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Diabetes Industry in the UAE

Report
2023

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Introduction

This case study provides a brief description of the diabetes epidemiological situation in United Arab Emirates.

Despite dedicated nationwide efforts to raise awareness against the harmful effects of fast-food consumption and sedentary lifestyle, the Arab population continues to struggle with an increased risk for metabolic disorders.

The International Diabetes Federation (IDF) has reported that GCC countries have one of the highest prevalence of diabetes and obesity in the world, given the sedentary lifestyles and increased consumption of foods that are high in calories and sugar. Of the 149,600 deaths in the GCC during 2020, nearly 73% were due to noncommunicable diseases (NCDs).

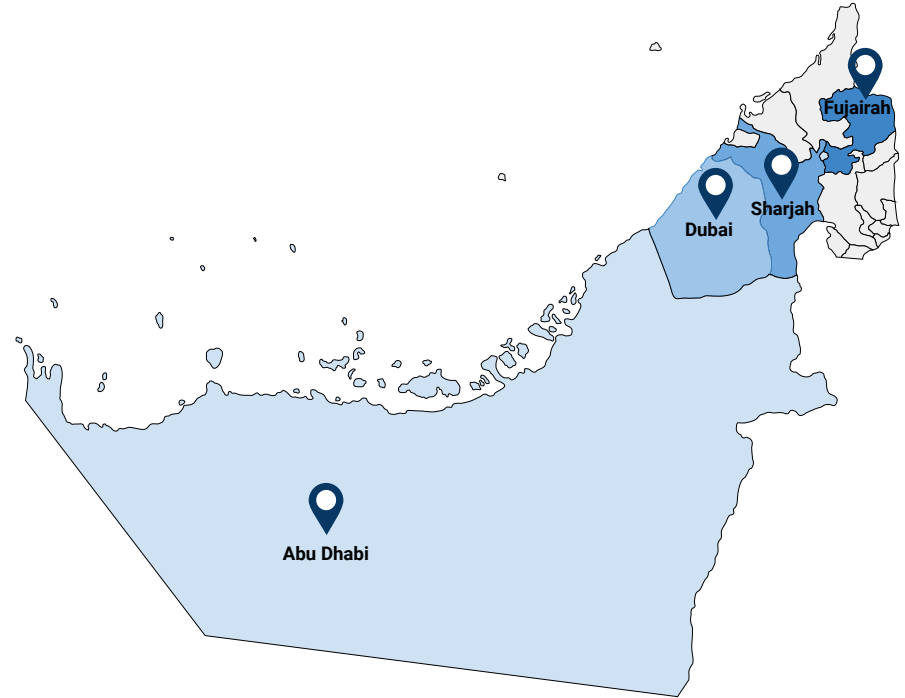
In this report, we reviewed genetic background of diabetes among Arab populations, analysed healthcare market and key market players that offer service for diabetes patients.

Executive Summary

The **United Arab Emirates (UAE)** is a dynamic and rapidly evolving nation located in the southeastern part of the Arabian Peninsula. Established in 1971, the UAE is renowned for its remarkable economic growth and modernization. Comprising seven distinct emirates - **Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al-Quwain, Ras Al Khaimah, and Fujairah** - the country is characterized by its diverse landscapes, vibrant cities, and rich cultural heritage.

Abu Dhabi, the capital of the UAE, is a key player in the nation's economic diversification efforts. The emirate has embarked on numerous projects and investments in renewable energy, cultural institutions, and industrial expansion, solidifying its position as an economic and cultural powerhouse.

In conclusion, the United Arab Emirates is a thriving nation with a forward-thinking approach to development, an emphasis on diversification, and a commitment to being a global leader in various fields, making it a fascinating and continually evolving country in the heart of the Middle East.



Diabetes Industry Framework

Treatment

Diabetes Treatment	Gene and Cell Therapy
Small Molecules	Drug Delivery Systems
Supplements	Formulations (Insulin)
Probiotics	Natural Products

Clinics

Diabetes Screening and Management	Clinical Trials Management
Nursing	Rehabilitation
Patient Monitoring and Management	EHR
Residential, Home and Elder Care	Assisted living

MedTech

Medical Supplies and Equipment, Raw Material	Devices (diagnostics, therapy, glucose monitoring)
Medical Suppliers	Diagnostics, Tests and Labs
E-Pharmacy	Medical Devices (Artificial Organs)
Imaging	Organ Engineering

Biologics (Insulin, RNA, vaccines, AB)

Genomics and Genetics

AI for Drug Discovery

CRO

AI for Diagnostics (Omic, Imaging)

Physiological, Systemic and Digital Biomarkers

Scientific innovation

Insurance

Contract Manufacturing

Clinical Data Storage and Management

Education platforms

Media

Non-Profits

Civil services

Diabetes Prevention

Healthy Lifestyle

Fertility in diabetes

Aesthetics and Skin Care

Mobile App

Healthy Nutrition

Prevention and Care

Diabetes Industry in the UAE 2023

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Companies - 33
Investors - 5
R&D Centres - 12

Dubai

Others

Abu Dhabi

Investors

R&D Centres

Diabetes Categorisation

Four Main Types of Diabetes

Type 1 diabetes

historically known as juvenile diabetes

Type 2 diabetes

historically known as adult-onset diabetes

Gestational diabetes

when nondiabetic pregnant women develop high blood sugar levels

MODY*

relatively uncommon, dominantly inherited diabetes with at least 13 subtypes

* **MODY** – maturity-onset diabetes of the young

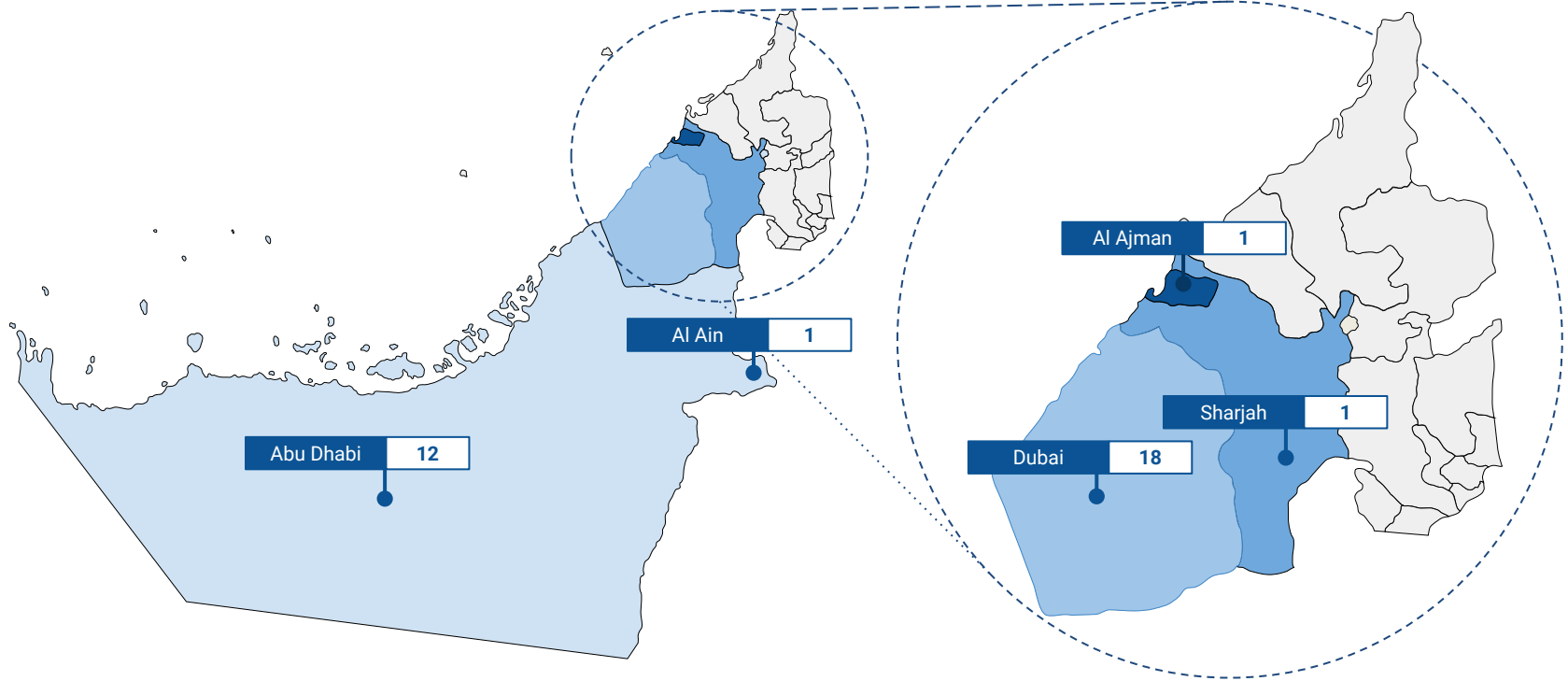
Diabetes, or diabetes mellitus, is a chronic health condition that affects how your body uses food for energy. Your body is not able to move sugar, or glucose, from your bloodstream into your cells, so you end up with a surplus in your bloodstream.

