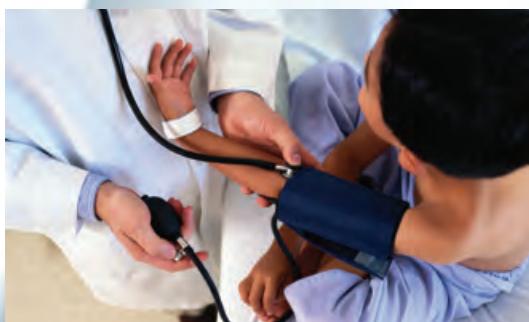
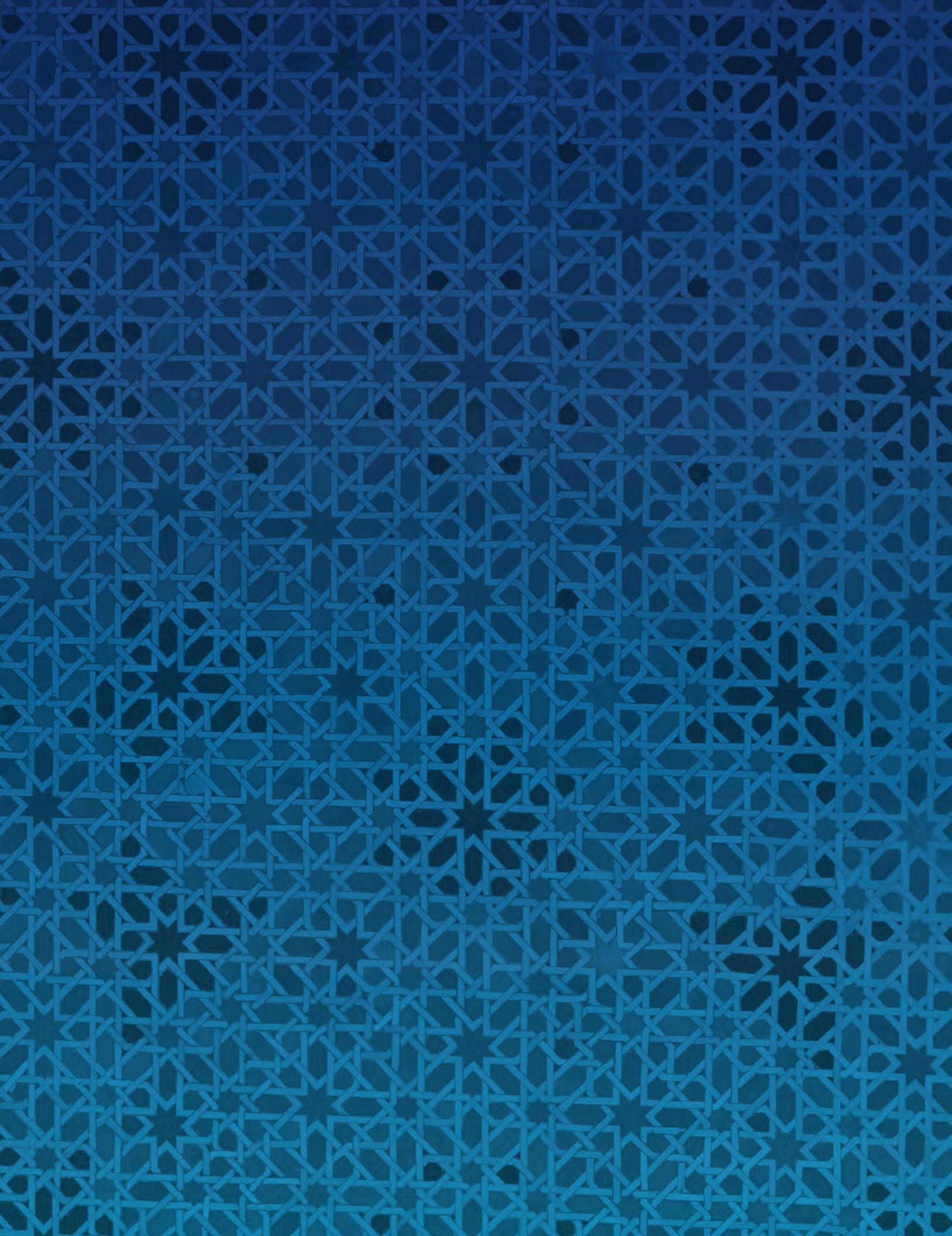




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The U.A.E. Healthcare Sector







The U.A.E. Healthcare Sector

THE UNITED ARAB EMIRATES (U.A.E.) is actively expanding its national healthcare system to meet the growing needs of its people and support economic diversification, with leading U.S. medical centers, corporations, and academic institutions playing vital roles in the process. All seven emirates provide healthcare services to their citizenry and are rapidly building their healthcare infrastructure inclusive of hospitals and clinics, while simultaneously developing their local workforce. In the U.A.E., there are five government healthcare regulators: the Ministry of Health, Ministry of Finance, Federal Health Insurance Authority, Dubai Health Authority, and the Health Authority Abu Dhabi. These entities regulate healthcare service providers on the ground such as the Abu Dhabi Health Services Company (SEHA). Against this backdrop, there are many opportunities for U.S. partnership with U.A.E. healthcare entities. Examples of these partnerships include Children's National Medical Center, Cleveland Clinic Abu Dhabi, GE Healthcare, and Johns Hopkins, to name a few. These partnerships often address the pressing concerns within the U.A.E. healthcare sector such as I.T. infrastructure integration, diabetes and non-communicable disease prevention, workforce development, pharmaceutical pricing and licensing, and insurance issues. The positive aspects of the U.S. and the U.A.E.'s mutual healthcare sector investment cannot be overstated as these new partnerships have created many new jobs, thus stimulating the economies of both nations.

Opportunities for partnership in the U.A.E. healthcare sector for U.S. companies are available, but it is important to first have a basic working knowledge of the sector and an understanding of where your organization can provide the most value. In fact, the U.S. healthcare relationship with the region goes back to 1960 when American missionaries Drs. Pat and Marian Kennedy set up a makeshift hospital in a mud-block guesthouse donated by Sheikh Zayed in Al Ain, an oasis in the Emirate of Abu Dhabi. By 1964, the hospital had expanded into a concrete building equipped with a labor and delivery suite, drawing patients from all over the Arabian Gulf for treatment. X-ray facilities and in-patient hospital beds followed in the 1970s along with another influx of U.S. healthcare workers. The hospital, now called Oasis Hospital, is still in existence today. Since then, the U.A.E.'s healthcare sector has expanded rapidly by partnering with some of the biggest names in U.S. healthcare, including Harvard and MD Anderson.

