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The U.A.E. Healthcare Sector

An Update: January 2018





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INTRODUCTION

The U.A.E.'s healthcare sector has dramatically expanded over the past four decades. At the time of the U.A.E.'s founding in 1971, the country had just seven hospitals and 12 health centers. As of 2015, according to the latest figures from the U.A.E. statistics authority, the U.A.E. had 126 public and private hospitals with a combined capacity of over 12,000 beds.¹

U.S. companies and citizens have played an important role in this growth story, as best symbolized by the Oasis Hospital in Al Ain. In 1960, U.S. missionaries Drs. Pat and Marian Kennedy built this hospital – the U.A.E.'s first – in a mud-block guesthouse donated by the late U.A.E. President Sheikh Zayed bin Sultan Al Nahyan.² Over the next 50 years, this hospital birthed more than 90,000 babies, including members of Abu Dhabi's ruling family.³ Moreover, it retained strong connections with that family, which funded the hospital's expansion earlier this decade.⁴

As the U.A.E. healthcare sector is set to continue its impressive growth in the coming decades, opportunities for new U.S.-U.A.E. partnerships abound. Cleveland Clinic Abu Dhabi stands as a monument to these possibilities. A joint venture between the U.A.E.'s Mubadala Investment Company and the U.S.-based Cleveland Clinic Foundation, the 364-bed multidisciplinary, physician-led hospital brings an unparalleled level of specialized care to the heart of Abu Dhabi and the wider Gulf region. (A picture of Cleveland Clinic Abu Dhabi can be seen on the right.)



Mayo Clinic and Houston Methodist Global Health Care Services have both independently provided another great model of partnership. In January 2016, Dubai-based holding company Meraas announced the launch of an outpatient clinic at its City Walk development that would be a member of Houston Methodist's Global Health Care Network. (The resulting Valiant Clinic appears on the front cover of this report.) Then, in June 2016, the American Hospital Dubai became the first hospital in the Middle East to join the Mayo Clinic Care Network. This partnership is part of an intensification of Mayo Clinic's efforts to build new areas of collaboration in the U.A.E.

Building on the Business Council's September 2016 report on the U.A.E. healthcare sector, this updated and expanded edition aims to facilitate the involvement of U.S. companies in the next phase of the U.A.E.'s healthcare development by providing key information about the U.A.E. healthcare sector and potential U.A.E. partners. First, this report gives an overview of the anticipated growth of the U.A.E. healthcare market, the challenges this poses for the U.A.E. government, and the steps the government is taking to meet these challenges. Then, this report dives deeper into different aspects of the U.A.E. healthcare system, from healthcare regulation and provision, to insurance and pharmaceuticals. Finally, this report provides a snapshot of both challenges and opportunities for businesses in the U.A.E. healthcare market, and it offers resources that businesses can utilize when entering this market.

Throughout, this report highlights case studies of how leading U.S. companies have become involved in the U.A.E. healthcare system to the benefit of these companies' bottom lines, their U.A.E. partners, and the health and wellness of the citizens and residents of the U.A.E.

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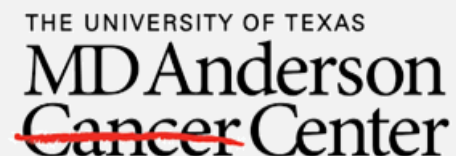
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U.A.E. Involvement in the U.S. Healthcare System

While the following report focuses on healthcare provision inside the U.A.E., it is important to note the U.A.E.'s active involvement in the U.S. healthcare sector. Large numbers of Emirati patients travel to the United States every year to seek treatment at leading U.S. healthcare providers, such as **Children's National Medical Center**, **Children's Hospital of Philadelphia**, **Penn Medicine**, **Houston Methodist**, **Mayo Clinic**, or **Cleveland Clinic**. Moreover, many prominent U.S. healthcare institutions have benefitted from the extraordinary generosity of the U.A.E. government, U.A.E. charitable institutions, and the U.A.E.'s leadership. 2018 will likely bring announcements of new such gifts.



- The U.A.E.'s Founding Father, Sheikh Zayed bin Sultan Al Nahyan, donated \$25 million to the **Mayo Clinic**, which he asked be used to help patients unable to pay for medical treatment.
- U.A.E. President Sheikh Khalifa bin Zayed Al Nahyan gifted an undisclosed sum to **Johns Hopkins Hospital** to build its 355-room Sheikh Zayed Tower for Cardiovascular Care.
- The Khalifa Bin Zayed Al Nahyan Foundation gave a \$150 million grant to **MD Anderson Cancer Center** for the construction of the Sheikh Zayed Al Nahyan Building for Personalized Cancer Care, which was inaugurated in 2016 by Sheikh Hamed bin Zayed, Chief of the Crown Prince Court of Abu Dhabi.
- The government of Abu Dhabi gave a \$150 million gift in 2009 to **Children's National Medical Center**, which it used to create the Sheikh Zayed Institute for Pediatric Surgical Innovation. This Institute has engaged in pioneering projects such as a facial recognition application that can detect genetic anomalies in newborns.⁵



PART I: GENERAL TRENDS

The U.A.E. healthcare sector is expanding rapidly to meet both the evolving needs of a growing population and the nation's ambition to become a regional medical tourism hub. This rapid expansion is challenging the ability of the U.A.E. to both provide adequate medical personnel and contain costs. However, U.A.E. government entities have adopted a series of long-term initiatives, above all U.A.E. Vision 2021, to address these challenges and guide the sustainable growth of this sector.

A. Growth

The U.A.E. healthcare market is quickly growing. In 2016, according to BMI figures cited at a U.S.-U.A.E. Business Council event by the Assistant Undersecretary of Public Health Policy and Licensing H.E. Dr. Amin Al Amiri, health expenditure reached 59.15 billion AED [\$16.12 billion], up 5% in local currency terms from 56.25 billion AED [\$15.32 billion] in 2015. Moreover, this expenditure is forecasted to rise at an annual rate of 5.5% to 73.52 billion AED [\$20.03 billion] in 2020 and eventually 101.94 billion AED [\$27.78 billion] in 2025.⁶

Population growth is one driver of this expansion. The World Bank projects that the U.A.E.'s population will grow from 9.4 million people in mid-2017 to 11.055 million by 2030. Meanwhile, the World Bank projects that by 2030 the U.A.E.'s average life expectancy will reach 79.8 years, up from 77.5 years in 2015.⁷



Demographic shifts are also at work, as the U.A.E.'s population slowly begins to age. The estimated share of the U.A.E.'s population above the age of 65 will, according to the World Bank, increase from 1.1% at present to 4.4% by 2030.⁸ This will stimulate demand for healthcare in general and geriatric care in particular.

Problematic lifestyle habits are also propelling healthcare growth, with poor nutrition and sedentary behavior leading to obesity. In the U.A.E., 37% of the population can be classified as obese, according to a recent study by BMC Public Health Journal.⁹ At the same time, an estimated 25-30% of men in the U.A.E. smoke tobacco.¹⁰

As a result, chronic conditions such as diabetes, cardiovascular diseases, and cancer are increasingly prevalent.¹¹ Heart disease accounts for 37% of all fatalities in Abu Dhabi, according to 2016 statistics from the Department of Health – Abu Dhabi. Cancer is also a big killer, accounting for 15% of deaths.¹² Diabetes is also a problem, with a 2017 survey by the Dubai Health Authority finding that 19% of Emiratis in Dubai are diabetic.¹³

The adoption of poor lifestyle habits by younger generations of Emiratis suggests these problems may persist. A 2014-2015 World Health Organization study found that 15.1% of students in Abu Dhabi are obese. Moreover, it found that just 27% of kids had 60 minutes of physical exercise daily.¹⁴ Meanwhile, a 2017 study by UAE University determined that 8.5% of children in the U.A.E. between the ages of 12 and 14 are smokers.¹⁵

A more positive driver of U.A.E. healthcare growth is medical tourism. According to the Dubai Health Authority (DHA), Dubai saw an increase in overseas medical visitors from 298,359 in 2015 to 326,649 in 2016, yielding 1.42 billion AED [\$390 million] in revenue. Dubai is targeting 500,000 overseas medical visitors by 2020, which it is encouraging through measures such as easing visa procedures.¹⁶

There are several other noteworthy reasons for the growth of the U.A.E. healthcare market, including moves toward the introduction of universal health insurance. Another factor is increasing affluence, which is leading to demand for higher-quality healthcare.

Along these lines, various metrics have shown that the quality of U.A.E. healthcare has improved. In 2017, the Legatum Institute's Legatum Prosperity Index report ranked the U.A.E. 25th globally, up from 34th in 2015 and 28th in 2016, in terms of healthcare quality.¹⁷

B. Challenges

The tremendous growth of the U.A.E.'s healthcare market poses two major challenges for the U.A.E.: (1) recruiting and educating enough quality medical personnel, and (2) containing costs.

Ensuring Adequate Staffing

Over the coming years, the U.A.E. will need an influx of medical personnel to meet its growing demand for high-quality medical services. The then-Health Authority – Abu Dhabi (now Department of Health) projected in a September 2015 report that the emirate would require 4,800 new doctors and 13,000 new nurses by 2022.¹⁸ Meanwhile, the Director General of the Dubai Health Authority estimated in early 2015 that Dubai would need 7,323 more doctors and 8,510 nurses over the next decade.¹⁹

In particular, the U.A.E. will need certain types of medical personnel that are already in short supply:

- ❖ Nurses: The World Health Organization's 2015 *World Statistics Report* found that the U.A.E. had just 31 nursing and midwifery personnel for every 100,000 people. While this ratio was higher than many countries, it was lower than most Gulf States including Kuwait (45), Saudi Arabia (48), Oman (53), and Qatar (118). It was also lower than most Western countries, such as the United Kingdom (88), France (93), and Germany (115).²⁰
- ❖ Other Medical Specialists: The Health Authority – Abu Dhabi (now Department of Health) found in 2014 that there was a severe shortfall in specialist healthcare workers, especially those in intensive and critical care medicine, emergency care, neonatology, pediatrics, oncology, orthopedics, rehabilitation, and psychiatry.²¹



Several factors will complicate adequate staffing of qualified medical personnel in the years to come.

- ❖ There are shortages of skilled Emirati medical professionals.²² As of April 2017, the U.A.E. healthcare sector had just 2,289 Emiratis, of which 49% were doctors and 14% nurses.²³ Shortages are particularly acute in the field of nursing, where just 3% of the 23,000-25,000 nurses in the country

are Emirati.²⁴ Moreover, in Abu Dhabi, that figure is even lower, with *The National* reporting in September 2017 that just 124 of the 7,000 nurses (1.77%) employed by the Abu Dhabi Health Services Company (SEHA) were Emirati.²⁵

- ❖ The Northern Emirates, Abu Dhabi's Western Region, and more rural areas of the U.A.E. can face difficulties recruiting and retaining talent.²⁶
- ❖ There tends to be high turnover among expatriate medical staff, as many medical personnel consider the U.A.E. either a temporary locale or a stepping-stone to gain experience before seeking careers in the West.²⁷

Containing Costs

The rapid growth of the U.A.E.'s healthcare industry also poses the challenge of containing costs. Healthcare in the U.A.E. tends to be more expensive than elsewhere in the region.²⁸ Moreover, the cost of healthcare is rising, with a 2016 survey by Willis Towers Watson finding that the cost of healthcare in the country is increasing at a rate of 15%.²⁹

Waste accounts for some of these high costs.³⁰ In February 2016, *The National* cited expert estimates that as much as \$1 billion is lost every year to factors including "identity fraud by patients and a culture of over-prescribing by doctors, who are given financial incentives to prescribe brand-name drugs."³¹ These expert assessments are shared by the subjective experience of patients. In a 2017 survey of 1,964 patients in the U.A.E., King's College Hospital London found that 32% felt that doctors over-prescribed medication.³²

In light of the above, it is important to note that healthcare is minimally impacted by the U.A.E.'s January 2018 introduction of a value-added tax (VAT) of 5% on most goods and services. All treatments and medicines prescribed by a doctor or medical professional are zero-rated, including preventive health care. The only exception is for cosmetic treatments and medications.³³

C. Government Response

The U.A.E. federal government – which oversees the country's healthcare sector and funds almost all non-private healthcare in the northern emirates – has developed strategic plans to both respond to the growing demand for healthcare and meet the associated challenges. The U.A.E.'s Vision 2021, the highest-level U.A.E. government strategic plan, makes achieving "world-class healthcare" one of its priority goals through, among other measures, accrediting all public and private hospitals according to clear national and international standards. The 2021 Vision also seeks to reduce the prevalence of diabetes, obesity, and smoking among the population, as well as decrease the number of deaths from cardiovascular diseases and cancer.³⁴

In keeping with this vision, Abu Dhabi has developed its own emirate-level strategic healthcare plan. In December 2014, Sheikh Mohammed bin Zayed Al Nahyan, Abu Dhabi Crown Prince and Deputy Supreme Commander of the U.A.E. Armed Forces, approved a strategy to improve healthcare in the emirate. This strategy included 85 initiatives that aim to, among other objectives, elevate the quality of healthcare services, improve safety standards and patient experience, attract and retain medical professionals, and integrate IT systems and build on electronic data.³⁵

Dubai has likewise developed strategic plans for its healthcare sector in keeping with Vision 2021. In January 2017, Sheikh Mohammed bin Rashid Al Maktoum, U.A.E. Vice President and Prime Minister and Ruler of Dubai, launched Dubai Health Strategy 2021. This strategy aims to provide high-quality medical care to patients with chronic diseases, as well as promote a culture of early detection and regular check-ups. It also seeks to create a high-quality comprehensive and integrated health service system and improve the efficiency of public hospitals.³⁶

This strategy built on previous emirate-level commitments:

- ❖ In 2013, Dubai announced a 12-year plan to reshape its healthcare system, including a 3 billion AED [\$820 million] revamp of Rashid Hospital, 40 new primary healthcare centers, and three new hospitals.³⁷
- ❖ In 2014, Dubai announced a medical tourism strategy that entailed building 22 hospitals so as to attract 500,000 medical tourists per year by 2020.³⁸
- ❖ In 2015, Dubai unveiled a 10-year plan, the Dubai Clinical Services Capacity Plan, which involves building three new medical colleges and five nursing schools. This plan also calls for implementing strategies to make the nursing profession more desirable and attract and retain high-caliber medical and healthcare staff to fill gaps in certain healthcare specialties.³⁹

Other emirates have also embarked on far-sighted plans to meet the anticipated growth in their healthcare sectors. Sharjah, for instance, has made healthcare a focus of its development strategies, beginning with the construction of Sharjah Healthcare City. Sharjah's Investment and Development Authority (Shurooq) estimates that the emirate's healthcare market will grow from 7.35 billion AED [\$2 billion] in 2016 to 8.8 billion AED [\$2.4 billion] by 2019.⁴⁰

PART II: SECTOR OVERVIEWS

Under the careful oversight of both federal and emirate-level regulatory authorities, the U.A.E. is witnessing a boon in healthcare provision from both public sector and private sector institutions. Concurrently, the U.A.E. is experiencing a rapid expansion of its pharmaceutical, medical equipment, healthcare IT, and medical education sectors.

A. Regulation

The U.A.E. has a number of healthcare regulators at both the federal and emirate levels, each with their particular geographic or functional purviews. U.A.E. healthcare regulation has recently been shaped by two broad trends: (1) an expanding remit for the Ministry of Health and Prevention and (2) increasing coordination among regulatory authorities. It has also seen two important developments:

- In August 2016, the U.A.E. introduced a new Medical Liability Law that requires all medical malpractice claims to be referred to a new medical liability committee before they are reviewed by U.A.E. judicial authorities. It also prohibits the arrest, imprisonment, and investigation of doctors until the committee issues a final report. The threat of criminal proceedings for medical treatment complaints had discouraged some foreign medical professionals from working in the U.A.E.
- In 2016, U.A.E. President His Highness Sheikh Khalifa bin Zayed Al Nahyan issued Federal Decree by Law No. 5, which allows the transplantation of human organs and tissues from both living and deceased donors. The law came into effect in March 2017, and on December 5, 2017, Cleveland Clinic Abu Dhabi carried out the country's first full heart transplant on an Emirati patient with end-stage heart disease. On the same night, the hospital performed a kidney transplant from the same deceased donor, providing vital surgery for another patient on the transplant list, while the donor's second kidney went to a pediatric patient at Sheikh Khalifa Medical City in Abu Dhabi.

Federal Level

The most important federal regulatory authority in the U.A.E. healthcare sector is the Ministry of Health and Prevention.

Ministry of Health and Prevention (MOHAP)

The Ministry of Health and Prevention (MOHAP), formerly just known as the Ministry of Health, oversees the implementation of government policy in relation to the provision of health care for all U.A.E. citizens and residents.⁴¹ According to Cabinet Resolution No. 10 of 2008, the Ministry is to provide U.A.E. citizens with healthcare; prepare health, preventive, and training programs; organize the practice of healthcare professions; and establish, manage, and supervise health facilities.⁴² In practical terms, MOHAP provides both healthcare services and regulatory oversight in the northern emirates. Importantly, it also licenses and controls the prices of drugs and medical devices nationwide.⁴³ It is currently embarking on a major national health survey that will support the U.A.E.'s national health strategy by gathering data from 10,000 families across the country on health habits, spending, and environmental health.⁴⁴ The current Minister of Health and Prevention is H.E.



Abdul Rahman Mohammed Al Owais and the Undersecretary is Dr. Mohamed Salim Al Olama.⁴⁵ For more information, please visit www.moh.gov.ae.

Federal Healthcare Regulations

The U.A.E. federal government has introduced a variety of legislation regulating the healthcare industry. The bedrock of this legislation is Federal Law No. 7 of 1975 concerning the practice of human medicine, which included sections on licensing and registration of physicians; laboratories, clinics, and private hospitals; and duties and responsibilities of a physician.

Since then, additional legislation has been introduced, most notably:

- Federal Law No. 28 of 1981 concerning the detention and treatment of the mentally ill;
- Federal Law No. 4 of 1983 concerning pharmaceutical professions and establishments;
- Federal Law No. 5 of 1984 concerning the practice of some medical professions by persons other than physicians and pharmacists;
- Federal Law No. 20 of 1995 concerning medicines and preparations derived from natural sources;
- Federal Law No. 11 of 2008 concerning licensing of fertilization centers;
- Federal Law No. 14 of 2014 (replacing Federal Law No. 27 of 1981) and Executive Decree No. 6 of 2016 concerning communicable disease prevention;
- Federal Law No. 5 of 2015 (replacing Federal Law No. 2 of 1996) concerning private health facilities;
- Federal Law No. 4 of 2016 (replacing Federal Law No. 10 of 2008) concerning medical liability;
- Federal Law No. 5 of 2016 (replacing Federal Law No. 15 of 1993) concerning organ transplants.⁴⁶

The Insurance Authority

The Insurance Authority, which was established under Federal Law No. 6 of 2007, regulates and supervises the insurance sector in the U.A.E.⁴⁷ His Excellency Sultan bin Saeed Al Mansouri, Minister of Economy, chairs its Board of Directors and H.E. Ebrahim Obaid Al Zaabi serves as its Director General.⁴⁸ For more information, please visit <http://www.ia.gov.ae>.

The U.A.E. Nursing and Midwifery Council

The U.A.E. Nursing and Midwifery Council, which was established by U.A.E. Cabinet Decree No. 10 of 2009, regulates the nursing and midwifery professions in the country. Led by its president, Princess Haya bint Al Hussein (the wife of U.A.E. Vice President and Prime Minister and Ruler of Dubai Sheikh Mohammed bin Rashid Al Maktoum), the Council consists of key constituents with regards to these fields and meets four times per year. The Council's work is organized by five standing committees and task forces that address the scope of practice requirements; registration and licensure; nursing and midwifery education; nursing and midwifery Emiratization; and nursing and midwifery research.⁴⁹

Emirate Level

While healthcare provision in some emirates is regulated entirely by MOHAP, certain emirates or free zones also have their own regulatory authorities, most notably The Department of Health – Abu Dhabi (DOH) and Dubai Health Authority (DHA).

Department of Health – Abu Dhabi (DOH)

The Department of Health – Abu Dhabi (DOH), formerly known as Health Authority – Abu Dhabi (HAAD), regulates the healthcare sector in Abu Dhabi. It defines the strategy of the health system, and it monitors and analyzes both the health status of the population and the performance of the system. In 2017, the DOH implemented a scheme whereby it linked payments made to healthcare facilities for services and treatment to the level of care they provide. It also instituted a new rule requiring patients to seek a doctor's referral before visiting another doctor in the same specialty within 21 days of the first outpatient visit.⁵⁰ The Chairman of the DOH is His Excellency Sheikh Abdulla bin Mohamed Al Hamed and its Acting Undersecretary is Mohamed Al Hameli.⁵¹ For more information, please visit www.haad.ae.



DOH Partnerships with U.S. Institutions

Johns Hopkins Bloomberg School of Public Health signed a 10-year agreement with the Health Authority – Abu Dhabi (now Department of Health) in 2008 to develop research, educational, and public health programs in Abu Dhabi.⁵²



Dubai Health Authority (DHA)

Dubai Health Authority (DHA), which was created by Law No. 13 of 2007, is the main health authority in Dubai. DHA regulates all of Dubai's healthcare sector services through licensing healthcare facilities and professionals and inspecting health facilities.⁵³ At the same time, it shares its ratings of hospitals with the general public.⁵⁴



DHA also regulates the cost of health care in the emirate and runs special programs such as one meant to encourage young Emiratis to enter medical professions.⁵⁵ The President of DHA is His Highness Sheikh Hamdan bin Rashid Al Maktoum, Deputy Ruler of Dubai and Minister of Finance.⁵⁶ His Excellency Humaid Al Qatami is the Chairman of the Board and Director General.⁵⁷ For more information, please visit <https://www.dha.gov.ae>.

Dubai Healthcare City Authority – Regulatory

Dubai Healthcare City Authority – Regulatory (DHCAR), which was established by Law No. 9 of 2011, regulates Dubai's healthcare free zone: Dubai Healthcare City.⁵⁸ As such, it is responsible for the licensure of all healthcare professionals and healthcare operators in the free zone. It is also responsible for setting and maintaining international best practices in healthcare delivery and patient care within that zone.⁵⁹ Dr. Ramadan AlBlooshi is the CEO of Dubai Healthcare City Authority – Regulatory. Her Royal Highness Princess Haya Bint Al Hussein is Chair of the Board of Dubai Healthcare City Authority. For more information, please visit <http://dhcr.gov.ae>.