There are four main types of diabetes: Type 1 diabetes, Type 2 diabetes, gestational diabetes, and a maturity-onset diabetes of the young – relatively uncommon, dominantly inherited diabetes with at least 13 subtypes.

With all four, prompt diagnosis is critical, and so is compliance with your diabetes treatment. Over time, high blood sugar levels can damage your blood vessels and raise risk of you developing certain health problems (some life-threatening), so it's important to begin treatment – and stick with it faithfully – as soon as you get diagnosed.

This report investigates to what degree genetic determinants influence the well-known regional differences in incidents. We also identify genetic risk factors that may initiate the autoimmune process or promote already ongoing β -cell damage in Gulf countries.

Companies Regional Distribution



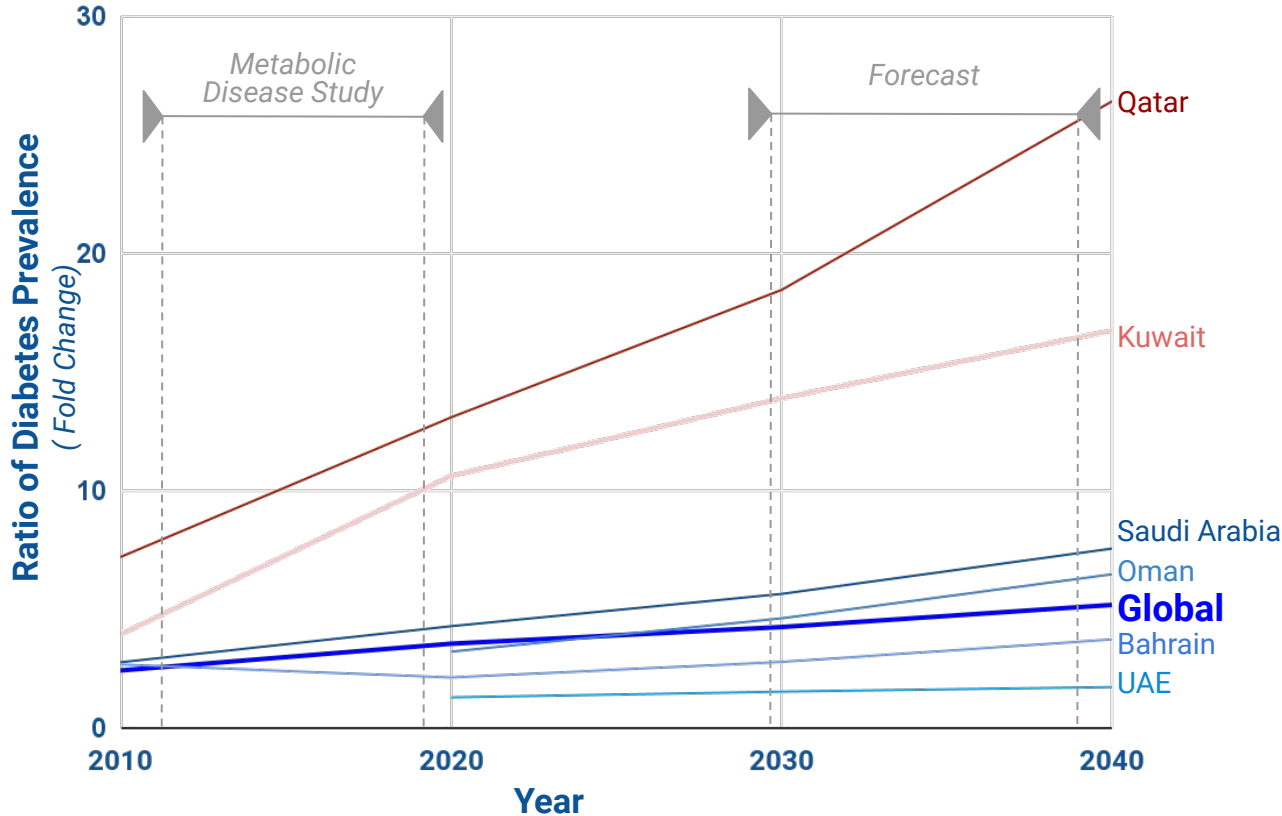
The companies focused on diabetes is a rapidly evolving direction in the **United Arab Emirates (UAE)**. The leading regions for companies placement are **Dubai** and **Abu Dhabi**, with significant leadership of the first one, as **more than 60%** of all companies are placed in Dubai, while **nearly 25%** are in Abu Dhabi. However there is also records about companies focused on diabetes in other big cities as **Al Ain, Sharjah, and Ajman** (1 company in each).



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Decline in Diabetes Rates in the UAE

Dynamics of Diabetes Prevalence Ratio in the GCC (age 20-79 years)



The global prevalence of diabetes continues to rise. The prevalence of diabetes is estimated by the **International Diabetes Federation (IDF)** to be **10.5% in 2021**, increased from **4.6% in 2000** in adults aged 20-79 years. The GCC appears to have a higher prevalence of diabetes than the global average. Five of the top 10 countries with the highest prevalence of diabetes (in adults aged 20 to 79 years) are in the Persian GCC: Kuwait (21.1%), Qatar (20.2%), Saudi Arabia (20.0%), Bahrain (19.9%) and the UAE (16.4%).

We calculated growth ratio of diabetes prevalence in Gulf countries (according 2000 year) from 2010 to 2040. As shown in the chart, the highest prevalence growth rate is in **Qatar** (15-25 fold vs. 2000 year) and **Kuwait** (10-15 fold vs. 2000 year). That is **five and three times faster than the global changes of this parameter for the same period.**

Diabetes Prevalence and Incidence in UAE

The United Arab Emirates (UAE) occupies the lowest position among the top 5 countries in the Gulf Cooperation Council (GCC) when it comes to the prevalence of diabetes, registering a rate of **12.3%** (age-adjusted **16.4%**). According to data from the International Diabetes Federation, as of 2021, there are **990,900** reported cases of diabetes in adults within the UAE, out of a total adult population of **8,057,100**.

According to the findings of a population study conducted in **Al Ain** (Abu Dhabi), the age-standardized prevalence rates for diagnosed and undiagnosed diabetes among individuals aged 30-64 years were recorded at **29.0%**.

Furthermore, a study conducted among Emirati residents in **Ajman** revealed an overall incidence rate of diabetes at **4.8 per 1,000 person-years**. It's important to note that "person-years" is a measurement that considers both the number of individuals in the study and the amount of time each person spends within the study, providing a more accurate representation of disease incidence over time.



UAE

The total prevalence of diabetes in UAE is **16.4%** (lowest among top 5 by diabetes prevalence in GCC)



Ajman

The overall incidence rate of DM cases observed among those aged ≥ 20 years was **4.8/1,000 person-years**



Al Ain

The age-standardized prevalence rates for diagnosed and undiagnosed diabetes among individuals aged 30-64 years is **29.0%**



Diabetes Prevalence in Dubai

Among the Emirates of the UAE, **Dubai**, the second-largest Emirate, has a diabetes prevalence rate of **13.7%**, exceeding the global average of **10.5%**. The Dubai Household Health Survey of **2019** revealed that the prevalence of diabetes among adults in Dubai remained notably high, considering the overall estimation. Factors associated with higher rates of diabetes include Emirati nationality, advanced age groups, male gender, physical inactivity, high body mass index (BMI), hypertension (HTN), smoking, marital status of being divorced or separated, as well as lower levels of education. It is worth noting that the total prevalence of diabetes in Dubai in the 2019 survey is 13.7%, which is **lower than the 15.2%** reported in **2014**.

15.2%



2014

The total prevalence of diabetes in Dubai in 2014 household survey was 15.2%

13.7%



2019

In 2019, the results of another household survey in Dubai has indicated the total prevalence of diabetes in Dubai as 13.7%.