This report details the overall landscape, roles, and responsibilities of U.A.E. entities involved in health sector regulation and services, examples of activities by U.S. players to date, and growth opportunities moving forward.



The U.A.E.'S Growing Healthcare Sector

SINCE GAINING INDEPENDENCE IN 1971, the U.A.E. has created an infrastructure of healthcare services increasingly recognized as on par with international standards and the health issues that affect Emiratis today are those faced by many in the developed world. Conditions commonly caused by sedentary lifestyles and fast food consumption, such as obesity and diabetes, are on the rise, as are diseases found among the aging population of Emirati nationals, such as heart disease and cancer. Meanwhile, the U.A.E.'s healthcare system has been striving to keep up with immigration-driven population growth and struggling to control rises in per-capita healthcare spending caused by increasing levels of affluence and chronic disease.

The U.A.E. healthcare sector is divided between public and private healthcare providers. Public healthcare services are managed and regulated by federal and emirate-level government entities such as the Ministry of Health, Dubai Health Authority, the Health Authority Abu Dhabi, and the Abu Dhabi Health Services Company (SEHA). These entities often partner with foreign healthcare organizations to run the daily operations of hospitals and clinics throughout the U.A.E. Private healthcare service providers such as the New Medical Centre are non-government run hospitals and clinics that provide specialty and full-spectrum care for the U.A.E. population. Needless to say, these Emirati private sector initiatives, like New Medical Centre and Al Noor Hospital, are very important to the U.A.E.'s overall and long-term healthcare development.

As the nation strives to realize its healthcare goals under the direction of the Ministry of Health, it is important to note that the evolution of healthcare services is a top priority in all seven emirates. The emirates of Ras Al Khaimah and Fujairah are establishing themselves as preeminent destinations for quality healthcare in the region. Between them they boast eight best-in-class hospitals as well as a plethora of attractive opportunities for foreign partnerships and investment.

In fact, healthcare development and spending is emphasized as a key pursuit in the U.A.E.'s federal diversification plan. The U.A.E. Vision 2021 states that "the UAE [will] ... invest continually to build world-class healthcare infrastructure, expertise and services in order to fulfill citizens' growing needs and expectations." Further, the Emirate of Abu Dhabi explains in their Vision 2030 plan that "The growth of the medical sector is dependent on large investments in technology, which Abu Dhabi is in a position to make ... Abu Dhabi will have to attract qualified doctors and medical scientists as well as train local medical staff in order to develop this sector sufficiently."

Dubai's 2015 plan similarly focuses on international U.S. healthcare providers to "improve health system planning to ensure service availability, accessibility, and quality."

What sets the U.A.E. apart from other countries in the Gulf is that the federal and individual-emirate governments are backing this vision with significant and strategic investments intended to drive the industry forward. In 2013 alone, U.A.E. healthcare expenditures reached an estimated \$16.8bn.

However, the U.A.E.'s relatively small population has hindered the government's development of specialty care practices, and gaps still exist across the nation in critical areas such as women's care, oncology, pediatrics, and diabetes care. Patients traditionally have obtained this care outside of the U.A.E. in places such as India, Thailand, and Singapore, but are increasingly focusing on North America as well. This transfer of capital is significant as the International Medical Travel Journal estimates that Emiratis travelling abroad for treatment spend roughly \$250,000 per visit.

Still, the U.A.E. is rapidly improving its healthcare sector in the hope of providing quality care in-country, as opposed to having patients travel around the world for a higher level of care. This focus is creating opportunities for U.S. healthcare organizations. Expertise in medical supplies, equipment, and management services are in constant demand. This includes cardiovascular medical devices, firms that can design and build hospitals, and healthcare organizations that have experience administering and staffing general hospitals and specialty clinics. Once the appropriate information technology infrastructure is in place, supply chain management solutions will become another area of opportunity. U.S. companies have much to offer in all of these spheres. However, those planning to pursue such opportunities should become familiar with the public tender process used in the U.A.E. to award such contracts.

Despite the untapped potential in the sector, significant barriers to partnership still exist. U.S. healthcare companies are currently working with U.A.E. healthcare entities to resolve specific outstanding issues inclusive of inconsistent pharmaceutical pricing, outdated medical malpractice policies, inconsistent licensing procedures and insurance issues, unavailable medical information, and inadequate healthcare education and training.

This should not diminish that the U.A.E. has made significant strides in the creation of their healthcare sector through partnership with U.S. companies. The Health Authority in Abu Dhabi recently explained that "collaboration with international brands such as Johns Hopkins and the Cleveland Clinic ... made quality health care more accessible." U.S. and U.A.E. healthcare partnership is a critical building block in the U.A.E. healthcare sector and one not to be overlooked by U.S. companies entering the market for the first time.

By The Numbers*

HOSPITALS IN THE U.A.E.

As of 2010, the population in the U.A.E. was estimated at 9,206,000, of which Emirati nationals represent 19 percent. There are currently 104 hospitals throughout the seven Emirates and the World Health Organization reports that there are currently 19.3 physicians and 40.9 Nurses and Midwives per 10,000 persons in the U.A.E.

The below population estimates for each emirate do not take into account the population of rural areas.

ABU DHABI



SHARJAH



RAS AL KHAIMAH



AJMAN



FUJAIRAH



DUBAI



UMM AL QUWAIN



Abu Dhabi: 39 hospitals (14 government, 25 private; 26 are JCI accredited), with 4,226 beds, or 2.7 beds for every 1500 of the population, servicing approximately 2.5 million people.

Dubai: 38 hospitals (6 government, 32 private; 20 are JCI accredited), with 3,857 beds, or 1 bed for every 532 of the population, servicing approximately 2.1 million people.

Sharjah: 15 hospitals (5 government, 10 private; 1 is JCI accredited), with 898 beds, or 1 bed for every 1,670 of the population, servicing approximately 1.5 million people.

