



# American Hospitals Report

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# Trends in international healthcare collaborations in Saudi Arabia and across the GCC

USCIPP promotes peer-to-peer learning and organisational improvement through the open sharing of knowledge and industry best practices.

By Callie Lambert and Jarrett Fowler

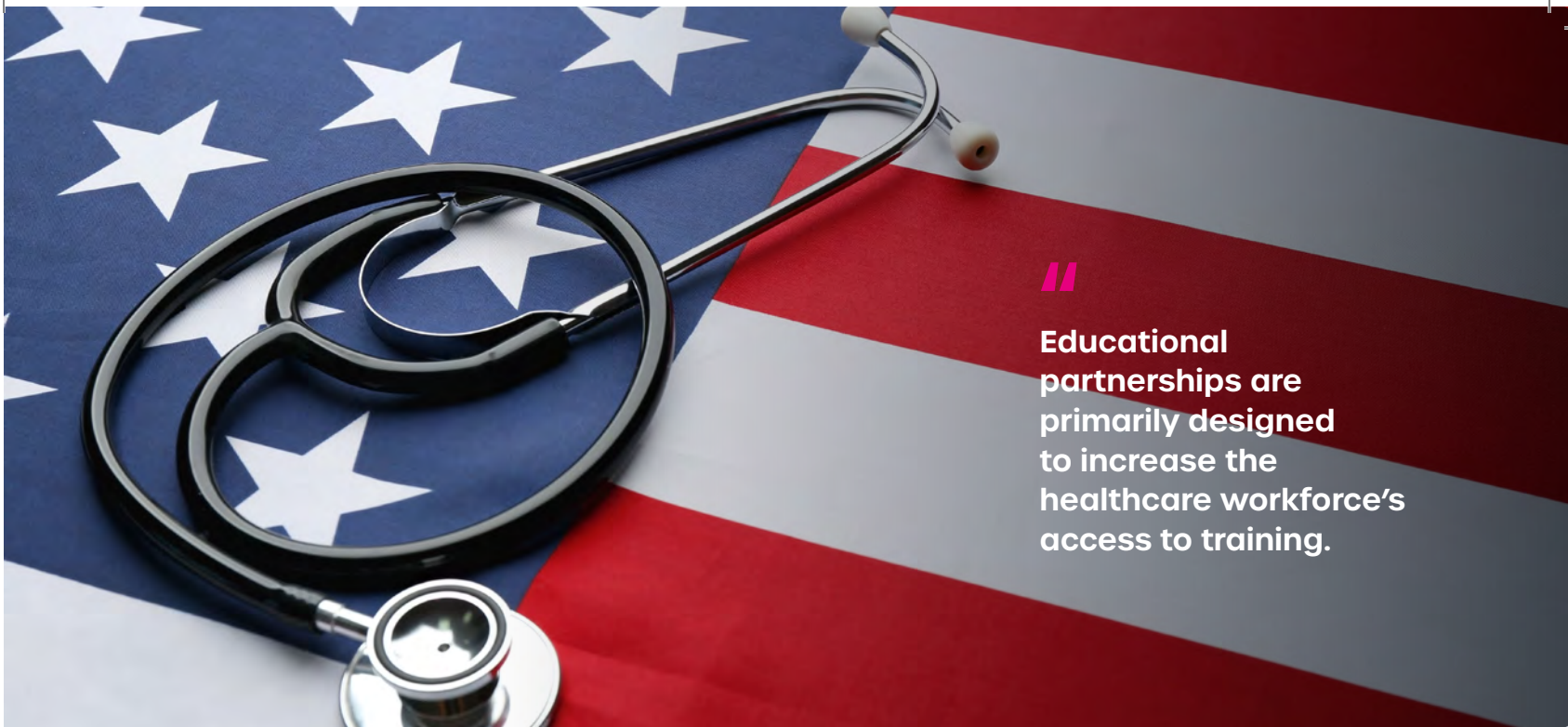
**T**he National Center for Healthcare Leadership (NCHL) is an American 501(c)(3) non-profit organisation dedicated to advancing healthcare leadership and organisational excellence in the United States and abroad.

One of NCHL's premier membership programs, the US Cooperative for International Patient Programs (USCIPP), is the United States' industry consortium of hospitals and health systems with international programs. USCIPP fosters peer-to-peer learning and organisational improvement through inter-organisational initiatives and the continuous and open sharing of knowledge and industry best practices. USCIPP's organisational members all share a focus on caring for patients traveling to the United States from abroad, and nearly all USCIPP members also engage in healthcare collaborations with partners from around the world.