12.2%



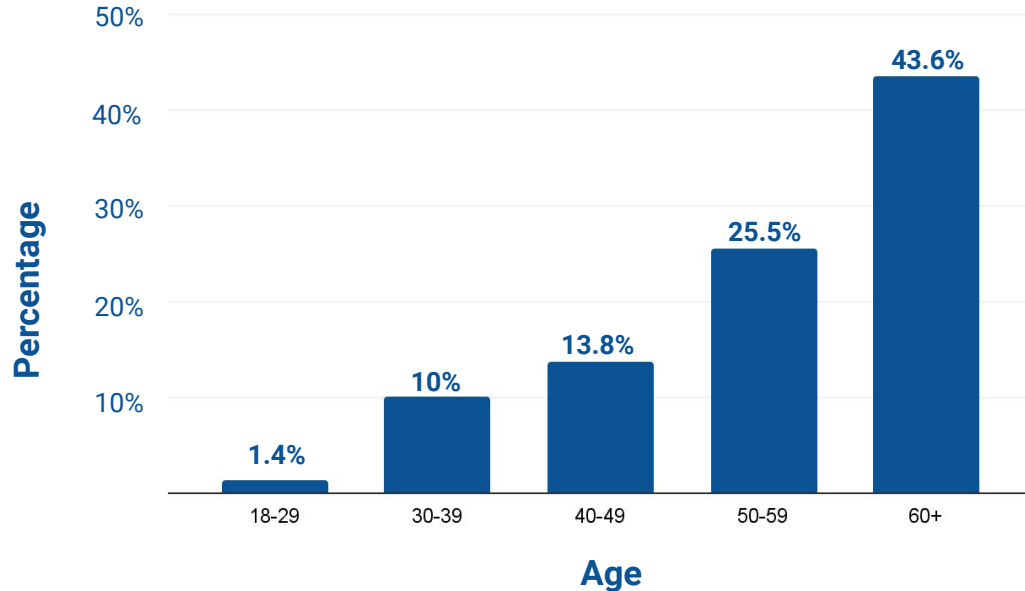
2024

It is possible to predict, that the prevalence of the Diabetes among Dubai citizens could decrease to 12.2% till the 2024.



Comparison of Age-Adjusted Prevalence in the UAE

Age-Adjusted Prevalence of Diabetes, %



Age-adjusted comparative prevalence (AAP), a critical epidemiological measure, standardizes data by accounting for age variations within populations. In a notable study conducted in Dubai, this approach revealed a direct **relationship between age and diabetes prevalence** in both Dubai Emiratians and expatriates. This study provides insights into the prevalence of known diabetics and newly diagnosed cases across various age groups and nationalities.

The findings demonstrate a notable **increase** in diabetes prevalence with **advancing age**, with a striking contrast between age groups. For instance, the prevalence of diabetes among those aged **18 to 29** is just **1.4%**, while individuals aged **60 and above** exhibit a much higher prevalence rate of **43.6%**. Additionally, the study indicates statistically significant differences in the frequency distribution of diabetes prevalence between age groups and nationalities, emphasizing the importance of considering age-adjusted data to understand diabetes trends and disparities in diverse populations.

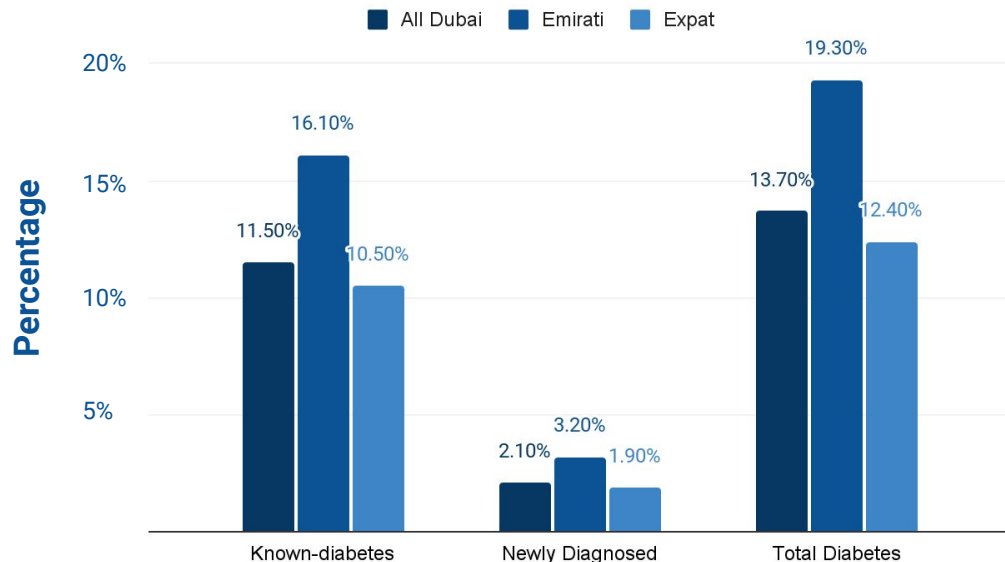


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Diabetes Diagnostics in the UAE

Quality of Diabetes Diagnostics in the UAE

Total prevalence of DM in Dubai according to nationality, %



The findings from the **DHSS 2019 study** reveal a concerning diabetes prevalence in Dubai, with a **total prevalence rate of 13.7%**. This figure is further broken down into **11.5%** representing **known diabetes** cases and **2.1%** accounting for **newly diagnosed** cases. Notably, when examining diabetes prevalence among different population groups, a striking disparity emerges.

Among Dubai Emiratis, the prevalence of diabetes stands significantly higher at 19.3%, while Dubai expatriates report a comparatively lower rate of 12.4%. This discrepancy is consistent across all three parameters of diabetes, including known cases, newly diagnosed cases, and the overall prevalence. These findings emphasize the urgent need for **targeted public health initiatives** and healthcare interventions, particularly among Dubai Emiratis, to address the high burden of diabetes in this population and **reduce the associated health risks** and economic costs.

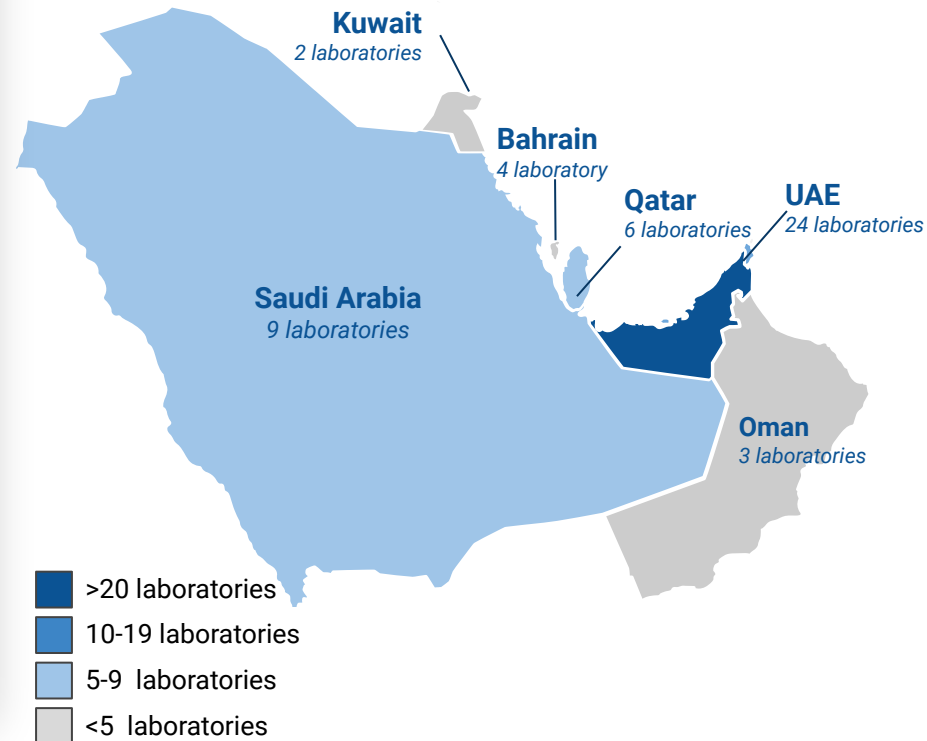
UAE is a Leader in Healthcare Companies in the GCC Region

The Gulf diagnostic labs market is poised for growth in the next 5 years, thanks to advanced medical devices that enable early disease diagnosis and continuous advancements in pathological tests, diagnostic procedures, and imaging technologies. The **United Arab Emirates (UAE)** and Saudi Arabia are at the forefront of diabetes diagnostics and treatment in the region.

UAE has emerged as a **leader in the Gulf Cooperation Council (GCC)** region when it comes to healthcare companies. The UAE has made substantial **investments** in its **healthcare sector**, fostering innovation, and attracting top-notch healthcare providers, pharmaceutical companies, and medical technology firms. The country's commitment to offering **world-class healthcare services** has resulted in cutting-edge medical facilities, research centers, and a robust healthcare infrastructure that caters not only to its own population but also draws medical tourists from around the world. This leadership position in the GCC region reflects the UAE's dedication to advancing healthcare standards and contributing to the broader healthcare landscape in the Middle East.

For instance, Dubai introduced the **"PPP Law"** (Law No.22 of 2015) in November 2015, designed to **stimulate private sector innovation** and investment in various projects for the city.

