health expenditure on PPP basis with USA. Such a comparison shows that Kuwait per capita expenditure on PPP basis was USD 3,305 in 2018. To this, the additional expenditure that is incurred by Kuwait Government for overseas treatment of its citizens which is approximately USD 455 per capita based on data available for 2016 is added. Thus, the total per capita PPP health care expenditure in Kuwait will be USD 3,760, which is still only 35.2 % of the US per capita estimated health expenditure of USD 10,600 in 2018. The large difference in per capital health expenditure between US and Kuwait, might be partly explained by the non-inclusion of commercial returns on the hospital investment in the government health care expenditure in Kuwait, as its citizens are provided free healthcare by MOH and additionally since expats were provided subsidized healthcare till recently by MOH. Also, some of the difference might be due to higher incidence of chronic care in US compared to Kuwait. Notwithstanding these two explanatory differences, the lower per capita expenditure in Kuwait, also shows the potential for additional healthcare spending capability by Kuwaitis if luxury or specialized healthcare is offered, like as is being done by some private hospitals in Kuwait.

## 2.4 Encouragement of Private sector in Healthcare to drive growth

It has been found worldwide that private initiative leads to greater efficiencies in allocation of capital, providing quality services, introducing innovative solutions, and improved quality of services and goods. It also attracts higher levels of capital investment, higher levels of productivity, greater employee satisfaction and motivated performance. It enables finding the right cost of goods and services that results in lower misuse or wastage of goods and services, meeting demand growth and discovering new ways of operating resources. The Kuwait government is cognizant of this and has set itself bigger goals in its healthcare policy to reach the highest standards of healthcare services and infrastructure, which will promote growth of the healthcare industry in the country. The encouragement of private sector investment and management of healthcare institutions is thus expected to contribute to healthcare sector growth in Kuwait.

### Private Sector bringing in growth in capacity & higher asset productivity

The Kuwait government's policy of encouragement of the private sector participation, is showing results with 13.2% of the total hospital beds installed as of 2017 (16.0% including oil companies' hospitals) being accounted by the private sector. Also, beds installed by private sector has shown a CAGR of 1.55% which is higher than 1.12% in MOH hospitals.

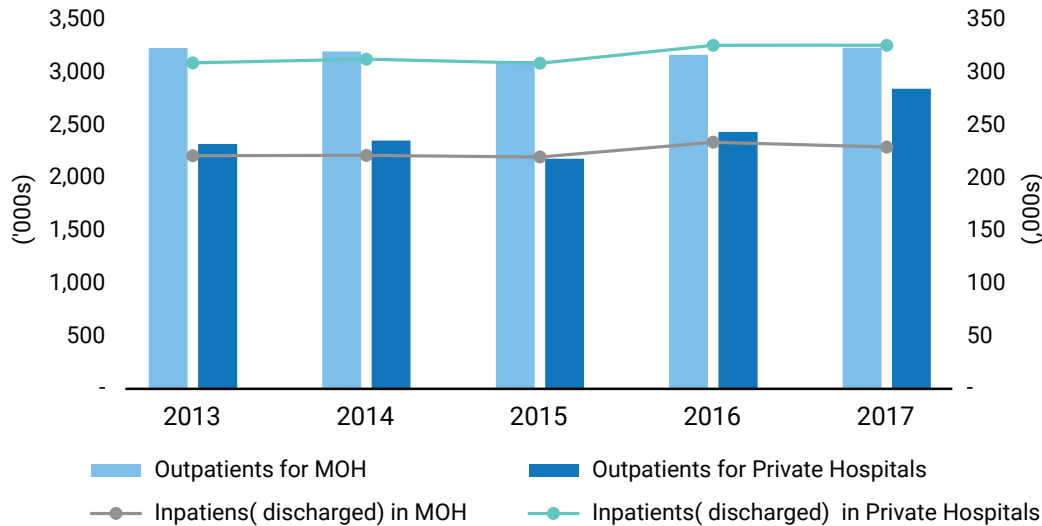
<sup>1</sup> <https://www.debt.org/medical/hospital-surgery-costs/>



More importantly, productivity enhancement by private sector participation can be seen from higher annual discharges (inpatients discharged) for private sector hospitals of 85.2 per bed versus only 32.0 per bed for MOH hospitals. Private sector hospitals accounted for 28.9% of total annual discharges in 2017 though their share of beds installed is only 13.2%. Capital requirement of hospitals can be gauged primarily by number of beds. Therefore, more patients per bed normally means higher productivity of the capital invested.

The share of outpatients handled by private sector hospitals was 43.5% versus 49.4% share for MOH hospitals, which must be seen in the light of smaller size of private hospital capacity measured indirectly through share of beds installed. Again, higher growth is seen for private hospitals as their growth (CAGR) of patients discharged is 2.33% versus 0.92% for MOH and growth (CAGR) of 5.22% for outpatients versus 0.02% only for MOH hospitals. Interestingly, the private sector hospitals have a 42.3% share of operations performed though their share of doctors is only 11.3% and their share of beds is only 13.2%.

**Figure 2.4: MOH versus Private Hospitals- Outpatients & Inpatients**

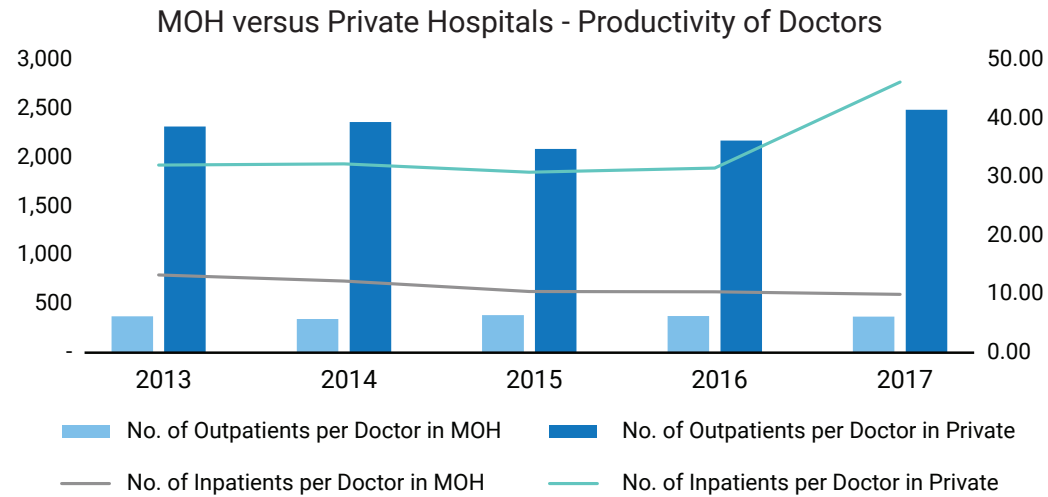


Source: MOH Statistics, Marmore

### Private Sector provides higher productivity of Medical Staff

The private sector participation is also resulting in higher productivity of staff as seen by the Outpatients per doctor of 2,491 for private hospitals versus only 370 per doctor for MOH hospitals in 2017. The productivity of doctors in treating Inpatients (measured through discharges) is 84.5 per doctor for private hospitals versus only 24.5 for MOH hospitals. The productivity of nursing staff is also seen higher at 46 annual discharges per nurse in private hospitals versus 10.0 in the case of MOH hospitals.

**Figure 2.5: MOH versus Private Hospitals – Productivity of Doctors**



Source: MOH Statistics, Marmore

The indicators like Inpatients (annual) per bed, Inpatients per doctor that have been used above for comparing productivity of private hospitals versus MOH. This might indicate productivity differences from an approximate assessment, but the comparison has to be treated with caution it might be misleading for an accurate assessment. This is because of structural differences between private and MOH hospitals in the type of healthcare solutions provided by them. In Kuwait, Private hospitals provide primary and secondary healthcare while MOH hospitals provide primary, secondary and tertiary healthcare. Tertiary healthcare is more involved and prolonged and therefore can be expected to require longer hospitalization period resulting in lower patient turnaround and lower annual number of inpatients treated per bed. This will therefore lead to differences between private and MOH hospitals in the metric of Inpatients per bed. Such a difference together with more intensive involvement of the doctor in tertiary care may also result in lower Inpatients per doctor again making the metric not fully representative of doctor productivity across MOH and private hospitals. It requires mention that healthcare insurance enables a check on the wasteful and excessive pricing of healthcare services by the private sector and can be a factor that explains the productivity differences.

### 2.5 New Health Insurance initiatives to drive growth in the healthcare sector

Introduction of Health insurance in many countries, world over, has made medical care affordable to large sections of population who may not have used it in the past, thus leading to higher growth of Healthcare sector in these countries as well.

In Kuwait, services of public hospitals are provided free of cost to the Kuwait nationals. Therefore, the compulsion for buying health insurance does not exist for citizens of Kuwait, though some of them buy insurance for seeking treatment at the private hospitals. Expats were also allowed to seek services of public hospitals and health clinics by paying prefixed charges for different services as decided by the government.

However, health insurance is not new to Kuwaiti expats as the government has prepared its expat population for paying health insurance over last few years. Previously expats had to pay an annual health insurance premium of KWD 50 (about USD 170) while renewing their resident permits. There are about 3.3 million expats in the Kingdom. But in recent years Kuwait government has formed a new company Dhaman, a public private partnership venture, which is building a chain of three hospitals and 15 health clinics exclusively for treatment of the expat population. Dhaman will provide primary and secondary care and refer expats requiring tertiary health care treatment to MOH hospitals, for which it will pay MOH a fixed premium. The expats will be required to subscribe to an annual health premium of KWD170 initially (to be gradually raised in future years) for utilizing the services of Dhaman. Even if 70% of the expat population subscribe to the annual health plan, the gross insurance premium will be about USD 1290 million. In 2016, Kuwait government also launched a health insurance for 117,000 eligible retired citizens at total cost of KWD 82 million, to allow them to utilize non MOH hospitals if preferred.

While the government health insurance schemes have been introduced, the private health insurance industry in Kuwait is also reporting to be experiencing favorable revenue opportunities. This is because both i.e. a part of the Kuwait population as well as the large expat population that has been asked to pay for use of services of public hospitals, are finding it more beneficial to subscribe to private health insurance schemes and utilize private hospital services that are found to be more attractive.

Thus, the initiatives of the Kuwait government in introduction and encouragement of health insurance schemes for the residents can be expected to also play a role in the future growth of the healthcare sector in the country.

## 2.6 Technology to also drive growth, reach and efficiency of the healthcare sector

As is happening in all sectors of the global economy, technology including IT, is finding a wider and deeper application in the healthcare industry. Likewise, it is expected to transform not only efficiencies and effectiveness of administering healthcare, it is expected to also radically improve treatment methodologies and improve efficacy of treatment and cut down associated costs. Further, it will help in responding faster to patient needs, make minimally invasive treatments for many causes a common reality, bring quality healthcare available and accessible to a wider population located across a wider geography. These changes are expected to transform the healthcare services.