Sharjah Health Authority

Sharjah Health Authority (SHA), which was established by Sharjah Emiri Decree No. 12 of 2010 (amended by Emiri Decree No. 33 of 2016), regulates Sharjah's healthcare system. According to SHA, its prime mission at present is to develop and manage Sharjah Healthcare City. It also manages the Sharjah Health Insurance department.⁶⁰ Dr. Abdulaziz Saeed Al Muhairi is Director of the Sharjah Health Authority. For more information, please visit <http://www.sha.gov.ae/>.

B. Provision

Although public sector institutions play a relatively outsized role in U.A.E. healthcare provision, the private sector is assuming an increasingly prominent role, aligning with a deliberate government strategy to encourage public-private partnerships and private sector investment.

Public Sector

Three public sector institutions play a major role in U.A.E. healthcare provision: Abu Dhabi Health Services Company (SEHA), Dubai Health Authority (DHA), and the Ministry of Health and Prevention (MOHAP). The latter is particularly active in the northern emirates.

Abu Dhabi Health Services Company (SEHA)

The Abu Dhabi Health Services Company (SEHA), which was established by Abu Dhabi Emiri Decree No. 10 of 2007, is an independent public joint stock company that owns and operates all public hospitals and clinics across Abu Dhabi. SEHA claims to be the largest healthcare network in the U.A.E., consisting of 13 hospitals, 41 primary healthcare clinics, 11 disease prevention and screening centers, 3 mobile clinics, 1 school clinic, 2 blood banks, 4 dental centers, 2 employee healthcare centers, and 1 vaccination center.⁶¹



SEHA's flagship business entities are – in decreasing order of patients served – Tawam Hospital, Sheikh Khalifa Medical City, Al Ain Hospital, Al Gharbiya Hospitals, Al Mafraq Hospital, Al Rahba Hospital, and Corniche Hospital (the U.A.E.'s largest maternity hospital).⁶² The Al Gharbia Hospitals business entity notably consists of six hospitals and four primary healthcare centers that serve the more than 200,000 people living in the 60,000-square-kilometer area of Abu Dhabi known as the Western (Al Gharbia) region.

Over the last several years, SEHA has embarked on the enlargement of its health facilities in the Western Region as well as several highly publicized expansions of Sheikh Khalifa Medical City, adding a dialysis center, psychiatry center, and pediatric dialysis unit.⁶³ It has also added new facilities, such as Al Towayya Children's Specialty Centre in Al Ain.⁶⁴

SEHA is currently building two major new hospitals. As of January 2017, construction was 90% complete on the 4 billion AED [\$1.09 billion] Sheikh Shakhboub Medical City, which will accommodate 732 hospital beds as well as two royal and 36 VIP suites from a 300,000 square-meter facility in Al Mafraq area in Abu

Dhabi.⁶⁵ Moreover, as of August 2017, construction works on a 4.4 billion AED [\$1.2 billion] 719-bed New Al Ain Hospital were 50% complete.⁶⁶

The Chairman of the Board of SEHA is His Excellency Mohammed Najm Al Qubaisi and the CEO is His Excellency Dr. Matar Rashed Al Darmaki. For more information, please visit www.seha.ae.

SEHA Partnerships with U.S. Institutions

- **Johns Hopkins Medicine International** signed an agreement with SEHA in 2006 to manage the 479-bed Tawam Hospital in Al Ain City, which is a national referral center for oncology services. Two years later, it signed another agreement with SEHA to manage the 173-bed Al Rahba Hospital outside Abu Dhabi City.
- **Cleveland Clinic** signed an agreement with SEHA in 2007 to manage Sheikh Khalifa Medical City, which is located in Abu Dhabi City and describes itself as the “flagship institution” for the public health system in Abu Dhabi. It consists of a 586-bed tertiary hospital, 14 outpatient specialty clinics, and the Abu Dhabi Blood Bank.
- **The New England Center for Children** signed an agreement with SEHA in 2007 to launch a comprehensive education program for children with Autism Spectrum Disorder. The New England Center subsequently opened a facility in Mohammed bin Zayed City.
- **Children’s Hospital of Philadelphia (CHOP)** is supporting the advancement of pediatric medical education in cooperation with SEHA by entering an Emirati national matched medical student graduate into CHOP’s Pediatric Residency Program (3 years) on a yearly basis.⁶⁷



JOHNS HOPKINS
MEDICINE



Cleveland Clinic

The New England Center
for Children®
Autism Education and Research



مركز نيو إنجلاند
للأطفال
التوحد: التعليم والبحث



The Children’s Hospital of Philadelphia®

Dubai Health Authority (DHA)

In addition to its role as a regulator, the Dubai Health Authority (DHA) operates Dubai’s public healthcare facilities.⁶⁸ In 2016, more than 1.1 million patients visited DHA-run hospitals and medical centers, with Dubai Hospital welcoming 382,106 patients, Rashid Hospital 325,619, Latifa Hospital 161,006, and Hatta Hospital 124,074.⁶⁹ DHA also received patients at the Dubai Diabetes Center, the Dubai Physiotherapy and Rehabilitation Center, the Thalassemia Center, the Airport Medical Clinic, and the Dubai Gynecology and Fertility Center.

DHA continues to build new facilities and develop existing ones.⁷⁰ In May 2017, Sheikh Hamdan bin Rashid Al Maktoum, Deputy Ruler of Dubai and President of the Dubai Health Authority, approved a 290 million AED [\$79 million] expansion plan for Dubai Hospital that will include a six-story building for specialized outpatient clinics.⁷¹ DHA is also planning to build a 10-story Rashid Medical Complex, which will house state-of-the-art equipment, 250 wards, 1,000 outpatient clinics, and amenities such as a five-star hotel, green residential buildings, and shopping areas.⁷²

DHA Partnerships with U.S. Institutions

GE Healthcare, the DHA, and Columbia HeartSource signed an MOU in September 2017 to collaborate and explore the feasibility of an International Center of Cardiology in Dubai. The center would utilize the most advanced technology and equipment to help deliver patient care as well as focus on training, education, and research. Implementation could begin as early as mid-2018.⁷³



GE Healthcare

Ministry of Health and Prevention (MOHAP)

On top of its countrywide regulatory functions, the Ministry of Health and Prevention (MOHAP) directly manages public healthcare services in certain areas of the country. As of December 2017, MOHAP oversaw 16 hospitals and more than 68 clinics throughout the U.A.E., especially in the northern emirates.⁷⁴ MOHAP has recently made a strong push to improve healthcare in the northern emirates through both the expansion of existing hospitals (such as Fujairah Hospital) and the construction of new specialist clinics and health centers.⁷⁵ In 2016, MOHAP announced that its hospitals would begin regularly catering to all U.A.E. residents instead of just Emiratis.⁷⁶

“A Very Special Place”

In November 2016, Children’s National Medical Center launched an illustrated, bilingual children’s book titled *A Very Special Place* in honor of the U.A.E.’s Year of Reading. This book, which was written by Emirati writer Maitha Al Khayat and illustrated by Emirati graphic artist Noura Al Sheikh, tells the story of an Emirati patient who is admitted to Children’s National. At the book launch, His Highness Sheikh Abdullah bin Zayed Al Nahyan, Minister of Foreign Affairs and International Cooperation, read this story to oncology patients at Tawam Hospital in Al Ain.⁷⁷



MOHAP Partnerships with U.S. Institutions

- **Children's Hospital of Philadelphia (CHOP)** and MOHAP signed a memorandum of understanding in October 2017 whereby CHOP will offer its pediatric experts on a short-term visiting basis to provide education and clinical care at the Ministry's hospitals. As a result of this important initiative, both clinicians and children in the Middle East region will benefit from medical education and consultations by CHOP healthcare providers who are experts in the field of pediatric medicine.
- **Mayo Clinic** and the then-Ministry of Health agreed in 2012 to partner in the field of continuous medical education. They also agreed to exchange experts and consultants to provide checkups and treatment for critical cases in the Ministry's facilities.
- **Children's National Medical Center** has embarked on research collaborations with MOHAP as part of a longstanding relationship between the two institutions.
- **GE Healthcare**, MOHAP, and Abu Dhabi International Medical Services formed an innovative, performance-based public-private-partnership in early 2016 called Unison, combining the best in medical and digital technology, hospital management, and patient care to create the U.A.E.'s first public sector teleradiology capability. This unique partnership model is the U.A.E.'s first radiology outsourcing solution, which provides 16 hospitals and 8 primary health clinics in the Ministry of Health's network of hospitals a platform to seek second opinions, match clinical cases with the most appropriate radiologists, and potentially speed up patient diagnoses and treatment.
- **Johnson & Johnson** signed a partnership with MOHAP in 2016 to screen 10,000 high-risk individuals and train 90 nurses based on the Johnson & Johnson Diabetes Institute (JJDI) curriculum. In 2017, the two organizations announced the launch of early detection programs for diabetes in ten healthcare centers across the U.A.E.⁷⁸



The Children's Hospital of Philadelphia®



MAYO CLINIC



Children's National™



GE Healthcare

Johnson & Johnson

Ministry of Presidential Affairs

The Medical Office of the Ministry of Presidential Affairs (MOPA) has made a major push to expand the quantity and quality of healthcare provision in the U.A.E., particularly in the northern emirates. MOPA funded the 750 million AED [\$204 million] Sheikh Khalifa General Hospital in Umm Al Quwain, which officially opened in December 2012, is managed by NMC Health, and features clinics specializing in pediatrics, gynecology, emergency care, dialysis, and dermatology.⁷⁹ MOPA also funded the 1 billion AED [\$272 million] Sheikh Khalifa Specialty Hospital in Ras Al Khaimah (near the border with Umm Al Quwain), which officially opened in February 2015 and, at 248 beds, claims to be the largest specialist hospital in the Middle East.⁸⁰ In September 2017, the Follow-Up Committee of the Initiatives of the U.A.E. President approved funding for the 300-bed Sheikh Khalifa Central Hospital in Fujairah at a cost of 866 million AED [\$236 million].⁸¹

Government-Linked Entities

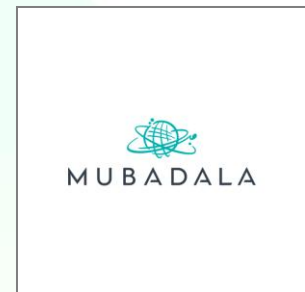
Government-linked entities such as Mubadala Healthcare, a division of the prominent and diverse Abu Dhabi government investment vehicle Mubadala Investment Company, have also played a prominent role in the provision of healthcare.

Mubadala Healthcare

Mubadala Investment Company, an investment and development company established by the Abu Dhabi government, has actively spurred the development of healthcare in the emirate through one of its sector verticals, “Mubadala Healthcare.”

Mubadala Healthcare works with prominent international partners to fill gaps left by public sector providers. Along these lines, it has:

- ❖ Joined with Cleveland Clinic Foundation to create its flagship project: Cleveland Clinic Abu Dhabi;
- ❖ Collaborated with institutions such as South Korea’s Wooridul Hospital to set up Healthpoint, a world-class specialty hospital that houses the Wooridul Spine Center;⁸²
- ❖ Partnered with Imperial College London to establish the Imperial College London Diabetes Centre, whose two facilities (one in Abu Dhabi City and the other in Al Ain) have accommodated more than 1 million patient visits since 2006;⁸³ and
- ❖ Teamed with Swiss company Medgate to introduce the Abu Dhabi Telemedicine Center, which allows patients to seek a doctor’s opinion by phone 24 hours per day 7 days per week.⁸⁴



Other Mubadala Healthcare assets include the Capital Health Screening Centre, Tawam Molecular Imaging Centre, and the National Reference Laboratory. The latter offers more than 5,000 medical diagnostic tests to regional healthcare providers.⁸⁵

The Acting Head of Mubadala Healthcare is Mr. Abdulla Al Shamsi. For more information, please visit <https://www.mubadala.com/en/what-we-do/healthcare>.

Mubadala Healthcare Partnerships with U.S. Institutions

- **Cleveland Clinic Foundation** and Mubadala Investment Company collaborated on the construction of Cleveland Clinic Abu Dhabi, a state-of-the-art medical institution on Al Maryah Island that offers world-class care to patients, closer to home. It boasts 13 institutes, including five centers of excellence in the following areas: Heart & Vascular, Neurological, Digestive Disease, Eye, and Respiratory & Critical Care. In 2016, its first full year of operation, the hospital had more than 337,000 patient encounters.
- **Children's National Medical Center** signed a memorandum of understanding (MoU) with Healthpoint in May 2017 to collaborate more closely in pediatric subspecialty care. As part of this MoU, Children's National will send visiting physicians to Healthpoint, and it will manage the pediatric department alongside Healthpoint.⁸⁶



Ruling Family Patronage

Members of U.A.E. ruling families have also personally patronized healthcare in the country. In December 2008, for instance, Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the U.A.E. and Ruler of Dubai, announced the establishment of a dedicated 200-bed 692 million AED [\$188.4 million] children's specialty hospital named after his daughter, Sheikha Al Jalila.⁸⁷ Inaugurated on 1 November 2016, Al Jalila Children's is the first dedicated children's hospital in the U.A.E., and it aims to be a driving force behind tertiary and quaternary care in the region. It is chaired by Her Royal Highness Princess Haya bint Al Hussein and is affiliated with Alder Hey Children's as well as Moorfields Eye Hospital Dubai.⁸⁸

Private Sector

The private sector is playing an increasingly significant role in the provision of healthcare in the U.A.E., with companies such as NMC Healthcare, Mediclinic Middle East, and VPS Healthcare all embarking on aggressive expansion plans. As such, the Ministry of Health and Prevention expects that the government's share of total health expenditure will fall from 71.3% in 2015 to 60.7% by 2025.⁸⁹

Dubai in particular has sought to promote the private sector, with the goal of 70% of healthcare funding coming from the private sector.⁹⁰ Along these lines, in July 2017, the Dubai Health Authority said that 12 private hospitals will open in Dubai by 2020, bringing the emirate's total to 38.⁹¹

NMC Healthcare

NMC Healthcare claims to be the U.A.E.'s largest private healthcare provider. A publically listed company on the London Stock Exchange and part of the UK's exclusive FTSE 100 index, it has a network of more than 45 hospitals and other care facilities across eight countries.⁹² In the U.A.E., it advertises 24 facilities in four emirates.⁹³



NMC has rapidly expanded its U.A.E. operations in the past several years, partly through wide-ranging acquisitions. In 2015, it purchased ProVita International Medical Center's facilities in Abu Dhabi and Al Ain for \$160 million, and it completed the acquisition of Dr. Sunny Healthcare Group's chain of six medical centers for \$64 million.⁹⁴ The next year, it opened the \$200 million 250-bed NMC Royal Hospital in Khalifa City, and it acquired homecare provider LifeWise Home Healthcare, which is the largest private provider of inpatient long-term care in Abu Dhabi.⁹⁵ Then, in 2017, it completed the \$650 million purchase of Al Zahra Hospital in Sharjah, which claims to be the first and the largest private general hospital in the U.A.E.⁹⁶

Emirates Healthcare Company

Emirates Healthcare provides a wide range of healthcare services under the brands Emirates Hospitals and Clinics, CosmeSurge, and Emirates Rehab and Homecare Services.

- ❖ Emirates Hospitals is currently building two hospital facilities and is also developing new medical and day case surgery centers in Dubai and Abu Dhabi. In July 2017, Emirates Hospitals acquired 60 percent of Mobile Doctors 24-7, which offers 24-hour medical and wellness concierge services to its 145,000 plus registered members.⁹⁷
- ❖ CosmeSurge, created in 1998, claims to be the Middle East's most trusted name in cosmetology and aesthetic medicine.
- ❖ Emirates Rehab and Homecare Services, established in 2006, is reportedly the first-of-its-kind healthcare provider dedicated to long-term recovery, elderly care and home health services in the U.A.E.⁹⁸

Emirates Healthcare is closely associated with NMC Health. It is owned by KBBO Group, whose chairman is Khalifa bin Butti – the Executive Vice Chairman of NMC Healthcare.⁹⁹ Moreover, in August 2017, NMC Health signed an operations and management contract for the management of Emirates Healthcare assets including CosmeSurge, Emirates Hospitals, and Emirates Rehab and Homecare Services.¹⁰⁰

Mediclinic Middle East

Mediclinic Middle East is a branch of Mediclinic International, which consists of 75 hospitals and 29 clinics worldwide.¹⁰¹ In the U.A.E., it has six hospitals and 23 clinics with more than 700 inpatient beds. This follows the reverse takeover by Al Noor Hospitals Group of the Johannesburg-based Mediclinic International Limited.¹⁰² At the time of this reverse takeover, Mediclinic had an extensive and growing U.A.E. presence, announcing in April 2015 the construction of the 700 million AED [\$191 million] 150-bed Mediclinic Parkview Hospital in Dubai.¹⁰³ Meanwhile, Al Noor Hospitals Group was the largest private healthcare company in Abu Dhabi with seven facilities in Abu Dhabi city, one in the Western Region, and two in Al Ain.¹⁰⁴

Aster DM Healthcare

Aster DM Healthcare is a Dubai-based healthcare company with 18 hospitals, 96 clinics, and 202 pharmacies in nine countries in the Middle East and India.¹⁰⁵ In the U.A.E., it advertises ten hospitals, clinics, medical centers, or pharmacies under the high-end Medcare, midrange Aster, and affordable Access brands.¹⁰⁶ In October 2016, it opened a 100-bed Medcare Women & Children Hospital, which will eventually have all-female staff.¹⁰⁷

VPS Healthcare

VPS Healthcare is an integrated healthcare services provider with 20 operational hospitals, 125 medical centers, and 10,000 employees across the Middle East, Europe, and India. In the U.A.E., it operates hospitals and medical centers under the Burjeel, Medeor 24x7, LLH, and Lifecare brands. It also has a variety of specialized clinics, pharmacies, and even a pharmaceutical company.¹⁰⁸ In December 2017, VPS launched its flagship Burjeel Day Surgery Center, which is the largest day surgery center in the Middle East.¹⁰⁹ VPS Healthcare has announced the construction of a \$1.4 billion AED [\$381 million] 400-bed Burjeel Medical City in Mohammed bin Zayed City.¹¹⁰



The Thumbay Group

The Thumbay Group, a Dubai-based business conglomerate, is one of the largest healthcare providers in the region. It operates a 250-bed hospital in Ajman, a 150-bed hospital in Dubai, a 60-bed hospital in Fujairah, and a medical and dental specialty center in Sharjah. It also owns a chain of multi-specialty day care hospitals (Thumbay Hospital Day Care), clinics (Thumbay Clinic), and high-end clinics (Thumbay Clinic ELITE). In addition, it runs a chain of diagnostic labs (Thumbay Labs) and pharmacies (Thumbay Pharmacy). Notably, all hospitals and clinics under the group provide teaching and training opportunities for the students of Gulf Medical University, Ajman, which is also operated by the group.¹¹¹ In March 2017, the Thumbay Group announced plans to add 100 new beds to Thumbay Hospital Dubai in 2018 as well as plans to build 45 new clinics and five new medical centers of excellence.¹¹²

Belhoul Lifecare

Belhoul Lifecare is a comprehensive healthcare services provider that was formed from the integration of all healthcare facilities and services offered by Belhoul Group Holdings (now Belhoul Investment Office). It includes the Belhoul Specialty Hospital, which is a 60-bed tertiary care hospital. It also includes the Belhoul European Hospital, which is a specialized day-care hospital with 22 outpatient clinics.¹¹³ The Belhoul Group also controls Gulf & World Traders, which was established in 1969 to provide the U.A.E. and neighboring GCC countries with hi-tech healthcare-related products.¹¹⁴

Amanat

Faisal bin Juma Belhoul, who was responsible for the transformation of Belhoul Group Holdings into a modern investment company and is also managing partner at Ithmar Capital, launched Amanat Holdings, which specializes in investments in healthcare and education.¹¹⁵ Following its exit from a stake in Al Noor Hospitals, Amanat is currently invested in both a 300-bed hospital and a home care company in Saudi Arabia.¹¹⁶ As of December 2017, it reportedly had about 1.8 billion AED [\$490 million] to spend on new investments.¹¹⁷

Private Sector Healthcare Partnerships with U.S. Institutions

- **American Hospital Dubai and Mayo Clinic:** Mayo Clinic announced in June 2016 that the American Hospital Dubai would become the first hospital in the Middle East to join the Mayo Clinic Care Network, providing the facility with access to the latest Mayo Clinic knowledge and promoting collaboration among physicians to benefit patients.