Number of Diagnostic Centres by Country





Bodyo combines a revolutionary integrated AiPod, a multilevel web platform, and app. The AiPod and Health Lounge can perform 26 physiological measurements in 6 minutes. These measurements are biometrics, body composition, metabolism, oximetry, hydration, blood pressure. Bodyo is part of a voluntary approach to prevention and prediagnosis of chronic diseases (obesity, diabetes, heart and vascular diseases, osteoporosis), undernutrition, and soon neurodegenerative diseases such as Parkinson and Alzheimer.



WEMA Health is a HealthTech start-up focused on weight loss and diabetes. Rooted in science and founded by an industry leading team of doctors and health coaches, the programme takes an innovative approach to whole body health and weight loss.



Rothana cares about your health by selling, promoting, and distributing new technology, featuring unique products which will help patients, doctors, and nurses have new ways of managing, treating, and diagnosing health conditions. Rothana provides medical, cosmetic, and nutritional products for wound care and diabetic foot care.



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Healthcare Infrastructure Development in the UAE

Major Diabetes Clinics in the UAE, 2023

In the UAE, diabetes clinics play a pivotal role in addressing the increasing prevalence of diabetes. With **10 specialized diabetes clinics and hospital departments in Dubai** and an additional **3 clinics** in the capital city of **Abu Dhabi**, these healthcare facilities provide vital services to residents and contribute significantly to the country's healthcare landscape.

These clinics are known for their **advanced healthcare infrastructure** and a multidisciplinary approach to diabetes care, which includes a team of specialized healthcare professionals. They focus on **early diagnosis** and management, offering **regular screenings** and encouraging preventive healthcare measures. Patient education is a fundamental aspect of their services, ensuring that individuals and their families are well-informed about diabetes and its management.

Furthermore, these clinics are committed to providing **individualized treatment plans** that may involve medication management, insulin therapy, and lifestyle adjustments to achieve optimal blood glucose control. In addition to the medical aspects, these clinics also integrate technology to enhance patient care.

Number of Medical Centres by Countries





The Dubai Diabetes Center, established in 2009 under the Dubai Health Authority, is a leading facility specializing in diabetes management, education, and research. It operates with a vision of a diabetes-free world and is recognized as a Center of Excellence by the International Diabetes Federation. The center adheres to international standards, featuring a specialized team including endocrinologists, dietitians, educators, and more. It offers a unique gym and demonstration kitchen for patient care and education, and includes a dedicated pediatric clinic.



GluCare Integrated Diabetes Center is the GCC's pioneering full-service digital therapeutic diabetes clinic. It provides personalized diabetes care through connected devices, specialized diagnostics, and a dedicated care team comprising physicians, nurses, dietitians, and health coaches. The mobile app collects and displays data from wearable devices, CGMs, or connected scales, enabling the team to monitor progress, manage medications, and offer continuous support. Patients meet with their physicians to review trends and correlations in their data, ensuring a hyper-personalized approach to diabetes management.



Boston Diabetes and Endocrine Center, established in June 2012, addresses the pressing diabetes epidemic in the UAE. With approximately 18.9% of Emiratis affected by diabetes, many remain undiagnosed. In Dubai, nearly one in five adults grapple with this condition, making it a leading cause of death. Our center is dedicated to early diabetes detection, supporting research in the UAE, and educating society on diabetes management and prevention.



Imperial College London Diabetes Centre provides personalised service built on an effective diabetes management system that allows the patients to undergo all necessary tests, receive results, and meet with the treating physician in the same appointment, ensuring a seamless patient experience. The Centre offers a comprehensive range of diabetes services, including endocrinology, cardiovascular, eye, kidney, and foot care, as well as antenatal/gestational and juvenile diabetes care, nutritional advice, and radiology.



Rashid Centre for Diabetes and Research (RCDR) is a JCI-accredited unique centre of excellence that combines compassionate and modern diabetes, obesity, and endocrine care with high-quality research and professional education. RCDR aims to be the leading all-inclusive comprehensive diabetes care centre in the region. As part of this goal, RCDR has partnered with Cerner to develop the first electronic health record (EHR) registry in the Middle East and a guided workflow focusing on patient-centred care.



مركز أبو ظبي للخلايا الجذعية
ABU DHABI STEM CELLS CENTER

Abu Dhabi Stem Cells Centre is the biggest research hub for chronic disease and regenerative medicine in the UAE. Now the centre is providing clinical trials of therapies to treat two of the biggest chronic health issues facing the UAE: diabetes and multiple sclerosis. It will explore therapeutic alternatives and analyse the efficacy of intervention.

UAE Diabetes Focused Associations



- Founded in 1996
- Dubai

Emirates Diabetes and Endocrine Society

The primary non-profit medical society in the UAE responsible for diabetes research, education, and information dissemination to both medical and non-medical communities.

Is a Member of IDF



مركز إمبريال كوليدج لندن للسكري
Imperial College London Diabetes Centre
A Mubadala Health Partner

- Founded in 2006
- Abu Dhabi

Imperial College London Diabetes Centre in Abu Dhabi

Aside clinical and laboratory services in diabetes, endocrinology, obesity, and many more, provides diabetes education services with its Diabetes & Health Hub.



BEAT DIABETES
A Landmark Group Initiative

- Founded in 2009
- Dubai

Beat Diabetes

Advocates diabetes prevention and management by following three simple steps – Eat Healthy, Get Active and Take the Test. In 12 years expanded to Bahrain, Kuwait, Oman, Qatar, and Saudi Arabia



- Founded in 2012
- Abu Dhabi

Arab Society for Paediatric Endocrinology and Diabetes

Non-profit organization, which aims to ensure a high standard of care and development in the field of Paediatric Endocrinology and Diabetes in the Arab region extending from the Gulf through the Northern African countries.

Several initiatives and associations programs were launched in UAE with major of them based in **Abu Dhabi** and **Dubai**, which further expanded to other GCC countries. Their main activity is focused on **awareness-rising, educating** of the population, creation of **events** for boosting the awareness and **helping people** with diabetes **to cope** with their statement (disease symptoms, as well as **habits** that may improve the conditions).

Geography of R&D and Scientific Labs in UAE, 2023

Dubai



Ajman



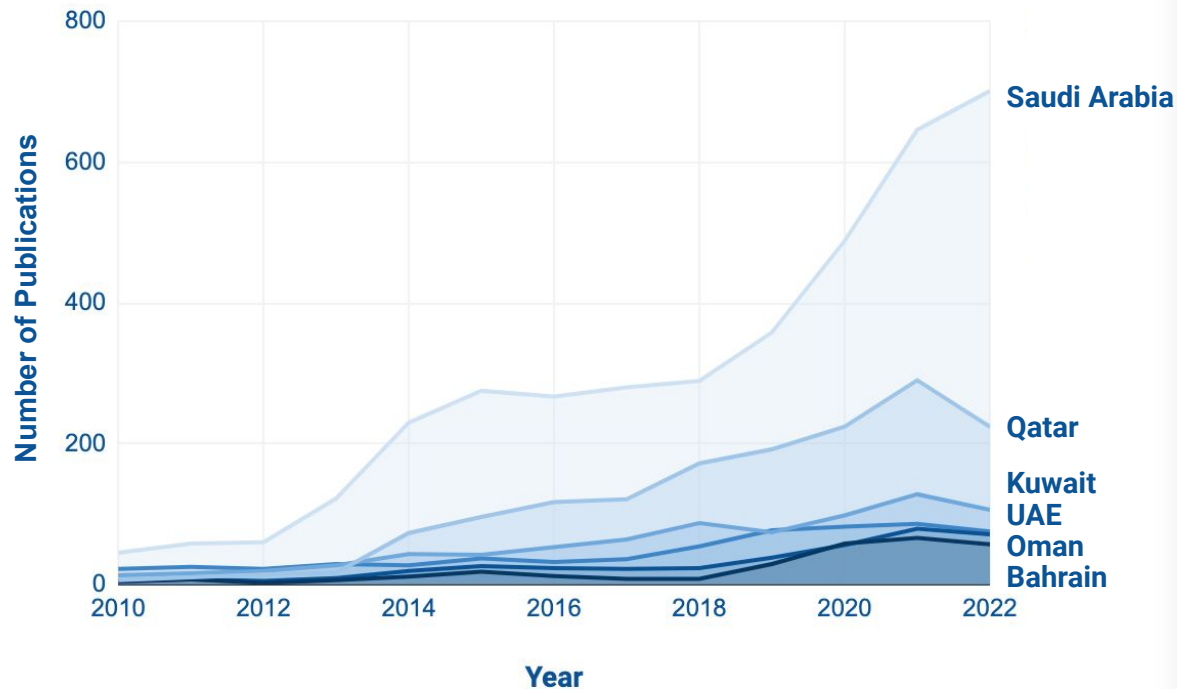
Abu Dhabi



Sharjah

Diabetes Research Activity in the GCC

Dynamic of Publication Number, 2010-2022



The publication activity of R&D in countries from the GCC in the period from 2010 to 2022 is on a high level – 740 articles per year. It was on the same level even during the COVID-19 pandemic.