**Figure 1.**  
**USCIPP Member Organisations as of September 2023**

- Ann & Robert H. Lurie Children's Hospital of Chicago
- Atrium Health
- Baptist Health South Florida
- Baylor St. Luke's Medical Center
- Boston Children's Hospital
- Brigham Health/Dana-Farber Cancer Institute





**Educational partnerships are primarily designed to increase the healthcare workforce's access to training.**

- Broward Health International
- Cancer Treatment Centers of America
- Cedars-Sinai
- Children's Hospital Colorado
- Children's Hospital Los Angeles
- Children's Hospital of Philadelphia
- Children's Mercy Kansas City
- Children's National Hospital
- Cincinnati Children's
- City of Hope
- Cleveland Clinic
- Cook Children's Health Care System
- Dignity Health International
- Duke Health
- Gillette Children's Specialty Healthcare
- Henry Ford Health
- Hospital for Special Surgery
- Houston Methodist
- Indiana University Health
- Johns Hopkins Medicine International
- Keck Medicine of the University of Southern California
- Kennedy Krieger Institute
- Mass General Brigham
- Mayo Clinic
- MD Anderson Cancer Center
- MedStar Georgetown University Hospital
- Memorial Healthcare System
- Memorial Hermann-Texas Medical Center & TIRR Memorial Hermann
- Memorial Sloan Kettering Cancer Center
- Moffitt Cancer Center
- Nationwide Children's Hospital
- Nemours Children's Health
- New York University (NYU) Langone Health
- NewYork-Presbyterian
- Nicklaus Children's Hospital
- Northwell Health
- Northwestern Medicine
- Ochsner Health System
- Rush University Medical Center
- Shriners Hospitals for Children
- St. Jude Children's Research Hospital
- Stanford Medicine
- Texas Children's Hospital
- The James Cancer Hospital at The Ohio State University
- The Paley Institute at St. Mary's Medical Center
- The Shirley Ryan AbilityLab
- UChicago Medicine
- University Hospitals Cleveland Medical Center
- University of California, Los Angeles (UCLA) Health
- University of California, San Diego (UCSD) Health
- University of California, San Francisco (UCSF) Health
- University of Pittsburgh Medical Center (UPMC) and Children's Hospital of Pittsburgh of UPMC
- Washington University School of Medicine in St. Louis
- Yale International Medicine Program

### **International healthcare collaborations in the GCC**

NCHL maintains a work product known as the USCIPP International Healthcare Collaborations Dashboard and Map as part of the business intelligence and international market analysis initiatives that the organisation leads for members of the USCIPP program. This unique tool uses a project classification typology that was developed by NCHL with input from USCIPP member organisations. It enables users to better understand the current players and projects in international markets of interest. Figure 2 outlines the top-level categories into which NCHL classifies all international healthcare collaborations.

While a collaboration may be most accurately described as falling into several of the categories above, the NCHL team assigns each relationship to a single category. Current work is underway to classify projects under multiple collaboration types where applicable. Criteria for inclusion include:

- The collaboration must involve a hospital or clinical facility.
- Collaborations involving only tech companies, insurance providers, non-governmental organisations (NGO), medical facilitators, or between two government entities

(e.g., the Ministry of Health in two countries) are typically not included; there may be exceptions to this rule if, for example, an insurance company owns a patient care facility in another country.

- Collaborations funded by non-profit/NGO grants/funding are normally included and tagged as externally funded.
- If the collaboration involves sending doctors to another country, it should be included only if both parties in the agreement are not government entities
- As of September 2023, NCHL's research has identified at least 267 active healthcare collaborations in the GCC, most of which are in Saudi Arabia or the United Arab Emirates. The GCC accounted for 21% of cataloged collaborations across the globe. Specifically, NCHL's research has identified:
  - At least 133 active collaborations in the United Arab Emirates, which account for 50% of all collaborations in the GCC; the most common collaboration types in the United Arab Emirates are clinical and patient agreements (26%), followed by education and research (25%)
  - At least 65 active collaborations in Saudi Arabia, which account for 24% of all collaborations in the GCC; the most common collaboration types in Saudi Arabia are education and research (42%), consulting and advisory (23%), and direct ownership and joint ventures (12%)
  - At least 21 active collaborations in Kuwait, with education and research, clinical and patient agreements, and management services being the most common (each with 19%)
  - At least 17 active collaborations in Qatar, with direct ownership and joint ventures being the most common (41%), followed by consulting and advisory (24%)
  - At least 16 active collaborations in Bahrain, with education and research being the most common (44%), followed by clinical and patient agreements (19%)

- **At least 15 active collaborations in Oman, with direct ownership and joint ventures being the most common (80%), followed by clinical and patient agreements (20%)**

NCHL's research is based both on publicly available information and data provided by USCIPP's member organisations directly to NCHL. While NCHL has a team dedicated to conducting ongoing market monitoring and updates its database with new collaborations each month, the figures cited above are almost certainly still an underestimate of the true number of international healthcare collaborations across the world. USCIPP member organisations have communicated to NCHL that some of their international healthcare collaborations with GCC partners are covered by non-disclosure agreements and are therefore not listed in the public domain. The figures above frequently change as new collaborative relationships are added to the database and map.

### Collaborations in Saudi Arabia

Saudi Arabia is a particularly robust example of cross-border collaboration in healthcare. In a country-level comparison of documented healthcare collaborations, Saudi Arabia ranks third, surpassed only by China (currently ranked first) and the United Arab Emirates (currently ranked second). The trends in Saudi Arabia's market largely reflect broader trends in international healthcare collaboration across both the region and the world. NCHL's data and analysis show four notable trends in Saudi Arabia's market:

#### 1. Cross-border collaboration in Saudi Arabia has grown rapidly.

The first documented collaborations in the country began in 2007 — by comparison, several countries have international relationships that date back to the 1990s or earlier. In just 15 years, Saudi Arabia has widely expanded both the size and scope of international healthcare partnerships.