- **Meraas and Houston Methodist Global Health Care Services:** Dubai-based holding company Meraas announced in January 2016 the launch of an outpatient clinic at its City Walk development that would be a member of Houston Methodist's Global Health Care Network. Houston Methodist Global Health Care Services, the international subsidiary of Houston Methodist Hospital, has long been active in the U.A.E. and has had a physical office in Dubai since 2008. It formerly had a 10-year partnership with Emaar Healthcare Group that resulted in the establishment of medical centers at Dubai Mall, Arabian Ranches, and The Meadows.¹¹⁸



M E R A A S



Gulf Healthcare International

Gulf Healthcare International operates 17 medical and diagnostic centers across the U.A.E. and Kuwait. In the U.A.E., it runs seven clinics and polyclinics under three brand names: “Amber Clinics,” “Al Noor Polyclinic,” and “Dr. Joseph’s Polyclinic.” It also operates eight diagnostic laboratories under the brand name “Medsol Diagnostics.”¹¹⁹

UEMedical

UEMedical, part of United Eastern Group, claims to be Abu Dhabi’s leading privately owned healthcare development and investment company with a portfolio of healthcare projects including a hospital, six specialty centers, and 14 family clinics.¹²⁰ UEMedical operates the 150-bed Danat Al Emarat Women and Children Hospital in Abu Dhabi, which is managed by leading Singaporean healthcare provider ParkwayHealth.¹²¹ It also runs the HealthPlus network of premium outpatient centers.¹²² In addition, it has partnered with Moorfields Eye Hospital, one of the oldest ophthalmology hospitals in the world, to launch Moorfields Eye Hospital Centre in Abu Dhabi.¹²³ Notably, Moorfields chose the U.A.E. as the site of its first overseas branch almost a decade earlier when it established Moorfields Eye Hospital Dubai in Dubai Healthcare City in 2006.¹²⁴

Avivo Group

Avivo Group is a U.A.E.-based healthcare firm offering specialized healthcare services in Abu Dhabi, Dubai, Sharjah, and Kuwait.¹²⁵ It currently has 47 healthcare assets, including 2 hospitals, 29 clinics, 10

dental centers, 6 pharmacies, 6 distribution centers, and 2 diagnostic facilities. The vast majority of these assets are in the U.A.E.¹²⁶

Ahalia Medical Group

Ahalia Medical Group, established in the U.A.E. in 1984, currently operates two multi-specialty hospitals in Abu Dhabi. It also runs 21 satellite medical centers and over three dozen pharmacies throughout the country. In March 2017, it announced it would be the first hospital to set up operations in Sharjah Healthcare City.¹²⁷

AlSharq Healthcare

AlSharq Healthcare, a wholly owned division of the Fujairah National Group conglomerate, manages several healthcare facilities in the eastern part of the U.A.E. Its flagship facility is the 100-bed Al Sharq Hospital in Fujairah. It also runs four medical centers, 4 retail pharmacies, 2 specialized clinics, and a medicine store.¹²⁸

Arabian Healthcare Group

Arabian Healthcare Group is a global healthcare management and consulting firm set up in 2011 by the Government of Ras Al Khaimah. Comprising a network of hospitals, diagnostic centers, pharmacies, and wellness services, its flagship facility is the 65-bed RAK Hospital, which is managed in cooperation with Sonnenhof Swiss Health.¹²⁹

Middle East Healthcare Company (Saudi German Hospitals)

The Middle East Healthcare Company, the largest healthcare provider in Saudi Arabia, owns and operates hospitals under the brand name Saudi German Hospitals.¹³⁰ In March 2012, it opened the 165-bed Saudi German Hospital in Dubai, which is in the process of expanding thanks to a \$100 million loan.¹³¹ It is currently constructing the Saudi German Hospital – Ajman, which will include 150 beds when it is completed in 2018.¹³²

Zulekha Healthcare Group

The Zulekha Healthcare Group established Zulekha Hospital in Sharjah in 1992, and it subsequently grew from a 30-bed facility to a 150-bed 240,000 square-foot hospital. Since then, the Zulekha Healthcare Group has also established a 79-bed hospital in Dubai, a diagnostic center, three medical centers, and three pharmacies.¹³³ Zulekha Group is currently expanding its facility in Dubai to provide a state-of-the-art 100-bed cancer unit.¹³⁴

Capital Health

Capital Health (not to be confused with Mubadala's Capital Health Screening Center) is an integrated healthcare group that was launched in November 2017 and currently has two flagship facilities in Abu Dhabi under development. It is building a 166-bed Specialized Rehabilitation Hospital that it claims will be the U.A.E.'s first acute, sub-acute, and long-term rehabilitation facility with outpatient facilities. Capital Health is also developing the Health Shield Medical Centre, which will be a multi-specialty healthcare facility located in the Al Qurm district of Abu Dhabi.¹³⁵

City Centre Clinic

Majid Al Futtaim Healthcare, the healthcare arm of leading property developer Majid Al Futtaim, operates “City Centre Clinic,” an integrated healthcare network with five locations in the U.A.E. Its flagship project is a Day Care Specialty Clinic, which is located in Deira City Centre in the heart of Dubai. It also has clinics at City Centre Me’aisem, My City Centre Al Barsha, Ibn Batuta Mall, and Nad Al Hammar.¹³⁶



King’s College Hospital

King’s College Hospital, one of London’s largest teaching hospitals, opened a Medical and Surgical Center in Abu Dhabi in November 2014. Then, in November of the next year, it signed an agreement with Al Tayer Group and Dubai Investments to build a \$200 million 100-bed branch of King’s College Hospital in Dubai as well as three other King’s College Hospital clinics. The first of these clinics, a Medical Center in Jumeirah, opened in September 2017.¹³⁷ The late U.A.E. President Sheikh Zayed Al Nahyan once provided a donation to King’s College Hospital to set up its specialist liver research center.¹³⁸

Medical Hubs

Free zones are becoming increasingly important sites for healthcare provision.

Dubai Healthcare City

Dubai Healthcare City (DHCC), which was launched in 2002, is a healthcare free zone that allows for 100% foreign ownership of companies; full repatriation of profits; a guaranteed 50-year exemption from personal income taxes and corporate taxes; and exemption from customs duties for goods and services. DHCC currently has almost 160 clinical partners, and it hosts brand-name providers such as Moorfields Eye Hospital and Maghrebi Eye Hospital.

It is also home to the Mohammed bin Rashid University of Medicine and Health Sciences, part of the Mohammed bin Rashid Academic Medical Center.¹³⁹ In 2017, DHCC announced the establishment of Emirates Reference Laboratory to provide access to efficient, reliable, and cost-effective pathology testing services.¹⁴⁰



Sharjah Healthcare City

In January 2017, His Highness Sheikh Sultan bin Mohammed Al Qasimi, Supreme Council Member and Ruler of Sharjah, approved the master plan for Sharjah Healthcare City (SHC). First announced in 2010, it is expected to be one of the largest healthcare centers in the Middle East, spread over an area of 2.4 million square meters. It will operate as a tax-free zone under the Sharjah Health Authority.¹⁴¹ In March 2017, Ahalia Hospital announced that it would be the first U.A.E. hospital to be part of SHCC with the construction of a 100-bed general hospital.¹⁴²



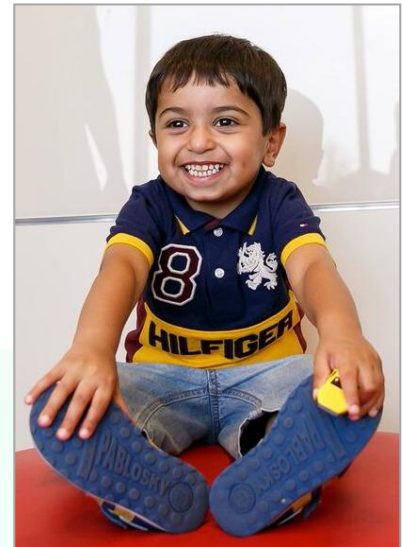
C. Insurance

Over the last decade, the U.A.E. has moved toward mandating health insurance for all citizens and residents, greatly expanding the country's health insurance market. However, the large number of domestic and foreign players in this market has led to intense competition and limited profitability. Moreover, there are significant restrictions on the entry of new foreign companies into the market.

Mandatory Coverage

Abu Dhabi has led the way in implementing mandatory health insurance for citizens and residents. In 2005, Abu Dhabi issued Law No. 23, requiring all employers to provide health insurance to their employees and their employees' dependents.¹⁴³ Then, in 2007, Abu Dhabi issued Resolution 83 directing the then-Health Authority - Abu Dhabi (now Department of Health) to give comprehensive health coverage to all U.A.E. nationals living in that emirate at no cost through the "Thiqa" program.¹⁴⁴

Dubai subsequently followed Abu Dhabi's lead. In 2013, Dubai introduced Law No. 11, requiring employers to provide basic health insurance coverage for their employees and requiring sponsors to provide health insurance for those unemployed individuals under their sponsorship.¹⁴⁵ This law was implemented in phases: first for companies with more than 1,000 employees, then for companies with more than 100 employees, and finally for all companies and sponsors.¹⁴⁶ The law fully came into effect in 2016.¹⁴⁷



Since then, Dubai has endeavored to increase the scope of mandatory insurance coverage. In November 2017, the Dubai Health Authority launched a new initiative to provide a complete spectrum of care from screening to treatment for three types of cancer under the basic benefit plan of the Dubai Mandatory Health Insurance Scheme. Prior to then, cancer coverage under the scheme was limited to 150,000 AED [\$40,840].¹⁴⁸

Sharjah has gradually joined Abu Dhabi and Dubai in moving toward more expansive health insurance as well. In May 2014, the Ruler of Sharjah announced a medical insurance program covering families of all Sharjah government employees.¹⁴⁹ The Sharjah government subsequently extended health insurance to all Sharjah citizens aged 55 and over in April 2015.¹⁵⁰

All U.A.E. residents may have health insurance in the not-too-distant future. In 2013, a federal law for mandatory insurance for workers across the country was drafted, and this law is currently with the Ministry of Finance.¹⁵¹ According to His Excellency Younis Al Khoori, Undersecretary at the Ministry of Finance, the Ministry is currently in the process of studying the financial costs of implementing the law, and the next step will be to raise it to the U.A.E. Cabinet.¹⁵²

Daman's Market Dominance

The U.A.E. health insurance industry is dominated by the National Health Insurance Company (Daman), which is the largest insurance payer in Abu Dhabi and the third largest in Dubai.¹⁵³ Established by Emiri Decree No. 39 of 2005, Daman is a public joint stock company that is 80% owned by the Abu Dhabi government and 20% owned by Munich Re.¹⁵⁴ It exclusively manages the aforementioned “Thiqa” program for U.A.E. nationals in Abu Dhabi as well as the Abu Dhabi Basic Plan for low-income expatriates in that emirate.¹⁵⁵



U.A.E. Health Insurance Terminology

- “Thiqa” is a health insurance program for U.A.E. nationals and those of similar status living in Abu Dhabi. It is exclusively managed by Daman on behalf of the Government of Abu Dhabi.
- “Enaya” is the Government of Dubai Employee Healthcare Benefits Scheme. Officially launched in July 2009, it provides a broad range of cover as well as preventive treatment and routine health checkups to more than 90,000 individuals. The third party administrator for this program is Neuron LLC.
- “Saada” is a health insurance program for citizens of Dubai who are not covered by any government health program. It is expected to ultimately reach 130,000 people. The third party administrator for this program is NEXtCARE.
- “Isahd” – Insurance System for Advance Healthcare in Dubai – is a Dubai Health Authority (DHA) initiative to provide healthcare insurance for all nationals and residents in the private sector. The system requires that everyone in the private sector have a minimum level of health insurance in place. Around 50 companies are permitted to sell such policies, while only 14 of them have been selected as Participating Insurers to specially serve the low-income expatriate segment. MetLife is one of the 14 Participating Insurers approved to provide the “Essential Benefits Package” to expatriates who earn less than 4,000 AED [\$1,089] per month.¹⁵⁶

In July 2016, the then-Health Authority – Abu Dhabi (now Department of Health) announced changes to the “Thiqa” program with a view to making the healthcare sector more sustainable. Under these changes, Thiqa cardholders would pay 20% of the cost of hitherto free treatment at private hospitals; treatment at public hospitals would still be free. Thiqa cardholders would also pay 50% (as opposed to 90% formerly) of the cost of treatment outside Abu Dhabi, except in cases where that type of treatment was unavailable inside the emirate.¹⁵⁷

However, the U.A.E. government ultimately walked back these changes given their implications for the healthcare sector. These moves would have posed complications for those enrollees currently in long-term private care.¹⁵⁸ These changes would have also potentially impacted the viability of some private healthcare institutions and their long-term expansion plans.¹⁵⁹ As such, in April 2017, His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the U.A.E. Armed Forces, ordered the waiving of the 20% co-payment for Thiqa cardholders when receiving treatment at private healthcare facilities.¹⁶⁰

U.S. Insurance Companies in the U.A.E.

- **MetLife:** MetLife, Inc., through its subsidiaries and affiliates, is one of the world's leading financial services companies, providing insurance, annuities, employee benefits, and asset management to help its individual and institutional customers navigate their changing world. Founded in 1868, MetLife has operations in more than 40 countries and holds leading market positions in the United States, Japan, Latin America, Asia, Europe, and the Middle East. MetLife is a pioneer of life insurance with a presence of nearly 65 years in the Gulf. Through its branches, MetLife offers life, accident, and health insurance along with retirement and savings products to individuals and corporations. In the U.A.E., MetLife has had operations since 1962 and today is a leading multinational life and medical insurance company across the country.



- **Cigna:** In June 2017, Cigna opened an office at the Dubai International Financial Center (DIFC) to serve as its regional headquarters. The next month, Cigna announced the acquisition of Zurich Insurance Middle East, gaining official presence in Lebanon, Oman, the U.A.E., and Kuwait. Then, in October, it launched a much-touted individual insurance and wellness solution specially tailored for residents of Dubai. Cigna has been growing in experience by entrenching itself in the region and adding local capabilities like its clinical team, culturally relevant resources, and an ever-expanding network of hospitals, clinics, and pharmacies. Prior to its acquisition of Zurich Insurance Middle East, Cigna already had an established presence via a local partner providing health insurance to U.A.E. residents for over 15 years.



- **Aetna International:** Aetna's Dubai office, based in Dubai Media City, is the nerve center for Aetna International's recently merged European and Middle East & Africa divisions. Notably, Aetna International administers health care plans for individuals, families, and corporate groups in the U.A.E. on behalf of RSA Insurance. It also administers Al Ain Ahlia Insurance Company plans within the country.¹⁶¹



Heavy Competition

The U.A.E. health insurance market reflects the U.A.E. insurance market as a whole in that it is generally overcrowded, limiting profitability. There are currently more than 60 players in the U.A.E. insurance market, split between 29 listed local insurers and the subsidiaries of foreign insurers. In 2016, the 29 U.A.E. listed insurers had a net income of just 905 million AED [\$246 million]. Moreover, the top five listed insurers accounted for 56% of total listed market gross written premiums and 82% of consolidated net income.¹⁶²

Outside of the aforementioned Daman, three of the most prominent local insurers – both in general and in health insurance – are:

- ❖ **Oman Insurance Company/Bupa:** Oman Insurance Company (OIC), which is headquartered in Dubai, is the biggest insurer in the U.A.E. and one of the leading insurance companies in the MENA region. It provides both group health insurance and an individual international health insurance plan designed and internationally administered by British healthcare giant Bupa Global.¹⁶³
- ❖ **Orient Insurance Company/Allianz:** Orient Insurance Company, which began operations in 1982, is a leader in the U.A.E. insurance market. Based in Dubai, it is part of Al Futtaim Group, a major U.A.E. conglomerate. It provides both individual and group medical insurance.¹⁶⁴ Orient Insurance Company is also the regional partner of German multinational insurance and asset management giant Allianz.¹⁶⁵
- ❖ **Abu Dhabi National Insurance Company (ADNIC)/MSH International:** ADNIC, which was founded in 1972, is a publically listed composite insurance provider headquartered in Abu Dhabi that is the third-largest insurance company in the U.A.E. by assets.¹⁶⁶ It provides both individual medical insurance and group medical insurance in partnership with French company MSH International.¹⁶⁷ It is owned by Abu Dhabi Investment Council, which is an investment arm of the Abu Dhabi government.¹⁶⁸

As for international insurers, the largest as of the end of 2016 was U.S. insurance giant MetLife. The second largest was AXA Gulf, which is the regional division of French insurance multinational AXA and the largest non-life international insurer in the Arabian Gulf.¹⁶⁹ Other prominent international insurers include U.S. health insurance companies Aetna and Cigna, the latter of which is making a major push to expand its regional operations.

Capitalizing on the large number of health insurers in the U.A.E. and the new coverage requirements, compareit4me.com launched the first automated, real-time, online health insurance comparison platform in the country. This platform enables those looking for health insurance to compare and buy policies online. Compareit4me is part of a thriving U.A.E. startup community that is transforming the way that healthcare and other industries operate.¹⁷⁰

Restrictions to Entry and Regulations

International insurance companies must overcome certain obstacles to entering the U.A.E. market. For one, the U.A.E.'s Insurance Authority, which oversees insurance companies onshore (but not in free zones), has long been hesitant to license new insurers given that the sector is often characterized as overcrowded. In fact, the Insurance Authority has publically called for consolidation of the sector in order to avoid what it views as unhealthy competition.¹⁷¹

Moreover, the U.A.E. has placed limits on foreign ownership of insurance companies operating in the U.A.E. mainland. Prominent U.A.E. law firm Al Tamimi & Company noted in a September 2015 piece on U.A.E. insurance law that, “The only way that a non-GCC wholly owned foreign insurer can operate in the U.A.E. is to acquire a stake of not more than 25% in an existing U.A.E. insurer.”¹⁷²

Insurance companies operating in the U.A.E. proper also face restrictions on their structure. As Al Tamimi noted in the same 2015 report, a U.A.E. insurer is required to be established as a public company listed on either the Abu Dhabi Securities Exchange or the Dubai Financial Market. As a result, the chairman and a majority of the board of directors of U.A.E. insurers must be U.A.E. nationals.¹⁷³

In addition, insurance companies operating in the U.A.E. must comply with increasingly stringent regulations on their activities meant to strengthen the sector and encourage consolidation. In early 2015, the U.A.E. Insurance Authority announced a series of new regulations including limits on how companies could invest their money and thus how much exposure they could have to different asset classes.¹⁷⁴ Companies were given until January 2018 to comply with these regulations.¹⁷⁵

Given the above, an alternative approach for international insurance companies to access the U.A.E. market has been incorporating in a free zone, where the U.A.E. Commercial Companies Law and relevant insurance laws and regulations do not apply. There are tradeoffs, however, in terms of the jurisdiction in which such insurers can operate and the lines of insurance they can write.¹⁷⁶

D. Pharmaceuticals

The U.A.E.’s pharmaceutical market is quickly growing. Although the U.A.E. imports most of its drugs at present, this is beginning to change, and some international pharmaceutical giants have partnered with U.A.E. companies to locally manufacture their products.

Growing Sales

The U.A.E. pharmaceutical market is growing at a rapid rate. In 2016, according to BMI figures cited by the U.A.E. Ministry of Health and Prevention, U.A.E. pharmaceutical sales were worth 9.61 billion AED [\$2.62 billion], up from 8.84 billion AED [\$2.41 billion] in 2015. These sales are expected to increase at a compound annual growth rate of 8.2% to reach 13.13 billion AED [\$3.58 billion] by 2020 and 14.11 billion AED [\$3.84 billion] by 2021.¹⁷⁷ As such, pharmaceutical sales, which represented 16.2% of total healthcare spending in 2016, are projected to represent 18% of all healthcare expenditure by 2021.¹⁷⁸

This growth comes despite U.A.E. government efforts to contain rising drug prices, which are regulated by pharmaceutical pricing legislation.¹⁷⁹ In July 2011, the U.A.E. began a series of price reduction initiatives aimed at bringing U.A.E. pharmaceutical prices in line with those in neighboring countries.¹⁸⁰ Through these initiatives, the U.A.E. had, as of December 2017, cut the prices of 8,732 pharmaceutical products.¹⁸¹

Import Reliance

The U.A.E. currently imports the vast majority of its pharmaceutical products from abroad. Marwan Abdulaziz Janahi, who is the Executive Director of Dubai Science Park and the Chairing Member of the

Pharmaceuticals and Medical Equipment taskforce of the Dubai Industrial Strategy 2030, estimated in November 2017 that nearly 90% of pharmaceuticals in the U.A.E. were imports.¹⁸²

Moreover, the U.A.E. will likely continue doing so for the foreseeable future. In 2016, according to BMI figures cited by the U.A.E. Ministry of Health and Prevention, U.A.E. pharmaceutical imports were 14.14 billion AED [\$3.85 billion]. This figure is expected to increase at a compound annual growth rate of 5.1% to 17.3 billion AED [\$4.74 billion] in 2020.¹⁸³

At the same time that U.A.E. pharmaceutical imports are expected to increase, the U.A.E.'s pharmaceutical exports are also anticipated to rise. In 2016, the U.A.E. exported 3.49 billion AED [\$950 million] worth of pharmaceutical products. By 2020, this figure is expected to grow to 4.14 billion AED [\$1.13 billion].¹⁸⁴

These increased exports will be driven by the expansion of the U.A.E.'s nascent domestic manufacturing industry. As of September 2017, Dr. Amin Al Amiri, Assistant Undersecretary of Public Health Policy and Licensing at the Ministry of Health and Prevention, noted that the U.A.E. had 18 pharmaceutical manufacturing sites, many of which are focused on the production of generic pharmaceuticals.¹⁸⁵ He expects this figure to reach 36 by 2020.¹⁸⁶

This expansion is a priority for the U.A.E. government, and it is a key plank of the 2030 Dubai Industrial Strategy. As such, in November 2017, Marwan Abdulaziz Janahi said that Dubai seeks to attract as much as \$2.5 billion to the pharmaceutical sector.¹⁸⁷

Julphar and U.A.E. Pharmaceutical Manufacturers

The U.A.E.'s domestic pharmaceutical manufacturing industry is headlined by Julphar Gulf Pharmaceutical Industries, which is the largest generic pharmaceutical manufacturer in the Middle East and North Africa. Established in 1980 under the guidance of the former Emir of Ras Al Khaimah His Highness Sheikh Saqr bin Mohammed Al Qasimi, Julphar now operates 16 manufacturing facilities globally, 13 of which are in the U.A.E. These factories collectively produce over one million boxes of medicines per day. In 2016, Julphar Pharmaceutical Industries registered sales revenue of 1.45 billion AED [\$390 million].¹⁸⁸ It aims to expand its sales to more than 2 billion AED [\$544 million] by 2020.¹⁸⁹



The U.A.E. has several other domestic pharmaceutical manufacturers as well:

- ❖ **Neopharma:** Neopharma claims to be Abu Dhabi's premier pharmaceutical manufacturing company. Started in 2003, it operates a 100,000 square-meter plant in Abu Dhabi, and, as of July 2017, had confirmed feasibility plans for a second production facility there.¹⁹⁰ This came just two months after it invested 100 million AED [\$27 million] in a new factory in Japan to produce supplements for Type-2 diabetes patients.¹⁹¹ Neopharma seeks to differentiate itself from its local peers by focusing on value-added drugs and not just generics.¹⁹² Dr. B.R. Shetty, Joint Non-Executive Chairman of NMC Healthcare, is Executive Vice Chairman and Managing Director of Neopharma.¹⁹³
- ❖ **Globalpharma (a Sanofi Company):** Globalpharma, which is based in Dubai Investment Park, is a major U.A.E. pharmaceuticals manufacturer. Established in 1998, its manufacturing facility can produce up to 300 million tablets, 150 million capsules, and over 7 million liters of dry syrup and

liquid each year. In 2014, Dubai Investments sold a majority stake in Globalpharma to French firm Sanofi, and Globalpharma is now being integrated as a Sanofi company to become the platform to manufacture and promote the generics portfolio of Sanofi in the Middle East region.¹⁹⁴

- ❖ **Medpharma (member of Valeant):** Medpharma is one of the leading pharmaceutical branded generic companies in the U.A.E. In September 2014, it was acquired by Lebanon-based Integrated Pharma Solutions and Canada-based Valeant Pharmaceuticals.¹⁹⁵ At the time, Medpharma had about \$30-\$40 million in sales per year.¹⁹⁶
- ❖ **LIFEPharma:** Part of the aforementioned VPS Healthcare, LIFEPharma has a facility at Jebel Ali Free Zone Area in Dubai that has the capacity to produce 1 billion tablets, 300 million capsules, and 150 million liters of liquid per year.¹⁹⁷ It is currently planning to build a 547 million AED [\$149 million] cancer drug plant at Khalifa Industrial Zone Park in Abu Dhabi.¹⁹⁸
- ❖ **Pharmax Pharmaceuticals:** Pharmax Pharmaceuticals is the first local company located at Dubai Science Park that seeks to be engaged in the development and commercialization of pharmaceuticals. It was established by one of the U.A.E.'s leading pharmaceutical and healthcare product distributors, Al Ittihad Drug Store (IDS).¹⁹⁹

International Pharmaceutical Companies

At the same time that the U.A.E. has a growing domestic pharmaceutical manufacturing industry, many international pharmaceutical companies have established a presence in the country. According to an Alpen Capital report, there were 90 global pharmaceutical companies in the U.A.E. as of 2014.²⁰⁰ Some of these companies – such as Pfizer and Janssen EMEA (the pharmaceutical arm of Johnson & Johnson) – have decided to make the U.A.E. the site of their regional headquarters.