As shown in the chart, during the period of 2010-2012, the total number of articles published was as low as 340 articles. Gradually, the number of publications increased in the next 3 years and has shown a drastic rise to 1,107 articles in the period of 2013-2015. Interestingly, in 2015 alone, 494 articles were published.

The highest number of publications are about diabetes in Saudi Arabia (more than 700 articles in 2022).



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Diabetes Clinical Trials in the UAE

Clinical Trials in One Sight

~56

clinical trials in the UAE

4

clinical trials are on the active stage in 2023

45

Studies are successfully completed

39%

of the trials conducted globally

9

*Studies are in Phase 4 of
Clinical trials*

6 Big Pharma

*companies collaborate with UAE to
conduct research*

Diabetes Clinical Research Activity in the UAE

Dynamic of Clinical Trial in the UAE, 2010-2022



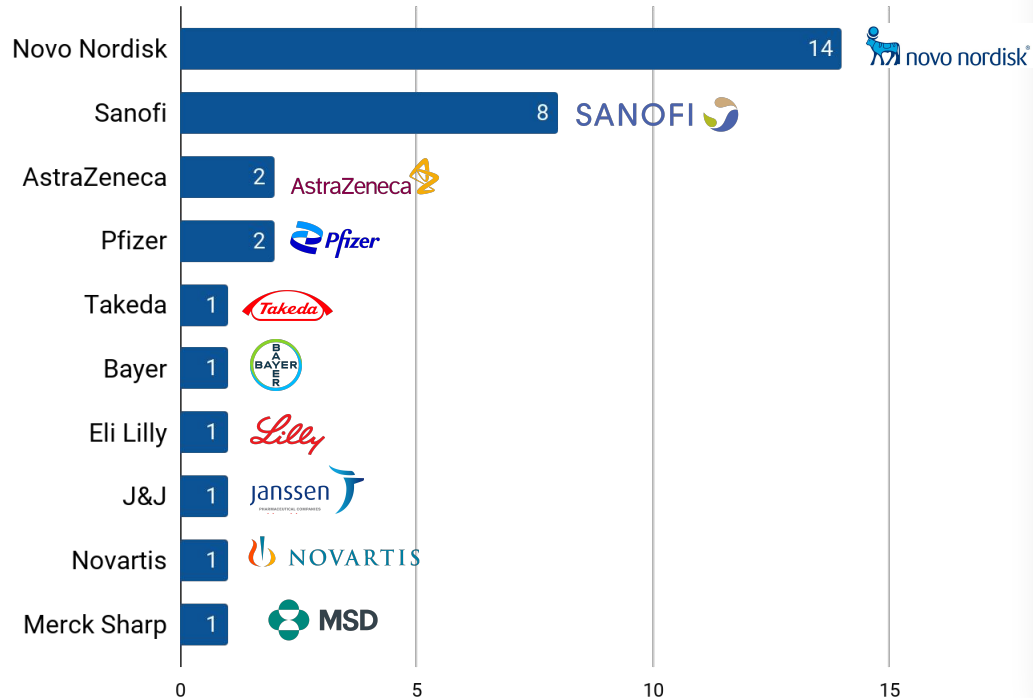
The UAE has become a significant hub for clinical trials, with **56** trials listed on [ClinicalTrials.gov](https://clinicaltrials.gov) since 2010. Until 2022, an average of **3.5 trials per year** was conducted.

In early 2022, 3 new trials were registered. The UAE stands out as a **leader in clinical research within the Gulf Cooperation Council (GCC)**, with Saudi Arabia and Qatar following closely.

This data underscores the UAE's growing importance as a **hub for clinical trials** and its increasing role in advancing medical research and innovation in the GCC region.

International Companies Provided Clinical Trials in UAE, 2023

Companies by the Number of Active Clinical Trials in the UAE



UAE attracts the pharmaceutical companies to conduct clinical trials. Most international companies had one to three active trials in this region in 2022. The major players on the market that have **trials in the UAE are** Novo Nordisk (Denmark), Sanofi (France), AstraZeneca (UK), Pfizer (USA), and others.

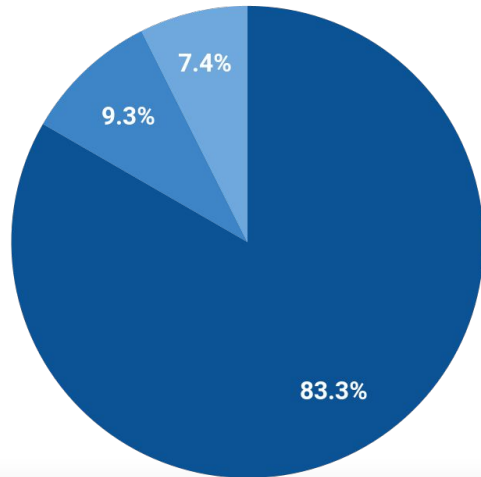
They provide their clinical research in cooperation with UAE medical facilities in **Phase I-IV trials**, aiming to advance the development of innovative medical treatments and therapies.

Two of the pharmaceutical companies with the most clinical trials in the UAE – Novo Nordisk and Sanofi – have more than 20 clinical trials underway.

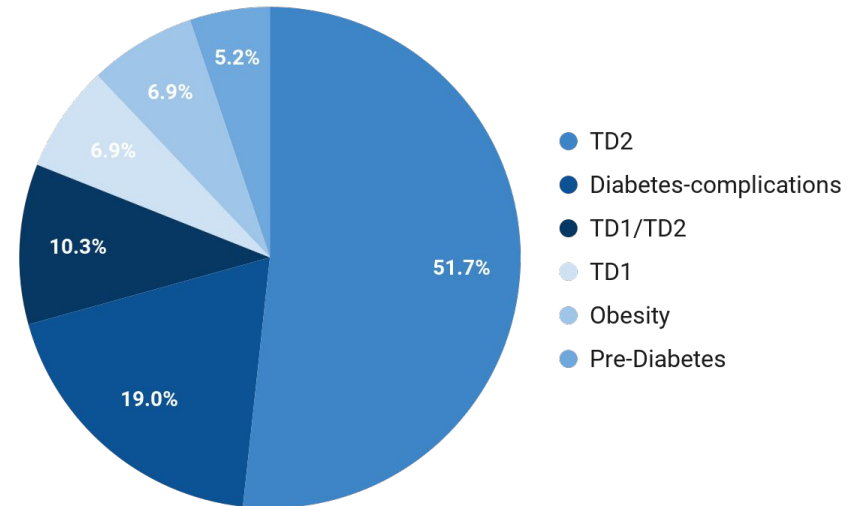
Structure of Clinical Trials in the UAE, 2023

Proportion of Clinical Trials by Activity, 2010-2022

● Completed ● Withdrawn ● Unknown



Proportion of Clinical Trials by Indication



Since 2010, more than 80% of clinical trials in the UAE are completed (45 trials); 9.3% are withdrawn (5 trials), and around 7% have unknowns status (4 trials).

Among diabetic clinical trials the first place take Type 2 diabetes (TD2) (30 trials, >50% of total number of clinical trials). The second place takes diabetes complications (11 clinical trials) that includes pathologic conditions related with diabetes: diabetic foots, diabetic nephropathies, macular edema, arthropathies, gestational diabetes in pregnancy, etc.



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Technological Innovations for Diabetes Management

UAE Approaches for the Diabetes management

During the last decade the UAE demonstrated one of the highest value of undiagnosed diabetes, as well as the high prevalence for the disease in adults. Add to that, the UAE has one of the world's highest rates of diabetes, at about 16.4%. Therefore, the government was launching and supporting different initiatives for the improving of the diabetes management in the country.

Name	Description	Action
Diabetes screening initiative (2009-2018)	Ministry of Health and Prevention's (MoHAP) National Strategy for Fighting Diabetes 2009-2018, It has launched different initiatives aiming to reduce the prevalence of diabetes from 19.3% to 16.28% by 2021 by placing the patient at the centre of diabetes management.	<ul style="list-style-type: none"> - Screening of 10,000 high-risk individuals - Training of 90 nurses and 25 doctors by Johnson and Johnson Diabetes Institute.
Drive-in initiative (2020)	Drive-in awareness-raising initiative by MoHAP, that aims to improve the quality of life of diabetics and their coexistence with the disease	<ul style="list-style-type: none"> - Full-fledged treatment, with healthcare professionals and authorities cooperation
Diabetes Prevention Programme (2020)	The programme aims to enhance awareness of the importance of prevention by increasing participants' awareness of diabetes and helping them reduce at least 5% of their weight	<ul style="list-style-type: none"> - Education and training on diabetes-related healthy habits

Based on the results of the National Health Survey in 2018 indicated a 6.8% decline in the prevalence rate of diabetes to 11.8%, indicating the effectiveness of the launched initiatives, however, the following reduction of the attention on the diabetes progression lead to the regression in the diabetes management in UAE with turning back to the warning numbers in undiagnosed cases. Hence, new programs were launched. Additionally, the local government also supports of various clinics programs and initiatives.