Ras Al Khaimah: 5 hospitals (4 government, 1 private; 1 is JCI accredited), with 562 beds, or 1 bed for every 533 of the population, servicing approximately 300 thousand people.

Ajman: 3 hospitals (1 government, 2 private; 1 is JCI accredited), with 189 beds, or 1 bed for every 1,269 of the population, servicing approximately 240 thousand people.

Fujairah: 3 hospitals (2 government, 1 private), with 358 beds, or 1 bed for every 558 of the population, servicing approximately 200 thousand people.

Umm Al Quwain: 1 government hospital, with 165 beds, or 1 bed for every 606 of the population, servicing approximately 100 thousand people.

*An important resource for all available healthcare statistics for Abu Dhabi can be found at www.haad.ae. For all available healthcare statistics in Dubai, please visit <http://www.dha.gov.ae/EN/SectorsDirectorates/Sectors/HealthPolicy/Pages/HealthDataandInformationAnalysis.aspx>. For all available healthcare statistics in the Northern Emirates, please visit <http://www.moh.gov.ae/en/OpenData/Pages/2010.aspx>. For a list of JCI accredited hospitals and services in the U.A.E., please visit <http://www.jointcommissioninternational.org/jci-accredited-organizations/>.

U.A.E. Healthcare Entities – Roles and Responsibilities

SUCCESSFUL HEALTHCARE REGULATION and industry development requires coordination between many different organizations working together to create and support the growing infrastructure, knowledge base, and daily operations that make up the U.A.E. healthcare industry. The entities listed below represent the major healthcare organizations operating in the U.A.E. today.

U.A.E. HEALTHCARE ORGANIZATIONS

Regulatory Bodies

The Ministry of Health (MoH) is the federal authority responsible for unifying the U.A.E.'s health policies, developing a comprehensive, nationwide health service, and ensuring that healthcare remains accessible across the country. The MoH is also the primary healthcare regulator in the Northern Emirates. Whereas Emirate-run healthcare entities in Abu Dhabi and Dubai directly manage their own emirates' healthcare needs, the Northern Emirates do not have the necessary healthcare infrastructure and rely heavily upon the MoH for administration and regulation. The Federal Health Authority (FHA) handles the executive responsibilities for the MoH, with a focus on increasing the efficiency and competitiveness of the U.A.E. health system. The Minister of Health is H.E. Abdul Rahman Mohammed Al Owais and the Undersecretary is Dr. Mohamed Salim Al Olama. For more information please visit www.moh.gov.ae.

The Ministry of Finance (MoF) is the federal authority involved in the insurance aspects of the U.A.E. healthcare sector. For instance, the MoF has drafted a law that would mandate federal compulsory health insurance in all seven emirates and appears to be underwriting the rollout of the new health insurance program. The Minister of Finance is H.E. Obaid Humaid Al Tayer. For more information, please visit www.mof.gov.ae.

The Federal Health Insurance Authority (FHIA) will eventually be a stand-alone organization, though it is still in its developmental stages as overseen by the MoH, MoF, and emirate-level health authorities, to manage all aspects of health insurance in the U.A.E. as well as licensing, registration, and codes of conduct for healthcare service providers.

The Dubai Health Authority (DHA), the regulator and operator of the Emirate of Dubai's healthcare sector, oversees and sets healthcare policy and strategy, develops medical education and research, and regulates and licenses all healthcare facilities and services in Dubai and its free trade zones. Universal healthcare, expected to be fully implemented in Dubai by 2016, is a key priority. Diabetes treatment and care is another area of focus for the DHA. The President of the Dubai Health Authority is H.H. Sheikh Hamdan Bin Rashid Al Maktoum, Deputy Ruler of Dubai, Minister of Finance

and Industry. The Director General is H.E. Engineer Essa Al Maidoor. For more information please visit www.dha.ae.

The Health Authority of Abu Dhabi (HAAD) is the Emirate of Abu Dhabi's financially and administratively independent public health authority that creates all requirements for healthcare facilities, health insurance, clinicians, and health services while overseeing the management of health services at the policy level. The Chairman of HAAD is H.E. Mohammed Sultan Al Hameli and the Director General is H.E. Dr. Maha Taysir Barakat. For more information please visit www.haad.ae.

HEALTHCARE SERVICE PROVIDERS AND DEVELOPERS

Abu Dhabi Health Services Company (SEHA) directly and indirectly owns and manages government-owned health services and hospitals in Abu Dhabi. Recently, SEHA has been under great pressure to cut operational costs. Hence, internationally competitive pricing and local representatives are key for U.S. companies doing business with SEHA. The Chairman and Managing Director of SEHA is H.E. Said Bader Al Qubaisi. The current C.E.O. is Carl V. Stanifer. For more information, please visit www.seha.ae.

The Dubai Health Authority (DHA) serves a dual role as regulator, as mentioned previously, and operator of the Emirate of Dubai's healthcare sector inclusive of all public healthcare facilities, hospitals, clinics, and services in Dubai and its free trade zones. The President of the Dubai Health Authority is H.H. Sheikh Hamdan Bin Rashid Al Maktoum, Deputy Ruler of Dubai, Minister of Finance and Industry. The Director General is H.E. Engineer Essa Al Maidoor. For more information please visit www.dha.ae.

The Ministry of Health (MoH) serves a dual role as the nation's healthcare policy entity, as mentioned previously, as well as the manager for healthcare services for the Northern Emirates, alongside the emirate level regulatory bodies and operators of Sharjah, Fujairah, Ras Al Khaimah, Umm Al Quwain, and Ajman. The Minister of Health is H.E. Abdul Rahman Mohammed Al Owais and the Undersecretary is Dr. Mohamed Salim Al Olama. For more information please visit www.moh.gov.ae.