Cognitive computing (machine learning, neural networks, deep learning) is being used for dealing with large volumes of rapidly changing health care data, from medical devices, smartphones, activity trackers, and electronic health records (EHRs). This is altering many aspects of medical research like facilitating speedier

drug discovery or making medical research more focused, appropriate and relevant to the needs of the humanity. Development of the IoT in the health care market (also called the Internet of Medical Things, or IoMT) has been proving beneficial in remote clinical monitoring, chronic disease management, preventive care, assisted living for the elderly, and fitness monitoring.

Another IT contribution is the fast forwarding of genetic research. Beginning in 1999, scientists spent five months and approximately USD \$300 million to generate the first initial "draft" of a human genome sequence. The cost to generate a human genome sequence is now brought down many fold to less than USD \$1,000, and is expected to eventually drop to less than USD \$1. Therefore, "Precision medicine" or care that is highly personalized for each person's genome has been made by technology to become much closer to reality.

Frost & Sullivan in a recent report mentions that in 2019, about 5-10% of healthcare focused blockchain applications will move from pilot stage to partial/limited commercial availability. Global Health a healthcare provider in UAE is understood to be planning Artificial Intelligence and Blockchain technologies in creating their products for telemedicine, prognosis and urgent assistance. AI is now being used in laboratory and imaging diagnostics. Smart Hospital Concepts like using clinical processes, management processes and patient care data are being linked to IT platforms. This is expected to result in cost reduction, improved clinical outcomes and give patients a better experience.

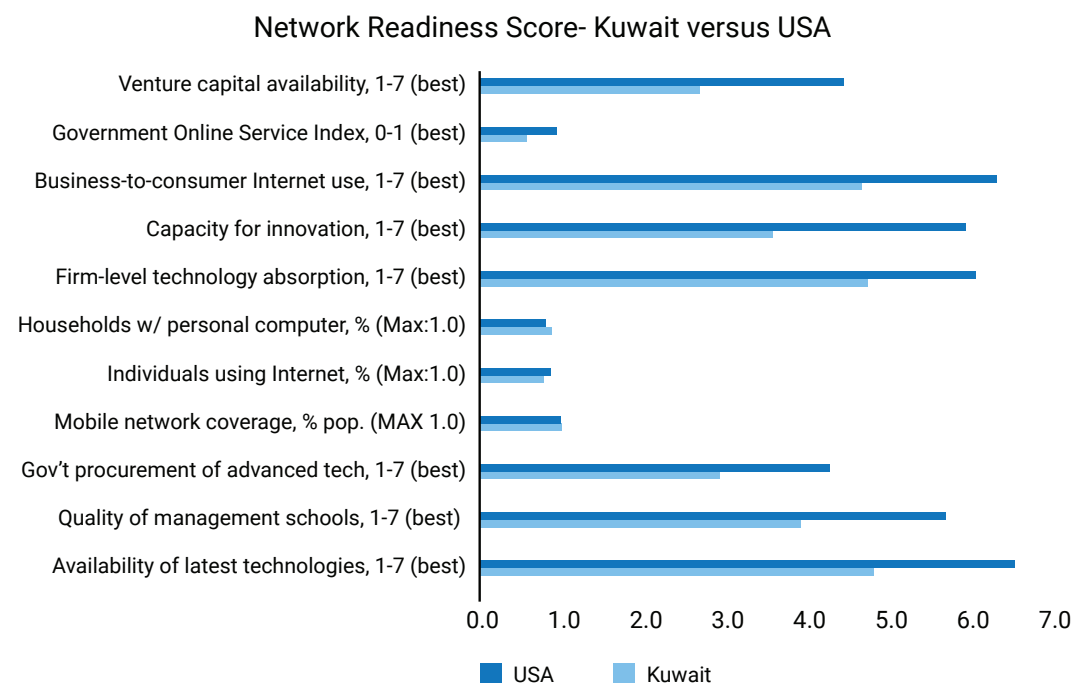
Technology is also making big changes in the sales, administrative, human resource and operational management fronts of health care institutions. The use of technology becomes more important as health organizations worldwide shift towards value-based healthcare from previously administered volume-based fee for service. In Saudi Arabia and UAE value-based care or outcome-based care is reportedly being explored. Thus, it is expected that technology can contribute in a big way to making healthcare a win-win outcome for both patients and other stakeholders of the healthcare ecosystem.

Kuwait is slightly behind other GCC countries in IT applications, IT usage, acceptance and efficiency. Though not at the top, it was ranked 61st above many countries on networked readiness index by World Economic Forum (WEF) in 2016. Bahrain, Qatar, the UAE, Saudi Arabia and Oman all featured in the top 40. In terms of "availability of latest technologies" it was ranked 65th, 82nd in terms of availability of tertiary education and quality of management schools and 60th in firm level technology absorption, and 68th in ICT use for business. More importantly, it jumped several ranks in the last ranking as compared to previous periods. More is required to move up the ladders, but the current position can provide a favorable environment for technology initiatives to thrive in the future

## Hospitals and related Infrastructure in Kuwait

Tabeeby, a Kuwait-based IT enabled social health network connecting patients, doctors, and health care providers across GCC, illustrates a Kuwaiti initiative in technology driven change in healthcare sector. The startup provides for direct and unlimited patient-to-doctor interactions, in easy, swift and fast manner and thus can enable easier access and wider reach of healthcare to the residents. More can happen in evolution of Kuwaiti healthcare technology initiatives. As was discussed in previous sections, at the country level, initiatives for large investments to upgrade hospitals and clinics, build new facilities, and enforce mandatory health insurance schemes are being made in recent years, along with government encouraging private sector to invest in healthcare. The country's Vision document aims to create "a world-class healthcare system". All this, together with greater private sector participation and new investments underway, points towards potential for higher levels of technology induction in the healthcare that can lead to favorable results for the entire health care ecosystem in the country.

**Figure 2.6: Comparison of Kuwait with USA on Network Readiness**



Source: World Economic Forum, Marmore

The hospital infrastructure is well developed in Kuwait, and with greater participation of private hospitals in the sector during recent years, the sector has been strengthened. However, the role of MOH is a dominant one and the private sector continues to have only supplemental role. The sector is witnessing large investment by the government that has set itself the goal of Universal Health Coverage in the country. However, the future growth in the sector may need to come from the private sector, as the government is moving towards shifting the burden away from its own coffers. Privatization of some of the MOH hospitals may be a reality in the future given the direction in which the government is moving in the last few years and Dhaman established in the private sector for setting up a network of hospitals for expatriates, maybe the first move of the government towards large scale privatization.

### 3.1 Key Healthcare infrastructure Indicators of Kuwait

The key healthcare infrastructure indicators for Kuwait shows, that there is a gap to bridge in the coming years based on a comparison with high income countries like United States of America (US). The beds per ten thousand population at 20.5 is 27% lower than 28.5 for US, while the number of physicians per ten thousand population at 24.7 is comparable to 25.9 in US. The other healthcare infrastructure in Kuwait like that of nurses per 10,000 population at 62.5 is lower than 85.9 for US, pharmacists at 3.8 is very much lower than 10.5 for US, and Dentists at 5.0 is slightly lower than 6.1 for US. A growing population means that more investment is required to be made to meet the higher quality of healthcare as well as higher needs of a larger population. Given the limitations of the government to increase spending on healthcare, the growth must come from private sector or public private partnerships. Also, owing to the rising incidence and need for specialized tertiary and quaternary care due to increasing incidence of chronic diseases which was discussed in Chapter 2, the hospital infrastructure needs to be strengthened in the form of larger number of specialized hospitals in future in comparison to general hospitals.

**Table 3.1: Kuwait Healthcare Sector Infrastructure**

Year	2013	2017
<b>Indicator</b>		
Physicians	9,904	10,099
Nurses	19,772	25,733
Hospital Beds (all sectors), Kuwait	8,120	8,528
MOH hospital beds	6,851	7,163
Other governmental sector hospital beds	210	239
Private hospital beds	1,059	1,126

Source: MoH Statistics

### 3.2 Government versus Private Sector roles in Kuwait

As mentioned, MOH is the major provider of healthcare in Kuwait accounting for over 80% of the healthcare expenditure. MOH hospitals provide general healthcare as well as specialized healthcare. There are also several MOH Health Clinics in Kuwait. The private hospitals are reported to provide only primary and secondary healthcare, while MOH hospitals provide also tertiary healthcare. Kuwaitis and Non-Kuwaitis seek treatment at MOH as well as Private hospitals and clinics. The third category of hospital which is small belongs to Petroleum Companies in Kuwait.

In view of the excessive demand for healthcare at MOH hospitals, the Kuwaiti government has set up Dhaman a health care assurance and healthcare provider in Kuwait, with the main objective of providing healthcare to Expat population i.e. non-Kuwaiti. The expats can seek tertiary health care needs from MOH hospitals as it is not available at Private hospitals. Dhaman proposes to pay a fixed fee to MOH for providing tertiary health care needs of Expats at MOH hospitals. Expats are required to take medical insurance from Dhaman to be eligible for healthcare treatment from Dhaman or tertiary needs at MOH hospitals.

### 3.3 Government Healthcare Infrastructure in Kuwait

As of 2017, according to MOH statistics there are about 13 government hospitals including 7 hospitals for specialized care.

The MOH General hospitals account for 56% of total beds capacity in MOH hospitals. These hospitals have facilities such as Obstetrics & Gynaecology, IVF, Pediatrics & Neonatology, Dental, General Surgery & Laparoscopy, Plastic Surgery, Cardiology & Vascular, Internal Medicine, Aviation Medicine, Dermatology & Venerology, Urology, ENT, Ophthalmology, Radiology, Clinical Laboratory, Skin Care, Anesthesiology, and Casualty.

The average Outpatients treated per day in MOH General hospitals was 5,819 (i.e. 85% of total outpatients in MOH hospitals) and the number of operations conducted in General Hospitals were 615 per day (i.e. 66% of total operations in MOH hospitals). Thus, MOH General Hospitals account for only 56% of beds but treat larger percent of Outpatients and conducts larger percent operations than in MOH hospitals as a whole.