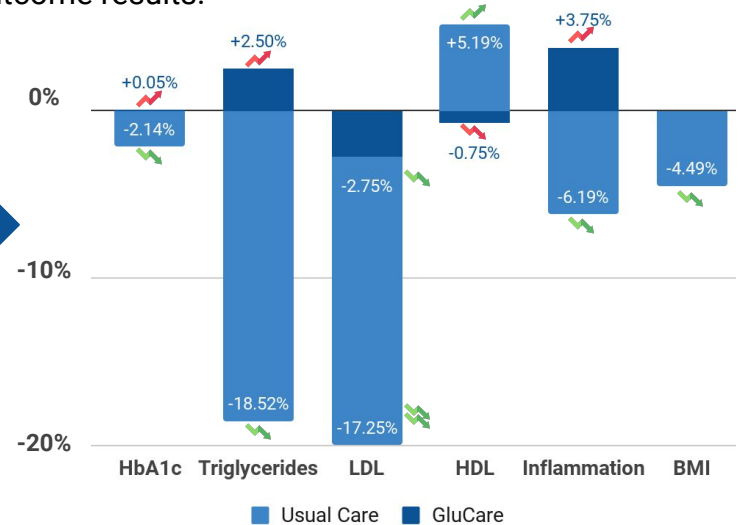
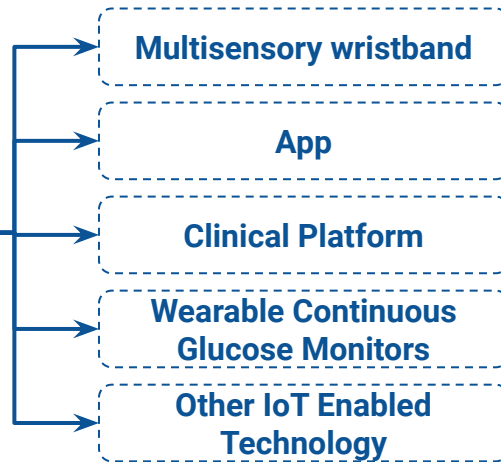
Technological Diabetes Innovations in UAE



GluCare Integrated Diabetes Center, distinguished as the world's inaugural healthcare provider to incorporate **Integrated Continuous Data Monitoring** as an integral component of its standard care model, and as the initial healthcare provider in the region to embrace **Digital Therapeutics (DTx)**, is now unveiling its encouraging initial patient outcome results.



Patients' key health parameters monitored by a team of clinicians 24/7 via wearable and connected technology.



GluCare's patients achieve vastly better outcomes across all metabolic health parameters in as little as **90 days** and require **less medications after 12 months** of management.

Technological Diabetes Innovations in UAE



GulfDrug LLC, based in the UAE partner of EOfFlow Co., has introduced its tubeless, wearable, and disposable insulin pump known as "**EOPatch**". Starting from February 2023, residents in the UAE will have the capability to oversee and regulate insulin infusions through the EOPatch directly from their Android and iOS smartphones, utilizing the newly developed **Narsha app**.

EOPATCH

Small and Light

Waterproof

Basal Insulin Infusion

Sensing Technology to Detect Occlusion Fast

Entirely disposable (3.5-day use)

Bolus Insulin Infusion



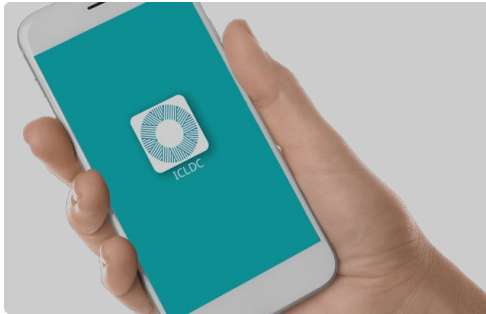
EOPatch is one of the two fully disposable, wearable insulin pump solutions commercially available in the world

Diabetes International Collaborations in UAE

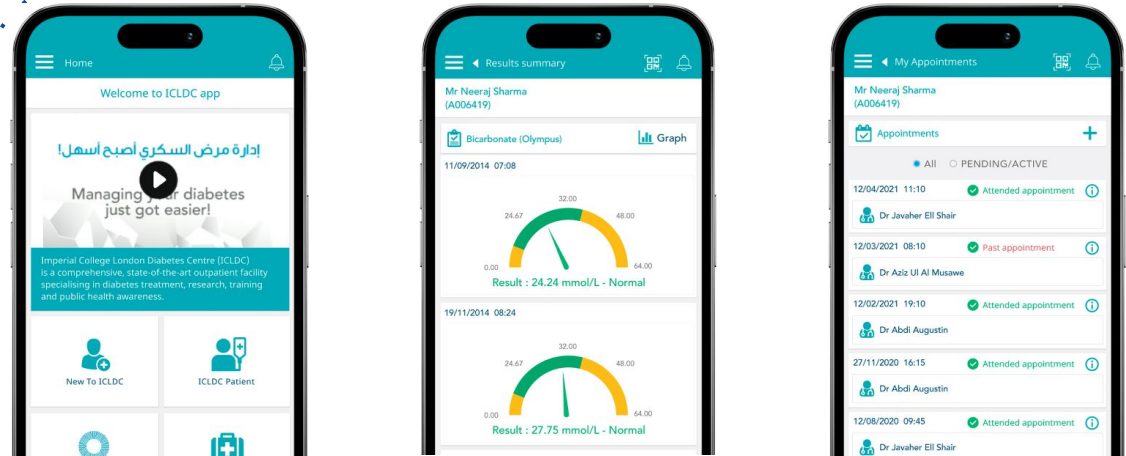


مركز إمبيريال كوليدج لندن للسكري
Imperial College London Diabetes Centre
A Mubadala Health Partner

The Imperial College London Diabetes Centre (ICLDC) is an advanced outpatient facility, specializes in diabetes treatment, research, training, and promoting public health awareness. They have designed an app, which aims to assist patients before, during, and after their visits to ICLDC, connecting all services provided.



Patients can view their appointment itinerary, important reminders and alerts, action prompts to guide them through visits and, their personal medical information.



The app simplifies appointments scheduling and enables patients to effectively manage their medical conditions by providing access to the latest medical records, medication details, and educational resources.

Technological Diabetes Innovations in UAE

GluCare.Health partners with **Fitbit** to help support diabetes care in the United Arab Emirates.



Apr 2021

Nov 2022

June 2022

July 2022

Dec 2022

Jun 2023

Israel and the **UAE** have signed an agreement to promote diabetes research.



GOQii and **Harley International Medical Clinic** partner to drive health Metaverse in UAE.



Sheba and **Al Tadawi Medical Center** signs 'breakthrough' deal to give diabetic care in UAE.



Imperial College London Diabetes Centre and **Moorfields Eye Hospital** offered UAE-based ophthalmology services for diabetes patients.



The Department of Health - Abu Dhabi and **Eli Lilly** collaborated to drive clinical research and life science activities in the Emirate with a focus on diabetes.





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Quality of Life Improvements

Quality of Life Improvements in Diabetes Patients

Quality of Life studies in Dubai and Abu Dhabi (2021-2022 years)

240 Patients of
Dubai Diabetes Center

397 patients of
Abu Dhabi Healthcare Services

Gender

Males had higher scores in all HRQoL domains compared to females.

Glycated Hemoglobin levels

Higher glycated hemoglobin levels were associated with lower HRQoL scores.

Number of clinics visits

Positive correlation of the QoL scores with the number of visits of the healthcare centres was found.

Diabetes duration

The longer the duration of diabetes, the lower the HRQoL scores.

Complications

Participants without complications had better HRQoL scores than those with complications.

Receiving care & Diabetic control

Receiving care at a primary, secondary, or private healthcare facility does not influence improved diabetic control.

Important to note, that interviewers in both studies were selected from the diabetic centers visitors in Dubai and Abu Dhabi, while there was no reliable study conducted for people without access to such facilities in UAE.

As a conclusion, due to the significant number of diabetes cases in the UAE, it is crucial to adopt a holistic approach to managing diabetes. Utilizing Health-Related Quality of Life (HRQoL) as an evaluation tool can provide valuable insights when assessing these patients. Conducting additional full-scale studies on the effect of treatment and monitoring technologies would improve understanding of the effect on the quality of life.