Mubadala Healthcare is the healthcare-focused division of an investment and development company established by the Abu Dhabi government to build key social infrastructure and support the U.A.E.'s strategy of economic diversification. Its current assets and services are designed to meet some of the specialized care requirements of the Emirate, and currently focus on diabetes care and research, orthopedics, spine, physiotherapy and rehabilitation, primary care, imaging, visceral medicine, and medical diagnostic testing, amongst others. Currently, Mubadala Healthcare is working with Cleveland Clinic to create Cleveland Clinic Abu Dhabi, a state of the art hospital designed to address the complex care requirements affecting the U.A.E. patients the

most. The hospital will offer five Centres of Excellence in or ‘Institutes’ in Heart & Vascular, Neurological, Digestive Disease, Eye and Respiratory & Critical Care; with more than 30 medical and surgical subspecialties represented overall. Mubadala Healthcare works with HAAD to pilot experimental programs and implement those that are successful as best practices across the U.A.E. These include programs that are located in the U.A.E., meet specific criteria, and fulfill a role that the private sector cannot. Current areas of focus include diabetes issues and expanding services in the Northern Emirates. The Executive Director of Mubadala Healthcare is Mr. Suhail Mahmood Al Ansari. For more information please visit www.mubadala.com/en/who-we-are/businessunit/mubadala-healthcare.

INSURERS

Daman (the U.A.E. National Health Insurance Company)

is the first and largest specialized federal health insurance company to be formed in the United Arab Emirates and was established in September 2006. It currently provides comprehensive health insurance solutions to more than 2.4 million members in the U.A.E. Daman provides health insurance for both individuals and organizations, and exclusively manages the U.A.E. Government’s healthcare program, Thiqqa, for U.A.E. nationals, and the Abu Dhabi Basic Plan, for

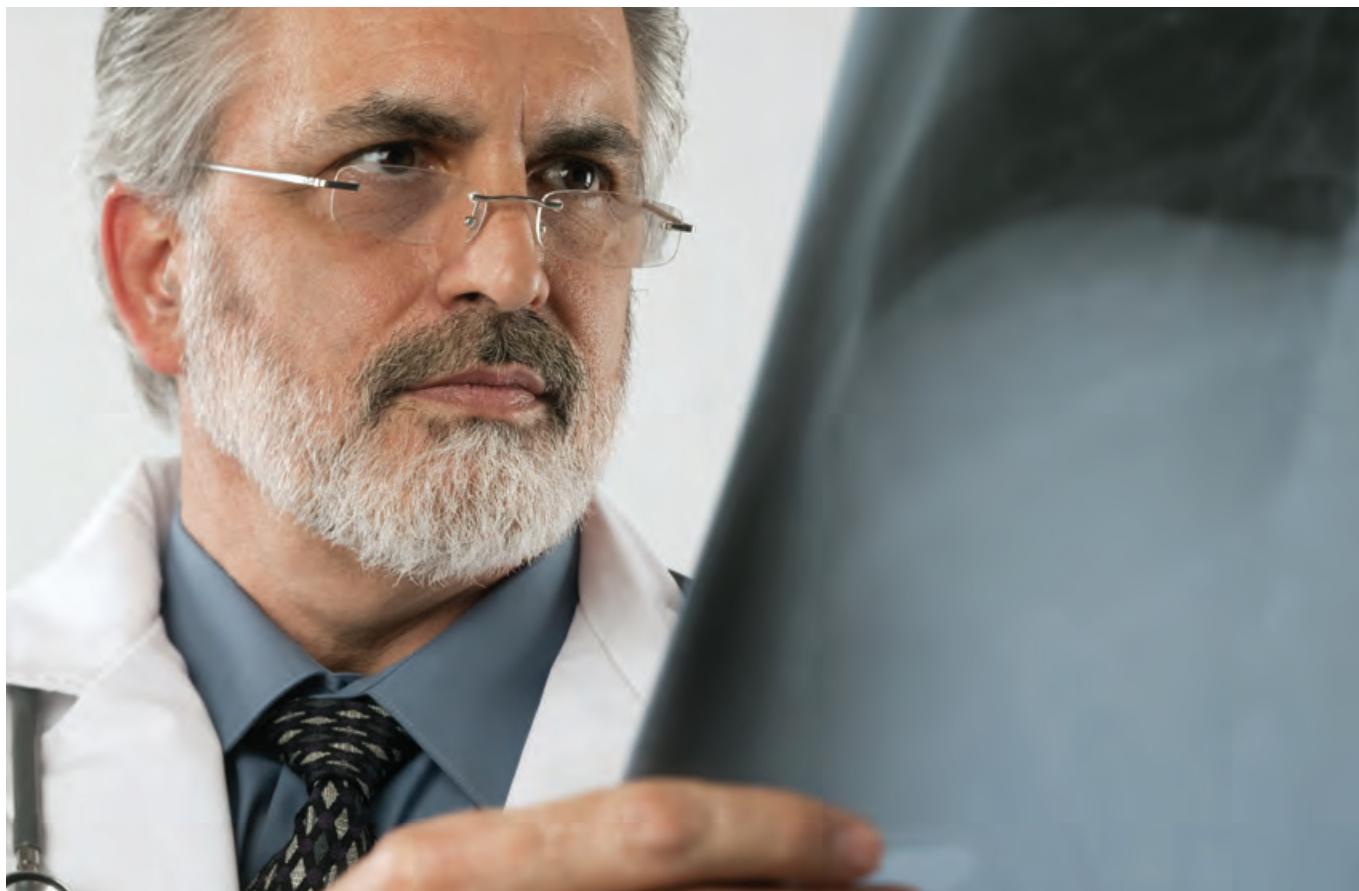
low income expatriates. The Chairman of the Board is Mr. Khaled Abdulla Al Qubaisi and the C.E.O is Dr. Michael Bitzer. For more information please visit www.damanhealth.ae.

Activities and Areas of Opportunity

IN THE U.A.E., SPENDING in the healthcare market (almost 70 percent of which is expended by the government¹⁷) reached an estimated \$16.8bn in 2013 and is expected to grow at a compound annual growth rate (CAGR) of over 16 percent through 2014. Surging healthcare costs have spurred U.A.E. government agencies to look toward the private sector for help in controlling prices, and strengthening the environment for public-private partnerships and foreign direct investment is key to this strategy. This presents a variety of opportunities for U.S. healthcare organizations.

HEALTHCARE FACILITIES AND WELLNESS: UTILIZATION, EFFICIENCY, AND EDUCATION

For the past decade, the U.A.E. government has partnered with leading U.S. health systems to develop the nation’s infrastructure of hospitals, clinics, and other facilities. Against this backdrop, a variety of U.S. companies have had an ongoing presence in the U.A.E., including hospital management teams, pharmaceutical companies, sports medicine specialists, and healthcare consultancies.