#### 2. The nature of collaborations reflects a particular focus on building

healthcare capacity. Most identified collaborations in Saudi Arabia are either educational in nature or aim to increase the quality of and access to care through consulting, direct ownership, and joint venture agreements. The educational partnerships are primarily designed to increase the healthcare workforce's access to training as well as facilitate cross-border knowledge sharing with international partners.

3. **There is an increasing focus on specialisation.** As of September 2023, only 13% of the collaborations in Saudi Arabia are specialised. This means that that the collaboration has a limited scope in terms of service lines covered by the relationship. While this is a small share of all collaborations in the country, it is noteworthy that almost every specialised collaboration began in the past five years. This demonstrates a shift towards addressing niche needs within the healthcare system. Some examples of specialised collaborations include:

a. In 2019, "Houston-based Baylor Genetics and Riyadh-based Saudi Diagnostic Limited, a subsidiary of King Faisal Specialist Hospital International Holding Company, signed (a memorandum of understanding) to exclusively work toward a strategic partnership agreement for all genetic testing and precision medicine in the Middle East and North Africa regions."

b. In 2020, Jeddah Park Health established a collaboration with Johns Hopkins Medicine International through a "long-term clinical advisory engagement in developing the leading physical medicine and rehabilitation hospital in both the Kingdom of Saudi Arabia and MENA region. The collaboration calls for a general consultation from Johns Hopkins Medicine International on the planning, development, and launch of a standalone



physical medicine and rehabilitation-focused facility.”

**c.** In 2023, “Olayan Financial Company, represented by Olayan Saudi Holding Company, and Vamed Group, the Austria-headquartered healthcare provider, [partnered] to open a new rehabilitation and long-term care hospital in Saudi Arabia with a 150-bed capacity.”

- 4. International hospitals, healthcare information technology companies, and other healthcare-focused organisations continue to show strong interest in establishing new collaborations in Saudi Arabia – as**

**do the national governments of their countries of origin.** In a particularly recent example, in September 2023, the International Trade Administration of the US Department of Commerce led a delegation of 15 American healthcare companies — including five hospitals — on a healthcare-focused trade mission to Saudi Arabia. The purpose of the trade mission was to allow “participating US firms [to] gain market insights, make industry and government contacts, solidify business strategies, and advance specific projects with the goal of increasing US healthcare product and service exports.” ●



**Emerging career opportunities require a blend of technical skills and healthcare expertise.**

*References available on request*

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# Defining excellence in healthcare on the global stage

Cedars-Sinai is a global destination for world-class care amid top U.S. rankings.

Sponsored article



There has never been a better time to consider Cedars-Sinai for patients with complex medical conditions or simply those who seek the best in expert medicine.

Cedars-Sinai was recognized as one of the best hospitals in the U.S. for the eighth year in a row in U.S. News & World Report's "Best Hospitals 2023-24" Honor Roll.

Cedars-Sinai also ranked among the top five in six specialties — Cardiology, Heart & Vascular Surgery; Gastroenterology & GI Surgery; Orthopedics; Pulmonology & Lung Surgery; Neurology & Neurosurgery; and Urology. Eleven specialties ranked among the top in the U.S. This stature is what draws patients from every part of the world to Cedars-Sinai.

"We are currently caring for patients from more than 100 countries in several soughtafter specialties like heart, cancer, neurology, orthopaedics, gastrointestinal diseases, transplantation and women's health" said Heitham Hassoun, MD, Vice President and Medical Director of Cedars-Sinai International.

## **Cedars-Sinai International: Personalized care on a global scale**

Geography should never be an obstacle to receiving world-class healthcare services. Cedars-Sinai International is continually making strides to reach more patients in more countries while also



## The Global Services team continually explores opportunities for collaboration with hospitals outside of the U.S.

making it easier for them to seek care in Los Angeles, where it is based. Patients who come to Cedars-Sinai have access to the latest equipment, leading-edge research, renowned physicians, and advanced therapies. But these are only a few aspects of top-quality care. Cedars-Sinai International strongly believes that healthcare is personal and that cultural traditions, approaches, and beliefs are vital to a patient's well-being.

A dedicated Patient Services team helps international patients navigate their care journey with appropriate cultural and language support. A range of concierge services is specially designed for patients who are traveling to the Los Angeles campus from abroad. Streamlining international referrals and working with insurers worldwide are just two of the ways Patient Services can provide key healthcare support to patients from abroad. They also manage administrative details, such as scheduling appointments and record reviews, and they can advise on travel, accommodations, and activities to enhance a patient's stay.

Patients and their families also have access to Cedars-Sinai's International

Lounge, an exclusive space with multiple areas for relaxation, a shared office, a communications room, a pantry, a prayer/meditation room, and private rooms where they can meet with their coordinator and enjoy the time in between appointments.



"Los Angeles is one of the most diverse, dynamic cities on Earth, which gives us a head start in delivering culturally appropriate care," said Dr. Hassoun, adding that some 10 languages are spoken at Cedars-Sinai International, including Arabic, Mandarin, Spanish, French and Cantonese. Other important touches, from specialized diets to access to appropriate clergy, help round out a personalized, dignified experience for the duration of the patient's stay.