Case Study: Telemonitoring (TM) in Dubai



The Dubai Diabetes Centre, DDC, started in 2020 a study on the effectiveness of virtual health-follow ups for patients using home-monitoring devices, mobile technologies and software to track daily patient data and plan interventional strategies in real-time to avoid complications of the disease.



40 patients



Provided with:

- blood pressure monitor
- blood glucose monitor
- heart rate monitor
- pulse oximeter
- sound-enhanced pill box
- mobile phone with AI-software

3 month
monitoring



Results:

- HbA1c decreased from $10.3 \pm 1.9\%$ at baseline to $7.4 \pm 1.5\%$.
- % of patients with HbA1c $<7\%$ was 50%.
- reduction in fasting blood glucose (FBG) (MD = -40.1 mg/dL)
- reduction in body weight (MD = -1.3 kg)

The results of the study were published on Apr 20, 2022, showcasing that TM led to significant improvements in overall diabetes outcomes, including glycemic control and body weight, indicating its effectiveness in a challenging population of T2DM patients who had previously been lost to follow-up.

However important to note that the accessibility of this monitoring approach is quite low and will be available in limited region of UAE, leading not a significant improvement of general diabetes in UAE region statement.

Case Study: Monitoring Program in Abu Dhabi



Abu Dhabi Health Services Company (SEHA) with its Ambulatory Healthcare Services (AHS) regularly conduct preventive check-ups for their patients, adhering to Abu Dhabi Department of Health standards. SEHA has created a unique network of facilities focused on diabetes and provide:

1.

System of performance metrics, which includes tracking the **patients percentage receiving routine check-ups** and those **effectively managing** chronic conditions.

2.

Sudoscans examination, a non-invasive test that detects **neuropathic issues** and complications in just 3 minutes, **without any pain**.

3.

Ankle-brachial index test, a swift and **non-invasive** method for assessing **peripheral artery disease (PAD)**.

Despite the pandemic, AHS:

- Ensured that **10,079 diabetic patients received continuous support** for their treatment.
- Introduced a medication **home delivery** service.
- Performed an impressive **28,570 foot examinations** on diabetic patients.

However, similarly to the Diabetes monitoring programs in Dubai, the stratification of the people/regions where they live and the ability of joining this program is not equal, not helping to fight the highest level of undiagnosed diabetes.

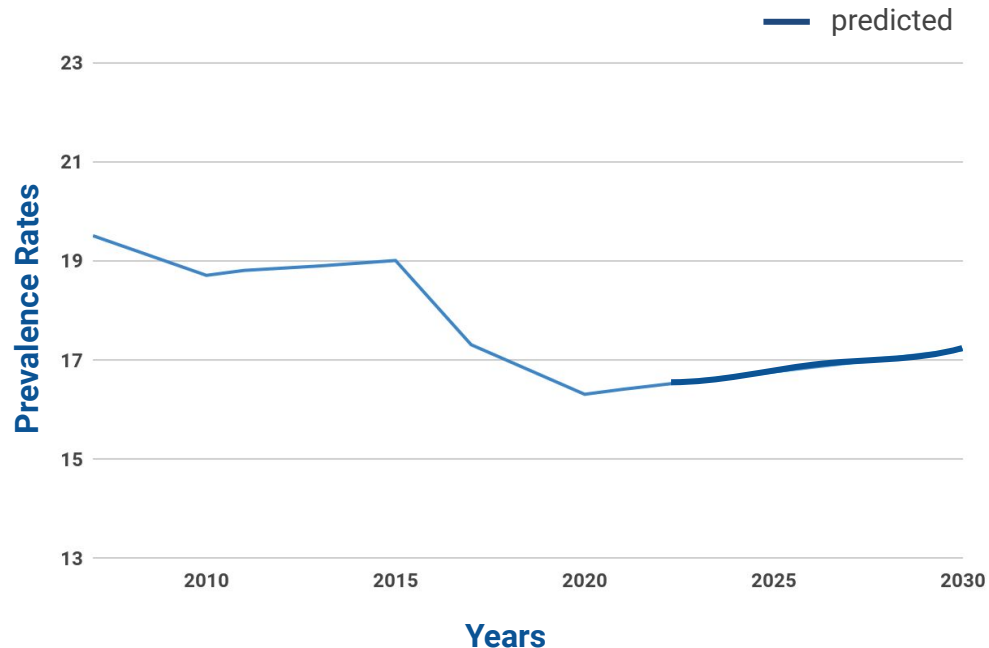


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Economic Benefits

Impact of Diabetes on the UAE Economy

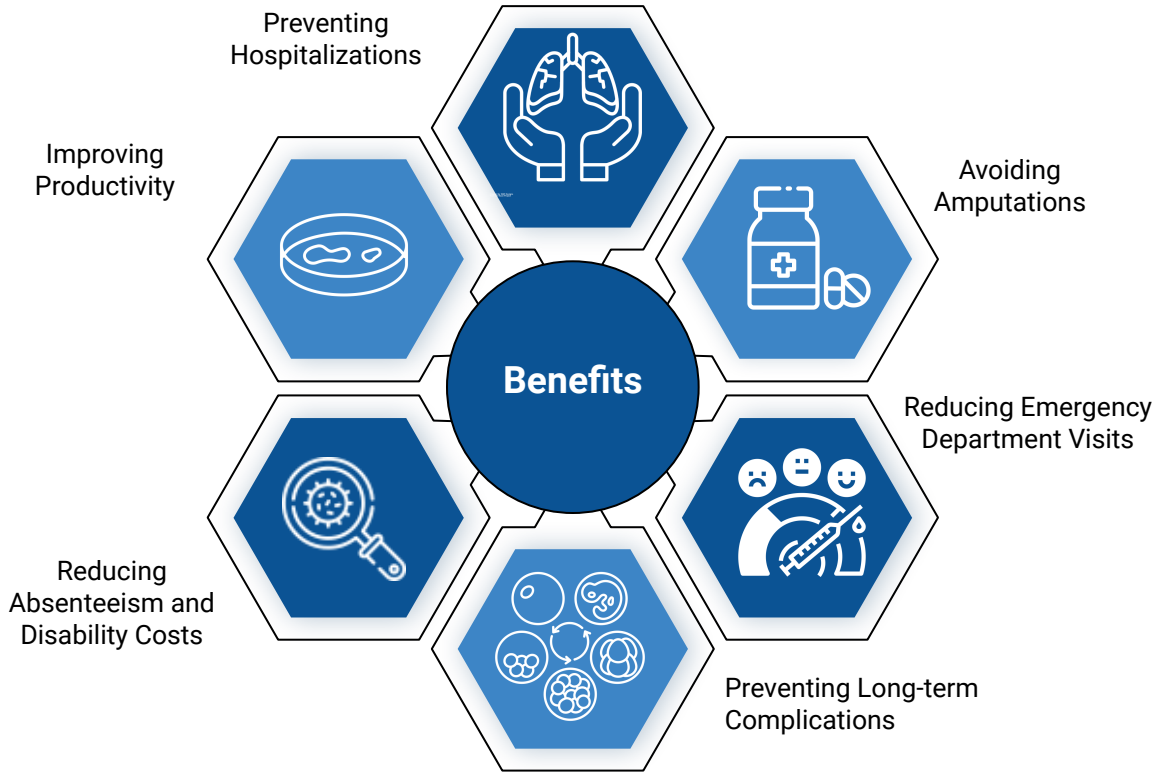
Costs	Average annual treatment costs for each one million patients
Type 1 DM average	\$7.000 billion
Type 2 DM average	\$2.500 billion
Without Complications	\$1.930 billion
With Microvascular complications	\$2.970 billion
With Macrovascular complications	\$10-15 billion
Macrovascular + Microvascular complications	\$15-20 billion



The escalating prevalence of diabetes in the UAE, driven by changing lifestyles, poses an **economic challenge**. Expenditure on diabetes treatment and associated complications in the **MENA** region in 2020 amounted to nearly **20 billion USD** annually. Projections indicate that diabetes-related costs in the **UAE** alone are **expected to increase**, reaching **24.7 billion USD by 2035**. Considering the rising trend of diabetes prevalence **urgent interventions** and **preventive measures** are imperative to address this burgeoning health crisis and its profound economic repercussions.

Economic Benefits of Diabetes Management in the UAE

Effectively managing diabetes in the United Arab Emirates (UAE) yields substantial economic benefits and cost savings. By preventing costly hospitalizations, reducing medication expenses, and averting complications like amputations and long-term organ damage, healthcare systems can realize **direct and long term savings**. Improved productivity from a healthier workforce, coupled with diminished emergency department visits and absenteeism, contributes **positively to the economic growth**. Preventive measures often prove more cost-effective than managing complications, offering a compelling case for proactive healthcare interventions. Diabetes management not only enhances individual well-being but also fosters **a healthier and more economically resilient society in the UAE**.