Partnerships Toward Progress

- **Cerner Corporation** is a healthcare technology and I.T. company. Cerner works in partnership with the Abu Dhabi Health Services Company (SEHA) to deliver technological and I.T. integrated solutions to Abu Dhabi's hospitals to improve electronic processing, increase efficiency, reduce costs, and protect patient confidentiality. Their solutions also help Abu Dhabi hospitals meet regulatory requirements and make better use of data to improve the healthcare delivery process.
- **Children's National Medical Center** conducts a variety of collaborative research and educational programs through the Sheikh Zayed Institute for Pediatric Surgical Innovation in Washington, D.C. and is working with U.A.E. healthcare entities to shape healthcare policy and procedures in all areas of children's healthcare.
- **Cleveland Clinic** is partnering with Mubadala Healthcare to bring the Cleveland Clinic healthcare model to Abu Dhabi. The hospital is the first of its kind in the U.A.E. and will address a range of complex and critical care requirements, providing direct access to the world's best healthcare providers and reducing the need for patients to travel abroad for treatment. The hospital will have up to 490 beds, five clinical floors, three diagnostic and treatments levels, thirteen floors of critical and acute inpatient units, and will be served by North American board certified and Health Authority-Abu Dhabi licensed physicians.
- **GE Healthcare** provides transformational medical technologies and services that are shaping a new age of patient care in the U.A.E. GE Healthcare is most known for producing state-of-the-art medical devices, but the company also is experienced in medical imaging and information technologies, medical diagnostics, patient monitoring systems, performance improvement, and drug discovery. In the past, GE Healthcare has had significant partnerships in the U.A.E., Sheikh Khalifa Medical Centre being a notable example.
- **Johns Hopkins'** twelve-story Sheikh Zayed Tower in Baltimore, Maryland is the new home of Johns Hopkins' Heart and Vascular Institute and was one of the largest hospital construction projects in U.S. history, lasting three years and generating more than 4,700 construction jobs. Hopkins also provides hospital management to a number of hospitals in the U.A.E. including Tawam hospital in Al Ain which has 469 beds, effectively making it the largest hospital in the country. Hopkins also manages the Corniche hospital, the main provider for obstetric and neonatology care, offering 234 beds in the Emirate of Abu Dhabi.



- **MD Anderson** received a \$150 million gift to build the cancer therapy institute at the MD Anderson Cancer Center in Houston, Texas.
- **Partners Harvard HealthCare** offered advisory services for several projects, including in 2006 conducting a review of the National Rehabilitation Centre in Abu Dhabi, the U.A.E.'s first facility to treat substance abuse. Partners has also provided service for the U.A.E. military healthcare system, cardiovascular services in Abu Dhabi, and served as lead planner for six years for University Hospital in Dubai HealthCare City.
- **The New England Center for Children** has been working with SEHA since 2007 to launch a comprehensive education program for children with Autism Spectrum Disorder and their families. This program ensures that children with autism in the Emirate of Abu Dhabi have access to the facilities and resources that they need for a high quality education experience.
- **Truven Health Analytics** is an important partner to the Health Authority Abu Dhabi. In the past few years, Truven helped develop a provider/hospital ranking system for Abu Dhabi based on quality, analyzed all data to develop the rating system, and did so while protecting the identity of individual patients. Additionally, Truven positions critical point-of-care and hospital management systems throughout the U.A.E. Truven continues its partnership with HAAD and other government and private entities in various capacities.

New facilities continue to join the system, including a 94-bed hospital by the Lifeline Hospital Group of Abu Dhabi and the Mir Hashem Khoory Group of Dubai, a facility by Saudi German Hospitals Group, and a new hospital in Dubai Healthcare City. In Sharjah, the new Sharjah Healthcare City free trade zone will accommodate the need for an estimated 633 additional beds. U.S. companies, such as Allen & Shariff, are often deeply involved in the development of these facilities. From concept and design through on-site implementation, U.S. companies are partnering with U.A.E. healthcare organizations to create first-class healthcare facilities.

DIABETES AND OTHER CHRONIC, NON-COMMUNICABLE DISEASES

U.S. healthcare institutions have helped to guide U.A.E. practices in areas such as pediatrics, cardiac care, and breast cancer awareness. Today, almost 90 percent of deaths in the U.A.E. are caused by chronic lifestyle-induced diseases such as diabetes, coronary and cardiovascular conditions, hypertension, and cancer. The U.A.E. also ranks among the world's leaders for prevalence of diabetes, obesity, and other risk factors for cardiovascular disease. The causes include increasing levels of affluence, the growing popularity of fast food, tobacco use, plus sedentary lifestyles caused by hot weather and one of the highest vehicle-to-person ratios in the region.

Efforts to reverse current trends include Weqaya, a population screening and intervention program for Emiratis implemented by HAAD that currently focuses on diabetes and cardiovascular disease. This online service screens individuals for various risk factors, explains screening results, provides access to relevant information and services, and connects users to doctors, clinics, and opt-in health and wellness programs tailored to user needs.

Diabetes care is a focus across the country. In 2012, the 8,000-square-foot government-run diabetes center in Dubai's Latifa Hospital was moved to a new 20,000 square-foot facility with 50 percent more capacity. Abbott Diabetes Care has a presence in Dubai, and the Dubai Harvard Foundation for Medical Research is investigating diabetes, among other chronic conditions, in its collaborative research efforts. The Imperial College of London Diabetes Center, with locations in Abu Dhabi and Al Ain, is a state-of-the-art outpatient center specializing in diabetes treatment, research, training, and public health. Since its opening in 2006, ICLDC has treated over 200,000 people.

Further, many U.A.E. organizations, such as Mubadala Healthcare, are actively seeking partnerships in the areas of personalized medicine, preventative medicine and health awareness, lifestyle adjustment, and treatment, with an emphasis on diabetes and solutions that allow for intellectual property rights.