**Table 3.2: Facilities Available in MOH General Hospitals**

S.No.	MOH General Hospitals	Beds	Operations	Outpatients
1	Al-Sabah	426	13,861	179,179
2	Al-Amiri	414	19,116	189,888
3	Mubarak Al-Kabir	725	46,416	370,816
4	Al-Farwania	868	48,630	634,793
5	Al-Adan	826	68,591	462,457
6	Al -Jahra	765	27,722	286,870
Total		4,024	224,336	2,124,003

*Source: MoH Statistics*

Specialized care hospitals, as of 2017, include maternity care, chest diseases, infectious diseases, cancer control, urology, psychological medicine, physical medicine and rehabilitation, palliative care and allergy center. The specialized care hospitals account for 44% of the total beds, 15% of total outpatients and 34% of the total operations conducted in MOH category.

**Table 3.3: Facilities Available in Specialized Care MOH Hospitals**

S.No.	Specialized Care MOH Hospitals	Beds	Operations	Outpatients
1	Al-Razi (Orthopaedic hospital)	465	13,484	
2	Physical Med. & Rehab	69		132,049
3	Maternity	453	8,288	117,877
4	Chest Disease	323	1,712	103,830
5	Infectious Disease	173		19,343
6	Psychological Medicine	600		66,733
7	Ibn Sina	355	13,264	252,528
8	Kuwait Cancer Control Center	199	1,540	62,428
9	Allergy Center			60,485
10	Palliative Care			1,094
11	Sabah Al- Ahmad Urology Center		593	3,081
12	Zain			36,075
13	Addiction			28,164
Total of Specialized Care MOH Hospitals				1,111,400
Total of General & Specialized MOH Hospitals		7,163	263,217	3,235,403

*Source: MOH Annual Statistics -2017*



### 3.4 Private Healthcare Infrastructure in Kuwait

There are 21 private hospitals and clinics in Kuwait<sup>2</sup>. The healthcare services in public sector hospitals are at highly subsidized rates. However, majority of the revenues generated in the hospital market is from the private sector hospitals due to enormous difference of prices for healthcare services in public and private sector hospitals. Dar Al Shifa Hospital, Al Salam International Hospital and New Mowasat Hospital are among leading players in the Kuwait Hospital market. Royale Hayat hospital and Al Seef hospital are luxury hospitals where healthcare services are accompanied with a luxurious hospitality experience. These are among the most expensive hospitals in Kuwait.

As of 2017, MOH mentions that there 1126 beds in private hospitals (15.2% of total hospital beds in Kuwait hospitals), handled 43.5% of total outpatients and conducted 42.3% of total operations, which are interestingly much higher than their share of total beds capacity. Oil Companies' hospitals the third hospital category in Kuwait accounted for 239 beds (2.8% of total beds), handled 7.1% of outpatients and 7.1% of operations conducted.

Inpatient discharges handled in 2017 were 334,503 (916 per day) out of which MOH hospitals accounted for the largest share of 68.6% which is however lower than their share of total beds. Private hospitals accounted for 28.9% of inpatient discharges much higher than their share of total beds. Oil Companies' hospitals accounted for 2.5% of total inpatient discharges.

**Table 3.4: Health Indicators – MOH vs Private Hospitals**

	Beds	Outpatients (OP)	Discharges	Operations	OP/Day	Discharges/ Day	Operations / Day
MOH	7163	3,235,403	229,380	73,576	8,864	628	202
Private Sector Hospitals	1126	2,847,495	96,613	61,340	7,801	265	168
Oil Companies Hospitals	239	468,210	8,510	10,237	1,283	23	28
Total	8528	6,551,108	334,503	145,153	17,948	916	398

Source: MOH Health Statistics 2017 & Marmore analysis

<sup>2</sup> [http://www.liquisearch.com/list\\_of\\_hospitals\\_in\\_kuwait/private\\_hospitals](http://www.liquisearch.com/list_of_hospitals_in_kuwait/private_hospitals)

### 3.5 Healthcare Usage – Kuwaitis versus Non-Kuwaitis

In 2017, out of the total outpatients handled at MOH hospitals 64.2% were Kuwaitis while the remaining 35.8% were non-Kuwaitis. In the case of inpatient discharges from MOH hospitals Kuwaitis accounted for 46.6% while non-Kuwaitis accounted for 53.4%. In the case of Inpatient discharges from Private hospitals Kuwaitis accounted for a very large share of 82% while non-Kuwaitis accounted for only 18%. On overall basis, out of total inpatient discharges, Kuwaitis accounted for 57.8% while non-Kuwaitis accounted for 42.2%.

Clinics & Healthcare centers of MOH are an important part of the healthcare ecosystem in Kuwait. As of 2017, MOH Clinics and Healthcare centers are treating 1,525 visits per day, which mainly relates to dental care, followed by much lower extent by genetic diseases.

**Table 3.5: Healthcare Usage – Kuwaitis vs Non-Kuwaitis**

	Kuwaiti	Non-Kuwaiti	Total	Visits per day
Genetic Diseases	37,987	33,195	71,182	195
Islamic Medicine	3,386	3,367	6,753	19
Dental	377,048	101,814	478,862	1,312
Total	418,421	138,376	556,797	1,525

Source: MOH Statistics, Marmore

### 3.6 Ongoing Investments in Kuwaiti Healthcare Sector

The government is investing US\$10.8bn to provide an additional 3,500 hospital beds and add to other healthcare facilities<sup>3</sup>. The additional capacity being planned is 50% over that of the existing beds capacity in MOH hospitals. This means roughly over 4,000 additional doctors and 10,600 nurses at the current levels of healthcare infrastructure intensity, will be required. These investments should take the Kuwait Healthcare infrastructure to reach close to developed country standards.

One of the investment projects is the New Jahra Hospital, a 1,171-bed hospital about 32km west of Kuwait City. This project was inaugurated in 2018 The hospital will function as a trauma centre for Jahra district. Another investment is by Kuwait Health Assurance Company (KHAC or Dhaman) that is setting up two hospitals that will be in the Ahmadi and Jahra areas. The two hospitals involve an investment of USD 541million and as mentioned earlier will cater to health needs of the expatriate population.

Additionally, a large maternity care hospital named The Kuwait New Maternity Hospital (KNMH), will be located to the west of Kuwait City within the Al Sabah Specialty Medical Area. This is being set up at a cost of USD 817 million by MOH. The KNMH will have 27 operating rooms and will accommodate 780 in-patients. A Children's

<sup>3</sup> (Source: Construction Week Online, Ventures Onsite, Kuwait Times).

Hospital is being built at Al Shuwaikh at an estimated cost of \$850million and will have capacity of 792 beds, a helipad and free-standing day care center. Another project is New Al Sabah Hospital in Shuwaikh which is being built at a cost of US\$635 million with a capacity of 671 beds.

New Farwaniya Hospital, Al Farwaniya, that will have 27 operation theatres and 233 ICU beds is being implemented and is expected to be completed by the end of 2019. Jaber Ahmed Al-Jaber Al-Sabah Hospital, in South Suhra is another large project that is being taken up and is expected to have 1500 hospital beds. The Adan Hospital, Hadiya District, is expanding to provide new Maternity and Pediatrics healthcare facilities. The expansion will provide additionally 632 beds. The expansion will include General Surgical unit, Same Day Surgery, Nutrition and Dietetics, Adult and Pediatrics Physiotherapy and Rehabilitation unit.

Ibn Sina Hospital, at Al Asimah, is expanding the inpatient and outpatient capacity of the current facility and will accommodate 500 inpatient beds. Diagnostic and treatment facilities include surgical department with 20 operating theatres and respiratory and physiotherapy facilities. The other expansion projects belong to Al Amiri Hospital and Infectious Diseases Centre, at Al Andalus.

A list of projects as available from MEED that was sourced from German Trade & Invest website is presented below.

**Table 3.6: Hospital Projects in Kuwait under various stages of Implementation**

Project	Investment (USD million)	Project Status	Project Owner
Kuwait Armed Forces Hospital	1.7	ST	US Army Corps of Engineers
New Sabah Al Ahmad Hospital	1	ST	Ministry of Health
Eight Hospitals Expansion: Al Farwaniya Hospital Expansion	941	DU	Ministry of Health
New Pediatric Hospital in Al-Sabah Medical Area	850	DE	Ministry of Public Works
Eight Hospitals Expansion: Al-Adan Hospital Expansion	772	DU	Ministry of Health
New Maternity Hospital	730	DU	Ministry of Public Works
Eight Hospitals Expansion: Al Sabah Hospital Expansion	636	DU	Ministry of Health
Sabah al-Salem University: Medical Campus: Hospital	635	DE	Kuwait University
Eight Hospitals Expansion: Kuwait Cancer Control Center	570	DU	Ministry of Health

Project	Investment (USD million)	Project Status	Project Owner
New Ibn Sina Hospital	560	PQ	Ministry of Health
Medical City Hospital	350	DE	Public Institution for Social Security
Expatriate Hospitals: Hospital in Ahmadi	265	DU	Health Assurance Hospitals Company (Dhaman)
Expatriate Hospitals: Hospitals in Jahra and Farwaniya	503	ST	Health Assurance Hospitals Company (Dhaman)
Sabah Al Ahmad New Physical Therapy Hospital	240	DU	Ministry of Health
Al Salam Al Ahmadi Hospital in Mahboula	42	DU	Al Salam International Hospital
X-Ray Center in Mubarak Al Kabeer Hospital	16	DE	Ministry of Health
Jabriya Medical Central	15	DU	Private Developer
Al Rawasy Clinic in Al Asimah	14	DU	Al Rawasy
Nephrology & Kidney Transplant Center	11	DU	Ministry of Health
Adan Hospital Casualty Building	11	DU	Ministry of Health

*Note: ST (Under Study), DU (under Implementation), DE ( Design Stage), PQ ( Prequalification Stage)*

*Source: German Trade & Invest, Marmore<sup>4</sup>*

<sup>4</sup> <https://www.gtai.de/GTAI/Navigation/DE/Trade/Maerkte/suche,t=kuwait-baut-gesundheitssektor-aus,did=2226362.html>

# Kuwaiti Government's HealthCare Policy and Goals

Healthcare being a basic social need, the role of government is very important for development and welfare of the residents of the country.

The Kuwaiti government has an affirmed goal that health care, is a national obligation that the Government places at the forefront of its concerns. In September 2015, Kuwait government set 2030 Agenda for Sustainable Development, towards achieving the 17 Sustainable Development Goals. High quality healthcare is one of the seven pillars of "New Kuwait". Prior to the advent of the Sustainable Development Goals (SDGs), the State of Kuwait had traditionally provided all the inhabitants of the country with essential, comprehensive and quality health care and services. These are provided across the spectrum of health promotion, prevention, treatment, rehabilitation, and palliative care. However, due to several factors including increase in population size and the recent slow economic growth, the National Health Service System in the country has been facing several challenges. Interlinking Kuwait National Development Plan (KNDP) with the targets of SDG represented therefore, an opportunity for Kuwait to meet the health needs of its people, Kuwaitis and non-Kuwaitis. The state devised various plans and projects as part of the ongoing National Development Plan, aimed at bridging coverage, quality and health seeking behavior gaps across the healthcare system. Kuwaiti government set the following policies:

- Promote Healthier lifestyles across all community segments;
- Enhance quality health services, particularly the specialized welfare services;
- Develop health mechanisms focusing on prevention of and awareness about the risks of chronic diseases;
- Promote a greater and complementary role and involvement of the private sector in provision of healthcare services
- Pursue and provide universal healthcare through a combination of projects, primarily the projects of quality healthcare services, ending non-communicable chronic diseases, and enhancing hospitals' capacity.