### Strategic partnerships in action

To bring top-flight care closer to more people, Cedars-Sinai International's Global Services team continually explores opportunities for collaboration with hospitals outside of the U.S. Through a variety of collaborative strategies, Cedars-Sinai offers a full spectrum of advisory and consulting services that help prospective partners around

the world achieve their goals as the global healthcare environment evolves. From Mexico to Asia to the Middle East, providers come together through webinars, conferences, and trade shows to share knowledge, ideas, and visions for the future. Additionally, our growing in-country office presence (currently in Mexico City, soon in Singapore and more countries) provides patients and referring physicians the opportunity to learn more about Cedars-Sinai, gain access to our knowledge through second opinions and receive care in Los Angeles as the need arises.

Perhaps most importantly, strategic collaborations have been formed that already have led to new state-of-the-art facilities, such as The View Hospital in Qatar, an affiliation between Cedars-Sinai and Elegancia Healthcare, a subsidiary of Estithmar Holding. Not only is The View Hospital an extraordinary new offering for patients in the Gulf region and beyond, but it also ushered in a new era of collaboration between Cedars-Sinai International and healthcare organizations in the Middle East. On the heels of The View Hospital's grand opening in December, Cedars-Sinai had its largest-ever presence at Arab Health 2023.

"As we continue to grow around the world, reach the top of healthcare rankings and find new ways to reach more patients, one thing remains steadfast—our commitment to providing the finest care available and exceeding our patients' expectations no matter where they are," said Dr. Hassoun. ●

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For more information, please visit [cedars-sinai.org/international](https://cedars-sinai.org/international)



## A dedicated Patient Services team helps patients with appropriate cultural and language support.

# Immunosuppression-free kidney transplants at UCLA Health

Recently, UCLA Health has led the development of a transplant tolerance protocol.

Sponsored article

The UCLA Health Kidney Transplant Program is one of the longest-running, most exceptional programs of its kind in the world, giving hope to numerous adult and pediatric patients with end-stage renal disease. Since the program began in 1965, UCLA Health surgeons have performed over 10,000 kidney transplants, continually treating patients with the most complex diseases.

Since its inception, the UCLA Health kidney transplant program has seen significant advances. More recently, UCLA Health has led the development of a transplant tolerance protocol that takes stem cells from the kidney donor and transfers them to the recipient, to help the recipient's body recognize, rather than reject, the transplanted organ.

This innovative method, known as immune tolerance or an immunosuppression-free protocol, enables the recipient's body to recognize the transplanted organ as its own.

Stem cell infusions are administered either immediately after a kidney transplant (simultaneous immune tolerance) or several months to years later (retroactive or delayed immune tolerance). Currently, the delayed immune tolerance approach is only available at UCLA Health.

## Effects of immunosuppressive drugs on the body

The impact of immunosuppressive drugs on the body is a major consideration.

Post-transplant, the body's innate response tends to identify the new organ as foreign and potentially harmful, triggering rejection by the immune system. Standard organ transplant protocols necessitate recipients to take multiple immunosuppressive (anti-rejection) medications for the remainder of their lives, to prevent organ rejection. However, these drugs come with various side effects and potential complications, particularly when used over an extended period.



UCLA Health's transplant tolerance protocol offers a promising avenue to eliminate the lifelong reliance on anti-rejection drugs and treatments. This program alleviates kidney recipients from the enduring burden of these medications and their associated side effects, significantly reducing the likelihood of needing multiple kidney transplants. The hope, says Dr. Veale, Professor of Urology and Director of the UCLA Kidney Transplantation Exchange Program, is "one kidney for life."

The kidney transplantation team at UCLA Health collaborates with experts

across various departments to provide this revolutionary treatment. Specialists who are leaders in their respective fields are brought together to deliver excellence in kidney transplant tolerance. The program is made possible through funding from the OneLegacy Foundation, reflecting UCLA Health's unwavering commitment to patients' well-being.

## UCLA Health excellence in kidney transplant tolerance: Retroactive immune tolerance procedure

### Groundbreaking innovations

The team of transplant experts at UCLA Health performed the first-ever retroactive (delayed) immune tolerance procedure, successfully delivering the donor's stem cells 14 months after the kidney transplant, and the stem cells engrafted into the recipient's bone marrow, allowing the recipient's body to recognize the transplanted kidney as its own.

UCLA Health is the only medical center in the world to offer this life-changing approach for kidney recipients. It opens the possibility for recipients who have received a well-matched sibling's kidney in the past, to receive stem cell infusions and discontinue immunosuppressive drug therapy.

### Continued research

UCLA Health places a strong emphasis on continued research to advance transplant care. The aim is to develop safer and more





effective treatment options to protect transplant patients from the serious complications associated with prolonged reliance on potent immunosuppressive medications. The tolerance program is constantly evolving, and though under the current protocol, only eligible donor and recipient siblings can benefit from the retroactive immune tolerance program, the goal is to expand the program to include deceased donors and donors from outside the recipient's family.

#### **Multidisciplinary team**

The immunosuppression-free approach employed in this program necessitates extensive coordination and collaboration among specialists from various departments, including nephrology, urology, radiation oncology, and hematology. UCLA Health's unique ability to bring together these experts ensures the delivery of advanced treatments.

// **The introduction of retroactive kidney transplant tolerance by UCLA Health marks a significant advancement in organ transplantation.**

#### **National leaders in transplants**

UCLA Health has a longstanding reputation as a national leader in transplants, having performed more solid-organ transplants than any other center in the U.S. since the establishment of the United Network for Organ Sharing (UNOS) in 1988. The team consistently achieves exceptional outcomes, even in complex cases, and often provides care to patients who have been turned away by other centers. These factors contribute to the program's success in transplant tolerance.