By helping the U.A.E. develop a sustainable local workforce, U.S. companies and academic institutions can contribute valuable experience while establishing a presence and building relationships in the U.A.E. healthcare sector. For example:

- **The Accreditation Council of Graduate Medical Education International** and HAAD are working together to strengthen the quality of medical education.
- **The Dubai Harvard Medical Research Foundation** identifies and supports medical and scientific leaders in the region and engages them in collaborative research projects and international scholar exchanges.
- **Houston Methodist Global Health Services**, the global subsidiary of Houston Methodist Hospital, provides education and training at the Mohammed bin Rashid Academic Medical Center, the education and research arm of Dubai Healthcare City. Houston Methodist has also consulted on healthcare-related projects in the Northern Emirates.
- **Johnson & Johnson** is working with the Centre for Healthcare Planning and Quality to establish a training and simulation center at Dubai Healthcare City. This center will provide internationally accredited educational programs for physicians and patients.
- **The Johns Hopkins Bloomberg School of Public Health** and HAAD are working together to train Emirati students.
- **Mayo Clinic** is partnering with MoH in the area of continuous medical education and is providing consultants to support critical care in MoH facilities.

Disease and Healthcare Management Programs in the U.A.E. Healthcare Industry

- **Weqaya:** a population screening and intervention program for Emiratis implemented by HAAD that currently focuses on diabetes and cardiovascular disease.
- **Wareed:** a MoH initiative to integrate electronic medical records in all 14 public hospitals and 68 affiliated clinics across Dubai and the Northern Emirates,³¹ as well as automate all healthcare processes across departments, such as radiology, pathology, pharmacy, surgery, accident/emergency, and registration.
- **Tammini Program:** a MoH initiative, this program provides information to the public for medical products registered and marketed in the U.A.E. The program also provides warnings and medication safety alerts for existing medical products in the country.

At a Glance: Workforce Development Challenges

In 2012, around 15 percent of doctors and around 13 percent of nurses left their positions in the U.A.E. – burdening health-care facilities with the task of attracting replacements in an industry where the best of the best often go to medical centers in the U.S. or Europe, or take administrative positions within the government. These departures have brought attention to broader human capital issues impacting the U.A.E. healthcare sector.

- In part, the licensing of Board Certified Physicians in the U.A.E. is not streamlined or transparent, leading to problems recruiting and retaining physicians and resulting in understaffed hospitals.
- Inadequate healthcare education and training is also contributing to the dearth of qualified healthcare workers. A pipeline through which Emiratis can gain the knowledge and skills necessary to become physicians, nurses, and technicians in the healthcare field must be created. This will alleviate the physician and nursing shortages as well as the heavy reliance upon an international workforce.
- The current healthcare infrastructure is insufficient. The majority of medical graduates do not remain in the U.A.E. after completion of their studies due to better opportunities in Europe or North America. The U.A.E. will attract and retain quality physicians, nurses, and technicians if they keep on their current path of improving their infrastructure and education. This should include post-graduate medical education, state-of-the-art facilities, a regional practice network, and a regional exchange of ideas.

- **MD Anderson Cancer Center** supports fellowships, career development, and research related to personalized medicine in the areas of melanoma, lymphoma, and ovarian cancer.
- **Cleveland Clinic Abu Dhabi** is offering training and development opportunities for U.A.E. nationals such as career planning, mentoring, and healthcare-focused training programs in order to create dynamic professional opportunities for U.A.E. nationals and ensure a high level of caregiver engagement and retention.



Information Technology

IT INFRASTRUCTURE IN THE U.A.E. CURRENTLY consists of independent healthcare systems, and integration toward a comprehensive nation-wide information technology healthcare system is a priority. One example of this effort is Wareed, the previously mentioned MoH initiative to integrate electronic medical records in all public hospitals and affiliated clinics across Dubai and the Northern Emirates, as well as automate all healthcare processes across departments, such as radiology, pathology, pharmacy, surgery, accident/emergency, and registration.

In the development phase of its Wareed initiative, the MoH engaged technology partners including Kansas City-based Cerner Corporation. Cerner implemented an electronic medical record system with automated clinical decision support that moves paper-based processes online and delivers clinicians a comprehensive view of a patient's history from a single source. The company continues to work with the MoH to enable the system to track business processes, applications, and interactions throughout the care process. This will help guide future information technology development, give private companies and vendors the ability to integrate their systems into the overall framework, and help healthcare providers measure outcomes for individual patients and the overall population.

In addition to the formidable task of systems integration, U.S. technology companies also may find opportunity supporting functions such as insurance billing, reimbursements, data analytics, and claims processing as the nation builds out its universal healthcare system.

Pharmaceuticals and Medical Devices

THE PHARMACEUTICAL INDUSTRY IS EXPECTED to grow at a Compound Annual Growth Rate (CAGR) of around 14.5 percent, reaching \$3.58 billion by 2019, as patents expire on numerous drugs and the U.A.E. government promotes the use of generic and over-the-counter drugs. Many of the world's largest pharmaceutical companies currently have a presence in the U.A.E., including Johnson & Johnson, Sanofi-Aventis, MSD, Bayer, Merck Serano, Eli Lilly and AstraZeneca. There are also a number of private Emirati pharmaceutical distributing and manufacturing companies that are driving innovation in this sector. This list includes Pharmatrade, Neopharma and many others.

In the medical device market, U.S. imports account for more than a quarter (28.5%) of the \$361 million annual market, reflecting a CAGR of more than 11 percent from 2009-2012. The quest to position the U.A.E. as a global healthcare leader has driven demand for higher-end technology products, and companies such as GE Healthcare already have a robust presence in the U.A.E.