Most targets of SDG have been fully met in Kuwait. For instance, the State of Kuwait had a maternal mortality ratio of 4 per 100,000 live births in 2015 and that has declined from 5 and 6 per 100,000 live births in the years 2010 and 2005 respectively. As to professional attendance for child birth, it is universal, and up to 100 percent across the country. Also, Kuwait reached an under-5 mortality rate of 8.1 deaths per 1,000 live births in 2017. This rate is expected to reach 5 deaths per 1,000 live births in 2030. As to the neonatal mortality rate it stood at 4.3 deaths per 1,000 birth lives in 2017. These indicators<sup>5</sup> place Kuwait among the best performing countries worldwide.

<sup>5</sup> World Bank Data from database: Health Nutrition and Population Statistics

There is a very minimal presence of AIDS in Kuwait, with a reported average of 0.02 per 1,000 persons registered for the year 2015, and no cases of tuberculosis, malaria or any communicable diseases reported since 2012. Kuwait has initiated as of 2016 a set of activities aimed at decreasing the levels of sugar and salt in juices and snacks by 6-17 percent and 3-45 percent respectively, combined with intensive and targeted community awareness campaigns. This was a critical and urgent policy and program response to disquieting statistics that had shown relative increased mortality rates from non-communicable diseases, particularly from diabetes. Mortality rates from road and traffic accidents decreased from 12.8 in 2012 to 10.7 in 2016 per 100,000 persons. It is worth noting that deaths due to road accidents had reached a peak in 2015 causing 21.8 deaths per 100,000 persons. The birth rate among teenagers decreased between the years 2012 and 2016, to reach a rate of 0.02 and 5.97 among teenagers aged 10 – 14 and 15 – 19 respectively.

Ministry of Social Affairs (MOISA) & MOH have worked together to provide comprehensive health care services and essential medications and vaccines for all, in coordination with the Rehabilitation Medical Centre (RMC). These services reach the vulnerable including the elderly, juveniles, persons with unknown parents, and others. Health care services under reproductive health, maternal & child health and communicable and non-communicable diseases.

Another step is setting and lifting bans on certain food and activating regulations on trading and receiving food within the country; Circulating the required specifications for food trading, which are in concurrence with the standards issued by GSO and Codex Alimentarius; and activating the GCC's early food warning system.

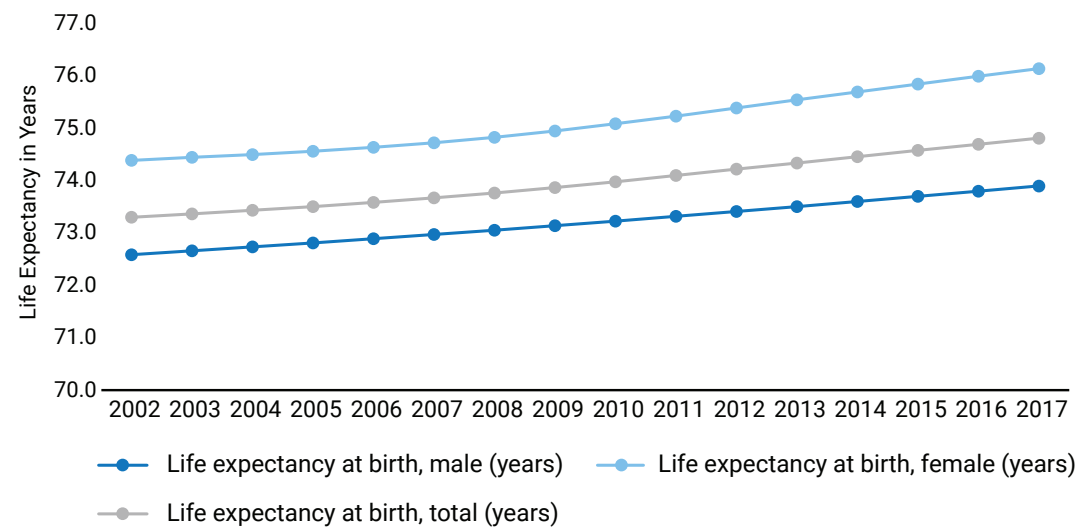
Statistics show that no mortality cases have been registered due to air pollution, unsafe water, or contaminated solid waste systems in the last 6 years. However, the mortality rate from unintended poisoning registered 1.1 deaths per 1,000 persons in 2013 and increased to 1.6 per 1,000 persons in 2016.

As to the rate of medical personnel and health care providers in Kuwait, it has marked a net increase from 8.77 workers in 2013 to 10.10 workers per 1,000 persons in 2016, with an associated increase in the numbers of pharmacists and nurses.

The chart shows the data for the period 1990 – 2017 that reveals that there is continuous progress in life expectancy.

## Market Size of Healthcare Sector in Kuwait

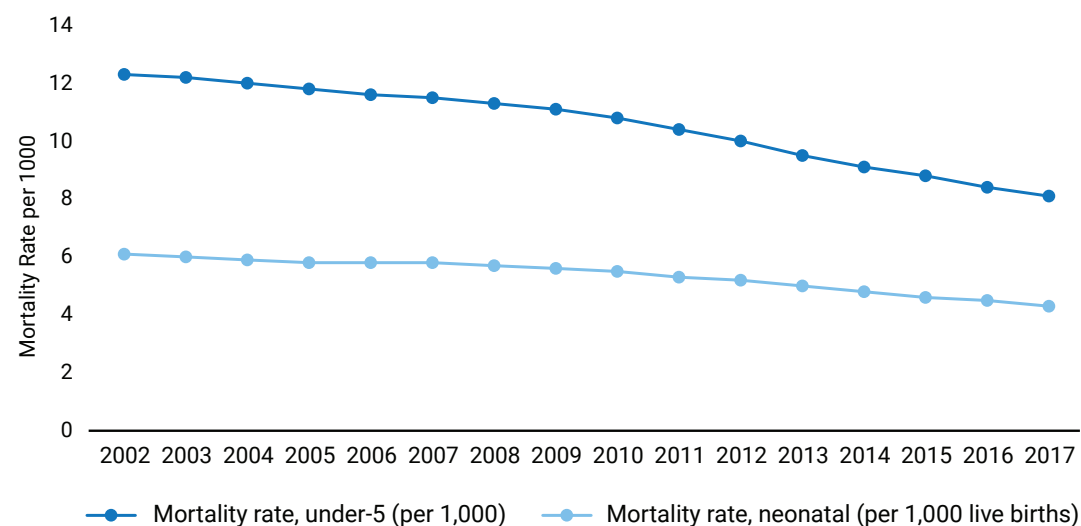
Figure 4.1: Kuwait- Life expectancy at Birth (Years)



Source: World Bank Health Statistics, Marmore

Child mortality is a very important healthcare indicators and it is seen that child mortality is on a continuous decrease

Figure 4.2: Kuwait - Neonatal and Child Mortality



Source: World Bank Health Statistics, Marmore

Kuwait's 2035 National Development Plan has specifically targeted healthcare reforms as one of seven key areas for reform over the next two decades, emphasizing quality and cost-effective service improvements to reduce wait times. In 2015, the Kuwait government agreed to spend \$115 billion on development projects over the next five years (2015-2020) as part of Kuwait's National Development Plan. Despite the lower oil prices and a budget deficit, healthcare spending remains a priority for the government. Of the total 2016/2017 government budget, about 9.6% (KWD 1,822 billion or USD 6 billion) was allocated for Kuwait's MOH, compared to 8.8% (KWD 1,684 billion or USD 5.56 billion) for the 2015/2016 budget.

Kuwait has upgraded its road ambulance fleets by adding 54 digital and online-enabled ambulances that are linked directly to emergency departments and other ambulances through the Internet. "Also, air ambulance aviation and scooter ambulances were initiated in Kuwait to reach the international standards in emergency services".

### 5.1 Free and Paid Healthcare Facilities for Kuwaitis and Non-Kuwaitis

Kuwait healthcare market is predominantly provided by the MOH of Kuwait. Some of the other government bodies like Petroleum Companies owned hospitals also exist in the country. The government of Kuwait provides free healthcare services to all its citizens at MOH hospitals. In recent years private sector players have been encouraged to invest in the sector.

Kuwaiti population as well as non-Kuwaiti are found to approach private hospitals, though the fees charged by these hospitals is high. Patients are willing to pay a premium for private treatment in order to reduce waiting times and treatment schedules. In certain fields, such as obstetrics and gynecology, local patients pay a premium for high-end services offered by private hospitals. With the entry of private hospitals, residents have the opportunity to seek healthcare in luxurious surroundings as this is favored by some of the residents. As per a 2016 news report, the private sector is expected to grow by 15-20% during coming years, adding an estimated 1,800 beds.

In recent times the government has also agreed to provide health insurance for retirees who in number exceed one hundred thousand, which provides these citizens the opportunity to seek medical treatment at the private hospitals in the country. The MoH, through Gulf Group for Health Insurance (GGHI), launched this KWD 100 million (US\$342 million) project called "Private Health Insurance for Kuwaiti Retirees" for the treatment of 117,000 retired peoples. The scheme provides for KWD15,500 annual health insurance for a male retiree, and KWD17,000 for a woman. The coverage includes KWD1500 for dental services for both sexes. GGHI earlier implemented a project for the Kuwait Oil Company (KOC) that covered the health insurance of 50,000 people. In addition, the government assists its citizens in seeking medical treatment overseas where the situation demands.



5.2 Cost of Paid Healthcare Facilities in Kuwait

As mentioned earlier healthcare facilities are provided free of cost for Kuwaiti nationals at MOH hospitals and for Kuwaiti retirees through government paid insurance at private hospitals. Expatriate population must pay for these services even at MOH hospitals.

Expatriates form more than 70% of the Kuwait population and the government has been providing the services for the expats at MOH hospitals also. According to a dated report, approximately 75% of the expatriate population is within the 20-49 years age groups. Approximately 1% of the expatriate population is above the age of 65 years. Historical growth rate of expatriate population has been between 4%-7% per annum. Expatriates in Kuwait are required by law to pay an annual health insurance of KWD 50 in order to renew their residence permits.