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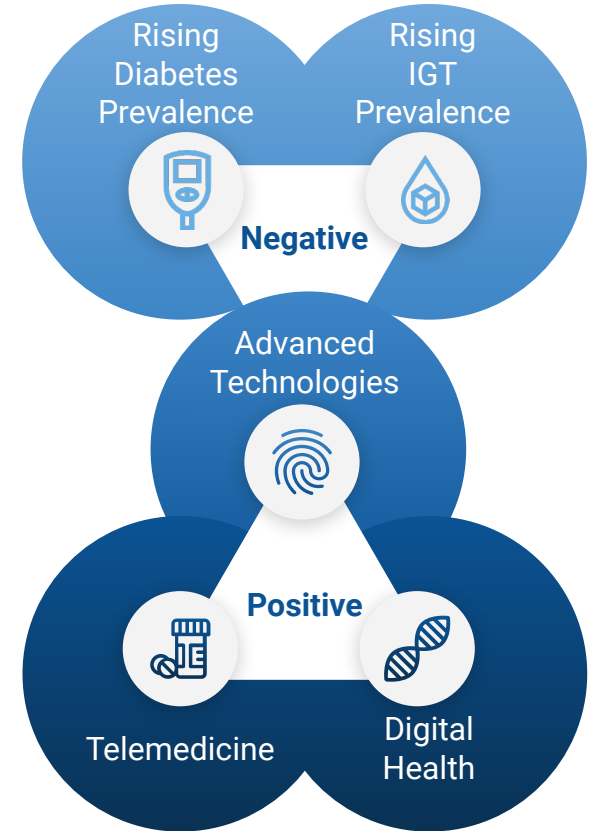
Conclusions

Future Growth Prospects

Generally, according to the reports from IDF a **drastic increase in the prevalence of DM** population from 151 million in 2000 (4.6%) to an alarming number of 643 million by the year 2030 is predicted (in 2021 it was already 537 million (10.5%)), which is also relevant for the UAE region. With thus, the UAE has one of the **world's highest rates of diabetes**, with about 16.4% prevalence of DM population and it's expected to grow to 21.4% by 2030.

Moreover, over a decade a **comparative prevalence of IGT has grown** from 16.3% in 2011, to 18.3% in 2021, and is expected to reach 19.3% by 2030.

However, the future of diabetes management in the UAE may be heavily influenced by **advanced technologies**. Key innovations include continuous glucose monitoring (CGM) systems and smart insulin pens, enhancing the quality of care. Additionally, **digital health** apps and wearable devices are already integrated into diabetes management. **Telemedicine** and remote patient monitoring is predicted to expand, making healthcare more accessible, particularly in remote areas, as it is one of the biggest challenge in this area.



Diabetes in the UAE: Conclusions

- Diabetes situation in the UAE appears to have historically the most problematic and the most sensitive state, which is highly dependent on the governmental attention to the problem.
- The **prevalence of diabetes** in the UAE is **higher than the global average (16.4%)** and is expected to remain so.
- The UAE diagnostic companies seem to be one of the most **successful** in the GCC **healthcare market**, providing highly technological solutions for a diabetic population with an increased interest in quality healthcare. With this the UAE has the **most developed system of diagnostic laboratories** that provide diabetes testing among the Gulf region.
- The **total number of medical centres and clinics** specialised in diabetes is more than **25 facilities**. The distribution of these facilities is **mainly concentrated in Abu Dhabi and Dubai** (averaging with **60** and **30%** respectively), being one of the main reason of a poor diagnosis level and healthcare access.
- In the UAE more than **50 clinical trials** are conducted and more than **80% of the trials have already been completed**. Moreover, **6 Big Pharma companies** collaborate with the UAE to conduct a research activity, proving a high level of the international collaboration and a good background for the investments.
- Along with the governmental programs for Diabetes management, **4 major diabetes associations** were launched in the UAE to promote **educational and awareness-raising campaigns**. Some of them are expanding to other Gulf countries.

About Deep Knowledge Group

Deep Knowledge Group is a consortium of commercial and nonprofit organisations active on multiple fronts in the realm of DeepTech and Frontier Technologies (AI, Longevity, FinTech, GovTech, InvestTech), ranging from scientific research to investment, entrepreneurship, analytics, media, philanthropy, and more.

Deep Knowledge Group runs several data-driven **investments and financial vehicles**



DEEP KNOWLEDGE VENTURES



InvestTech Platform



LONGEVITY FINANCIAL CLUB



DeepTech and Longevity Industry Financial Advisors



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Aging Analytics Agency

The world's premier provider of industry analytics on the topics of Longevity, Precision Preventive Medicine and Economics of Aging, and the convergence of technologies such as AI, Blockchain, Digital Health and their impact on the healthcare industry. Aging Analytics Agency is the only analytical company focused exclusively on the topics of Ageing, Geroscience and Longevity.

www.aginganalytics.com



FemTech Analytics

Strategic analytics agency focused on the emerging FemTech sector, providing insights into key subsectors such as Reproductive Health & Contraception, General Health Care, Longevity, Mental Health, Menstrual Health, Pregnancy & Nursing, Sexual Health, Pelvic & Uterine Health Care, Menopause Care, and Women's Wellness. FemTech Analytics offers a range of services including research and in-depth analysis on the FemTech industry.

www.femtech.health



Aging Analytics Agency: Value Proposition

Visit Website

Aging Analytics Agency is the only specialised analytics agency that focuses exclusively on the emerging Longevity Industry. They are recognised internationally as the premier analytics agency for advanced data analysis, industry reports, and next-generation infographics on Ageing and Longevity.

Aging Analytics Agency is focusing on three key activities:

Providing Commercial Services

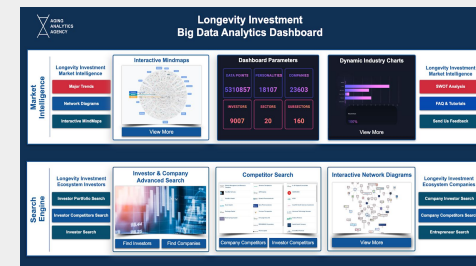
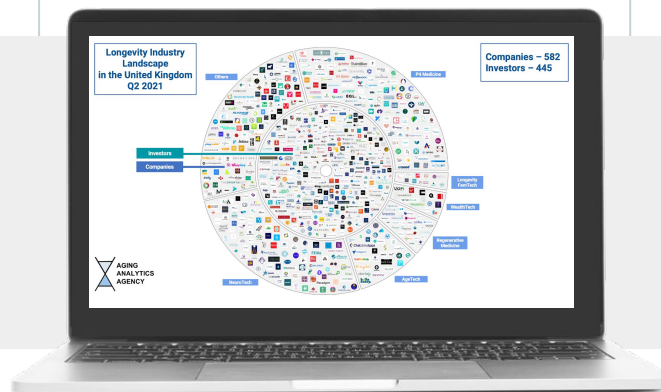
Conducting customised case studies, research, and analytics for (organisational) use, tailored to the precise needs of specific clients.

Preparing Open Access Reports

Producing regular open access and proprietary analytical case studies on the emerging topics and trends in the Longevity Industry.

Building Big Data Analytics Platforms

Offering customised analysis using specialised interactive industry and technology databases, IT-platforms, and Big Data Analytics Dashboards.



Website: www.aginganalytics.com

Big Data Analytics System and Dashboards

We provide deep investment and data science insights on the private and public markets via customized IT platforms we call **Dashboards**. In essence, Dashboard is a Big Data Analytical System that consists of separate Dashboards:

Five dashboards for the Longevity & BioTech Industry

Seven dashboards for the DeepTech Industry

917,000	Companies
101,000	Investors
87 million	Data Points
170	Parameters of Automated SWOT Analysis

Longevity Investment Dashboard



www.deep-innovation.tech/longevity-investment

Longevity Public Companies Dashboard



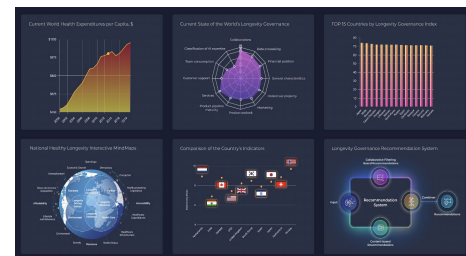
www.deep-innovation.tech/public-longevity-investment-dashboard

Longevity Finance Dashboard



www.deep-innovation.tech/longevity-finance-dashboard

Longevity Governance Dashboard



www.deep-innovation.tech/longevity-governance

Market Intelligence Focus

HealthTech

Longevity

DeepTech

GovTech

BioTech

Philanthropy



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