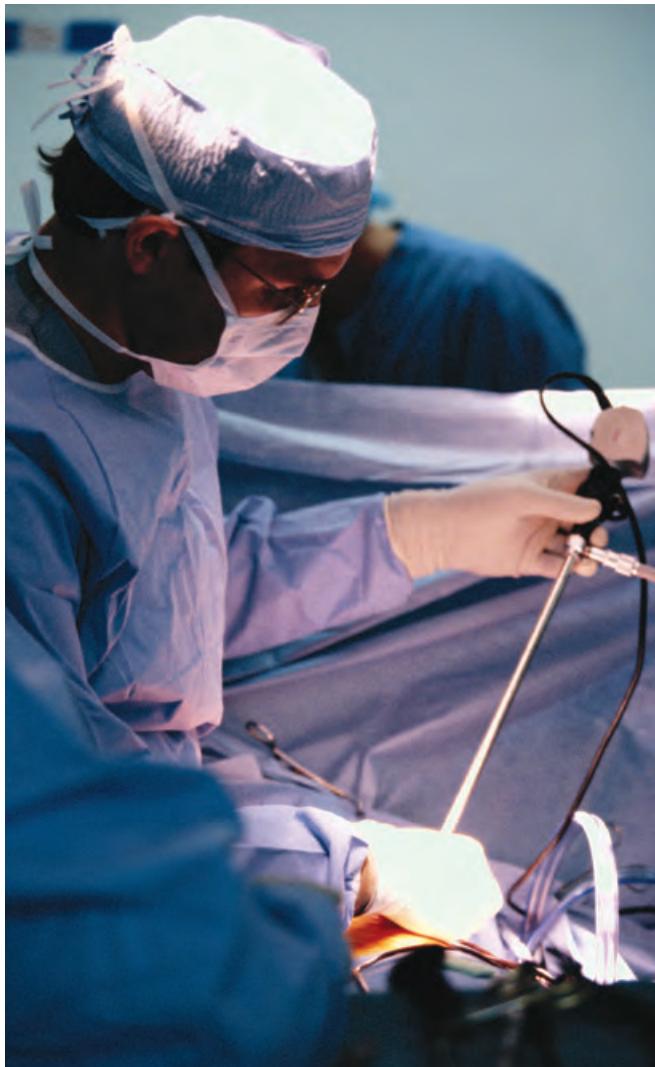


Insurance: Regulations, Reimbursement, and Competitiveness

THE U.A.E. SPENDS APPROXIMATELY \$1,200 per person each year in healthcare, ranking it among the top 20 countries in the world for healthcare spending per capita. In order to sustain all of its healthcare costs, the country has been moving toward a universal healthcare system. A law passed in 2005 required all expatriates and their families living in Abu Dhabi to have private medical coverage, and a law passed in 2007 gave HAAD the mandate to develop insurance policy and provide health insurance regulation services. In 2010, a requirement in Abu Dhabi was enacted for all hospitals and insurers to bill on a diagnosis rate group (DRG) system. This requirement, plus other measures such as standardized contracts, is expected to slow the rising cost of medical services.

Today, universal healthcare insurance is in place in Abu Dhabi and Dubai but only actively enforced in Abu Dhabi. Dubai is in the process of rolling out its universal healthcare insurance system and recently mandated that the population of the entire emirate must be covered by 2016. Sharjah is expected to implement a health authority and policies similar to HAAD and DHA in the near future.





Challenges and Areas of Improvement

THE U.A.E.'S LEADERSHIP RECOGNIZES that there are serious obstacles that must be addressed on the path to developing a world class healthcare sector and understands that working with international partners is critical to overcoming some of these barriers. In particular, the U.A.E. is looking to their international partners to assist in the development of specialty care practices in the fields of women's care, oncology, pediatrics, and diabetes.

Pharmaceuticals and their subsequent pricing in the region stands out as a key area of focus. The Abu Dhabi 2030 plan specifically states that "the Emirate has still to develop capabilities in key areas; specifically by enhancing intellectual property rights, revising international trade agreements, establishing a reliable drug testing and approval system, developing investment attraction mechanisms and marketing and distribution capabilities ... the growth of a dynamic pharmaceuticals segment will go hand-in-hand with the development of a world-class healthcare system, with the development of each sector reinforcing the other."

Dubai and the Northern Emirates are similarly focused on developing a healthy pharmaceuticals industry in the U.A.E.

As previously explained, workforce development is an area that will require significant and sustained growth over the next decade. Inadequate healthcare education and training is severely limiting the local population's ability to gain the knowledge and skills necessary to become qualified physicians, nurses, and technicians. Additionally, the licensing of Board Certified Physicians is not streamlined or transparent, leading to problems recruiting and retaining primary care physicians in particular, and leaving hospitals understaffed.

Finally, medical malpractice issues, inconsistent licensing procedures for physicians, antiquated and lengthy procurement regulations, and inability to access medical information are all points of focus and improvement for the U.A.E.

International legal authorities and consultants, including those from the U.S., have been playing a role in the development of healthcare policy in the U.A.E. This includes studying models such as pooling mechanisms, examining best practices from the Gulf Cooperation Council and other nations, and providing guidance in the development of the new FHIA entity.

Because government-owned insurance company Damam administers nearly all categories of insurance plans, U.S. companies involved in the administrative side will more likely be able to find opportunity in the area of ancillary support—such as claims processing and I.T. software development. For instance, with the shift to DRG reimbursement, U.A.E. hospitals now need to install new billing systems and train medical and administrative staff on how to appropriately document and code services via these systems. They also can play a role in helping the U.A.E. combat fraud and misuse. In 2011, a study by insurance companies estimated that misuse accounts for 30 percent of the nation's healthcare costs.

Impact of the U.S.-U.A.E. Healthcare Relationship on the U.S. Economy

THE U.A.E. AND THE U.S. INVEST significantly in each other's healthcare sector, affecting the creation of jobs and stimulating the economies of both nations. In the United States, economists and geographers assess economic impact in three dimensions: direct, indirect, and induced.

DIRECT IMPACT

In this case, direct economic benefits include:

1. Job creation in and local purchases for the construction and ongoing operation of U.A.E.-funded new facilities in the U.S.
2. Revenue and employment for U.S. organizations that supply products and services to healthcare in the U.A.E.
3. Jobs and sales that result from Emiratis seeking medical care in the U.S.

U.A.E. financial donations or investments in new facilities in the U.S. produce finite-term construction jobs and permanent positions for ongoing operation. Further, many U.S. firms and organizations export a range of products and services to U.A.E. healthcare facilities as well as the larger, in-country efforts of service providers like Cleveland Clinic, which employs a significant number of U.S. citizens. Finally, Emiratis who travel to the U.S. for expert or specialty care also generate business and jobs into the communities where they receive care in the form of direct treatment expense, travel, housing, and related spending during their stays.

INDIRECT AND INDUCED ECONOMIC BENEFIT

Companies indirectly benefit from this U.S.-U.A.E. relationship as they may supply goods and services to the businesses who contribute directly to the U.A.E. thus creating more work, while induced economic benefit comes from the extra capital spent in all aspects of the U.S. economy. For example, U.S. residents employed directly or indirectly in the provision of these healthcare services spend their paychecks for food at a supermarket or restaurant, make their rent or mortgage payments, buy gas for their car, and all manner of other essential and discretionary spending stimulating the economy.