In October 2017, government increased the cost of services for expats at public hospitals despite annual health insurance paid by them. The new medical fees stipulate that all expatriates including doctors, nurses, pharmacists, medical lab technicians, are required to pay KWD 10 (instead of KWD 2 previously) at hospitals and an extra KWD 10 for each day an expat stays in the hospital, in addition to other additional charges. Also, a stay in the intensive care unit now costs KWD 30 per day, while a stay in a private room at a public hospital is KWD 50 per day with a KWD 200 deposit. These fees do not include surgeries, laboratory tests and x-rays. Moreover, a medical checkup at the public maternity hospital now costs KWD 10, while the delivery charge is KWD 50, among others.

To reduce government burden due to healthcare of expats, the government has established few years back, Kuwait Health Assurance Hospitals Company (Dhaman) a new healthcare institution exclusively for expatriates. This institution involves private sector participation and is setting up three 250 bed large hospitals exclusively for the 2 million expatriate population in private sector who henceforth cannot directly approach MOH hospitals. Dhaman will also establish 15 medical centers to offer primary care. Dhaman will collect an insurance fee from the expatriates to finance its operations and will contract with MOH hospitals for providing tertiary treatment to its subscribers. Specialized care, neurosurgery, and heart and eye surgery will be provided at state hospitals (MOH hospitals) as private hospitals in Kuwait do not engage in tertiary segment.

Dhaman will be allowed to charge up to KWD130 (\$469) for annual health plan premiums once it starts operations and by 2024, the premiums are expected to rise to KWD190 (\$685). The expats will also have to shoulder co-payments of KWD 3-5 per visit for primary and emergency care. Dhaman will have a capital base of KWD318m (\$1.1bn), and an anticipated workforce of 8400 full-time employees. Kuwaiti private sector firm Arabi Group Holding Company will hold 26% in the company's capital. As per Dhaman's Business Plan, in the most likely case scenario, revenues of Dhaman will be around KWD 1.63 billion (USD 5.3 billion).

5.3 Healthcare Market Size Estimates for the Future

The healthcare market size forecast for Kuwait, given in this section, is primarily based on the estimates prepared by The Institute for Health Metrics and Evaluation (IHME). IHME is an independent population health research center at UW Medicine, part of the University of Washington. IHME provides rigorous and comparable measurement of the world's most important health problems and evaluates the strategies used to address them.

The IHME forecast for Kuwait Healthcare market is provided in three forms, expected value estimates as well as lower bound and upper bound of the estimates. The forecast is provided in USD 2018 values. i.e. the forecast is a real estimate in constant dollars and does not include inflation and changes in average medical rates in excess of inflation. The estimates are shown in Table 5.1 below:

Table 5.1: Healthcare Service Market in Kuwait (2018 USD million)

Year	2017	2018	2019	2020	2021	2022	2023
Average estimate							
Average total Expenditure	4,863	5,039	5,208	5,403	5,578	5,790	6,017
Government's Share (Out of above)	(4,019)	(4,178)	(4,335)	(4,518)	(4,685)	(4,886)	(5,102)
Upper Bound of Estimate							
Average total expenditure	5,434	5,620	5,839	6,078	6,304	6,573	6,834
Government's Share (Out of above)	(4,584)	(4,752)	(4,969)	(5,181)	(5,397)	(5,672)	(5,890)
Lower Bound of Estimate							
Average total expenditure	4,324	4,472	4,604	4,772	4,908	5,109	5,284
Government's Share (Out of above)	(3,474)	(3,597)	(3,717)	(3,885)	(4,025)	(4,194)	(4,367)

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore

The estimates given above, are also prepared in Purchasing Power Parity (PPP) in terms by IHME and these are given in the Annexure-1 to this report.

The Medical Rates are increasing in Kuwait at higher than the average inflation rate in the economy. Therefore, the real estimates need to be adjusted for Medical rate inflation to arrive the future size of healthcare spending. Medical rate changes in Kuwait and other countries are available from Aon Hewitt an international firm that conducts periodic surveys globally to assess the changes in medical rates. According to this data the Medical rate changes were 7.4% in excess of inflation in Kuwait. Based on IMF data of forecasted inflation rates, the Medical Rate changes for the future were estimated for this report and the results were applied to the constant dollar estimates given in the table above. Thus, the IHME Kuwait Healthcare market adjusted for changes in Medical Rates were estimated. The adjusted market size estimates are shown in Table 5.2.

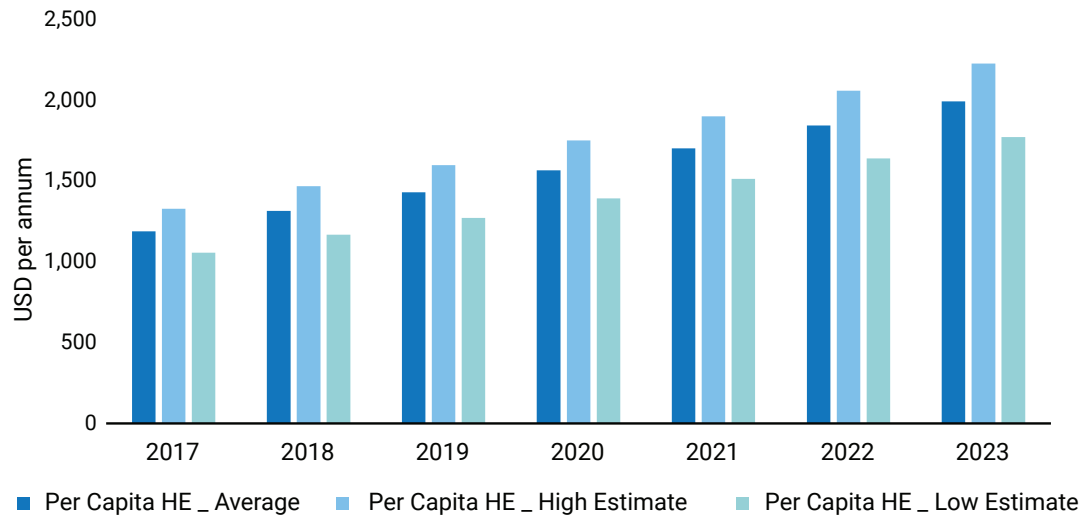
**Table 5.2: Healthcare Service Market in Kuwait (Inflation adjusted, USD million)**

Year	2017	2018	2019	2020	2021	2022	2023
<b>Average estimate</b>							
Average total Expenditure	4,863	5,447	5,991	6,647	7,314	8,030	8,805
Out of above Government Share	(4,019)	(4,502)	(4,952)	(5,494)	(6,045)	(6,636)	(7,277)
<b>Upper Bound of Estimate</b>							
Average total expenditure	5,434	6,086	6,694	7,427	8,172	8,972	9,838
Out of above Government Share	(4,584)	(5,135)	(5,648)	(6,266)	(6,895)	(7,569)	(8,300)
<b>Lower Bound of Estimate</b>							
Average total expenditure	4,324	4,843	5,327	5,911	6,503	7,140	7,829
Out of above Government Share	(3,474)	(3,891)	(4,280)	(4,749)	(5,225)	(5,736)	(6,290)

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore analysis

Thus, it is seen that as per assumed medical rate changes, and the adjusted estimates, the average total healthcare expenditure is expected to increase from USD 5,447 in 2018 to USD 8,805 in 2023 at a CAGR of 10.1%. Government share of the expenditure is around 82.6%. Based on these healthcare estimates and using world Bank population forecast, the per capita health expenditure in Kuwait is estimated to increase from USD 1,314 in 2018 to USD 1,993 by 2023 i.e. at a CAGR of 8.7%.

**Figure 5.1: Kuwait's Per Capita Healthcare Expenditure (HE)**



Source: IHME, World Bank Statistics, Marmore

**Table 5.3: Kuwait Healthcare Market Size Estimates in terms of PPP (USD million)**

Year	2017	2018	2019	2020	2021	2022	2023
<b>Average estimate</b>							
Average PPP Expenditure in 2018 US Dollars	11,248	11,655	12,046	12,496	12,902	13,392	13,918
Out of above Government expenditure	(9,297)	(9,663)	(10,026)	(10,450)	(10,837)	(11,302)	(11,802)
<b>Upper Bound of Estimate</b>							
Average PPP Expenditure Inflation adjusted	11,248	12,598	13,858	15,376	16,917	18,573	20,366
Out of above Government expenditure	(9,297)	(10,412)	(11,454)	(12,708)	(13,982)	(15,350)	(16,832)
<b>Lower Bound of Estimate</b>							
High estimate of PPP Expenditure in 2018 US Dollars	12,568	12,999	13,506	14,058	14,581	15,203	15,806
Out of above Government expenditure	10,604	10,992	11,493	11,984	12,483	13,119	13,624

## Medical Equipment and Supplies Market in Kuwait

Year	2017	2018	2019	2020	2021	2022	2023
High estimate of PPP Expenditure inflation adjusted	12,568	14,076	15,484	17,179	18,901	20,751	22,755
Out of above Government expenditure	(10,604)	(11,876)	(13,064)	(14,494)	(15,947)	(17,508)	(19,199)
<b>Lower Bound of Estimate</b>							
Low estimate of PPP Exp. in 2018 US Dollars	10,002	10,344	10,648	11,038	11,353	11,817	12,222
Out of above Government expenditure	8,035	8,319	8,597	8,987	9,309	9,701	10,101
Low estimate of PPP Expenditure Inflation adjusted	10,002	11,202	12,322	13,671	15,042	16,514	18,109
Out of above Government expenditure	(8,035)	(8,999)	(9,899)	(10,983)	(12,085)	(13,267)	(14,548)

Source: Institute for Health Metrics and Evaluation (IHME) & Marmore analysis

The healthcare sector in Kuwait provides good opportunities for suppliers of medical equipment/supplies and laboratory equipment and supplies. There are several trading companies operating in this field in Kuwait and they represent reputed international suppliers. The number of inpatients and outpatients in the year 2017 in Kuwaiti hospitals were 334,503 and 6.5 million respectively with the MOH hospitals accounting for about 50% of the total patients. Healthcare institutions that treat these patients require medical equipment as well as medicines, medical supplies and laboratory supplies, thus driving the market for medical equipment and supplies in Kuwait market. The number of patients handled is expected to be a key driver for purchase of medical equipment, medical supplies and laboratory equipment and supplies.