#### **Kidney transplant tolerance process**

The kidney transplant tolerance process involves receiving a kidney and stem cells from the same donor. Following the kidney transplant, the UCLA Health team administers targeted radiation therapy, employing total lymphoid irradiation.

This radiation therapy allows donor blood stem cells to establish themselves and coexist with the recipient's stem cells, a phenomenon known as chimerism. Subsequently, hematopoietic stem cells from the donor are infused after the kidney transplant and radiation therapy.

These stem cells have the capacity to multiply, renew, and develop into various cell types within the body.

Ongoing monitoring of the recipient's health and kidney function through regular blood tests is essential. One of these tests assesses the level of chimerism,

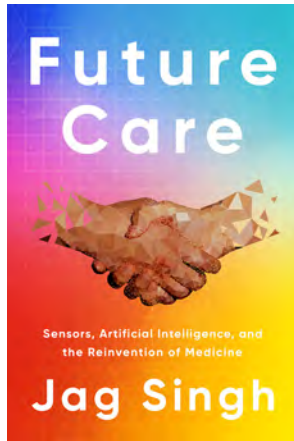
indicating the successful integration of the donor's stem cells into the recipient's blood and bone marrow.

The ultimate goal of the kidney transplant tolerance program is to enable the recipient's immune system to accept the new organ as an integral part of the body, facilitating its proper function. This state of acceptance is referred to as transplant tolerance. The transplant tolerance team at UCLA Health assesses chimerism at different intervals, with durable chimerism indicating the potential to gradually reduce or eliminate the need for immunosuppressive drugs.

The introduction of retroactive kidney transplant tolerance by UCLA Health marks a significant advancement in organ transplantation and post-transplant care. The ability to receive stem cell infusions months or even years after a transplant offers new possibilities for individuals who have previously received a kidney from a well-matched sibling. This breakthrough extends the promise of immune tolerance to a broader range of patients, allowing them to lead healthier lives without the necessity of immunosuppressive drugs.

The dedicated team at UCLA Health continues to pioneer new treatments and research to enhance this technique, further advancing the field of transplant medicine. These experts are at the forefront of revolutionizing transplant care. ●

// **UCLA Health's transplant tolerance protocol offers a promising avenue to eliminate the lifelong reliance on anti-rejection drugs and treatments.**



# New book envisions the future of digital health

Future Care describes a proactive model powered by rich, continuous data that can make medicine more personalized and preventative.

Article provided by Mass General Brigham

An alumnus of the Massachusetts General Hospital Heart Center has published a new book that discusses the essential role that sensors, predictive analytics, and artificial intelligence (AI) will play in the evolution of healthcare in the next 10 years. The book, *Future Care: Sensors, Artificial Intelligence, and the Reinvention of Medicine* (Mayo Clinic Press, 2023), describes a future where the healthcare system empowers patients and providers to be more proactive about health to combat chronic disease and control soaring costs.

"The United States spends about 18% of its gross domestic product on healthcare. Despite that, our quality metrics are nowhere in comparison to other nations. Part of that is because there are still millions of uninsured individuals, inexplicable costs, and inequitable access to care. We talk about cost-cutting and cost-saving strategies, but we continue to practice in a system that is so hinged on volume, hinged on the sickness of our patients," says author Jag Singh, MD, PhD, former clinical director of the Cardiology Division at the Mass General Heart Center. "We need to flip that argument, shifting strategies toward wellness and preventative medicine, to make our healthcare system sustainable."

## The need to integrate data, sensors, and AI in healthcare

Dr. Singh has spent much of his career

studying sensors, AI, and virtual care in cardiology and cardiac electrophysiology.

His research and clinical experience motivated him to think about the potential of digital healthcare on a much larger scale. Then the COVID-19 pandemic, coupled with his own experience as a COVID-19 patient, accelerated the concept and the writing project. And we desperately need to adapt quickly, he argues, to make healthcare sensible, affordable, and practical. Dr. Singh's premise is that the current model — a reactive one that uses intermittent data and focuses on sickness after it occurs — is not sustainable.

In contrast, *Future Care* describes a proactive model powered by rich, continuous data that can make medicine more personalized and preventative. Sensors and wearable technology, Dr. Singh argues, can power this transition with continuous surveillance. He envisions a system that uses these sophisticated digital strategies to move the current system to "exception-based care," when providers see patients only when they need to be seen. In addition, virtual technologies will allow patients to receive care wherever they are and whenever they desire.

## Tools for digital health are already reality

*Future Care* predicts that this system will be a reality within about 10 years. "I know it may seem a little bit pie in the sky," says Dr. Singh. "But these technologies exist. We already have

wearable and implantable sensor technology that can monitor many key health indicators, including blood glucose, blood pressure, heart rate, respiratory rate, body temperature, oxygen saturation, cardiac output, and stroke volume."

Other examples include sensors that can identify key changes in people with Parkinson's disease or engage with smartphone usage data to predict issues with mental health.

"The technology is just not evenly distributed or widely used, and it needs to be better integrated into the workings of a hospital system," he explains. The book discusses some of those logistical hurdles, including getting buy-in, incorporating new technology into workflows, integrating large amounts of data into the electronic medical record, and ensuring privacy.