The economic multiplier is the measure that gauges these indirect and induced impacts as spending recycles through local, regional, and national economies. Although the impact of U.A.E. healthcare spending and investment has not been specifically studied, the impact of new and existing healthcare facilities and services has been extensively evaluated and reported.

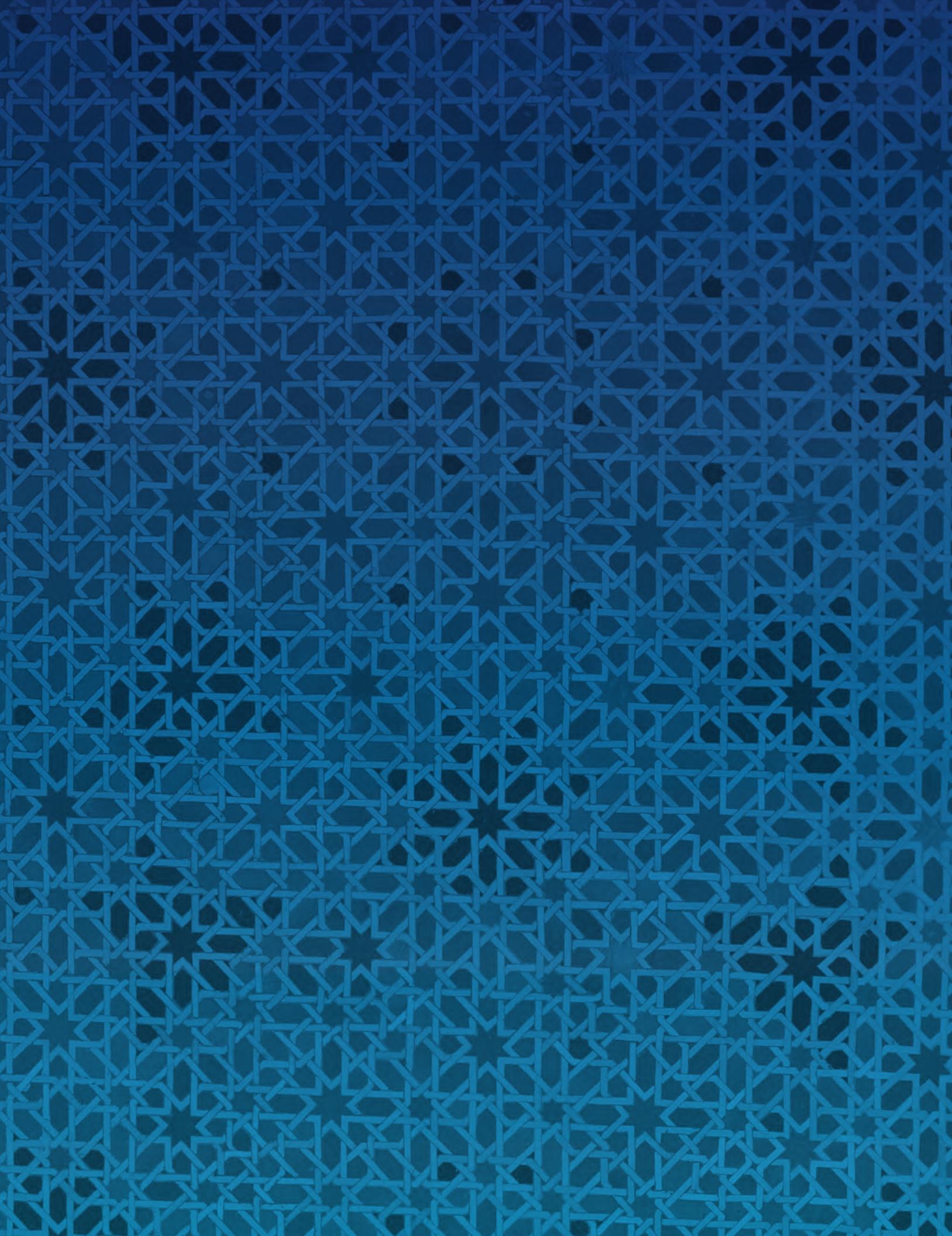
The most compelling research suggests that employment or output multipliers of 2.0 to 2.3 would be reasonable in the instances described above, meaning that the total economic benefit would be at least double the direct impact.

KEY TAKE AWAYS

The U.S.-U.A.E. partnership in the healthcare sector is as diverse as it is dynamic and opportunities for U.S. business abound. However, it is important to learn from the past experiences of U.S. companies already established in the U.A.E. Dr. Marc Harrison, C.E.O. of Cleveland Clinic Abu Dhabi and a veteran in the U.A.E. healthcare sector, is often vocal about how U.S. healthcare companies can succeed in this exciting and sometimes challenging environment. "First, the ... healthcare sector is evolving and advancing to provide world-class care locally, which provides great opportunity for international institutions to complement the existing U.A.E. healthcare landscape ...

"Second, local shareholders and partnerships are key to success. Partners must be aligned from the onset, collaborating on objectives and building human capital development infrastructure that will cultivate the skills and knowledge locally, ensuring that the healthcare provider can address the most pressing healthcare needs of the region. Third, the requirements of the U.A.E. market will need to be included in a winning formula. Bring in experienced leaders from the U.S. to replicate the brand culture while also leveraging regional partnerships to get valuable insight on the local culture, as this consideration is a critical factor for any international company entering the U.A.E. market." Whatever their area of focus, be it I.T. or insurance auditing, new U.S. healthcare companies should always understand that face-to-face interactions are crucial to strong partnership in this part of the world and mutual trust is paramount. Delivering on past promises is vital to best business practice and is expected when working in the U.A.E. healthcare field. Finally, U.S. healthcare companies should remember that patience, perseverance, and partnership are the keys to success in working with their Emirati colleagues.

The U.S. and U.A.E. are reliable business partners and the bilateral healthcare relationship is vibrant. Both countries share common goals in the healthcare sector and, through hard work and collaboration, have already accomplished a great deal. While success stories are increasingly the norm, there remains much work to be done. This sector cannot be perfected overnight. Only through sustained U.S. and U.A.E. partnership, dialogue, and transparency will healthcare entities continue to develop and expand on the complex solutions necessary to succeed in this burgeoning sector.





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