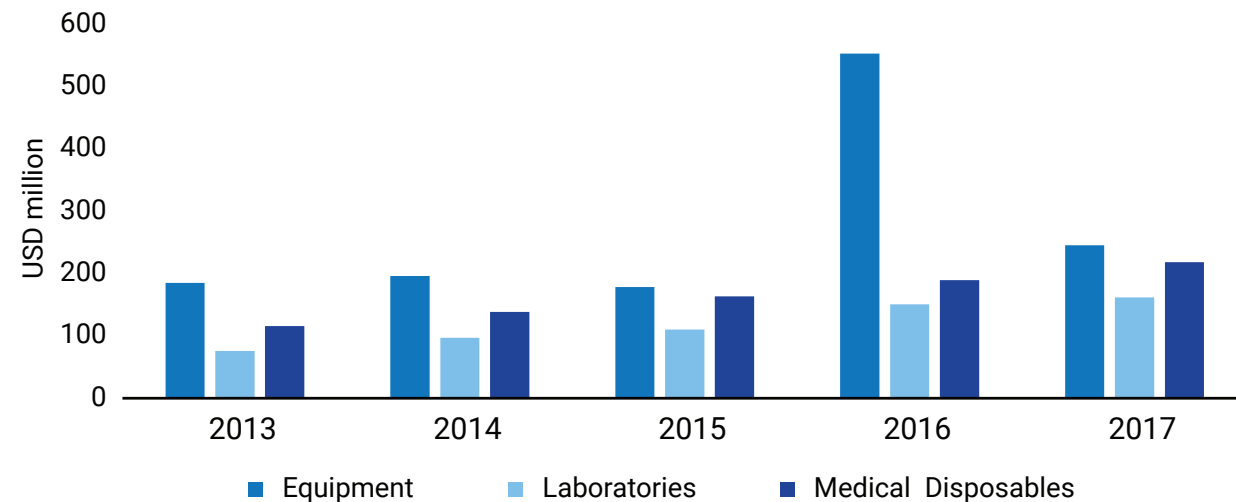
Examples of the medical equipment and supplies are a variety of X-ray equipment like Mobile X-ray and Dental X-ray, Mammography, MRI & CT scan equipment, Ultrasound systems, critical and transport monitors, adult ventilators, transport ventilators, hospital beds, incubators, phototherapy units, infant ventilators, pulse oximeters, blood gas monitors, liposuction machines, defibrillators, trauma products, anesthesia machines, electrosurgical units, lasers, endoscopy systems, uroflow meters, ultrasound devices, fetal monitors, delivery beds, surgical instruments & disposables, physiotherapy equipment and medical furniture and consumables. Other items include laboratory testing, testing equipment, and disposables. Other supplies are surgical instruments, diagnostic or laboratory equipment in the fields of orthopedics, trauma care, ophthalmology, cardiology, oncology, radiology or radiotherapy.

The market for medical and laboratory equipment is assumed to be driven by share of beds installed,. The average medical equipment purchases by MOH during 2013-2017 was USD 272 million and since MOH accounts for about 84% of the total beds, the total medical equipment purchases in Kuwait are expected at USD 324 million (USD 272 million divided by 0.84).

Average MOH purchases of laboratory equipment & supplies and medical disposables during 2013-2017 were USD 119 million and USD 165 million respectively. MOH accounts for 84% of the total beds and an estimated 61% of total inpatients and outpatients in Kuwait. Lab equipment and supplies are assumed to be driven by number of beds while medical disposables are expected to be used by both inpatients and outpatients i.e. by number of total patients. Therefore, total market size for laboratory equipment & supplies is estimated at USD 142 million (MOH purchase of lab equipment & supplies divided by 0.84 the MOH share of total beds in the country). Similarly, medical disposables purchases can be expected to be around USD 270 million (MOH purchases of medical disposables divided by 0.61).

## Pharmaceuticals Market in Kuwait

Figure 6.1: MOH Purchases of Medical Equipment, Lab Equipment/supplies and Medical Disposables



Source: MOH Statistics, Marmore

Domestic production of medicines in Kuwait is low and most of the pharmaceuticals consumed are imported, including branded and generic drugs. Kuwait had very few companies active in drug making, mainly in the generics segment. Companies in Kuwait carry production under licensing arrangements with reputed multinational companies. The most prominent drug maker is the Kuwait Saudi Pharmaceutical Industries Company, which currently operates under a joint venture between Kuwaiti and Saudi partners. Widespread prevalence of chronic diseases, growing population, high per capita income, and limited indigenous manufacturing capabilities have presented a number of growth opportunities for multinational and regional pharmaceutical companies. In line with the general trend observed in the GCC, Kuwaiti population is also highly inclined towards branded drugs. There are several trading companies engaged in the import of pharmaceuticals from several reputed international manufacturers and producers.

Kuwait's pharmaceutical industry is influenced by high public spending on healthcare and a free of cost provision of medical services for the locals have supported demand for pharmaceuticals in the country. Due to a general rise in health awareness among the population over the years, the Kuwaiti pharmaceutical industry has experienced an increasing demand for OTC medication and pseudo-pharmaceuticals. These include vitamins and supplements, weight loss formulations, and smoking cessation aids. OTC drugs can be purchased from multiple locations like pharmacies, supermarkets, specialist outlets, and convenience stores.

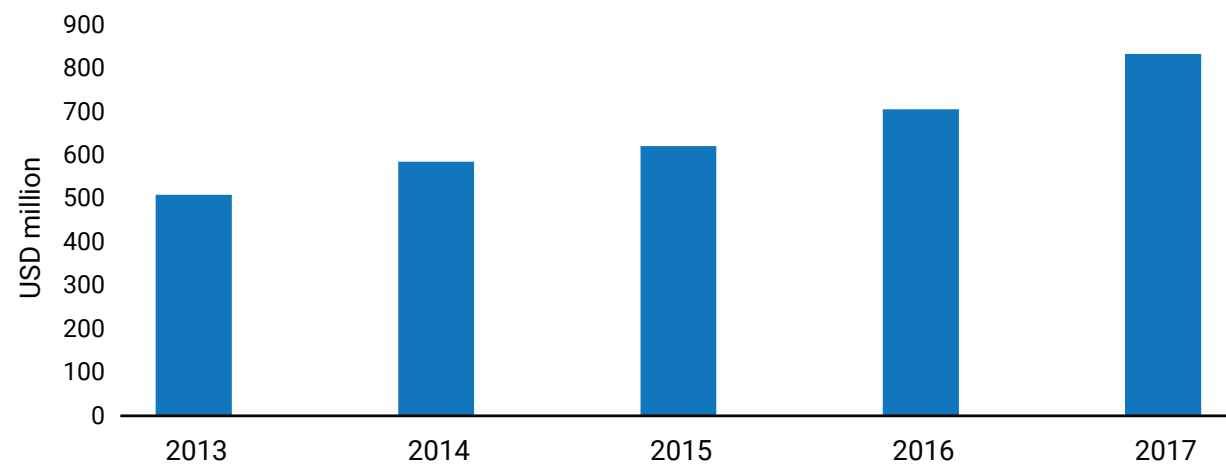
Although the industry is closely monitored by the government, medicine prices in Kuwait are high. Doctors and patients generally prefer branded products, which has stretched the government funding system. As a result, the government, which is the single largest buyer of pharmaceuticals, is keen to increase domestic production of generic medicines through participation of the private sector and foreign companies. Government hospitals and clinics are being increasingly urged to use generic drugs.

The MOH is thus a large purchaser of pharmaceuticals. The key driver of pharmaceuticals is number of inpatients and outpatients, for which the driver taken was MOH share of total hospitals. The purchases of medicines by MOH during 2017 was USD 833 million and the share of MOH in total number of hospitals was 50%. Using this information, we expect the total pharmaceutical market in Kuwait in 2017 to be around USD 1.655 billion. MOH purchases of pharmaceuticals has increased at a CAGR of 13.1% during 2013-2017, using this growth rate, the pharmaceutical market size in 2018 is estimated at USD 1.873 billion.



## Healthcare education and research in Kuwait

Figure 7.1: MOH Purchases of Medicines during 2013-2017



Source: MOH Statistics, Marmore

Kuwait government has been emphasizing spending on education and attempting to leapfrog some of the stages in educational development. More attention will be paid to improving standards in primary and secondary schools, in contrast to the recent focus on higher education. Demand for private education is likely to rise and ensuring the quality of the various educational institutions will pose a challenge. Foreign companies that contribute to training nationals tend to be welcomed by the governments. Both public and private companies are likely to be encouraged to sponsor formal training courses for young employees. There may be more efforts to tailor the availability of degrees and government-funded scholarships to the requirements of employers.

Most positions of physicians, dentists, nurses and pharmacists in Kuwait healthcare sector are occupied by expatriates. Diversity of cultures in a profession like medicine may promote cross breeding of talents and ideas as well as promote efficiency and efficacy by attracting the best talent. However, the government must look towards more nationals with eligible qualifications entering the sector, so as to build a local base of medical professionals who are committed to the national needs in all situations. For this it needs to promote and focus on medical education and research within the country and frame a policy to achieve these goals.

MOH of Kuwait through an engagement signed in 2011 with John Hopkins medicine international, has in place system for advice and implementation of mentoring and training local physicians in clinical practice, facilitating knowledge transfer activities between local administrative and medical staff and Johns Hopkins experts in the fields of patient safety, performance innovation, health care policy, public health programs and preventive medicine, educational activities, including continuing medical education opportunities, conferences, congresses, case consults (teleconference and videoconference) and nursing teleconferences/ videoconferences and public health needs assessments, recruitment activities and certification programs.

However, there is a need to implementing an institutional framework to build the country's higher education and R&D capability that should focus on four key areas - nurturing home-grown talent, attracting investment, adapting legislation and increasing knowledge-sharing

### Nurturing home-grown talent

There should be an emphasis on developing and retaining home-grown talent to build life science industry from the ground up through greater synergy between universities and companies operating within this sector. By highlighting career opportunities for skilled labor in the MENA region, those educated in the science fields are more likely to stay and their skills be retained.

# Healthcare in Kuwait and IT

## Attracting investment

The second facet to building local manufacture of medicines could include a drive to attract investment to facilitate the establishment of an enduring pharmaceutical sector. The Gulf region is emerging as a prime foreign direct investment (FDI) destination. Developing the country's R&D capability will attract investors to Kuwait. Liberalizing regulations and creating an investor friendly environment will help the Middle East countries to attract more investments.

## Adapting legislation

Adapting to current legislation must be made to encourage innovation and R&D to attract companies to operate in the country. Legislation must help to empower small and medium-scale enterprises (SMEs) to grow into large, globally orientated companies through assistance in developing their innovation strategies.

## Increasing Knowledge Sharing

Increasing interaction between representatives from the health sectors of Kuwait and innovation leaders and science experts across the world will facilitate knowledge exchange and technology transfer to build innovation that will lead to the development of locally manufactured medicines. In addition, the strategy must facilitate strong links between the policies, stakeholders, operations and promotion entities ensuring that a healthy and lively innovation ecosystem emerges. Allowing companies and individuals to create, innovate and discover new possibilities in the medical sector will provide communities with access to greater choice when it comes to their health.