## Partnership to maximize preventive medicine

The cover of the book features a digital rendering of two hands clasping each other, as if in a handshake. The image illustrates two key concepts of the book.

First, everyone needs to be a part of the solution, Dr. Singh says, so providers and patients must work together. The image also evokes the concept that digital technology can make care more personalized — not less.

In Dr. Singh's view, the *Future Care* system needs proactive patient involvement and won't replace the importance of the human element of touch, empathy and compassion. ●



# The booming impact of domestic tourism in the US

From experiential travel to medical tourism and healthtech, here is how businesses can adapt to the ever-changing landscape of tourism trends.

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By Claire Henshaw

**D**omestic tourism significantly drives the economy in the US, contributing to the hospitality, transport, F&B, and entertainment sectors. According to the US State Department, only 37 per cent of the population holds a valid passport and Americans who choose to travel within the country's borders significantly boost the economy as revenue circulates within local communities.

In 2020, domestic tourism was valued at US\$1,226.1 billion and is projected to reach US\$6,736.1 billion by 2030, according to Allied Market Research. However, during the summer of 2023, several tourism operators noted that domestic tourism demand had softened, as the world dealt with pent-up demand from the COVID-19 pandemic.

Between January and May 2023, 36 million Americans travelled abroad, up 35 per cent from the same period last year, according to the US National Travel and Tourism Office. Yves Marceau, Vice President of Product for G Adventures, said tour operators had noticed a decline in domestic travel demand, with many travellers expressing a preference for international destinations this year, as reported by Skift.com.

## // Consider investments in online booking systems, mobile apps, and virtual tours to meet today's digital healthcare demands.

He added: "What we are hearing from our teams is that people are saying 'I am going to go international this year.'" This shift resulted in decreased numbers in domestic travel, as observed across destinations such as Yellowstone, Jackson and San Francisco.

Despite this rise in international travel, a report by IBIS World revealed the total number of domestic trips undertaken by US residents in 2023, totalled 794

million. This figure reflects a steady growth rate of 0.3 per cent from 2018 to 2023.

Popular domestic travel segments include leisure and business travel — it is predicted there will be over two billion combined trips by 2024, plus camping and national holiday travel which are hugely popular.

Despite a dip due to COVID-19, in 2020, travel around the Thanksgiving holiday alone exceeded 50 million.

### The rise of experiential travel

Travel preferences are changing as domestic tourists look to go beyond the typical beach holidays and tourist hotspots. Sustainable and eco-friendly travel has seen a rise and AI-powered apps are simplifying the travel planning process. The Roam Around platform generates

tailored itineraries in seconds and with over four million itineraries already generated, this is one of the largest and smartest AI travel planners on the market.

Smart tech isn't just transforming travel, it is reshaping how travellers explore, with each interaction designed for ease and satisfaction. Travel companions like this have the power to enhance experiences and make every adventure extraordinary. These trends showcase the shift that domestic travel is making towards more authentic, mindful and tech-enhanced travel experiences.

### Medical tourism, AI and healthtech advancements

The US has seen an uptick in inbound, outbound and domestic medical tourists. With over 6,000 hospitals, extensive healthcare options attract those looking



for specialised cancer and cardiology procedures among others. States including Florida, California and New York have emerged as hotspots for this medical tourism trend. Renowned for cutting-edge medical facilities, they have attracted a steady influx of medical tourists. As a result, cash flows in the form of transport, F&B and even extended holidays after the recovery period, driving economic growth.

In 2023, AI in the healthcare market is projected to exceed US\$20 million,

revolutionising drug discovery, disease detection, and treatment. AI can predict trial outcomes and drug side effects, analyse medical images, detect diseases in X-rays or MRI scans, and help to diagnose and treat disorders from Parkinson's to Alzheimer's. Healthtech is also on the rise in the form of wearable devices. Fitness bands provide easy monitoring of heart rates, sleep, step counts and even blood glucose levels. These metrics encourage goal setting and more open discussions with healthcare

professionals. Some health insurers in the US have even incentivised wearables, such as UnitedHealthcare's Motion programme where people can earn money for out-of-pocket medical expenses, simply by moving more.