Moreover, these companies are increasingly not just selling products in the U.A.E., but engaging in other activities as well. According to Dr. Amin Al Amiri, the number of scientific offices of international pharmaceutical companies rose from 30 in 2013 to 47 in 2016. He expects this number to reach 75 by 2020.²⁰¹

U.S.-U.A.E. Pharmaceutical Partnerships

- **Julphar Gulf Pharmaceutical Industries and MSD:** In April 2014, Julphar entered into an agreement with Merck Sharp & Dohme (MSD), as U.S.-based pharmaceutical giant Merck is known outside the United States, under which Julphar can produce, distribute, and sell select MSD products in the U.A.E., Kuwait, Bahrain, Oman, Qatar, and Iraq.
- **Neopharma and Wyeth:** In May 2014, Neopharma joined with Wyeth, a Pfizer unit, to manufacture selected Pfizer products, starting with cardiovascular medicines related to hypertension and heart diseases.²⁰²

Julphar

الخليج للصناعات الدوائية
Gulf Pharmaceutical Industries



These international pharmaceutical companies are drawn to operate in the U.A.E. for a variety of reasons. In addition to its growing domestic market, the U.A.E. boasts a strategic location and sophisticated logistics infrastructure that make it an ideal hub to access growing regional markets in Africa, Asia, and the Middle East. The U.A.E. has also created business friendly environments in which pharmaceutical companies can operate, as seen in the next section.

Key to the continued expansion of international pharmaceutical companies in the U.A.E. is the protection of intellectual property. U.S. pharmaceutical products have long been protected by U.A.E. Ministerial Decree 404 of 30 April 2000, which prohibited the registration of any pharmaceutical product in the U.A.E. until the expiry of the patent term of the original product in the country of origin. The U.A.E. is currently working with the U.S. government and U.S. industry to ensure that U.S. pharmaceutical companies have the necessary assurances to make continued investments in U.A.E. operations.

Pharmaceutical Hubs

Several free zones have become hubs for the pharmaceutical industry.

- ❖ **Dubai Healthcare City:** Launched in 2002 by His Highness Sheikh Mohammed bin Rashid Al Maktoum, U.A.E. Vice-President and Prime Minister and Ruler of Dubai, Dubai Healthcare City (DHCC) seeks to become an internationally recognized location of choice for quality healthcare and an integrated center of excellence for clinical and wellness services, medical education, and research. It has become a hub for pharmaceutical companies such as Abbott, Allergan Middle East, AstraZeneca, Baxter, Boehringer Ingelheim, Eli Lilly, Gilead Sciences, Johnson & Johnson, Julphar, Merck Serono, Merck Sharp and Dohme (MSD), Novartis, Novo Nordisk, and Sanofi.²⁰³
- ❖ **Dubai Science Park:** Dubai Science Park (DSP), which is part of the TECOM Group, is a science-focused business community, dedicated to supporting entrepreneurs, start-ups, SMEs, and MNEs. Since its inception in 2005, the community has grown to more than 350 companies, including Amgen, Bayer, Bristol-Myers Squibb, Fresenius Medical Care, Medtronic, Merck Serono, and Pfizer, and together the community employs over 3,600 industry professionals.²⁰⁴
- ❖ **Jebel Ali Free Zone:** Since its creation in 1985, Jebel Ali Free Zone has developed into a dynamic base for over 7,000 businesses, including more than 100 Global Fortune 500 companies.²⁰⁵ It currently hosts a number of healthcare and pharmaceutical companies including Johnson & Johnson, Colgate, Roche, Sanofi, GlaxoSmithKline, and Quest Vitamins. In September 2017, the U.A.E. Ministry of Health and Prevention and JAFZA signed a memorandum of understanding to support the healthcare sector by providing the environment for companies to grow and establish Made in Dubai pharmaceutical products.²⁰⁶



E. Medical Equipment

The projected growth of the U.A.E.'s medical equipment market broadly mirrors that of other sectors. BMI estimated in 2015 that the medical device market would grow at a compound annual rate of 8.2% from \$967 million in 2015 to \$1.4 billion by 2021.²⁰⁷ Given that the U.A.E. produces relatively little medical equipment domestically, this means significant business opportunities for international companies.

Diagnostic Imaging Equipment

Diagnostic imaging equipment comprises a large percentage of the U.A.E. medical device market. In November 2016, Mordor Intelligence estimated that the U.A.E.'s diagnostic imaging equipment market would reach \$738 million by the end of 2020.²⁰⁸

Here, the U.A.E. has a preference for products from brand-named international companies, who have often turned to the U.A.E. for the site of their regional headquarters.

- ❖ **GE Healthcare:** From its regional headquarters in Dubai, GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality, and more affordable healthcare around the world. From medical imaging, software & IT, patient monitoring, and diagnostics to drug discovery, biopharmaceutical manufacturing technologies, and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.²⁰⁹
- ❖ **Siemens Healthineers:** Siemens Healthineers, which is the separately managed healthcare business of Siemens and is a leading provider of medical imaging equipment, bases its Middle East regional office out of Dubai Healthcare City.²¹⁰ In December 2016, Siemens Healthineers partnered with Easa Saleh Al Gurg to set up its first U.A.E. business.²¹¹
- ❖ **Philips Healthcare:** Dubai serves as the Middle East headquarters for Philips Healthcare, which is also a global leader in health technology. This headquarters services 15 markets, namely the U.A.E., Oman, Saudi Arabia, Kuwait, Bahrain, Qatar, Yemen, Lebanon, Jordan, Syria, Palestine, Iraq, Iran, Afghanistan, and Pakistan.²¹²



Cardiovascular Devices

Cardiovascular devices are another important segment of the U.A.E. medical device market, especially given the increasing incidence of cardiovascular disease due to sedentary lifestyles and obesity. This market is principally centered on interventional cardiology and cardiac rhythm management.²¹³

Many of the key players in this segment also have significant U.A.E. operations.

- ❖ **Abbott:** Dubai serves as a regional headquarters for Abbott, which is one of the world's leading healthcare companies in medical devices as well as nutrition, pharmaceuticals, and diagnostics.²¹⁴ Abbott's recently completed acquisition of St. Jude Medical created a combined company with best-in-class solutions across the areas of cardiovascular and neuromodulation.²¹⁵

U.A.E. Partnerships with U.S. Medical Equipment Companies

- **GE Healthcare** brings the best of its scale and capabilities to serve as a strategic partner to public and private sector providers across the U.A.E. including the U.A.E. Ministry of Health and Prevention, Dubai Health Authority (DHA), Majid Al Futtaim Ventures, and Abu Dhabi Health Services Company (SEHA).
- **3M**, as a well-established healthcare consumables manufacturer and supplier to the healthcare segment, has worked with U.A.E. healthcare service providers and regulators to improve healthcare outcomes and the service level provided to patients. Its healthcare professional services team has conducted countless in-hospital seminars and educational sessions, while leveraging its 3M Health Care Academy to accelerate the development of local capabilities and knowledge transfer.
- **Abbott** announced in October 2017 the establishment of the Abbott Diabetes Academy. This Academy, which is located in Dubai Healthcare City, is the first dedicated training academy in the U.A.E. for healthcare professionals working with diabetes patients. With its mission to act as a center of excellence and education and training partner for the regional public and private healthcare and diabetes community, the Academy will provide practical tools that can be applied by endocrinologists, diabetologists, and educators to improve the region's management of diabetes. The announcement of this Academy came during the first USA Healthcare Symposium and Showcase on Nutrition, Obesity, and Diabetes, which was held as part of Discover America month at the Mohammed bin Rashid University of Medicine and Health Sciences in Dubai.
- **Medtronic** signed a deal with the University of Sharjah in 2015 whereby Medtronic Academy, the educational wing of Medtronic, would collaborate with the University to educate regional physicians on Medtronic products and therapies as well as general cardiac topics.²¹⁶



GE Healthcare



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Abbott

Medtronic

- ❖ **Medtronic:** Dubai is the home for Medtronic’s headquarters for the Middle East & Africa, Central Asia & Turkey (MEACAT). These markets comprise 1,400 Medtronic professionals and produce approximately \$1 billion in revenue.²¹⁷ Medtronic is world renowned for its wide array of cardiac and vascular products.²¹⁸
- ❖ **Johnson & Johnson:** Dubai is the home of Johnson & Johnson Middle East FZ-LLC, which oversees the regional production of a broad range of products used primarily by healthcare professionals in the fields of cardiovascular disease as well as orthopedics, neurovascular, surgery, vision care, diabetes care, infection prevention, diagnostics, sports medicine, and aesthetics.²¹⁹

Local Manufacturing and 3D Printing

Although the U.A.E. is still heavily reliant on imports of more sophisticated medical equipment, it is beginning to develop a nascent medical products industry, starting with products like medical consumables. For instance, Abu Dhabi National Industrial Projects (ADNIP) partnered with NNE Pharmaplan to launch the Abu Dhabi Medical Devices Company, which manufactures Auto Disable syringes, Single Use syringes, Insulin syringes, and IV Cannula.²²⁰

One area in which the U.A.E. may play a leading role in future is 3D printing. In 2016, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the U.A.E. and Ruler of Dubai, launched the ‘Dubai 3D Printing Strategy’ in order to exploit this technology for the “service of humanity” and promote the status of the U.A.E. and Dubai as a leading hub of 3D printing technology by the year 2030. One of the primary foci of this strategy is the medical products sector, which could involve developing 3D printed teeth, bones, artificial organs, medical and surgical devices, and hearing aids.

As a sign of Dubai’s seriousness in this regard, the Dubai Future Foundation created an “Office of the Future,” which is the first fully functional, inhabited 3D printed building ever.²²¹



F. Information Technology

The U.A.E.’s Healthcare Information Technology (IT) market is set to grow swiftly in the coming years. Technavio, a market research company that focuses on emerging markets, estimated in 2015 that this market would grow at a compound annual growth rate of over 11% from 2014 through 2019.²²² This growth is partly driven by government initiatives around the digitization of electronic medical records.

Electronic Health Records and Health Information Exchanges

For the past decade, the U.A.E. has been gradually implementing electronic health record (EHR) and health information exchange (HIE) systems throughout the country that promise to help the country reduce duplication, medication errors, and the length of hospital stays; improve patient safety and outcomes; and inform more effective public health policies.

In 2008, the U.A.E. Ministry of Health launched the “Wareed” project to establish a ‘one patient, one record’ electronic health record system by linking all of its facilities in Dubai and the northern emirates. This project, which involved deploying Cerner Millennium systems in all Ministry hospitals and clinics, was managed by Dubai-based Hybrid Health Solutions and implemented by a consortium including iCapital, Cerner Corporation, Gulf Business Machines (the sole distributor of most IBM products and services), and Injazat Data Systems.²²³ The now-Ministry of Health and Prevention continues to improve upon this system with new features, such as those enabling clinicians to verify correct medication doses.²²⁴

That same year, the Abu Dhabi Health Services Company (SEHA) launched its own electronic health records system. In 2008, Tawam Hospital in Al Ain became the first SEHA hospital to successfully implement Cerner Millennium healthcare information technology solutions at its facility.²²⁵ By 2015, HIMSS Analytics Middle East awarded all 11 SEHA facilities a “Stage 6” rating on its Electronic Medical Record Adoption Model.²²⁶

More recently, the Dubai Health Authority (DHA) embarked on an electronic health records system known as “Salama.” This system, which was announced in February 2016, creates one electronic record for each resident who uses a public hospital in that emirate. In November 2017, as the DHA started the third and final phase of this project, more than 1.4 million DHA patient records and more than 112 million transactions had already been transferred to the new unified electronic system.²²⁷

The Dubai Health Authority intends to extend this electronic health records system to private facilities in the emirate as well through its NABIDH (Network and Analysis Backbone for Integrated Dubai Health) initiative. This initiative will ultimately enable the creation of a single unified medical record for each individual in Dubai by linking the information contained in all public and private health care facilities.²²⁸

Along these lines, private healthcare facilities have made significant investments in new electronic health records systems. In 2017 alone, Mediclinic, Emirates Hospital Group, and Neuro Spinal Hospital all turned to InterSystems TrakCare for such purposes. In so doing, these institutions have highlighted InterSystems’ advanced interoperability, which will enable it to respond to the NABIDH scheme.²²⁹

The Abu Dhabi Department of Health shares a similar vision for connecting its healthcare system to improve the lives, care outcomes, and healthcare experiences of its citizens. Implementing a common platform establishes the necessary foundation to deliver innovative solutions and experiences that will lead to a healthier Abu Dhabi.

The ultimate goal of all of the above initiatives is a unified national database of patients’ medical records. In May 2015, the U.A.E. cabinet backed the establishment of such a database, which it envisaged would take four years.²³⁰

One point of potential innovation in this area involves blockchain technology. In this respect, U.A.E. telecommunications company Du has partnered with NMC Healthcare to test a pilot whereby it uses blockchain to store and share electronic medical records in a more secure fashion.²³¹

U.S.-U.A.E. Electronic Health Record and Health Information Exchange Partnerships

- **Cerner Corporation**, which designs health information technology that is employed in more than 27,000 facilities worldwide, is highly active in the U.A.E., where its clients have included the Abu Dhabi Health Services Company (SEHA), the Ministry of Health and Prevention (MOHAP), Mobile Doctors, Healthpoint, National Reference Laboratory, King's College Hospital Dubai, Al Jalila Children's Specialty Hospital, and the U.A.E. Armed Forces. In 2008, MOHAP began deploying Cerner Millennium as part of its Wareed Project to establish a "One Patient, One Record" system in its hospitals; in November 2016, MOHAP renewed and expanded this partnership with Cerner.



- **Epic Systems**, a Wisconsin-based company with an international office in Dubai, has long been present in the U.A.E. healthcare sector. As early as 2008, it signed a seven-year contract to implement clinical technology at the Mohammed bin Rashid Al Maktoum Academic Medical Center in Dubai Healthcare City. Epic Systems' electronic medical records information system is also used by Cleveland Clinic Abu Dhabi, which was awarded the prestigious HIMSS Stage 7 certification for its improvements using Epic.



- **InterSystems**, a global U.S.-based provider of database, integration, and analytics software, has been engaged to deploy its health information systems at a variety of U.A.E. medical institutions, including Mediclinic, Emirates Hospital Group, Neuro Spinal Hospital, and Capital Health's Specialized Rehabilitation Hospital.²³²



Telemedicine

The U.A.E. is also improving healthcare through the increasing adoption of telemedicine, which enables both patients to consult medical professionals and medical professionals to consult each other from a distance. This has reduced hospital visits, limited the movement of patients between hospitals, and extended healthcare services to more remote locations.

In Abu Dhabi, Mubadala Healthcare formed a joint venture with Switzerland's leading telemedicine provider, Medgate, to create the Abu Dhabi Telemedicine Center. This center offers over-the-phone medical consultations in both Arabic and English with medical professionals 24 hours per day, 7 days per week. All services are offered exclusively through Daman to Thiqa and Enhanced cardholders.²³³

Meanwhile, in Dubai, Dubai Health Authority (DHA) has introduced telemedicine at its facilities through the "Dubai RoboDoc" initiative. In March 2017, DHA completed the trial phase of this initiative, which enables doctors to consult with two or more specialists in different health facilities at the same time by way of robots. After the completion of this trial phase, DHA announced that it plans to make this service available across all DHA hospitals and health centers. It also plans to make the service available to home-care patients by means of visiting nurses.²³⁴

In addition to the above initiatives, the U.A.E. has embraced teleradiology. Mulk Holdings, a prominent Sharjah-based conglomerate, has built two telemedicine and diagnostic centers in Dubai.²³⁵ More recently, as seen above, GE Healthcare, the Ministry of Health and Prevention, and Abu Dhabi International Medical Services formed an innovative, performance-based public-private-partnership called Unison to create the U.A.E.'s first public sector teleradiology capability.

Finally, several startups have embraced telemedicine concepts. "Health at Hand," which is licensed by the Dubai Multi Commodities Center, provides patient-to-doctor video consultations.²³⁶ Meanwhile, "Heydoc!" allows you to find the right doctor, chat with the doctor, share pictures or other information, and get personalized guidance. Finally, "Smart Seha" allows you to call a doctor.²³⁷

Smart Technology and Apps

The U.A.E. has embraced the power of smart technologies. For instance, the Dubai Health Authority (DHA) has introduced smart pharmacies where robots can dispense 12 prescriptions in less than one minute from a store of up to 35,000 medicines.²³⁸ DHA has also put electronic tags on babies' ankles to protect against any unauthorized movement.²³⁹ At the same time, it has introduced a small wireless patch that can remotely monitor the heart rates of patients for up to 30 days.²⁴⁰

The U.A.E. has also experimented with a wide variety of apps. Dubai Health Authority (DHA) has released no less than eight apps that are geared toward various audiences from patients to doctors, students, medical tourists, blood donors, pregnant women, diabetics, and even investors.²⁴¹ It has also developed apps for kids, such as the Tummyfish app, which encourages children to remember to drink water.²⁴²

Other U.S.-U.A.E. Information Technology Partnerships

- **IBM Watson Health** is currently engaged with Oncology health leaders in the U.A.E., deploying IBM Watson for Oncology to enhance and augment their Oncology care practices and support the U.A.E.'s Artificial Intelligence vision. Commonly referred to as Artificial Intelligence, this new generation of technology and the cognitive systems that it helps power, promises to touch every facet of work and life – with the potential to radically transform them for the better. This is because these systems can ingest and understand all forms of data, which is being produced at an unprecedented rate. The purpose of AI and cognitive systems developed and applied by IBM is to augment human intelligence, not replace it. Cognitive systems like IBM's Watson for Oncology can reason over this data, forming hypotheses and judgments.
- **3M Health Information Systems** has been a strategic partner to many U.A.E. healthcare facilities to utilize automation and the deployment of Artificial Intelligence tools to improve the outcome of the total healthcare value chain, from the patient to the service provider and the regulator.
- **Honeywell**, a global leader in connected healthcare with more than 50 years of experience in hospital environments worldwide, has a long history in the U.A.E., where it leverages Internet of Things (IoT) technology to deliver 'Connected Hospital,' 'Connected Clinician,' and 'Connected Patient' initiatives that integrate infrastructure, systems, clinicians, and patients to enable better care. Honeywell works with state-of-the-art healthcare facilities across the U.A.E., integrating disparate systems and ensuring the rapid flow of information for more agile operations. Honeywell also specializes in workflow automation and communications to help reduce errors and increase productivity for clinicians, while improving the health of patients through effective monitoring in the hospital and beyond, while reducing costs and re-admissions.²⁴³

IBM Watson Health™

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G. Education, Research, and Events

In order to meet its ever-increasing need for qualified medical professionals, the U.A.E. has sought to grow its nascent medical education and training capacity. At the same time, it has endeavored to make the country a regional hub for medical research and events.

Education and Training

Over the last several decades, a variety of medical education institutions have sprouted up in the U.A.E. The most notable of these institutions are:

- ❖ **United Arab Emirates University (UAEU):** Opened in 1984, UAEU's College of Medicine and Health Sciences takes pride in being the first and highest-ranked medical school in the U.A.E. It offers a four-year M.D. program, the pre-requisite for which is successful completion of its two-year premed program. It also offers several graduate programs including a Master of Public Health, Master of Medical Sciences, and a Doctor of Pharmacy. Additionally, it offers PhDs in Biomedical Sciences and Public Health and Occupational Health.²⁴⁴ In late 2015, the Abu Dhabi Urban Planning Council approved an expansion of U.A.E. University's medical college so as to accommodate an additional 500 students.²⁴⁵
- ❖ **The University of Sharjah:** Opened in 2006, the University of Sharjah's College of Medicine offers a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree; a Master's degree in Molecular Medicine; a Master's degree in Leadership on Health Professions Education; and a Doctorate degree in Molecular Medicine.²⁴⁶ The University of Sharjah also has Colleges of Dental Medicine, Pharmacy, and Health Sciences, the latter of which offers a BSc. in Nursing.²⁴⁷ The University of Sharjah is notably home to the 325-bed University Hospital Sharjah.²⁴⁸
- ❖ **Higher Colleges of Technology:** The Higher Colleges of Technology's Health Sciences Division offers a broad range of Health Sciences Bachelor Degree programs across its 17 campuses, including Bachelor's degrees in Emergency Medical Services, Health Information Management, Medical Imaging Science, Medical Laboratory Technology, Nursing, Pharmacy, Social Work, and Veterinary Science.²⁴⁹
- ❖ **Gulf Medical University:** Based in Ajman, this University, which is associated with the aforementioned Thumbay Group, offers a MBBS degree as well as Bachelor's degrees in Biomedical Sciences, Physiotherapy, Medical Laboratory Sciences, Medical Imaging Sciences, Anesthesia & Surgical Technology, and Nursing. It also offers Doctorate degrees in Dental Medicine and Pharmacy.²⁵⁰ In November 2016, Gulf Medical University announced that it would expand to introduce engineering and business management courses, at which point it would be renamed Thumbay University.²⁵¹

- ❖ **RAK Medical & Health Sciences University:** Fully owned and managed by the government of Ras Al Khaimah, this institution claims to be the first comprehensive health science university in the U.A.E. It offers a MBBS degree as well as Bachelor's degrees in Dental Surgery, Pharmacy, and the Science of Nursing. It also offers Master's of Science Degrees in Pharmacy and Nursing.²⁵²
- ❖ **Fatima College of Health Sciences:** Established in 2006, this Abu Dhabi-based college began by offering a BSc. in Nursing through a program now operated in collaboration with Griffith University in Australia. It currently offers more than ten degree programs at BSc. and Diploma levels in Health Sciences.²⁵³ Notably, it has collaborated with Etihad Airways Medical Center to provide three students per year with an opportunity to pursue a career in nursing with the airline.²⁵⁴
- ❖ **Dubai Medical College for Girls:** This all-female institution offers a MBBS degree to women.²⁵⁵
- ❖ **Dubai Pharmacy College:** This all-female college provides Bachelor of Pharmacy and Master of Pharmacy degrees.²⁵⁶
- ❖ **Royal College of Surgeons in Ireland -Dubai:** Established in 2005, this institution offers Master's of Science degrees in Healthcare Management as well as Quality & Safety in Healthcare Management.²⁵⁷