The government and private sector players are in the phase of establishing new hospitals and government has been rolling out initiatives and reforms.

Kuwaiti medical profession with its Arab colleagues, comprising of owners, executives and other related professionals has set its focus on quality and safety, productivity, performance, governance, accountability, people centered care, value-based strategy, empowered and effective staff, and responsive decision making. The industry is seized of evolving business models, innovative technologies and improvements in management & healthcare systems. Working smarter not harder is actively discussed as the key to improving productivity. Doing things more efficiently is being looked at to achieve permanent productivity gains. To achieve these various improvements, it is important to bring digitization of healthcare services and liberal use of IT to the center stage.

MOH in Kuwait, as mentioned earlier has an agreement with Johns Hopkins Medicine International. This agreement provides services in the realm of assisting the MOH in assessing and meeting their information management and information technology needs, and creating a Virtual library. It also includes consulting and technical advisory services to recommend, design and implement appropriate content management system and user interface and putting in place remote medical second opinion. The scope of the agreement is an illustration of the recognition and importance of using IT applications in Kuwaiti healthcare system.

Another issue confronting Kuwaiti Healthcare sector is that most of the personnel trained and qualified to manage healthcare IT solutions are expatriates. About 60% of the ICT manpower in Kuwait are expatriates, which can be expected to be the case in IT Healthcare segment as well. Therefore, healthcare IT market needs to make more technicians available by increasing the number of technical institutes in the country. An impetus to IT in Kuwaiti healthcare can come from training and motivating the doctors to increasingly use IT solutions for healthcare delivery<sup>6</sup>.

One of the areas of focus of strategic healthcare plans can be the development of an e-Health information system that will integrate the hospitals and primary healthcare centers. IT allows the medical files to be accessed from anywhere in a country using an integrated electronic system. This will free up much-needed hospital capacity and provide them qualitative information to make better decisions. Published in the Journal of General Internal Medicine, a Weill Cornell Medical College study found that when physicians use Electronic Medical records (EMRs), they provide better care. Electronic Health Record (EHRs) may improve the quality of

<sup>6</sup> Frost and Sullivan

care by making information more accessible to physicians, providing medical decision-making support in real time and allowing patients and providers to communicate regularly and securely.

It is encouraging to note from Kuwait government studies as of 2016, that the use of electronic patient information is widely prevalent among the public healthcare providers in Kuwait. The automation of patient records in the healthcare sector can be divided into two levels; the first level is the use of computerized data where patient information is digitized, while the second level involves this digitized information being transmitted via the Internet, known as electronic data transmission (EDT). The adoption level of electronic patient information in public hospitals in Kuwait can be characterized as medium, with 50% of public hospitals indicating that they have digitized at least half of their patient information. Most of the public hospitals that have digitized this information are also capable of transmitting it via the Internet. Definitely, more can be expected to be done to increase this to 100% both of hospital coverage as well as extent of patient information covered.

The usage of ICT among public health centers in Kuwait is higher than that of larger public hospitals. The adoption of electronic patient information by public health centers in Kuwait can be characterized as high, with 63% indicating that they have digitized at least half of their patient information. It may be noted that the level of patient information available at a health center will be much lesser than a hospital, due to the size of those organizations.

Within health IT systems, electronic communications cover the span of a myriad of applications, either within a patient's electronic health record, or through application interfaces to communicate with other departments - such as radiology, pharmacy and scheduling. This enhances patient care by increasing continuity and allowing all providers involved to operate within a central record that contains essential information to optimize outcomes. Most of the public health centers in Kuwait that have digitized this information are also capable of transmitting it via the Internet. Also, in terms of infrastructure which is crucial for digitization, 51% of government and public healthcare organizations in Kuwait have Internet connections with speeds 4 Mbps or lower. Almost half of employees (48%) in the government and public healthcare sectors have dedicated PCs (desktops, laptops, or tablets), while 21% use shared PCs.

The digitization of health care records introduced by Kuwait healthcare organization and the infrastructure created for communicating this information electronically, can pave the way for a unification of all patient data across various platforms, using effective interfaces that enhance information flow. This supports the provision of care by teams of practitioners, rather than individuals, through the sharing of information and integration of services. The quality of care can be improved, and costs can be dramatically reduced<sup>7</sup> when patient information is shared within health information exchanges, leading to savings like redundant radiological exams being decreased thus saving health care costs.

<sup>7</sup> GovhealthIT

Next, majority of public healthcare organizations in Kuwait show willingness to invest in advanced technologies that can automate their core processes. 68% of the organizations have implemented partial or full automation of their core processes. Process automation has been most widely executed by healthcare (72%) organizations. In terms of the type of processes automated, greater levels of automation have been put in place for document and archival management, with 72% of organizations indicating that they have automated these processes, primarily due to regulations in the government and healthcare sectors that mandate the storage of documents for specific periods.

Adoption of Emerging Technologies among Kuwait's healthcare sectors, traditional technologies such as ERP/ GRP and collaboration tools like video conferencing are the most frequently adopted. However, 3rd Platform technologies dominate the ongoing and planned technology adoption landscape. While government and healthcare organizations in Kuwait explore the viability of 3rd Platform technologies, ICT industry pundits' predictions of more advances have come true with advent of 5 G technology which will form the basis of future ICT enabled service delivery among public sector entities.

Mobile health is the use of mobile computing and communication technologies in health care and public health. When mobile phones transitioned into becoming hand-held computers within the last decade, the new possibilities provided lower income populations with increased access to technology. In addition, since they are portable and accessible they allow both consumers and healthcare providers to both receive and provide care on a daily basis, and the minutes that m-Health applications save, can add up to significant ROI. As mobile penetration in Kuwait is among the highest in the world, and internet penetration rates are high, m-Health is an excellent option for meeting the healthcare needs of the country. Tablet computers are increasingly replacing laptops in the portable digital world, and they are being used extensively in healthcare.

Chronic diseases require frequent and costly trips by patients to the emergency room (ER). Also, long and resource-intensive treatment periods make patients with chronic diseases heavy users of healthcare services. The Hospital Management Services (HMS) program provides a support system for such patients to manage their condition on a regular basis, increase their awareness, provide critical guidance and strengthen the relationship between hospitals and patients by providing continuous patient care. Hospitals in developed countries have in recent years migrated to internet-based platforms as a vehicle for delivering HMS. They are leveraging technology to integrate remote monitoring devices, conduct data analytics and utilize alternate access channels. HMS providers are maintaining databases of consumer information to provide them personalized services. They also send them brochures, personalized letters and educational booklets to increase awareness. Kuwait with its improving mobile and internet use in healthcare can target to use ICT for HMS programs. Particularly with increasing incidence of chronic diseases in Kuwait, requirement of hospitals in the country to provide HMS will become widespread, driving the importance of ICT usage to improve effectiveness and reduce costs to patients.

## Role of Public Private Partnerships (PPP) in Kuwait Healthcare

Then there are Accountable Care Models enabled by ICT that are being tested to help reduce healthcare costs, which Kuwait healthcare sector can emulate. For instance, certain clinical centers of excellence in Saudi Arabia are piloting an interesting initiative whereby physicians are actually made aware of the costs of procedures and prescriptions before prescribing their treatment to their patients through a computerized physician order entry (CPOE) system that prints out the associated cost of the procedure or prescription. This way, physicians are less likely to prescribe redundant tests and psychological placebo medications, thereby reducing the cost burden on their respective departments. Also, patients, who do not even pay a simple co-payment and are used to receiving both the treatment and prescription for free, are made aware of the 'value' of the service the government is providing them.

All in all, Kuwait healthcare sector needs to take up the challenge to draw upon ICT developments that are making radical improvement in the reach and quality of healthcare, and bringing down its cost so as to make the goal of Universal healthcare a reality.

Kuwaiti government has long recognized the need to promote the use of Public Private Partnership mechanism which has been used globally to promote healthcare financing, supplies and education. For example, KHAC (Dhaman), discussed in earlier part of this report, is a large PPP initiative launched by Kuwaiti government. Private sector is known for greater efficiency in capital allocation, operating efficiencies, accountability assigned to staff, service quality, and employee motivation and commitment. Statistical evidence of Kuwaiti nationals visiting several private sector healthcare facilities in Kuwait despite being provided access to free healthcare at government hospitals, may be a case in point. No doubt permitting private sector to provide a social need like healthcare, requires adequate and proper regulatory framework that rewards efficiency and efficacy which seems to be rightly provided in Kuwait by basing healthcare provision for expats through the mechanism of health insurance. However it is important to focus on accountability, ethics, humanity, just behavior and responsibility, as the sector increasingly shifts towards private sector. The private partnership should not lead to forgetting the fundamentals of medical care like service and humanity. World over it is accepted that minimum government and maximum governance is recommended for public services and if it is implemented in judicious, and well thought manner can lead to enduring benefits.

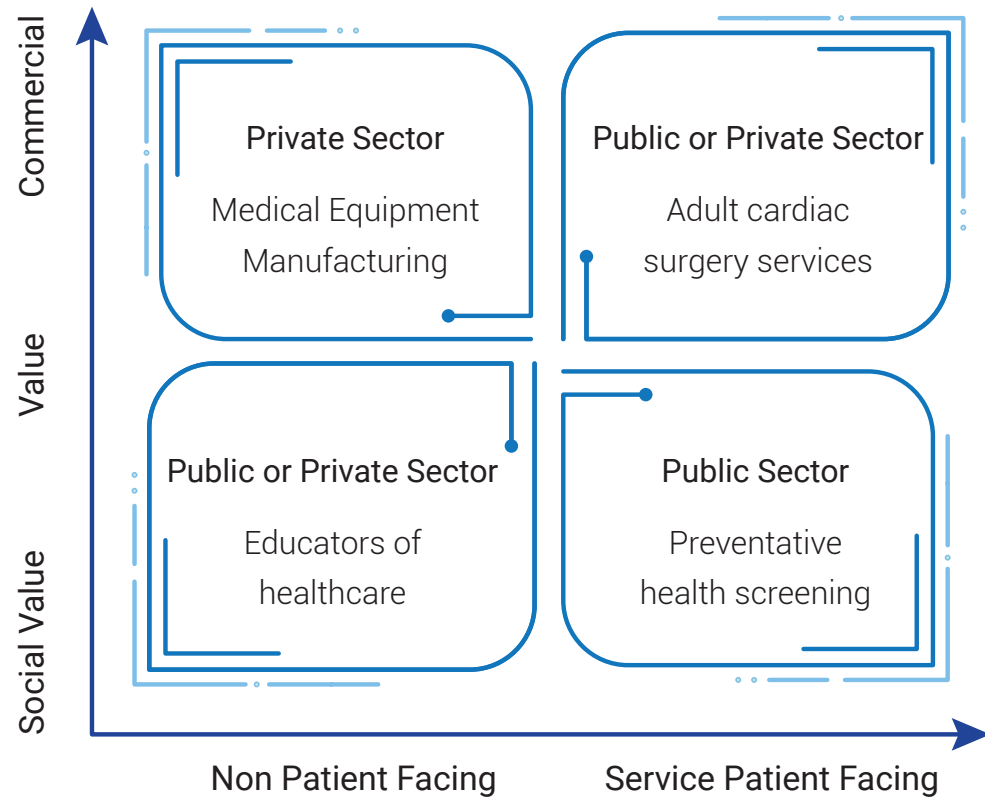
Public Private Partnerships (PPPs) can be customized according to country needs and demographics. PPP can provide its citizens with benefits such as greater accessibility, higher quality care and affordable price for patients. Kuwait has adopted its own form of building private healthcare infrastructure, considering its structural differences compared to other countries. A greater participation of private sector in the healthcare services would be required to cater better to the needs of the people in Kuwait. With the large share of capacity in the government-run and aided hospitals, it may be difficult to serve the increasing population and their health care needs in an efficient and effective manner.