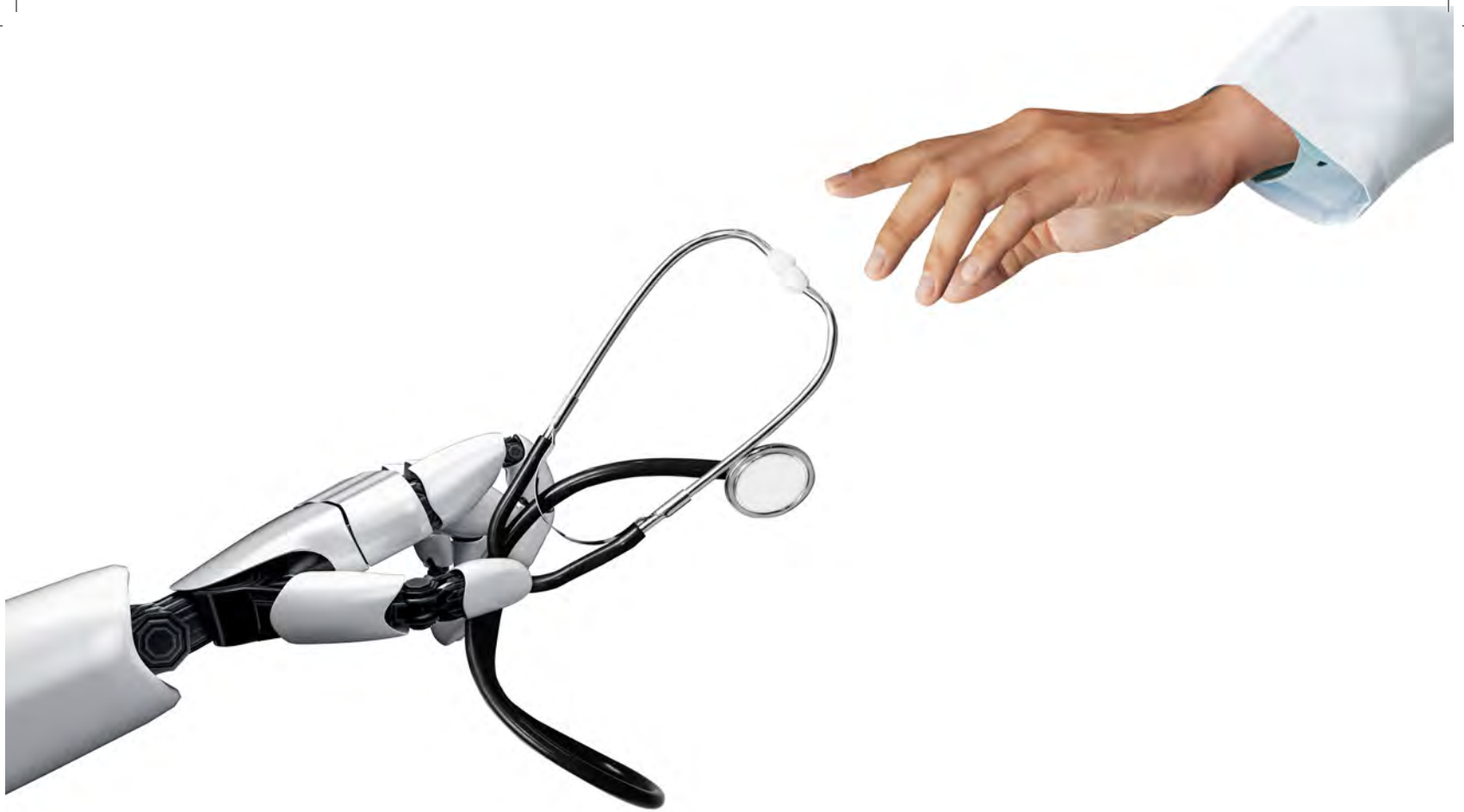
Looking ahead, it is important for business leaders to leverage technology and explore how it can be used to enhance the experiences and streamline operations. Investments could be considered in online booking systems, mobile apps, and virtual tours to meet today's digital demands. To navigate the future successfully, business leaders should embrace health and safety

**//**  
**Health insurers have even incentivised wearables where people can earn money for out-of-pocket medical expenses simply by moving more.**

through rigorous cleanliness standards, implement contactless procedures and ensure a diverse offering including wellness-themed services to capture the growing segment of health-conscious travellers. Keeping up to date with evolving tourism trends, understanding the demand for sustainable travel, and introducing innovative new concepts like remote "work-cations" is also important. Businesses should be agile, remain flexible, and consider strategies such as dynamic pricing to meet ever-changing demands.

Keeping the customer at the heart of every decision, actively seeking feedback, listening to reviews and using data-driven insights are essential practices to thrive in the ever-changing landscape of the travel industry. ●





# Top 5 AI-driven medical innovations in the United States

The influence of artificial intelligence in healthcare is nothing short of revolutionary.

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By Claire Henshaw

**T**he integration of AI in the healthcare industry could yield remarkable savings for the US, projected at a staggering US\$360 billion. This insight emerged in a report by researchers from McKinsey and Harvard. Artificial Intelligence (AI) and machine learning (ML) are revolutionising medical devices, drug development, diagnosis and treatment. By automating tasks, they complement healthcare practitioners' work, promising to advance decision-making, cut costs and enhance the patient experience.

## AI-powered medical devices

In 2022, the United States Food and Drug Administration (FDA) authorised 91 medical devices equipped with AI or ML capabilities. This category covers important algorithms and sophisticated machine-learning tools. One such example is an atrial fibrillation history feature incorporated into the Apple Watch. Another tool designed by Aidoc, a radiology AI company, received FDA clearance for its AI-powered feature, designed to detect collapsed lungs on X-ray images. This streamlines the

diagnostic process and allows physicians to prioritise critical images.

## AI-generated digital biomarkers

The fusion of physiological data with lifestyle and environmental factors is paving the way for deep phenotyping. Coupled with genomics, this is set to take healthcare to new heights. Bloomer Tech is combining cutting-edge fabric technology with ML to transform clothes, for example, women's bras, into wearable medical devices. AI's role in generating digital biomarkers promises



## AI's role in generating digital biomarkers promises transformative impacts.

transformative impacts, especially for diseases that disproportionately affect women. Bloomer Tech's focus lies in the cardiovascular system in women, given the challenges in diagnostics and treatment. The company aims to shift from limited biomarkers analysed in labs to AI-driven insights taken from clothing. This shift could revolutionise healthcare by enabling proactive and pre-emptive care.