The newest entrant to the U.A.E. medical education scene is the Mohammed bin Rashid Academic Medical Center, which includes the Mohammed bin Rashid University of Medicine and Health Sciences, the Al Maktoum Medical Library, and the Khalaf Ahmad Al Habtoor Medical Simulation Center. The Mohammed bin Rashid University features a College of Medicine that offers a six-year MBBS program in partnership with Queen's University Belfast and clinical affiliate Mediclinic.²⁵⁸ The Hamdan bin Mohammed College of Dental Medicine is also part of the Mohammed bin Rashid University, offering Master of Science programs in Endodontics, Oral Surgery, Orthodontics, Pediatric Dentistry, Periodontology, and Prosthodontics.²⁵⁹ The Khalaf Ahmad Al Habtoor Medical Simulation Center (KHMSC), named after a prominent U.A.E. real estate tycoon, is the first comprehensive simulation training facility of its kind in the region.²⁶⁰



Mohammed bin Rashid Academic Medical Center Partnerships with U.S. Institutions

- **GE Healthcare** and Dubai Healthcare City signed a memorandum of understanding (MoU) in January 2014 to support human capital development in the region's healthcare sector. As part of this MoU, GE delivers healthcare training and education programs at the Mohammed bin Rashid Academic Medical Center.
- **Houston Methodist Global** entered into an agreement with Dubai Healthcare City in October 2013 to provide education and training initiatives at the Mohammed bin Rashid Academic Medical Center. This began with a lecture on diabetes and critical care. Houston Methodist regularly sends top physicians to the region to participate in and lead scientific lectures and offer training, including leading clinicians who presented on advances in immuno-oncology, 3D print modeling, and minimally invasive surgery at Arab Health.²⁶¹

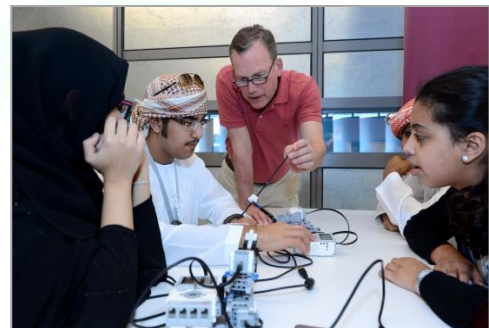


GE Healthcare

HOUSTON
Methodist[®]
LEADING MEDICINE

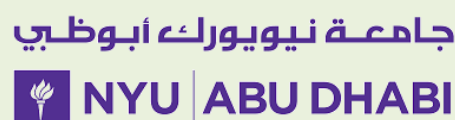
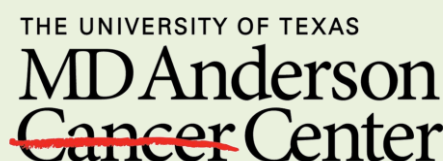
The Mohammed bin Rashid University of Medicine and Health Sciences is part of a larger expansion of Dubai's medical education facilities. In January 2015, the Dubai Health Authority announced the planned construction of an additional three medical colleges and five nursing schools in Dubai to meet that emirate's future health needs.²⁶² Meanwhile, in the private sector, Saudi healthcare service provider Fakeeh.Care has begun constructing a 1 billion AED [\$272 million] medical university and hospital in Dubai Silicon Oasis.²⁶³

New public and private sector medical education institutions are also taking root in neighboring Abu Dhabi. In early 2016, the Abu Dhabi Urban Planning Council approved plans for the creation of a medical school at the prestigious Khalifa University, which has since been renamed the Khalifa University of Science and Technology following its 2017 merger with both the Masdar Institute and the Petroleum Institute.²⁶⁴ Then, in June 2016, Indian billionaire Dr. BR Shetty, of NMC Healthcare fame, said he would invest at least \$2 billion in the construction of a medical university in honor of U.A.E. Founding Father Sheikh Zayed Al Nahyan.²⁶⁵ More recently, in April 2017, His Highness Sheikh Mohamed bin Zayed issued directives to set up a specialized medical college and build a specialized medical city in Abu Dhabi.²⁶⁶



Other U.S.-U.A.E. Educational Partnerships

- **Children's National Medical Center** dedicates four training positions to Emirati physicians during their clinical and trial rotations. Each year, it also provides work experience to a number of Emirati students from UAE University, Higher Colleges of Technology, and Khalifa University.
- **Mayo Clinic and MD Anderson Cancer Center** are among the top U.S. hospitals where Emirati doctors and final year medical students receive specialized medical training as part of a program between The Scholarship Office at the Ministry of Presidential Affairs and the Khalifa bin Zayed Al Nahyan Foundation.
- **MD Anderson Cancer Center and Cleveland Clinic Abu Dhabi** entered into a medical partnership in 2014 with the Khalifa bin Zayed Al Nahyan Foundation (KBZF) to develop the skills of Emirati doctors, medical students, and administrators. Under the partnership, educational programs are offered to qualified Emirati candidates, ranging from collaborative internships to scholarships, residencies, and fellowships.
- **Cleveland Clinic Abu Dhabi** chose 35 Emirati and five expatriate high school students to participate in its prestigious two-week Junior Caregiver Program in the summer of 2017 across 13 of its Institutes. It also formed partnerships with local education establishments such as Fatima College of Health Sciences, a local higher education college, from which it recruited five candidates to join its graduate nursing program. The hospital also sponsored 20 students from the college to continue their studies.
- **Cleveland Clinic Abu Dhabi and New York University Abu Dhabi** agreed in May 2016 to collaborate on research, knowledge sharing, education, and training programs.²⁶⁷



Research

U.A.E. universities are increasingly conducting innovative medical research. For instance, Sharjah University created a Research Institute of Medical & Health Sciences, which seeks to help make the university a national and international leader in biomedical and health sciences. Its research focuses on experimental and system biology, experimental genetics, disease states experimental therapeutics, inflammatory diseases, and clinic epidemiology/health policy.²⁶⁸ Moreover, NYU Abu Dhabi has created a Public Health Research Center (PHRC), which seeks to identify environmental and genetic determinants of health problems in Abu Dhabi and develop and test new public health interventions to promote wellness in the emirate.



Likewise, private sector companies are increasingly conducting research in the U.A.E., facilitated by dedicated facilities such as those provided by Dubai Science Park. The community features world-class laboratory space, equipped with air exhaust and ventilation systems, acid resistant draining, and pH neutralization systems amongst other technical features. As a result, the laboratories have become home to a wide range of organizations conducting activities including research and product development, testing, diagnostics, manufacturing, and production.²⁶⁹

Meanwhile, several dedicated medical research centers have emerged in the country. In March 2017, the Thumbay Institute of Precision Medicine and Translational Research opened on the site of Gulf Medical University to conduct postgraduate research, particularly on diabetes and cancer. The Thumbay Institute of Population Health and the Thumbay Institute of Healthcare Workforce Development and Leadership are also expected to open soon.²⁷⁰ So, too, will Al Jalila Foundation Research Center, which is a 200 million AED [\$54 million] institution being built in Dubai Healthcare City to research five major areas: cancer, cardiovascular disease, diabetes, obesity, and mental health.²⁷¹

At the same time that medical research has expanded in the U.A.E., Emirati researchers have conducted research in the United States through partnerships with leading medical institutions. For instance, in December 2016, an Emirati researcher, Dr. Humaid Al Shamsi, who is an Assistant Professor at the MD Anderson Cancer Center at the University of Texas, was the primary investigator in the identification of a rare subtype of colon cancer. The discovery was the result of collaboration between the Sheikh Khalifa bin Zayed Al Nahyan Institute for Personalized Cancer Therapy at MD Anderson and the Mayo Clinic, with research support from the Khalifa bin Zayed Al Nahyan Foundation.²⁷²

The U.A.E. has spurred much of the above activity through generous grants. Al Jalila Foundation, for instance, has not only funded the construction of the Al Jalila Foundation Research Center, but it has also provided scholarships to U.A.E. medical students and funded U.A.E.-based medical research.²⁷³ Indeed, as of December 2017, Al Jalila Foundation had awarded 20 million AED [\$5.4 million] to 76 U.A.E.-based research projects.²⁷⁴ Al Jalila Foundation is not alone, as the Sheikh Hamdan bin Rashid Al Maktoum Award for Medical Sciences, which funds medical research, is now in its 18th year.²⁷⁵



U.S.-U.A.E. Research Collaborations

- **Harvard International Medicine** (now Partners HealthCare International) and the government of Dubai founded the Dubai Harvard Foundation for Medical Research to support cutting-edge collaborative research and establish sustainable research and education programs focused on diseases relevant to the MENA region. In January 2015, it formed the Harvard Medical School Center for Global Health Delivery-Dubai in Dubai Healthcare City. This institution is mandated to address regional health issues through research, medical education, and training.
- **New York University Abu Dhabi (NYU Abu Dhabi)** announced the launch of the “UAE Healthy Future Study” in early 2017, which is a long-term study of 20,000 Emiratis to better understand the risk factors of obesity, diabetes, and heart disease. The study is being conducted in collaboration with SEHA, Zayed Military Hospital, UAE University, Zayed University, Khalifa University, EBTIC, Healthpoint, Cleveland Clinic Abu Dhabi, Capital Health Screening Center, and Daman.
- **The Medtronic Foundation** gave a two-year \$100,000 Health Access Grant to Al Jalila Foundation in February 2017 to fund a local research program focusing on Vitamin D deficiency across the country. The grant will allow Al Jalila Foundation to promote early detection and prevention of the disease.²⁷⁶



**CENTER FOR GLOBAL
HEALTH DELIVERY-DUBAI**
HARVARD MEDICAL SCHOOL

جامعة نيويورك أبوظبي



Medtronic
FOUNDATION

Exhibitions and Conferences

Over the last decade, the U.A.E. has become a regional hub for healthcare exhibitions and conferences. Every January, the U.A.E. hosts the largest gathering of healthcare and trade professionals in the Middle East, “Arab Health.” In 2017, this show welcomed over 4,000 exhibitors from 68 countries as well as almost 100,000 visitors.²⁷⁷ For more information, please visit <https://www.arabhealthonline.com/en/Home.html>.



The U.A.E. also hosts a variety of more specialized annual events. These include MEDLAB, which is the largest attended laboratory expo worldwide with approximately 600 exhibitors and more than 25,000

attendees.²⁷⁸ They also include the Building Healthcare Innovation and Design Show, the AccessAbilities Expo, and the Health Information and Management Systems Society (HIMSS) U.A.E. Health Week.²⁷⁹ For more information about MEDLAB and the Building Healthcare Innovation and Design Show please visit www.medlabme.com and <https://www.buildinghealthcare-exhibition.com/en/Home.html>.

“Reaching the Last Mile” Global Health Forum

In November 2017, Abu Dhabi convened key global health stakeholders for the “Reaching the Last Mile” global health forum. This forum, held in partnership with the Bill and Melinda Gates Foundation and the Carter Center, sought to catalyze action to reach the “last mile” of eliminating and eradicating certain preventable diseases.

During this forum, His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the U.A.E. Armed Forces, and Bill Gates each pledged \$20 million towards a \$100 million fund to tackle diseases including river blindness and lymphatic filariasis (elephantitis). Two of the world’s largest drug companies, MSD (as U.S. pharmaceutical giant Merck is known outside the United States) and GlaxoSmithKline, also announced in-kind contributions of drugs, with co-investments from the UK Department of International Development and the U.S. Agency for International Development (USAID). MSD, in particular, announced that it would manufacture and provide free of charge 880 million tablets through 2025 to support river blindness treatment and efforts to achieve eradication. The conference also led to the establishment of a new research institute based in Abu Dhabi that will develop policies to combat infectious disease.

This forum built on previous partnerships between the U.A.E. and both the Bill and Melinda Gates Foundation and the Carter Center. In 2013, Abu Dhabi, in partnership with the Bill and Melinda Gates Foundation, convened the Global Vaccine Summit, which raised \$4 billion in commitments to polio eradication. More than 30 years ago, the late U.A.E. President His Highness Sheikh Zayed bin Sultan Al Nahyan forged a partnership with the Carter Center around Guinea worm disease eradication that continues to the present.²⁸⁰

H. Public Health

In line with the U.A.E.’s Vision 2021, the U.A.E. has recently made a major push to reduce the incidence of chronic diseases by adopting relevant legislation and launching public health campaigns.

Anti-Smoking

Above all, the U.A.E. has focused on combating smoking. In January 2014, the U.A.E. announced the implementation of Federal Law No. 15 of 2009 that, among other things, made it illegal to smoke in houses of worship, universities, and schools; prohibited smoking in a vehicle when a child under 12 was present; forbid the sale of cigarettes to individuals under the age of 18; banned all tobacco advertising and promotion; and mandated a large warning label on the packaging of tobacco products.²⁸¹ Building on this legislation, in November 2014, the then-U.A.E. Ministry of Health announced a nationwide ban

on smoking in all enclosed public spaces.²⁸² Two years later, in 2017, the U.A.E. introduced an excise tax of 100% on tobacco products.²⁸³

Cancer Screening

The U.A.E. government has also made concerted efforts to promote early cancer detection through screening. In September 2015, the then-Ministry of Health launched an official cancer screening initiative to raise awareness about cancer and the importance of early detection through regular medical check-ups. Since then, the Ministry has periodically offered free breast cancer screenings across the U.A.E.²⁸⁴

Other U.A.E. entities have also provided free screenings. For instance, Ambulatory Healthcare Services has conducted breast cancer screenings in Abu Dhabi. Moreover, Zulekha Healthcare has offered free screenings for breast cancer and colorectal cancer at its facilities in Sharjah and Dubai.²⁸⁵



These initiatives have complemented the longstanding efforts of the Friends of Cancer Patients. Founded by Sheikha Jawaher bint Mohammed Al Qasimi, this group has organized the high-profile “Pink Caravan” every year since 2011 to raise awareness about breast cancer early detection and screening.²⁸⁶ In March 2017, the Pink Caravan screened almost 7,500 residents and citizens, with 12 cases of malignancy thereby reported.²⁸⁷

U.S.-U.A.E. Cancer Partnerships

- **The Susan G. Komen Foundation** has partnered with the U.A.E. to raise awareness of breast cancer and facilitate more effective outcomes in its prevention and treatment. In 2017, the U.A.E. Embassy in Washington, D.C. participated in the Susan G. Komen Race for the Cure as an official sponsor.
- **The American Cancer Society (ACS)** has partnered with Friends of Cancer Patients in the U.A.E. since 2014 to, among other things, launch the U.A.E.’s first Relay for Life Race and translate the ACS’s Cancer Atlas into Arabic. This Atlas provides a comprehensive guide to the global cancer landscape and is used to promote cancer prevention and control worldwide.²⁸⁸



Combating Obesity, Diabetes, and Cardiovascular Disease

On top of its efforts to combat smoking and cancer, the U.A.E. has tried to fight growing rates of obesity and associated ailments through regulation and taxation of the food and beverage industry. In December 2013, the U.A.E. cabinet announced that it would require calorie counts to be printed on food products, limit the size of soft drinks that can be sold, regulate advertising of fast food, and enforce healthy food standards at school cafeterias.²⁸⁹ In 2017, the U.A.E. introduced an excise tax of 50% on sugary beverages.²⁹⁰

Additionally, the U.A.E. has sought to combat these chronic ailments by promoting exercise. In 2017, His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of the Dubai Government, launched the Dubai Fitness Challenge, which challenged Dubai to be active for 30 minutes every day for 30 days. Sheikh Abdullah bin Zayed, Minister of Foreign Affairs and International Cooperation, was among the many U.A.E. officials who publically embraced this challenge. A number of companies, such as Emirates, also accepted Sheikh Hamdan's challenge.²⁹¹

U.S.-U.A.E. Fitness Partnerships

- **New York Road Runners** partners with the U.A.E. Embassy in Washington, D.C. on its annual U.A.E. Healthy Kidney 10K, which benefits the National Kidney Foundation. In 2017, 8,600 people finished this race through Central Park.
- **Cleveland Clinic Abu Dhabi** and the Department of Health – Abu Dhabi organize Cycle for Health UAE, which seeks to promote cycling as a fun and healthy way to reduce the risk of chronic diseases. This initiative involves regular events at Zayed Sports City Stadium and is held in partnership with Healthpoint and Imperial College London Diabetes Center, all part of Mubadala Investment Company's network of world-class healthcare providers. Cleveland Clinic Abu Dhabi has also supported Walk 2017, the U.A.E.'s leading walkathon. Walk 2017 is sponsored by Mubadala's Imperial College London Diabetes Center with the support of the Department of Health – Abu Dhabi and Healthpoint.²⁹²



Finally, the U.A.E. has endeavored to detect chronic ailments at an early stage so they could be effectively managed and treated. For instance, the then-Health Authority – Abu Dhabi (now Department of Health) launched the “Weqaya” program, which screens individuals for cardiovascular disease, diabetes, and the risk factors associated with these two ailments.²⁹³ U.A.E. nationals must undergo Weqaya screening in order to qualify for the elite “Thiqa” health insurance program.²⁹⁴

PART III: ENTERING THE MARKET

The U.A.E. healthcare market offers enormous opportunities for U.S. companies to expand their presence and forge meaningful partnerships. However, it also poses certain challenges. Fortunately, there are a wide range of resources that companies can draw on to help them navigate any risks.

A. Opportunities

As previously noted, the U.A.E.'s increasing population, demographic shifts, high prevalence of chronic diseases, wealth, and ambitions to become a regional medical tourism hub are all driving the expansion of the country's healthcare market. As a result, BMI projects that this market will grow 5.5% per year to \$20.03 billion by 2020.

At the same time that it is a thriving healthcare market in its own right, the U.A.E. is an ideal regional hub from which to provide medical goods and services. The country is centrally located at the crossroads of Africa, Europe, and Asia. It boasts advanced transportation and logistics infrastructure. Moreover, it enjoys relative security, political stability, and favorable business regulations, particularly in free zones.

The U.A.E. provides attractive opportunities for U.S. companies in the field of healthcare provision, where there is a high demand for U.S. expertise, particularly in more specialized domains. U.S. healthcare providers could replicate institutions in the U.A.E. as Cleveland Clinic did. Alternately, they could manage U.A.E. hospitals in the same fashion as Johns Hopkins Medicine International does. They could also include U.A.E. hospitals in their global healthcare networks, following the examples of Houston Methodist Global Health Care Services and the Mayo Clinic.



The U.A.E. also offers opportunities in the pharmaceutical, medical equipment, and healthcare IT sectors. U.S. companies will not only find the U.A.E. a ripe market for pharmaceutical exports, but they may also find it a suitable platform for the manufacture of drugs, perhaps following the lead of Merck and Pfizer in agreeing to local production arrangements. In addition, U.S. companies will find the U.A.E. a growing market for medical equipment sales and one in which they can potentially sign agreements to install and service their own medical devices, as has GE Healthcare. At the same time, U.S. companies will find clients that are eagerly pursuing the latest innovations in healthcare information technology, as IBM Watson Health, 3M, and Honeywell can attest.

The U.A.E. presents opportunities in meeting an ever-increasing demand for medical professionals as well. Along these lines, U.S. doctors and nurses will find gainful employment in the U.A.E. In addition, world-class medical institutions will find local counterparts that are eager to partner with them to give the best education and training to future generations of local medical professionals, as Children's National Medical Center, Children's Hospital of Philadelphia, and others well know.

The above is far from an exhaustive list of opportunities available for U.S. companies in the U.A.E. healthcare market, and less obvious opportunities exist as well. For instance, U.S. companies may find lucrative contracts in designing or building the U.A.E.'s myriad planned medical facilities. Moreover, U.S. venture capital and private equity firms may find promising investment opportunities in the U.A.E. healthcare space, which includes a wide array of innovative healthcare startups.

Regardless of the opportunity U.S. companies are pursuing, one of the keys to success will be an on-the-ground commitment. Fortunately, there are numerous advantageous environments in which U.S. companies can establish themselves, including Dubai Healthcare City and Dubai Science Park. The U.S.-U.A.E. Business Council's guide to "Doing Business in the United Arab Emirates" provides U.S. company executives the essential information they need when considering operations in the U.A.E.

B. Challenges

While there are abundant opportunities for U.S. businesses in the U.A.E. healthcare market, these opportunities are limited by the inherent size of the market. The U.A.E.'s population of 9 million people, which is relatively small by global standards, limits the profitability of certain healthcare enterprises that depend on scale and whose scale cannot be achieved by either the U.A.E.'s connections to the wider region or the U.A.E.'s booming medical tourism market. This is particularly the case where there is fierce competition, like in the healthcare insurance industry.

This problem of scale has been exacerbated to a certain degree by the fragmentation of the U.A.E. healthcare market by different healthcare regulators. As seen above, the Ministry of Health and Prevention (MOHAP), Department of Health - Abu Dhabi, Dubai Health Authority (DHA), and several other authorities are all involved in the regulation of the U.A.E.'s healthcare industry. A 2015 Economist Intelligence Unit report cited this as a concern, remarking that "the development of differing protocols and standards can impede service quality and make it harder to attain scale across the U.A.E."²⁹⁵ That said, it is of note that the U.A.E. has taken steps to unify its regulations; for instance, the MOHAP, DHA, and Health Authority – Abu Dhabi (now Department of Health) announced in October 2014 that they would begin implementing a unified medical license for medical professionals.²⁹⁶

In addition to scale, another potential challenge for U.S. companies operating in the U.A.E. healthcare market is tightening budgets. In an environment of lower oil prices and soaring healthcare costs, there have been firmer stances regarding prices throughout the healthcare industry.

Finally, there are several legal or regulatory issues that could dampen the enthusiasm of U.S. companies or individuals considering entering the U.S. market. For instance, pharmaceutical companies may be dissuaded from expanding their U.A.E. operations due to nagging concerns about protection of intellectual property.²⁹⁷ The U.A.E. government is working to address these concerns.

C. Resources

U.S. companies that are looking to capture the myriad opportunities in the U.A.E. healthcare market and forge fruitful partnerships with local counterparts can draw on a variety of resources and services, both in the United States and U.A.E.

First and foremost, they can rely on the assistance of U.S. government institutions, located both in the U.A.E. and Washington, D.C.

U.S. Government Contacts in the U.A.E.

Senior Commercial Officer: Dao M. Le
U.S. Embassy in Abu Dhabi, Commercial Section
P.O. Box 4009, Abu Dhabi, U.A.E.
Tel: +971-2-414-2665
E-mail: Dao.Le@trade.gov
Website: <https://2016.export.gov/unitedarabemirates/index.asp>

Principle Commercial Officer in Dubai: Shakir Farsakh
U.S. Consulate General in Dubai
P.O. Box 121777, Dubai, U.A.E.
Tel: +971-4-309-4963
E-mail: Shakir.Farsakh@trade.gov
Website: <https://2016.export.gov/unitedarabemirates/index.asp>

U.S. Government Contacts in Washington, D.C.