The Kuwaiti government should contemplate appropriate regulations and framework of laws so that increase in public – private partnerships take place, say by privatizing the MOH hospitals. The private sector can improve the efficiency and effectiveness of health operations by leveraging its expertise in fields such as clinical, administrative and support services and attract financial investments to inject capital into profitable opportunities. The private sector can also bring in innovation in different aspects of providing and managing healthcare, as has already been proven by several of the private hospitals established in the country. For instance, the high productivity of doctors and nurses in Kuwaiti private hospitals is a case in point. The private sector participation in Dhaman is a case of private initiative and private capital being brought in for healthcare thus freeing government resources for other requirements that also have priority.



In PPP, private players can best act as providers of care, payors for care, suppliers of products, or they can operate academic institutions.

**Figure 10.1: Examples of Public/Private Division of Services**



The private sector can improve the efficiency and effectiveness of existing services in terms of safety and equipment. Also, private companies can offer services for front, middle, and back office functions. In the front office, the private sector can supply actuarial services, design benefit packages, and determine premium and reimbursement rates. Also, private firms can sell the public sector back-office administrative services such as claims management, processing, and adjudication.

The private sector's expertise allows for the supply of reliable and low-cost healthcare necessities to the public sector. The private sector can manufacture generic pharmaceuticals and vaccines locally, partnering with its public-sector client to identify the areas of highest need.

The private sector can leverage its capabilities to reduce test turnaround times such as the provision of centralized laboratory and radiology services to hospitals. Private suppliers can also improve services in medical procurement and facilities management.

Educators have an important role to play as Kuwait needs a large number of healthcare professionals. Kuwait with its policy of reducing expat workers, has to meet the demand for provision of care and have more nationals enter healthcare as part of their national education and skills goals. Many doctors as well as nurses and allied staff, such as technicians are presently expatriates. An example in private education is that from GCC member Qatar, where the Weill Cornell Medical College was set up by Cornell University and the Qatar Foundation.

Ultimately, PPPs can help the Kuwait government to alleviate the growing burden of healthcare spending. By defining the role of the public sector and appropriate PPP opportunities, governments can clear away institutional obstacles, build their own capabilities, and encourage private-sector participation. The task of making PPPs deliver healthcare that is accessible, high quality, and affordable does not, however, fall to governments alone. The private sector can be proactive, conduct its own analyses, such as feasibility studies, and share market intelligence with the public sector. By feeding into the PPP process in this manner, the private sector can assist governments and create opportunities for PPPs through a cooperative relationship based on trust.

# Healthcare Regulators in Kuwait

Chapter 11

The public health system in Kuwait is organized into two tiers: central MOH and regional health offices.

The MOH, located in the Capital region is responsible for planning, financing, resource allocation, regulation, monitoring and evaluation as well as health care service delivery. The MOH is the third largest public-sector employer after the ministries of education and interior. The MOH operates through an administrative and a technical workforce and has an extensive central organizational structure, headed by the Minister. The Minister of Health is assisted by the Undersecretary and twelve Assistant Undersecretaries. Central departments under the direct supervision of the Undersecretary include: Technical department, legal advisor, planning and follow up, public relations, treatment abroad, medical council and department of medical services.

The Assistant Under-Secretaries are administratively responsible for public health affairs, dental health, health services, blood transfusion and laboratories, nutrition and drug control, drugs and medical supplies, financial affairs, administrative affairs, legal affairs, quality control affairs, and newly established health regions and private health services & licensing department. Roles and functions of each department is clearly defined in the ministerial decrees issued at the time of establishing new departments although in practice there is some overlap and duplication of work.

Through a ministerial decree issued in 1984, Kuwait was divided into 6 health areas/regions namely Capital, Hawali, Ahmadi, Jahra, Farwania and Al Sabah. Another ministerial decree issued in 1998 revised the roles and responsibilities of health regions and central departments in MOH. The Health region is considered a nearly independent decentralized administrative unit. It is responsible for all executive affairs in the area according to the responsibilities assigned to it in terms of specialized health services as well as administrative, financial, engineering services. The Health Area offers health services assigned to it according to the laws and the policies of the MOH and internal work systems in the area. The main duties of the area include: 1) implementing action plan of MOH to ensure provision of health services to the residents of the area, 2) Offering different levels and types of health care, 3) Implementing training for medical, technical and administrative cadres and 4) Establishing and implementing a comprehensive computerized system of health information in the area.

# Challenges for Kuwaiti Healthcare Sector

Chapter 12

The Kuwaiti healthcare sector has a remarkable track record with an enviable infrastructure of hospitals run mainly by the MOH. The MOH hospitals are supplemented with a private hospital network that is becoming increasingly important. The government has set itself the goal of Universal Healthcare for residents and quality healthcare that meets with high standards. Public Private Partnership (PPP) which is very much necessary to meet the government's long-term goals for healthcare has been initiated. This is a good beginning, with the government forming a PPP for setting up hospitals and clinics exclusively for the over 2 million expats with participation of the private sector.

Notwithstanding the above, there are challenges for Kuwait healthcare sector to be addressed for meeting its lofty goals.

## Increase the national cadre of Medical Professionals

The first and foremost challenge is how to enlarge by many times, the smaller pool of medical professionals i.e. physicians, dentists, surgeons, pharmacists, nurses and other, from the existing nationals. This requires giving priority to establishing facilities for educating, developing and training of Kuwaiti medical professionals. This is not only a strategic requirement but also essential for long term sustenance of the Kuwaiti health care sector. The large network of MOH hospitals provides a good opportunity to build educational and research institutions attached to these hospitals. Also, the sector can be a good base to create jobs and accommodate several nationals in the respectable and well-paid medical profession.

## Creating Sustainable Funding for Growing Healthcare Needs

The next challenge is the availability of funds to run the hospitals and clinics in the MOH, which at 8-10% of government budget is a concern. In the coming years, funding requirements will go up further due to an increase in population and more importantly due to higher incidence of chronic diseases. The chronic diseases push up the per capita healthcare expenditure required to successfully meet the healthcare needs of the population. The government policy initiatives like encouraging PPP in the sector, enabling greater private sector hospitals and stepping up the health insurance participation by the wider population are steps in the right direction to mitigate this challenge. Kuwait belongs to the category of high-income countries and hence the government may not balk even at introduction of nominal fees also for the nationals, as already many Kuwaiti nationals do seek treatment at private hospitals for some of their healthcare needs.

## Conclusion

In conclusion, it can be said that Kuwait's Healthcare Sector has been evolving in the right direction. It started from subsidized healthcare, funded through government funding of hospitals and related operational expenses for all residents, and moved towards encouragement of private sector participation later from 2002. Thereafter, it progressed to the current policy of shifting Healthcare for expatriates to a health insurance driven model. In future it can be expected to possibly take up privatization of MOH hospitals in order to free the sector from being excessively dependent upon government budgetary expenditure. The standard of healthcare in the Kingdom in some areas is comparable to many high-income countries as categorized by World Bank for comparison of healthcare indicators. However, more needs to be done to achieve globally best standards in many other respects. There are challenges for the sector in terms of creating greater human resources for the sector from its pool of citizens. This is essential for making the sector insulated from external human resources and developing research and development institutions within the country. Both these steps are required to support and sustain the growth and quality of healthcare provided to its residents. The sector must increase its application of technology for enhancing quality and reach of its services, for which there is awareness in the leadership both in government and private sectors. The country also needs to build a good pharmaceutical producing sector, for which business models from countries like China and India can be examined. Manufacture of medical equipment by collaborating with overseas firms, like partial localization of product components should also be examined to gradually build core capabilities in the years to come. All in all, the country by recognizing the challenges before the sector and taking appropriate steps and initiatives to tackle them, can meet its goal of Universal Health Coverage at international standards of quality and affordable cost for all its residents.

### Easing the Burden of Treatment and Containing Escalating Treatment Costs

The next challenge for the sector is with how to mitigate burdening treatment procedures and increasing cost of treatment. It is seen that there is continuous increase in the medical rates that are much higher than the general inflation levels in the country. Kuwait should more actively draw lessons from the global healthcare industry that is using Information & Communication Technology (ICT) increasingly for reducing redundant diagnosis and testing procedures through use of Artificial Intelligence. It can simplify healthcare administration costs by digitising healthcare records fully. It should also use ICT to leverage wider use of costly and talented pool of medical professionals through methods like telemedicine more extensively than present. ICT can also be adopted for better logistic solutions be it for deploying the medical professional pool or for reducing cost of transportation and inventory of medicines. It should also provide wider and quicker access to its population of healthcare advice and healthcare resources by usage of IT apps based on mobile technology.

### Investing in Advanced Medical Research to bring benefits to entire Population

The sector is graduating from predominantly essential care to finding solutions to more complex healthcare challenges. In this journey it needs to prepare the ground for creating advanced research and applications infrastructure in the national healthcare ecosystem. As the government's role in funding healthcare treatment is lessened it should shift its focus to setting up institutions for healthcare research and funding them. Kuwaiti government presently provides large funding support to its citizens for overseas treatment. Local research and advancement can help curtail such overseas healthcare cost in the future. Also, such advancements that are presently accessible to only a select population, can be made available to the wider population of citizens. Another way of tapping advanced research is for the government to contribute to advanced medical research occurring in global centres of excellence, as such initiatives will also reap benefits for its entire population.

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