### AI in clinical decision support

AI-based Clinical Decision Support Software (CDSS) is another innovation with the potential to transform patient care by analysing historical, current and incoming patient data. The software

can identify safety concerns, errors and spot opportunities for enhancing care pathways. AI CDSS could improve the diagnosis, treatment and prognosis of specific medical conditions. The FDA issued new guidance stating certain AI tools should be regulated as medical devices, in particular those predicting sepsis, patient deterioration, and heart failure. This change reflects the growing use of AI and ML, which can improve performance through learning from experience.

### Drug development revolutionised by AI

AI can accelerate the development of new drugs and the technology is reshaping the process, driving significant improvements. Drug development takes 12 to 18 years, costing US\$2 to US\$3 billion, with only 10 per cent approval. AI can speed up R&D, cut costs and boost the chances of drug approval. COVID-19 accelerated AI adoption in drug discovery, a turning point for the pharmaceutical industry. In February 2020, Eli Lilly's Olumiant was identified by UK-based start-up BenevolentAI as a potential COVID-19 treatment, receiving FDA Emergency Use

Authorisation in just three days.

### AI's impact on value-based care

Integrating AI into value-based care models is another ground-breaking innovation. AI has enormous potential for enhancing operational efficiency and patient outcomes, creating shared savings opportunities. The healthcare sector is realising the advantages of using AI to analyse health trends and deliver superior, value-based care. David Friede, Vice President of Strategic Partnerships for the DrOwl app, highlights one example where AI creates a digital twin of a patient, enabling the exploration of treatments and outcomes. This approach enhances the patient journey and overall healthcare experience.

As these AI-powered advancements unfold, the influence of AI in healthcare is nothing short of revolutionary. Advancements promise to reshape healthcare, enabling a future where innovation, precision and patient-centric care are paramount. AI is expected to strengthen, not replace, human judgement leading to quicker, more informed decisions, lower costs, and ultimately enhanced patient care. ●



**While AI is accelerating the development of new drugs, technology is reshaping the process.**

# AI leads the way in advancing early disease detection

Ainnova Tech's AI-based platform can detect diabetic retinopathy in less than five seconds.

By Deepa Narwani

**T**he global ageing population and individuals affected by chronic diseases are growing exponentially. This surge has generated a growing demand for 'smart healthcare'. However, existing digital solutions frequently come with high costs and sustainability challenges, and do not adequately focus on disease prevention and early detection. Consequently, a pressing demand exists for pioneering digital solutions capable of creating a tangible impact. This is precisely where Artificial Intelligence (AI) assumes a pivotal role. It can potentially play a significant part in preventing diseases through various applications.

One company leading in this front is the US-headquartered Ainnova Tech. The health tech start-up was founded by an experienced team to create solutions for the early detection of diseases using AI and recently won the Innov8 Talks pitch competition at Florida International Medical Expo (FIME) 2023.

Ainnova Tech's winning solution, VisionAI, is an AI-based platform for detecting diabetic retinopathy and other retinopathies in less than five seconds from retinal images, generating an effective workflow for the ophthalmologist. Diabetic retinopathy is the leading cause of blindness in working-age adults worldwide. Nearly 10 million people with diabetes in the U.S. have diabetic retinopathy, or eye damage as a result of the disease, new research shows. VisionAI has already entered markets such as Mexico and Costa Rica and is in the FDA process to enter the US market in 2024.

In an interview with *Omnia Health*, Vinicio Vargas, Co-Founder & CEO, Ainnova

Tech, said: "FIME 2023 was an incredible, first-class event, with the participation of highly innovative companies. Winning Innov8 Talks among such disruptive and fascinating companies was very satisfying for us and a sign that we are on the right path."

Vargas said that the idea behind launching Ainnova Tech wasn't just about embarking on an ambitious business journey but about leaving a legacy that impacts people's lives. "That purpose connected to that of our co-founder, Rodrigo Herrera, and our team of allies, advisors and investors. Ainnova Tech is the sum of many visions condensed into a powerful purpose to impact the world with the prevention and early detection of diseases so that people from all age groups are able to live longer and better."

In addition to VisionAI, the company has also integrated another solution for cardiovascular risk detection from retinal images and demographic data, with more precision compared to tools used in clinical practice, in a simple, accessible and more accurate way to refer that patient to a cardiologist. The company is also working on a tool that can do the same for early-stage Alzheimer's patients using retinal imaging, allowing to prevent and treat the patient earlier.

Vargas said: "We are working on making our solutions accessible to everyone and making retinal imaging fast and affordable. We will soon launch our game-changing portable non-mydratric camera, which is not affected by external light or patient movement. It is automatic, doesn't require extensive training, can even be done by the patient and costs a fraction of the market price."

When asked about the top priorities for Ainnova Tech in the coming year, he highlighted: "We are looking to expand into the primary care, optical and insurance markets with clinics. We are also looking forward to launching our new retinal device and integrating our solutions and massively scaling up."

In conclusion, he said: "We are excited to attend Arab Health in Dubai in January and compete for the 'Innovator of the Year' award. We also hope to show the global audience our latest developments and connect with potential customers in the MENA region." •

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Vinicio Vargas



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