U.A.E. Desk Officer: James Cramer
U.S. Department of Commerce
U.S. and Foreign Commercial Service
International Trade Administration
14th St. & Constitution Avenue, N.W.
Washington, D.C. 20230
Tel: (202) 482-0879
Email: James.Cramer@trade.gov

In addition, U.S. companies can turn to U.A.E. government institutions in both the United States and the U.A.E.

U.A.E. Government Contacts in the United States

U.A.E. Commercial Counselor: Saud Al Nowais
Chief of Staff, Advisor to the Commercial Counselor, and Director of U.S.-U.A.E. Space Affairs:
Talal Kaissi
U.A.E. Embassy, Trade & Commercial Office
3522 International Court, NW
Washington, DC 20008
Tel: (202) 243-2425
Email: trade@uaeembassy-usa.org
Website: <http://www.uaetrade-usa.org/>

U.A.E. Consulate in Los Angeles
1999 Avenue of the Stars, Suite 1250

Los Angeles, CA 90067
Tel: (310) 551-6534
Email: protocol.la@mofa.gov.ae

U.A.E. Consulate in New York
535 5th Ave., 32nd Floor
New York, N.Y. 10017
Tel: (212) 419-7670
Email: nycon@mofa.gov.ae

U.A.E. Consulate in Boston
One International Pl, Suite 2901
Boston, MA 02110
Tel: (617) 948-8800
Email: consboston@uaeembassy-usa.org

U.A.E. Government Contacts in the U.A.E.

Ministry of Health and Prevention
P.O. Box 848, Abu Dhabi, U.A.E.
Tel: +971-2-652-0590
P.O. Box 1853, Dubai, U.A.E.
Tel: +971-4-230-1000
Website: www.mohap.gov.ae

Department of Health – Abu Dhabi
P.O. Box 5674, Abu Dhabi, U.A.E.
Tel: +971-2-449-3333
Website: www.haad.ae

Abu Dhabi Health Services Company (SEHA)
P.O. Box 109090, Abu Dhabi, U.A.E.
Tel: +971-2-410-2000
Website: www.seha.ae

Dubai Health Authority (DHA)
Dubai Health Authority Building, Al Maktoum Bridge Street, Bur Dubai Area 4545, U.A.E.
Tel: +971-800-342
Email: wasselotak@dha.gov.ae
Website: www.dha.gov.ae

Finally, U.S. companies can count on major U.S. trade associations and chambers of commerce and their counterparts in the U.A.E.

U.S. Trade Associations/Chambers of Commerce

U.S.-U.A.E. Business Council
505 Ninth Street, NW

Washington, D.C. 20004
Tel: (202) 863-7285
Email: news@usuaebusiness.org
Website: www.usuaebusiness.org

AmCham Abu Dhabi
P.O. Box 43710, Abu Dhabi, U.A.E.
Tel: +971-2-631-3604
Email: admin@amchamabudhabi.org
Website: www.amchamabudhabi.org

The American Business Council in Dubai
P.O. Box 74648, Dubai, U.A.E.
Tel: +971-4-379-1414
Email: director@abcdubai.com
Website: www.abcdubai.com

U.A.E. Trade Associations/Chambers of Commerce

Federation of U.A.E. Chambers of Commerce & Industry
P.O. Box 3014, Abu Dhabi, U.A.E.
Tel: +971-2-621-4144
Email: info@fcciuae.ae
Website: www.fcciuae.ae

Abu Dhabi Chamber of Commerce & Industry
P.O. Box 662, Abu Dhabi, U.A.E.
Tel: +971-2-621-4000
Email: contact.us@adcci.gov.ae
Website: www.abudhabichamber.ae

Dubai Chamber of Commerce & Industry
P.O. Box 1457, Dubai, U.A.E.
Tel: +971-4-228-0000
Email: customercare@dubaichamber.com
Website: www.dubaichamber.com/

Sharjah Chamber of Commerce & Industry
P.O. Box 580, Sharjah, U.A.E.
Tel: +971-6-530-2222
Email: scci@sharjah.gov.ae
Website: www.sharjah.gov.ae

Ajman Chamber of Commerce & Industry
P.O. Box 662, Ajman, U.A.E.
Tel: +971-600-595-959
Email: info@ajmanchamber.ae
Website: www.ajmanchamber.ae

Fujairah Chamber of Commerce & Industry
P.O. Box 738, Fujairah, U.A.E.
Tel: +971-9-223-0000
Email: chamber@fujcci.ae
Website: www.fujcci.ae

Ras Al Khaimah Chamber of Commerce & Industry
P.O. Box 87, Ras Al Khaimah, U.A.E.
Tel: +971-7-207-0222
Email: info@rakchamber.ae
Website: www.rakchamber.ae

Umm Al Quwain Chamber of Commerce & Industry
P.O. Box 436, Umm Al Quwain, U.A.E.
Tel: +971-6-765-1111
Email: uaqcci1@eim.ae
Website: <http://www.uaqchamber.ae/>

REFERENCES

- ¹ <http://www.uaeinteract.com/society/health.asp>; http://data.bayanat.ae/en_GB/dataset/number-of-hospitals/resource/3cc4106b-bbca-4a6b-b213-8bacd7f47f82
- ² <http://gulfnews.com/gn-focus/special-reports/health/the-state-of-the-uae-s-health-2016-1.1658937>
- ³ <http://www.thenational.ae/news/uae-news/health/how-missionaries-transformed-abu-dhabi-healthcare#full>
- ⁴ <http://www.thenational.ae/uae/abu-dhabis-oldest-hospital-given-new-lease-of-life>
- ⁵ <http://gulfnews.com/news/uae/health/zayed-s-generosity-praised-by-staff-of-mayo-clinic-1.336171>;
http://www.hopkinsmedicine.org/news/media/releases/major_gift_to_johns_hopkins_medicine_honors_uae_sheikh_zayed_bin_sultan_al_nahyan; <http://www.thenational.ae/uae/health/officials-inaugurate-texas-cancer-care-unit-named-for-sheikh-zayed>; <http://childrensnational.org/news-and-events/photo-gallery/arab-health-2016>;
<http://www.emirates247.com/news/app-to-detect-birth-defects-in-uae-infants-2016-01-27-1.618859>;
<http://childrensnational.org/research-and-education/sheikh-zayed/about-the-institute>; <http://www.thenational.ae/news/uae-news/hamdan-bin-rashid-donates-us-5m-to-cleveland-clinic>
- ⁶ <http://usuaebusiness.org/u-s-u-a-e-business-council-hosts-u-a-e-assistant-undersecretary-of-public-health-policy-and-licensing-in-dubai/>
- ⁷ <http://databank.worldbank.org/data/reports.aspx?source=health-nutrition-and-population-statistics:-population-estimates-and-projections>
- ⁸ <http://databank.worldbank.org/data/reports.aspx?source=health-nutrition-and-population-statistics:-population-estimates-and-projections>
- ⁹ <https://www.thenational.ae/uae/health/us-to-open-diabetes-training-centre-in-the-uae-to-share-knowledge-1.669708>
- ¹⁰ <http://www.thenational.ae/uae/uae-losing-fight-against-smoking>
- ¹¹ <http://gulfnews.com/gn-focus/special-reports/health/the-state-of-the-uae-s-health-2016-1.1658937>
- ¹² <https://www.thenational.ae/uae/abu-dhabi-health-survey-paints-a-grim-picture-as-lifestyle-diseases-take-toll-on-residents-1.685702>
- ¹³ <https://www.thenational.ae/uae/health/a-fifth-of-emiratis-in-dubai-are-diabetic-new-survey-reveals-1.675841>
- ¹⁴ <https://www.thenational.ae/uae/health/task-force-in-strategy-for-growing-problem-of-childhood-obesity-1.660020>
- ¹⁵ <https://www.thenational.ae/uae/health/children-in-uae-as-young-as-nine-smoking-study-1.670877>
- ¹⁶ <https://www.thenational.ae/uae/better-communication-between-doctors-and-patients-needed-experts-tell-abu-dhabi-health-summit-1.629950>; <http://www.arabianbusiness.com/industries/healthcare/380893-dubai-authorities-ink-deal-to-ease-visa-procedures-for-medical-tourists>; <http://www.arabianbusiness.com/dubai-medical-tourism-receipts-rise--390m-676887.html>
- ¹⁷ <http://gulfnews.com/news/uae/society/uae-on-track-with-its-national-health-agenda-1.1955749>;
<http://www.prosperity.com/rankings>
- ¹⁸ <http://www.haad.ae/HAAD/LinkClick.aspx?fileticket=KeJK5Zsluns%3d&tabid=1516>
- ¹⁹ <http://www.thenational.ae/uae/health/dubai-unveils-ambitious-10-year-healthcare-plan>
- ²⁰ <http://www.thenational.ae/uae/health/uae-nursing-staff-levels-fall-behind-region-and-world>
- ²¹ <http://www.thenational.ae/uae/health/despite-overall-growth-in-number-of-doctors-specialists-are-in-short-supply-across-abu-dhabi>; <http://www.thenational.ae/uae/health/short-supply-of-critical-care-beds-in-abu-dhabi>
- ²² <http://www.thenational.ae/uae/health/lack-of-emirati-doctors-is-worrying-problem-middle-east-health-leaders-told>;
<http://www.thenational.ae/uae/health/shortage-of-healthcare-professionals-in-gcc-as-demand-set-to-soar-240-in-20-years>
- ²³ <https://www.thenational.ae/uae/abu-dhabi-campaigns-for-young-emiratis-to-pursue-medical-careers-1.29490>
- ²⁴ <http://www.thenational.ae/uae/health/more-nurses-and-better-education-needed-to-cope-with-uae-shortage>
- ²⁵ <https://www.thenational.ae/uae/more-emirati-nurses-needed-says-seha-allied-group-director-1.662651>
- ²⁶ <http://www.thenational.ae/uae/health/hospital-staff-in-the-northern-emirates-opt-for-big-city-salaries>
- ²⁷ <http://www.eiuperspectives.economist.com/healthcare/investing-quality-healthcare-uae>;
<http://www.thenational.ae/uae/staff-retention-essential-to-the-success-of-the-uaes-hospitals>;
<http://www.thenational.ae/uae/uae-healthcare-costs-driven-up-by-criminalisation-of-malpractice>
- ²⁸ <http://www.arabianbusiness.com/revealed-doctor-fees-up-6-times-higher-in-uae-535518.html#.V2rblPkrLIU>
- ²⁹ <http://gulfbusiness.com/uae-insurance-market-not-yet-saturated-global-executive/>
- ³⁰ <http://www.thenational.ae/uae/knee-operations-for-uaes-elderly-expensive-and-unnecessary>;
<http://www.thenational.ae/uae/dubais-hospitals-face-battle-to-survive-amidst-abuse-of-system>
- ³¹ <http://www.thenational.ae/uae/billions-lost-in-health-care-fraud-and-waste-in-the-uae>
- ³² <https://www.thenational.ae/uae/new-cost-controls-to-clean-up-wild-west-uae-healthcare-market-1.628527>
- ³³ <https://www.thenational.ae/uae/medical-care-costs-will-not-increase-with-vat-1.80354>;
https://www2.deloitte.com/content/dam/Deloitte/xs/Documents/tax/vat/industries/me_tax_vat-fundamentals-healthcare-sector.pdf; <https://www.khaleejtimes.com/business/vat-in-uae/vat-will-spare-healthcare-hit-premiums>

<http://gulfnews.com/business/economy/food-to-be-taxed-whilst-health-care-and-protection-avoid-vat-hike-1.2121343>;
<https://www.khaleejtimes.com/business/vat-in-uae/federal-tax-authority-announces-supplies-subject-to-vat>
³⁴ <https://www.vision2021.ae/en/national-priority-areas/world-class-healthcare>
³⁵ <http://www.thenational.ae/uae/health/sheikh-mohammed-approves-strategy-to-improve-health-care>
³⁶ <https://government.ae/en/about-the-uae/strategies-initiatives-and-awards/local-governments-strategies-and-plans/dubai-health-strategy-2021>
³⁷ <http://www.thenational.ae/uae/health/man-in-charge-of-dha-wants-speed-of-progress-accelerated>
³⁸ <https://www.thenational.ae/business/travel-and-tourism/dubai-reveals-master-plan-for-500-000-medical-tourists-a-year-1.470337>
³⁹ <http://www.thenational.ae/uae/health/dubai-unveils-ambitious-10-year-healthcare-plan>
⁴⁰ <http://www.sharjahupdate.com/2017/01/master-plan-for-sharjah-healthcare-city-approved/>
⁴¹ <http://www.uaeinteract.com/society/health.asp>
⁴² <https://www.lw.com/thoughtleadership/healthcare-regulation-in-uae>
⁴³ <https://www.eiuperspectives.economist.com/sites/default/files/Investing%20in%20quality%20WEB%20English.pdf>;
http://export.gov/industry/health/healthcareresourceguide/eg_main_092312.asp;
<http://www.thenational.ae/uae/health/ministry-of-health-cuts-prices-on-142-medicines>;
<http://www.thenational.ae/uae/health/uae-slashes-cost-of-diabetes-drugs-by-more-than-80>;
<http://www.thenational.ae/uae/health/ministry-of-health-bolsters-uaes-medicine-stockpiles>;
<http://www.thenational.ae/uae/health/uae-fast-tracking-new-drugs-in-bid-to-tackle-growing-health-issues>
⁴⁴ <https://www.thenational.ae/uae/health/10-000-families-to-participate-in-major-uae-health-survey-1.670216>
⁴⁵ <http://www.moh.gov.ae/en/About/Pages/OrganizationStructure.aspx>
⁴⁶ http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book9_En/index.html#/36/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book9_En/index.html#/4/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book8_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book8_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book7_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book6_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book4_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book3_En/index.html#/2/;
<http://www.thenational.ae/uae/health/uae-private-health-care-law-passed>;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book3_En/index.html#/2/;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book3_En/index.html#/2/;
<http://www.tamimi.com/law-update-articles/the-new-uae-medical-liability-law-an-analysis/>;
<http://www.thenational.ae/uae/uae-healthcare-costs-driven-up-by-criminalisation-of-malpractice>;
<http://www.gulfoday.ae/portal/7774e525-37c3-4a03-9fcc-0ed99ee74237.aspx>; <https://www.thenational.ae/uae/abu-dhabi-hospital-carries-out-country-s-first-full-heart-transplant-1.684400>; <http://gulfnews.com/news/uae/health/passed-uae-organ-transplant-law-and-what-it-means-1.1896013>
⁴⁷ <http://www.oxfordbusinessgroup.com/overview/double-digit-growth-projected-continue-2015>
⁴⁸ <http://www.ia.gov.ae/EN/About/Pages/default.aspx>
⁴⁹ <http://uaenmc.gov.ae/en/AboutUs.aspx>; <http://www.thenational.ae/news/uae-news/health/new-council-to-address-uae-nursing-shortage>
⁵⁰ <http://gulfnews.com/news/uae/health/paradigm-shift-in-uae-health-care-1.2147055>
⁵¹ <https://www.abudhabi.ae/portal/public/en/departments/doh>
⁵² <http://www.jhsph.edu/news/news-releases/2008/abu-dhabi-agreement.html>
⁵³ <https://www.lw.com/thoughtleadership/healthcare-regulation-in-uae>; <http://www.thenational.ae/uae/health/dubai-health-authority-inspectors-log-141-violations-in-six-months>; <http://www.thenational.ae/uae/health/more-than-6000-medical-professionals-licensed-in-dubai-since-january>
⁵⁴ <http://www.thenational.ae/business/economy/dubai-moves-forward-with-hospital-rankings-amid-medical-tourism-drive>
⁵⁵ <http://www.thenational.ae/business/economy/dubai-curbs-cost-of-health-care>;
<http://www.thenational.ae/uae/health/dubai-health-authority-working-on-fund-to-cover-medical-expenses-for-poor-families> ;
<http://www.thenational.ae/uae/health/dubai-health-authority-calls-for-more-emiratis-to-enter-medical-profession>
⁵⁶ <https://www.dha.gov.ae/en/Aboutus/Pages/OurPresident.aspx>
⁵⁷ <https://www.dha.gov.ae/en/Aboutus/Pages/ChairmansMessage.aspx>; <http://gulfnews.com/news/uae/government/new-dha-director-general-appointed-1.1516781>
⁵⁸ <https://www.lw.com/thoughtleadership/healthcare-regulation-in-uae>
⁵⁹ <http://www.dhcc.ae/portal/en/regulatory.aspx>

⁶⁰ <https://www.lw.com/thoughtleadership/healthcare-regulation-in-uae> ;
<https://www.wam.ae/en/news/general/1395295963417.html>

⁶¹ <https://www.seha.ae/English/aboutus/Pages/Formation-of-SEHA.aspx>;
http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book1_En/index.html#/2/;
<http://gulfnews.com/news/uae/health/abu-dhabi-health-care-provider-to-recruit-2-000-nurses-1.2097091>

⁶² <https://www.seha.ae/English/aboutus/Pages/Formation-of-SEHA.aspx>; <http://www.thenational.ae/uae/health/number-of-patients-in-abu-dhabi-rises-to-4-million>; <https://www.thenational.ae/uae/health/it-s-a-miracle-abu-dhabi-hospital-staff-who-delivered-400g-baby-overjoyed-as-she-prepares-to-return-home-1.665439>

⁶³ <http://www.khaleejtimes.com/nation/uae-health/four-hospitals-two-clinics-to-be-set-up-in-al-gharbia>;
<http://www.thenational.ae/uae/health/construction-complete-at-sheikh-khalifa-medical-city-dialysis-centre>;
<http://www.thenational.ae/uae/health/20150609/abu-dhabis-new-centre-to-support-women-with-mental-health-issues>;
<http://www.thenational.ae/uae/health/seha-opens-new-paediatric-dialysis-unit>

⁶⁴ <http://www.thenational.ae/uae/health/al-towayya-childrens-speciality-centre-opens-its-doors>

⁶⁵ <http://www.arabianbusiness.com/abu-dhabi-s-new-1bn-medical-city-now-more-than-90-completed-661197.html>

⁶⁶ http://www.tradearabia.com/news/HEAL_329464.html

⁶⁷ http://www.hopkinsmedicine.org/international/international_affiliations/middle_east/al_rahba_hospital.html;
http://www.hopkinsmedicine.org/international/international_affiliations/middle_east/tawam_hospital.html;
http://www.hopkinsmedicine.org/news/media/releases/johns_hopkins_medicine_international_appoints_new_ceo_at_al_cor_niche; <http://my.clevelandclinic.org/florida/sitecore/content/Sites/ClevelandClinic/Home/services/global-health-center/international-collaboration>;
https://www.facebook.com/NECCAbuDhabi/info/?entry_point=page_nav_about_item&tab=page_info;
<http://www.acgme.org/What-We-Do/Overview>;
https://www.abudhabi.ae/portal/public/en/abu_dhabi_emirate/government/news/news_detail?docName=ADEGP_DF_345486_EN&_adf.ctrl-state=w5a72s24h_4&_afLoop=11762610570102658; <http://gulfnews.com/news/uae/health/emirati-men-discouraged-by-long-road-towards-becoming-certified-doctors-1.1986092>;
https://www.hopkinsmedicine.org/international/international_affiliations/middle_east/tawam_hospital.html;
https://www.hopkinsmedicine.org/international/international_affiliations/middle_east/al_rahba_hospital.html;
<https://www.seha.ae/SKMC/English/aboutus/Pages/Formation-of-SKMC.aspx>

⁶⁸ <https://www.dha.gov.ae/en/MediaCenter/Pages/News.aspx#>

⁶⁹ <http://www.arabianbusiness.com/dubai-health-authority-says-1-1m-patients-treated-in-2016-658479.html>

⁷⁰ <http://www.thenational.ae/uae/health/hope-for-patients-as-kidney-transplant-centre-opens-in-dubai>;
<http://www.thenational.ae/uae/health/dh161m-revamp-of-uaes-busiest-emergency-unit-begins>;
<http://www.thenational.ae/uae/health/gastro-unit-at-rashid-hospital-in-dubai-undergoes-expansion>

⁷¹ <http://www.arabianbusiness.com/dubai-hospital-set-get-79m-makeover-675321.html>

⁷² <http://www.arabianbusiness.com/dubai-plans-1-000-bed-hospital-boost-medical-tourism-ambitions-646753.html>

⁷³ <http://gulfnews.com/news/uae/health/dha-health-strategy-2021-on-track-1.2111650>; <http://gulfnews.com/better-health/news/dha-s-new-cardiology-centre-to-open-1.2094869>; <http://middleeast.geblogs.com/en/stories/ge-industrial/boosting-dubais-health-with-cardiology-center-of-excellence/>

⁷⁴ <http://gulfnews.com/news/uae/government/health-ministry-blamed-for-poor-health-services-in-northern-emirates-1.1342696>; <http://gulfnews.com/news/uae/health/clinicians-can-verify-safety-of-medication-dose-through-app-1.2133772>

⁷⁵ <http://www.thenational.ae/news/uae-news/politics/uae-will-improve-health-care-in-northern-emirates-minister-assures-fnc>; <http://www.thenational.ae/uae/hospitals/child-care-centre-opens-in-fujairah>;
<http://www.thenational.ae/uae/health/three-new-health-centres-for-fujairah-set-to-open>;
<http://www.thenational.ae/uae/hospitals/early-cancer-detection-centres-planned-for-northern-emirates>;
<http://www.thenational.ae/uae/uae-news-in-review-2015-fujairahs-infrastructure-gets-an-upgrade>;
<http://fujairah.ae/en/Pages/health.aspx>

⁷⁶ <http://www.thenational.ae/uae/all-health-insurance-cards-to-be-accepted-by-federal-hospitals-in-2017>

⁷⁷ <https://www.thenational.ae/uae/education/a-very-special-place-is-a-story-for-courageous-young-cancer-patients-1.202823>;
<http://gulfnews.com/news/uae/government/abdullah-launches-illustrated-bilingual-children-s-book-1.1923566>

⁷⁸ <https://www.prnewswire.com/news-releases/the-ministry-of-health-and-prevention-of-the-united-arab-emirates-and-childrens-hospital-of-philadelphia-partner-on-visiting-specialty-consultant-program-300531095.html>;
<http://gulfnews.com/news/uae/health/moh-partners-with-mayo-clinic-in-the-uae-1.1049630>;
<http://www.thenational.ae/business/economy/ge-signs-agreement-with-uae-health-ministry-for-hospital-radiology>;
<http://newsroom.gehealthcare.com/hospital-network-brings-cutting-edge-radiology-to-the-uae/>; <http://www.unisonuae.com>;
<http://www.mohap.gov.ae/en/MediaCenter/News/Pages/1699.aspx>; <https://www.thenational.ae/uae/health/early-diabetes-detection-programmes-launched-in-clinics-across-uae-1.669317>

⁷⁹ <http://nmc.ae/hospitals/umm-al-quwain/sheikh-khalifa-general-hospital-1/>; <http://www.thenational.ae/uae/health/dh750-million-hospital-boosts-health-care-in-umm-al-quwain>; <http://www.thenational.ae/uae/health/dh750m-sheikh-khalifa-hospital-opens-in-umm-al-quwain>; http://www.tradearabia.com/news/HEAL_329367.html

⁸⁰ <http://www.thenational.ae/uae/government/rak-ruler-sheikh-saud-opens-sheikh-khalifa-speciality-hospital---in-pictures>; <http://www.thenational.ae/uae/health/raks-flagship-hospital-to-be-managed-by-leading-korean-medical-institute>; <http://www.sksh.ae/about-us/>; <http://www.thenational.ae/news/uae-news/health/raks-flagship-hospital-will-meet-medical-needs-head-on>

⁸¹ <http://gulfnews.com/news/uae/government/infrastructure-projects-worth-dh1-2-billion-approved-1.2094600>

⁸² <http://www.mubadala.com/en/what-we-do/healthcare/healthpoint>; <http://www.mubadala.com/en/news/mubadala-healthcare-and-wooridul-agree-establish-spine-centre-abu-dhabi>

⁸³ <http://www.icldc.ae/about-us/overview>

⁸⁴ <http://www.thenational.ae/uae/health/medical-advice-being-just-phone-call-away-puts-abu-dhabi-patients-at-ease>

⁸⁵ <http://www.mubadala.com/en/what-we-do/healthcare>

⁸⁶ <https://www.clevelandclinicabudhabi.ae/en/about-us/pages/who-we-are.aspx>; <http://www.thenational.ae/uae/health/sheikh-mohammed-and-moroccan-king-inaugurate-cleveland-clinic-abu-dhabi>; <https://www.thenational.ae/uae/health/cleveland-clinic-abu-dhabi-continues-expansion-as-it-treats-more-than-337-000-patients-1.613332>; http://www.tradearabia.com/news/HEAL_325323.html; <https://www.thenational.ae/uae/abu-dhabi-hospital-carries-out-country-s-first-full-heart-transplant-1.684400>; <http://www.gulfoday.ae/portal/60e61fe9-2c7e-4d2a-98ca-d334281cc03d.aspx>

⁸⁷ <http://aljalilahospital.com/about-aljalila.aspx>; <http://www.thenational.ae/uae/health/dh700-million-childrens-hospital-set-to-open-in-dubai-by-years-end>

⁸⁸ <http://www.aljalilachildrens.ae/about-us>

⁸⁹ <http://usuaebusiness.org/u-s-u-a-e-business-council-hosts-u-a-e-assistant-undersecretary-of-public-health-policy-and-licensing-in-dubai/>

⁹⁰ <http://www.emirates247.com/news/dh10-9-billion-spent-on-healthcare-in-dubai-dha-2016-01-31-1.619236>

⁹¹ <https://www.thenational.ae/uae/dubai-to-get-twelve-more-private-hospitals-by-2020-1.91666>

⁹² <http://www.arabianbusiness.com/industries/healthcare/377819-nmc-health-the-first-middle-east-company-to-be-listed-on-the-ftse-100>; <http://www.nmchealth.com/healthcare/>

⁹³ <https://nmc.ae>

⁹⁴ <http://www.thenational.ae/business/economy/nmc-health-acquires-provita-to-reinforce-long-term-care-business>; <http://www.thenational.ae/business/economy/medstar-to-invest-100-million-for-day-surgery-centres-in-the-uae-arabian-gulf>; <http://www.zawya.com/mena/en/story/ZAWYA20150818062120/>

⁹⁵ <http://www.thenational.ae/business/economy/nmc-healthcare-opens-new-500-bed-capacity-hospital-in-abu-dhabis-khalifa-city>; <http://www.arabianbusiness.com/uae-s-provita-acquires-homecare-provider-lifewise-654479.html>

⁹⁶ <http://www.arabianbusiness.com/uae-hospital-operator-eyes-expansion-across-gulf-667742.html>; <https://www.alzahra.com/>; <http://www.gmpc.ae/ar/#>; <https://www.alzahra.com/azhshj/about-us.php>

⁹⁷ <http://www.arabianbusiness.com/content/376667-unit-of-uaes-kbbo-acquires-60-of-24-7-healthcare-provider>

⁹⁸ <http://www.kbbogroup.com/our-portfolio/healthcare/>

⁹⁹ <http://www.nmchealth.com/board-of-directors/>

¹⁰⁰ http://www.tradearabia.com/news/HEAL_329367.html; <https://nmc.ae/news/nmc-health-operate-manage-emirates-healthcare-assets-1557/>

¹⁰¹ <http://www.mediclinic.com>

¹⁰² <http://www.mediclinic.com/About-Us>; <http://www.thenational.ae/business/economy/abu-dhabis-nmc-health-vows-to-fight-on-for-al-noor-merger>

¹⁰³ <http://www.thenational.ae/uae/dh700m-hospital-to-be-built-in-new-dubai>

¹⁰⁴ <http://www.alnoorhospital.com/>

¹⁰⁵ <http://www.asterdmhealthcare.com>

¹⁰⁶ <http://www.asterdmhealthcare.com/global-network/?id=fe#aster-middle-east>

¹⁰⁷ <http://www.arabianbusiness.com/medcare-aims-have-100-female-staff-at-dubai-hospital-648367.html>

¹⁰⁸ <http://vpshealth.com>

¹⁰⁹ <http://www.gulfoday.ae/portal/7558676e-1c39-4ed2-a402-a0fdc4f95e53.aspx>

¹¹⁰ <http://www.thenational.ae/business/economy/nmc-healthcare-opens-new-500-bed-capacity-hospital-in-abu-dhabis-khalifa-city>

¹¹¹ <http://thumbay.com/>; <http://www.daijiworld.com/news/newsDisplay.aspx?newsID=483010>

¹¹² <http://gulfnews.com/news/uae/health/thumbay-group-opens-ortho-spine-centre-1.1991270>

¹¹³ <https://www.linkedin.com/company/belhoul-lifecare/>; <http://www.belhouleuropean.com>

¹¹⁴ <http://www.gwtuae.com/index.php>

¹¹⁵ <https://www.thenational.ae/business/markets/belhoul-the-moderniser-returns-to-uae-roots-with-ipo-for-healthcare-and-education-group-amanat-1.261068>

¹¹⁶ <https://www.thenational.ae/business/economy/uae-s-amanat-buys-additional-stake-in-education-provider-taleem-1.689530>; <http://www.amanat.com/home/investment.html>

¹¹⁷ <http://www.arabianbusiness.com/industries/banking-finance/385543-dubais-amanat-eyes-490m-spend-on-healthcare-education>

¹¹⁸ <http://www.prnewswire.com/news-releases/american-hospital-dubai-joins-mayo-clinic-care-network-582079311.html>; <http://www.emirates247.com/business/corporate/valiant-clinic-to-open-at-city-walk-dubai-this-year-2016-01-18-1.617722>; <http://gulfnews.com/business/sectors/general/emaar-healthcare-group-ends-partnership-1.671004>

¹¹⁹ http://gulf-healthcare.com/about_us.php; <http://www.amberclinics.com/about-us-overview>; <http://medsoldiagnostics.com>

¹²⁰ <http://www.uems.ae/en/AboutUs.aspx>

¹²¹ <http://www.uems.ae/en/Projects/DanatAlEmaratHospital.aspx>; <http://www.danataleamarat.ae/>; <http://www.danataleamarat.ae/about-us/who-we-are/>; <http://www.thenational.ae/uae/health/abu-dhabis-danat-al-emarkat-hospital-opens>

¹²² <http://www.uems.ae/en/Projects/HealthPlus.aspx>; <http://www.hplus.ae/en/home.aspx>

¹²³ <http://www.moorfields.nhs.uk/news/moorfields-launches-eye-centre-abu-dhabi>; <http://www.thenational.ae/uae/health/british-eye-hospital-launches-centre-in-abu-dhabi>; <http://www.thenational.ae/uae/health/kings-college-hospital-london-opens-abu-dhabi-clinic>

¹²⁴ <http://www.moorfields.ae/dubai/about-moorfields/>

¹²⁵ <http://www.avivo-group.com/who-we-are.aspx>

¹²⁶ <http://www.avivo-group.com>

¹²⁷ https://www.zawya.com/mena/en/story/Sharjah_Healthcare_City_brings_on_board_its_first_hospital_from_UAE-ZAWYA20170319085318/; <http://www.ahaliagroup.com>

¹²⁸ <http://www.fng.ae/about-us>; <http://www.fng.ae/alsharq-healthcare>; <http://www.fng.ae/al-sharq-hospital>

¹²⁹ <http://www.arabianhealthcaregroup.com/content.php?pid=53>; <http://www.arabianhealthcaregroup.com/content.php?pid=59?pid=50>; http://www.rakhospital.com/node/151/About#.V7yxY_krLIU; <http://www.slh.ch/en/mitglieder/RAK-Hospital-.php>

¹³⁰ <http://www.sghgroup.com.sa/index.php/en/about-us>; https://www.zawya.com/mena/en/story/Dubais_Saudi_German_Hospital_obtains_1008million_Islamic_loan-TR20170910nD5N1FR023X3/

¹³¹ <http://www.sghdubai.com>

¹³² <http://www.arabianbusiness.com/ajman-bank-inks-deal-finance-new-91m-hospital-664998.html>

¹³³ <http://zulekhahospitals.com/about>; <http://www.thenational.ae/business/the-life/day-in-the-life-zulekha-hospitals-executive-driven-by-best-healthcare-practice>

¹³⁴ <http://zulekhahospitals.com/about>; <http://www.arabianbusiness.com/uae-s-zulekha-opens-first-indian-hospital-in-43m-deal-654370.html>

¹³⁵ <http://www.arabianbusiness.com/industries/healthcare/382455-new-healthcare-firm-launched-in-abu-dhabi>; <http://www.capital-health.ae>

¹³⁶ <http://www.majidalfuttaim.com/our-businesses/services/healthcare>; <https://citycentreclinic.com/about/?target=about>

¹³⁷ <https://www.thenational.ae/uae/new-cost-controls-to-clean-up-wild-west-uae-healthcare-market-1.628527>

¹³⁸ <http://www.thenational.ae/business/economy/kings-college-hospital-agrees-deal-for-100-bed-dubai-facility-and-network-of-clinics>; <https://www.kch.nhs.uk/news/media/press-releases/view/15643>; <https://www.kchclinics.com/why-kings/kings-dubai/>; <https://www.kchclinics.com/>

¹³⁹ <http://www.dhcc.ae/Portal/en/about-us/overview.aspx>; <http://www.dhcc.ae/Portal/en/investments/faqs.aspx#page=1>; <http://www.dhcc.ae/Portal/en/education/medical-education-projects.aspx>; <http://www.thenational.ae/business/economy/staff-and-facilities-growing-fast-at-dubai-healthcare-city>

¹⁴⁰ <http://gulfnews.com/news/uae/health/dubai-healthcare-city-announces-cutting-edge-laboratory-1.1951414>

¹⁴¹ <http://www.sharjahupdate.com/2017/01/master-plan-for-sharjah-healthcare-city-approved/>

¹⁴² https://www.zawya.com/mena/en/story/Sharjah_Healthcare_City_brings_on_board_its_first_hospital_from_UAE-ZAWYA20170319085318/

¹⁴³ <https://www.hg.org/article.asp?id=36394>; <http://www.haad.ae/HAAD/LinkClick.aspx?fileticket=5exKFrTZQps%3D&tabid=136>

¹⁴⁴ <https://www.thiqqa.ae/opencms/opencms/Thiqqa/en/about-us/about-us/>

¹⁴⁵ <https://www.hg.org/article.asp?id=36394>; <http://www.tamimi.com/en/section/global/law-no-11-of-2013-concerning-health-insurance-in-the-emirate-of-dubai>

¹⁴⁶ <http://www.thenational.ae/uae/uae-news-in-review-2015-strides-towards-compulsory-health-insurance-for-all>

¹⁴⁷ <http://www.thenational.ae/uae/health/mandatory-insurance-deadline-extended-in-dubai>;
<http://www.thenational.ae/uae/health/dubais-mandatory-health-insurance-law-comes-into-force>;
<http://www.arabianbusiness.com/dha-may-issue-fines-if-firms-miss-out-on-health-insurance-renewal-674959.html>;
<http://gulfnews.com/news/uae/health/where-to-get-insurance-cover-for-domestic-workers-1.1950911>

¹⁴⁸ <http://www.arabianbusiness.com/industries/healthcare/385432-wkd-dubai-adds-cancer-treatment-to-basic-health-insurance-plan>

¹⁴⁹ <http://www.thenational.ae/uae/health/new-dh50-million-health-insurance-programme-for-sharjah-government-staff>;
<http://www.thenational.ae/news/uae-news/health/sharjah-to-launch-new-health-insurance>

¹⁵⁰ <http://www.thenational.ae/uae/health/sharjah-citizens-aged-55-and-over-eligible-for-health-insurance>

¹⁵¹ <http://www.thenational.ae/uae/health/mandatory-health-insurance-for-northern-emirates-in-pipeline-officials-say>

¹⁵² <https://www.thenational.ae/uae/health/northern-emirates-renew-call-for-mandatory-health-insurance-1.670414>

¹⁵³ <https://damanhealth.ae/en/about-daman/our-values>

¹⁵⁴ http://www.haad.ae/haad/Portals/0/Health%20Regulation%20Laws/Book1_En/index.html#/2/

¹⁵⁵ <https://damanhealth.ae/en/about-daman/>

¹⁵⁶ <https://www.thiqa.ae/opencms/opencms/Thiqa/en/home/>; <https://www.dha.gov.ae/en/HealthFunding/Pages/Enaya.aspx>;
<http://www.dubai.ae/en/Lists/Articles/DispForm.aspx?ID=83&category=Citizens>; <http://www.saada.ae/About?Lang=1>;
<http://www.thenational.ae/uae/health/health-insurance-scheme-to-benefit-uae-nationals-with-no-other-cover>;
<http://www.isahd.ae/Home/About>; <http://www.thenational.ae/business/personal-finance/a-guide-to-dubais-mandatory-health-insurance-law>; <http://www.arabianbusiness.com/dubai-s-poorer-workers-get-more-choice-on-health-insurance-665197.html>

¹⁵⁷ <http://www.thenational.ae/uae/emiratis-and-expats-to-pay-more-for-health-care-as-cover-is-reduced#full>

¹⁵⁸ <http://www.thenational.ae/uae/shock-at-insurance-coverage-cuts-for-most-vulnerable-emirati-patients>

¹⁵⁹ <http://www.thenational.ae/uae/health/layoffs-at-abu-dhabi-private-health-centres-as-industry-manages-effects-of-new-copay>

¹⁶⁰ <http://www.gulftoday.ae/portal/79651cad-6338-4ba1-8a0f-4226c829bb7e.aspx>

¹⁶¹ <https://www.metlife.ae/en/individual/support-centre/about-metlife-alico/>; <http://www.metlife-gulf.com/en/MetLifeAlicoGulf.html>; <https://www.metlife.ae/en/business/products/group-medical-insurance/>;
<http://gulfnews.com/business/sectors/banking/metlife-alico-sees-opportunities-1.707795>;
<http://www.wsj.com/articles/SB10001424052748704706304575107830470736008>;
<http://www.wsj.com/articles/SB10001424052748704320104575014834281436288>;
<https://www.aetnainternational.com/en/individuals/make-most-of-plan/contact-us.html>;
<http://www.aetnainternational.com/aiweb/contentMgt/assets/documents/middleeastfrica/IHP-Individual-Presale-Brochure-UAE-RSA.pdf>; <http://www.cignaglobalhealth.com/products/middle-east.html>;
http://www.aetnainternational.com/aiweb/contentMgt/assets/documents/middleeastfrica/HEA_Product-Brochure-UAEOnly.pdf; <https://www.thenational.ae/business/money/half-of-uae-residents-cannot-afford-future-health-bills-cigna-survey-reveals-1.667623>; <https://www.thenational.ae/business/zurich-middle-east-to-focus-on-insurance-ceo-says-1.561022>;
<http://gulfnews.com/business/sectors/insurance/cigna-launches-insurance-specially-tailored-for-uae-residents-1.2109163>;
http://www.dubaicityinfo.com/cityguide/press_news_32566.aspx; <http://www.dubaiprnetwork.com/pr.asp?pr=112917>;
https://www.zawya.com/mena/en/story/Aetna_International_appoints_David_Healy_as_CEO_for_newly_formed_EMEA_region-ZAWYA20171115064845/

¹⁶² <https://www.thenational.ae/business/eyeing-global-expansion-cigna-acquires-zurich-insurance-mideast-1.489124>

¹⁶³ <http://www.arabianbusiness.com/photos/revealed-uae-s-top-50-companies-539053.html?img=3#.V2Q-PbsrLcs>;
<http://www.oxfordbusinessgroup.com/overview/double-digit-growth-projected-continue-2015>;
<http://www.tameen.ae/en/about-us/corporate-profile>; <http://www.tameen.ae/en/for-individuals/health-insurance/international-health-insurance>; <http://www.tameen.ae/en/for-businesses/group-health-insurance/group-health-insurance-product>; <http://www.thenational.ae/business/economy/competition-and-regulations-to-rein-in-profit-growth-at-oman-insurance>

¹⁶⁴ <http://www.oxfordbusinessgroup.com/overview/double-digit-growth-projected-continue-2015>

¹⁶⁵ <http://www.allianzworldwidecare.com/uae-plans>

¹⁶⁶ <http://www.adnic.ae/en/about-us/about-adnic/>

¹⁶⁷ <http://www.adnic.ae/en/products/individual/medical-insurance/>; <http://www.adnic.ae/en/products/corporate/corporate-medical-insurance/>

¹⁶⁸ <https://www.reuters.com/article/adnic-allianz-ma/abu-dhabi-weighing-sale-of-24-pct-stake-in-insurance-firm-adnic-sources-idUSL4N1LL36X>

¹⁶⁹ <https://www.axa-cooperative.com/business/healthcare>; <https://ae.axa-gulf.com/individuals/health-insurance>;
<http://www.thenational.ae/business/industry-insights/finance/frances-axa-to-buy-stake-at-uae-insurer-green-crescent-for-dh100m>; <http://gulfnews.com/business/sectors/insurance/kanoo-axa-out-to-grab-dominant-share-of-uae-s-life-insurance->

market-1.1690922; <http://financialplanningindubai.com/2014/11/20/axa-medical-insurance-in-uae/>;
<http://www3.asiainsurancereview.com/News/View-NewsLetter-Article?id=39663&Type=MiddleEast>
¹⁷⁰ <http://www.arabianbusiness.com/uae-s-first-health-insurance-comparison-platform-launched-667739.html>
¹⁷¹ <http://www.thenational.ae/business/industry-insights/economics/regulator-calls-for-mergers-in-uae-insurance-industry>
¹⁷² <https://www.lexology.com/library/detail.aspx?g=318e1d63-13e8-4610-bb6b-99bf6266b167>
¹⁷³ <http://www.tamimi.com/en/magazine/law-update/section-11/september-5/uae-insurance-law-update.html>;
¹⁷⁴ <http://www.thenational.ae/business/economy/20150706/uae-insurance-authoritys-new-regulations-to-streamline-sector>
¹⁷⁵ <http://www.oxfordbusinessgroup.com/analysis/new-era-recent-regulations-are-likely-lead-consolidation>;
<http://www.thenational.ae/business/economy/new-uae-insurance-rules-may-lead-to-mergers-and-consolidations>
¹⁷⁶ <http://www.tamimi.com/law-update/articles/uae-insurance-law-update/>; <https://www.bsabn.com/wp-content/uploads/2015/07/Insurance-and-Reinsurance-Law-and-Regulation-UAE-Chapter.pdf>;
[https://uk.practicallaw.thomsonreuters.com/5-581-9385?transitionType=Default&contextData=\(sc.Default\)&firstPage=true&bhcp=1](https://uk.practicallaw.thomsonreuters.com/5-581-9385?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1)
¹⁷⁷ <https://www.thenational.ae/uae/cancer-drug-demand-is-curtailing-antibiotic-development-pharma-companies-say-1.662796>; <http://usuaebusiness.org/u-s-u-a-e-business-council-hosts-u-a-e-assistant-undersecretary-of-public-health-policy-and-licensing-in-dubai/>; <https://www.khaleejtimes.com/nation/dubai/uae-to-focus-on-production-of-low-demand-medicines-178>
¹⁷⁸ <https://www.thenational.ae/business/economy/dubai-seeks-to-attract-2-5bn-to-pharmaceutical-sector-as-part-of-2030-industrial-strategy-1.676709>
¹⁷⁹ <https://www.lexology.com/library/detail.aspx?g=d18ead6b-0f1e-405e-aef2-e62cbf44a2ac>
¹⁸⁰ <https://www.ihs.com/country-industry-forecasting.html?ID=1065975936>
¹⁸¹ <http://www.arabianbusiness.com/-72m-medicine-cost-cuts-benefit-uae-patients-with-chronic-illnesses-643708.html>;
<https://www.khaleejtimes.com/news/uae-health/UAE-cuts-prices-by-24-on-select-medicines-12>
¹⁸² <https://www.thenational.ae/business/economy/dubai-seeks-to-attract-2-5bn-to-pharmaceutical-sector-as-part-of-2030-industrial-strategy-1.676709>
¹⁸³ <http://usuaebusiness.org/wp-content/uploads/2017/01/UAE-Healthcare-and-pharmaceutical-economic-and-innovation-capacity.pdf>
¹⁸⁴ <http://usuaebusiness.org/wp-content/uploads/2017/01/UAE-Healthcare-and-pharmaceutical-economic-and-innovation-capacity.pdf>
¹⁸⁵ <http://www.arabianbusiness.com/uae-eyes-self-sufficiency-in-production-of-generic-drugs-655850.html>
¹⁸⁶ <https://www.thenational.ae/uae/cancer-drug-demand-is-curtailing-antibiotic-development-pharma-companies-say-1.662796>
¹⁸⁷ <https://www.thenational.ae/business/economy/dubai-seeks-to-attract-2-5bn-to-pharmaceutical-sector-as-part-of-2030-industrial-strategy-1.676709>
¹⁸⁸ <http://www.julphar.net/company-profile>
¹⁸⁹ <http://www.arabianbusiness.com/uae-pharma-firm-eyes-544m-sales-by-2020-676111.html>
¹⁹⁰ <http://neopharmauae.com/our-story/>; <http://gulfnews.com/business/sectors/manufacturing/neopharma-plans-100m-plus-drug-plant-in-abu-dhabi-1.2051643>
¹⁹¹ <http://www.arabianbusiness.com/uae-pharma-firm-invests-27m-in-japanese-factory-675032.html>
¹⁹² <http://timesofoman.com/article/114864>
¹⁹³ <http://www.neopharmauae.com/en/index.asp>
¹⁹⁴ <http://www.thenational.ae/business/industry-insights/economics/pharmaceutical-sector-in-the-uae-is-in-good-health>;
<https://www.globalpharma-sanofi.com/our-company.html>
¹⁹⁵ http://www.ips-me.com/en/news/ips_announces_acquisition_in_medpharma_-_dubai
¹⁹⁶ <http://business.financialpost.com/investing/valeant-pharmaceuticals-international-inc-expands-in-middle-east-with-800-million-purchase-of-amoun>
¹⁹⁷ <http://www.lifeopharmafze.com/about-us/facilities/jebel-ali-dubai/>
¹⁹⁸ <http://www.thenational.ae/business/economy/life-pharma-prepares-to-make-oncology-drugs-in-abu-dhabi-next-year>
¹⁹⁹ <http://www.pharmax.ae/about-us.html>
²⁰⁰ <http://www.emirates247.com/business/economy-finance/uae-healthcare-market-to-grow-12-7-to-dh71-56bn-by-2020-alpen-capital-2016-02-17-1.621363>
²⁰¹ <http://gulfnews.com/news/uae/society/more-pharma-companies-coming-to-uae-1.2118265>;
<http://www.arabianbusiness.com/building-healthcare-hub-jane-griffiths-615035.html>;
<http://wam.ae/en/details/1395228901434>
²⁰² <http://julphar.net/partnerships>; <http://www.thenational.ae/business/economy/astellas-aims-to-introduce-cancer-medicines-in-uae>;
<http://www.thenational.ae/business/economy/astellas-aims-to-introduce-cancer-medicines-in-uae>;
<http://www.thenational.ae/business/industry-insights/economics/neopharma-in-generic-drug-production-deal-with-pfizer-unit>;
<http://www.thenational.ae/business/industry-insights/economics/pharmaceutical-sector-in-the-uae-is-in-good-health>;

<http://gulfnews.com/business/sectors/retail/neobiocon-to-sell-anti-diabetic-drug-in-uae-1.1635392>;
<http://www.thenational.ae/business/industry-insights/economics/neopharma-in-generic-drug-production-deal-with-pfizer-unit>; <http://gulftoday.ae/portal/b469a28a-260b-4be8-b5f2-0fbd77435e77.aspx>
²⁰³ <http://www.dhcc.ae/Portal/en/directory/pharmaceutical.aspx>
²⁰⁴ <http://www.dsp.ae/community/business-partners/>; <http://www.arabianbusiness.com/tecom-creates-new-dubai-science-park-after-merger--609328.html#.V2KXsLsrLcs>; <http://www.dsp.ae/community/business-partners/>;
<http://www.prnewswire.com/news-releases/uae-pharmaceutical-market-at-37b-by-2020-healthcare-industry-in-united-arab-emirates-forecast-to-show-significant-growth-potential-274356961.html>
²⁰⁵ <http://jafza.ae/about-us/>
²⁰⁶ <http://www.arabianbusiness.com/uae-sets-out-plan-become-major-global-pharma-hub-677244.html>
²⁰⁷ <http://www.espicom.com/the-medical-device-market-uae.html>
²⁰⁸ <https://www.mordorintelligence.com/industry-reports/uae-diagnostic-imaging-equipment-market-industry>
²⁰⁹ <http://www.ge.com/ae/b2b/healthcare>
²¹⁰ <https://www.healthcare.siemens.com/how-can-we-help-you/asia-pacific/contact-united-arab-emirates>
²¹¹ <http://www.arabianbusiness.com/global-medical-tech-firm-signs-partnership-set-up-uae-business-655441.html>
²¹² <http://www.mea.philips.com/a-w/about-philips/company-profile/businesses/healthcare.html>
²¹³ <https://www.marketresearch.com/product/sample-8292131.pdf>
²¹⁴ <http://www.abbott.com/contact.United%20Arab%20Emirates.html>
²¹⁵ <http://www.abbott.com/abbott-stjudemedical-en.html>
²¹⁶ <http://www.thenational.ae/business/economy/ge-signs-agreement-with-uae-health-ministry-for-hospital-radiology>;
<http://newsroom.gehealthcare.com/hospital-network-brings-cutting-edge-radiology-to-the-uae/>; <http://www.unisonuae.com>;
<https://www.khaleejtimes.com/business/local/medtronic-inks-deal-with-university-of-sharjah>;
<http://www.mohap.gov.ae/en/MediaCenter/News/Pages/1699.aspx>; <https://www.thenational.ae/uae/health/us-to-open-diabetes-training-centre-in-the-uae-to-share-knowledge-1.669708>; <https://www.thenational.ae/uae/dubai-health-care-symposium-aims-to-tackle-obesity-epidemic-in-uae-1.668257>; <https://www.thenational.ae/uae/health/us-to-open-diabetes-training-centre-in-the-uae-to-share-knowledge-1.669708>; <https://www.thenational.ae/uae/health/early-diabetes-detection-programmes-launched-in-clinics-across-uae-1.669317>; <https://www.thenational.ae/uae/health/diabetes-study-calls-for-20-000-emiratis-1.65828>; <http://uaehealthyfuture.ae/en/partners>
²¹⁷ <http://tecomdirectory.com/company.php?company=001D0000017JxdzIAC>;
<https://www.thenational.ae/uae/health/medical-giant-medtronic-shifts-regional-hq-to-dubai-1.250226>;
<https://www.abraaj.com/abraajweek2016/majid-kaddoumi/>
²¹⁸ <http://www.medtronic.com/us-en/healthcare-professionals/products/cardiovascular.html>
²¹⁹ <http://www.careers.jnj.com/middle-east-countries/overview>
²²⁰ <http://www.admd.ae/home.html>
²²¹ <http://www.dubaifuture.gov.ae/our-initiatives/dubai-3d-printing-strategy/>; <http://www.officeofthefuture.ae/#>
²²² <http://www.prnewswire.com/news-releases/healthcare-it-market-in-uae-2015-2019-300177983.html>
²²³ <https://www.thenational.ae/uae/health/medical-database-to-reorganise-health-care-1.501052>
²²⁴ <http://gulfnews.com/news/uae/health/clinicians-can-verify-safety-of-medication-dose-through-app-1.2133772>;
<https://www.albawaba.com/business/pr/uae-ministry-health-and-prevention-reveals-improvements-'wareed'-system-further-enhance->
²²⁵ <https://www.businesswire.com/news/home/20080512005559/en/Cerner-Millennium-Health-Information-Technology-Implemented-Abu>; <http://www.arabianbusiness.com/abu-dhabi-s-seha-continues-cerner-hit-roll-out-18417.html>
²²⁶ <http://www.cerner.com/newsroom.aspx?id=17179880038&blogid=2147483710&langType=14337>
²²⁷ <http://www.arabianbusiness.com/industries/healthcare/384124-more-than-14m-dubai-medical-records-go-digital>
²²⁸ <http://gulfnews.com/news/uae/health/integrated-health-record-system-launched-1.1676908>;
<http://gulfnews.com/news/uae/health/dha-launches-information-security-project-1.2066242>
²²⁹ <http://www.intersystems.com/au/who-we-are/newsroom/news-item/emirates-hospitals-group-enhance-patient-care-intersystems-trakcare/>; <https://www.prnewswire.com/news-releases/medclinic-middle-east-selects-intersystems-to-support-a-culture-of-excellence-642086213.html>; <https://www.prnewswire.com/news-releases/capital-healths-specialized-rehabilitation-hospital-selects-intersystems-trakcare-to-become-a-fully-digital-hospital-647573393.html>;
<https://www.prnewswire.com/news-releases/neuro-spinal-hospital-a-regional-pioneer-in-medicine-and-technology-in-the-uae-selects-intersystems-trakcare-electronic-medical-record-system-620837343.html>
²³⁰ <http://www.thenational.ae/uae/health/uae-cabinet-backs-national-health-database-initiative>
²³¹ <http://gulfnews.com/business/sectors/technology/blockchain-tech-gains-traction-in-dubai-1.1989286>
²³² http://www.cerner.com/About_Cerner/;
https://www.cerner.com/uploadedFiles/Content/About_Cerner/uae_sheikh_Khalifa_Hospital.pdf;
<http://www.cerner.com/newsroom.aspx?id=2147485254&blogid=2147483710&langType=14337>;

<http://www.khaleejtimes.com/nation/uae-health/wareed-links-14-hospitals-25-clinics-across-the-country>;
<https://www.epic.com/Contact>; <http://www.healthcareitnews.com/news/epic-systems-wins-contract-university-hospital-dubai>;
<http://www.fdbhealth.com/~media/downloads/form%20not%20required/ae/cleveland%20clinic%20case%20study.ashx>;
<https://globenewswire.com/news-release/2016/11/21/891682/0/en/UAE-Ministry-of-Health-and-Prevention-Renews-Relationship-with-Cerner-to-Provide-Electronic-Health-Record.html>; <https://globenewswire.com/news-release/2017/01/31/912229/0/en/King-s-College-Hospital-London-Selects-Cerner-s-Clinical-and-Financial-Management-System.html>; <https://globenewswire.com/news-release/2017/06/06/1008637/0/en/Cerner-Middle-East-Africa-Strengthens-Client-Alignment-with-the-Appointment-of-New-Leadership-Roles.html>; <https://www.epic.com/epic/post/2570>
²³³ <https://www.mubadala.com/en/what-we-do/healthcare/abu-dhabi-telemedicine-centre>
²³⁴ <http://gulfnews.com/news/uae/health/dha-to-extend-telemedicine-across-all-its-health-facilities-1.1966745>
²³⁵ <http://gulfnews.com/news/uae/health/mulk-to-roll-out-12-tele-medicine-centres-in-gulf-1.883801>;
http://www.mulkholdings.com/business_div/healthcare.html
²³⁶ <http://www.mobihealthnews.com/content/telehealth-startup-health-hand-gets-31m-preps-uae-launch>
²³⁷ <https://www.wamda.com/memakersge/2017/04/telemedicine-uae>; <https://www.heydoc.net>; <http://www.smartseha.com/>
²³⁸ <http://www.emirates247.com/news/emirates/dha-launches-second-smart-pharmacy-with-a-dispensing-robot-at-dubai-hospital-2017-08-03-1.657028>
²³⁹ <http://www.arabianbusiness.com/dubai-hospitals-use-tracking-devices-protect-babies-676010.html>
²⁴⁰ <https://www.khaleejtimes.com/nation/dubai/dubai-goes-smart-in-healthcare-innovation>
²⁴¹ <https://www.dha.gov.ae/en/pages/viewallsmartapplications.aspx>
²⁴² <https://www.khaleejtimes.com/nation/dubai/dubai-goes-smart-in-healthcare-innovation>
²⁴³ <http://truvenhealth.com/dubai-united-arab-emirates>; <http://truvenhealth.com/about-us/company>;
<https://truvenhealth.com/news-and-events/press-releases/detail/prid/47/advantage-awards-recognize-innovations-for-performance-improvement>; <http://www.haad.ae/HAAD/LinkClick.aspx?fileticket=8FEB-w5VnDs%3D&tabid=1504>;
<https://www-03.ibm.com/press/us/en/pressrelease/47327.wss>
²⁴⁴ <http://www.cmhs.uaeu.ac.ae/>
²⁴⁵ <http://www.thenational.ae/uae/health/uaes-first-medical-school-to-get-extension>; <http://www.uaeu.ac.ae/en/about/>
²⁴⁶ <http://www.sharjah.ac.ae/en/academics/Colleges/Medicine/Pages/default.aspx>;
<http://www.sharjah.ac.ae/en/academics/Colleges/Medicine/Pages/dw.aspx>
²⁴⁷ <http://www.sharjah.ac.ae/en/academics/degree-program/Pages/UnderGraduate.aspx>;
<http://www.sharjah.ac.ae/en/academics/Colleges/healthsciences/dept/nu/Pages/default.aspx>;
http://www.sharjah.ac.ae/en/Media/Publications/Documents/UOS%20Catalog/pdf/Health_Sc_English.pdf#Nursing
²⁴⁸ <http://www.uhs.ae/>
²⁴⁹ <http://www.hct.ac.ae/en/programmes/health-sciences/>
²⁵⁰ <http://www.gmu.ac.ae/aboutgmu/>; <https://gmu.ac.ae/academics/>
²⁵¹ <http://gulfnews.com/news/uae/health/gulf-medical-university-to-become-a-full-fledged-university-1.1925111>
²⁵² <http://www.rakmhsu.com/about-rakmhsu>; <http://www.rakmhsu.com/medical-courses-in-uae>;
<http://www.rakmhsu.com/top-medical-school-college-in-uae-FAQ>
²⁵³ <http://www.fchs.ac.ae/En/AboutUs/Pages/default.aspx>
²⁵⁴ <http://www.thenational.ae/uae/health/training-programme-to-encourage-uae-students-to-pursue-nursing>
²⁵⁵ <http://www.dmcg.edu/home.php?navmenu=5>
²⁵⁶ <http://www.dpc.edu/#>
²⁵⁷ <https://www.rcsi.ie/dubai>; <http://www.rcsileadership.org/index.jsp?p=0&n=304>;
<https://mbruniversity.ac.ae/en/Colleges/College-Of-Medicine/Bachelor-of-Medicine-and-Bachelor-of-Surgery.aspx>
²⁵⁸ <http://gulfnews.com/news/uae/government/mohammad-bin-rashid-medical-university-1.1381472>;
<http://www.emirates247.com/news/government/princess-haya-launches-college-of-medicine-2016-01-28-1.619086>;
<https://mbruniversity.ac.ae/en/MBR-University/News/College-of-Medicine-opens-at-Mohammed-Bin-Rashid-University-of-Medicine-And-Health-Sciences>; <http://www.wam.ae/en/news/emirates/1395296729656.html>
²⁵⁹ <https://mbruniversity.ac.ae/en/Colleges/Hamdan-Bin-Mohammed-College-of-Dental-Medicine.aspx>
²⁶⁰ <http://khmsc.ac.ae/>
²⁶¹ <http://www.ge.com/ae/b2b/healthcare>; <http://www.zawya.com/mena/en/story/ZAWYA20131030131708/>
²⁶² <http://www.thenational.ae/uae/health/dubai-unveils-ambitious-10-year-healthcare-plan>
²⁶³ <http://gulfbusiness.com/saudi-hospital-group-to-build-hospital-university-in-dubai/#.V3K3PfkRLIU>; <http://fakeeh.care/about>
²⁶⁴ <http://www.thenational.ae/uae/education/abu-dhabis-first-medical-school-among-13-projects-approved-by-urban-planning-council>
²⁶⁵ <http://www.thenational.ae/uae/nmc-chief-to-build-abu-dhabis-first-medical-university-in-honour-of-sheikh-zayed>
²⁶⁶ <http://wam.ae/en/details/1395302610645>

²⁶⁷ <http://www.thenational.ae/uae/hospitals/kbzf-enters-into-partnership-with-two-hospitals-to-develop-emirati-doctors>;
<http://www.thenational.ae/uae/health/emirati-students-pursue-the-latest-medical-technologies-in-us-internship>;
<http://www.thenational.ae/uae/health/khalifa-university-students-selected-for-us-paediatric-summer-programme>;
https://www.zawya.com/mena/en/story/Emirati_doctors_to_receive_training_in_USbased_hospitals-WAM20171210103124539/; <http://gulfnews.com/news/uae/health/uae-physician-identifies-a-unique-subtype-of-colon-cancer-1.1948059>; <http://www.arabianbusiness.com/interviews/healthcare/377539-abe-1828-home-away-from-home>;
<http://gulfnews.com/news/uae/health/cleveland-clinic-abu-dhabi-welcomes-40-interns-1.2063572>;
<https://www.khaleejtimes.com/nation/abu-dhabi/hospitals-need-more-emirati-doctors>; <http://www.jhsph.edu/news/news-releases/2008/abu-dhabi-agreement.html>; <http://www.haad.ae/haad/tabid/58/ctl/Details/Mid/417/ItemID/40/Default.aspx>;
<http://www.thenational.ae/uae/health/cleveland-clinic-abu-dhabi-and-nyu-abu-dhabi-agree-on-collaboration>
²⁶⁸ <http://www.sharjah.ac.ae/en/Research/SIMHR/Pages/Overview.aspx>
²⁶⁹ <http://www.dsp.ae/offer/nucleotide-lab-complex/>
²⁷⁰ <http://gmu.ac.ae/innovation-centre/>
²⁷¹ <http://www.aljalilafoundation.ae/what-we-do/research/research-centre/>
²⁷² <http://gulfnews.com/news/uae/health/uae-physician-identifies-a-unique-subtype-of-colon-cancer-1.1948059>
²⁷³ <http://www.aljalilafoundation.ae/who-we-are/about-us/>
²⁷⁴ <http://gulftoday.ae/portal/94728c4c-9df7-4c8a-a0e1-fcbaed7635dd.aspx>
²⁷⁵ <http://hmaward.org.ae/#>
²⁷⁶ <http://childrensnational.org/news-and-events/photo-gallery/arab-health-2016>; <http://www.emirates247.com/news/app-to-detect-birth-defects-in-uae-infants-2016-01-27-1.618859>; <http://childrensnational.org/research-and-education/sheikh-zayed/about-the-institute>; <http://www.dhfmr.hms.harvard.edu/about-the-foundation/overview/>;
<http://hms.harvard.edu/news/harvard-medical-school-center-global-health-delivery%E2%80%9494dubai>; <http://ghd-dubai.hms.harvard.edu/about/>; <http://nyuad.nyu.edu/en/research/nyuad-institute/institute-research/public-health-research-center.html>; <https://www.thenational.ae/uae/health/biomarkers-could-help-emiratis-discover-if-they-are-susceptible-to-diabetes-study-indicates-1.625484>; <http://wam.ae/en/details/1395302598499>
²⁷⁷ <https://www.arabhealthonline.com/en/overview/show-information.html>
²⁷⁸ <https://www.medlabme.com/en/overview/show-information.html>
²⁷⁹ <https://www.accessibilitiesexpo.com/discover>; <https://www.buildinghealthcare-exhibition.com/en/Home.html>;
<https://www.uaeehealthweek.org/ehome/index.php?eventid=213754&>
²⁸⁰ <https://www.thenational.ae/uae/bill-gates-surprised-and-honoured-by-medal-from-sheikh-mohammed-1.676208>;
<https://www.thenational.ae/uae/two-million-children-die-from-preventable-diseases-each-year-abu-dhabi-health-conference-hears-1.676108>; https://site.reachingthelastmile.com/#about_the_event_place;
<https://www.thenational.ae/uae/health/reaching-the-last-mile-new-100m-fund-announced-in-abu-dhabi-1.675855>;
<https://www.thenational.ae/uae/sheikh-mohammed-donates-more-than-dh18m-towards-global-vaccine-initiative-1.621971>
²⁸¹ <http://www.thenational.ae/uae/health/tough-anti-tobacco-laws-come-into-force-across-the-uae>;
<http://www.emirates247.com/news/emirates/uae-anti-tobacco-law-in-effect-rules-and-fines-2014-01-21-1.535551>
²⁸² <http://www.thenational.ae/uae/health/uae-wide-smoking-ban-in-enclosed-public-spaces-next-year>;
<http://www.thenational.ae/uae/health/six-antismoking-clinics-to-open-across-the-uae>
²⁸³ <http://www.bna.bh/portal/en/news/695252>; <http://www.khaleejtimes.com/nation/uae-health/will-a-100-rise-in-tobacco-taxation-help-quit-smoking>
²⁸⁴ <http://www.thenational.ae/uae/health/ministry-of-health-launches-prevention-initiatives>;
<https://www.khaleejtimes.com/nation/free-early-breast-cancer-screenings-across-uae>
²⁸⁵ <http://gulfnews.com/news/uae/health/free-breast-cancer-screening-campaign-launched-1.2099538>;
<http://gulfnews.com/news/uae/health/free-screening-for-colorectal-cancer-1.1982689>
²⁸⁶ <http://focp.ae/pc/about-us.php#page=ABOUT-PINKCARAVAN>
²⁸⁷ <https://www.thenational.ae/uae/pink-caravan-screenings-catch-12-malignancy-cases-1.614401>
²⁸⁸ <http://www5.komen.org/WhatWeDo.html>; <http://www.uae-embassy.org/news-media/partnership-spreads-awareness-empowers-patients>; <http://www.emirates247.com/news/emirates/uae-embassy-supports-susan-g-komen-race-for-the-cure-2017-09-10-1.658798>; <https://www.prnewswire.com/news-releases/uae-embassy-in-washington-dc-joins-the-american-cancer-society-to-celebrate-the-launch-of-the-cancer-atlas-in-arabic-300539827.html>
²⁸⁹ <http://www.thenational.ae/uae/health/school-canteens-banned-from-junk-and-fast-food-advertising-to-be-controlled-in-uae>
²⁹⁰ <http://www.arabianbusiness.com/gulf-states-set-for-100-tax-on-energy-drinks-tobacco-618052.html#.V4T6OvkrLct>;
<http://www.arabnews.com/economy/news/863486>
²⁹¹ <https://www.thenational.ae/uae/dubai-fitness-challenge-a-success-as-participants-hail-healthy-month-1.677050>;
<https://www.thenational.ae/uae/sheikh-hamdan-calls-on-emirates-to-take-dubai-fitness-challenge-1.665064>
²⁹² <https://www.clevelandclinicabudhabi.ae/en/about-us/pages/cycle-for-health.aspx>; <https://yasisland.ae/events/walk-2017/>

²⁹³ <http://www.thenational.ae/uae/health/experts-tell-gulf-countries-to-do-more-in-fight-against-diabetes-epidemic;>
²⁹⁴ <http://www.haad.ae/haad/tabid/912/Default.aspx>

https://www.abudhabi.ae/portal/public/en/citizens/health/health_insurance/gen_info44?docName=ADEGP_DF_133720_EN&_adf.ctrl-state=12k1riu1_4&_afLoop=598030364750707#!

²⁹⁵ <http://www.eiuperspectives.economist.com/healthcare/investing-quality-healthcare-uae>

²⁹⁶ <http://www.thenational.ae/uae/health/doctors-welcome-uae-wide-unified-medical-licence-announcement>
²⁹⁷

<http://abcdubai.olasoft.com/uploaded/web/Challenges%20Facing%20the%20UAE%20Healthcare%20Sector%20IP%20in%20the%20UAE%20English%20&%20Arabic.pdf>

