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MEDIWORLD

Middle East



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covid-19 clinical trial inactivated
Vaccine begins in the UAE*

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*Covid-19
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Editorial

The importance of healthcare mobility

Since the start of Covid-19 outbreak across the globe, the healthcare industry has now shifted its focus more on digital solutions such as mobility in transforming doctor/patient experience, while making access to health information easier.

Presently, the tremendous growth of mobility solutions is changing the face of the healthcare industry and has now become a natural extension in the industry. According to the market Research Engine, the healthcare mobility solutions market will grow at CAGR of 28% by 2023.

Star Key Hearing centers, a UAE based care solutions provider has launched its first mobile hearing center in the region that is in line with the National Home Screening program for people of determination. The CEO of Star Key Hearing Centers, Mohammed Kettaneh highlights the unique benefits of this mobile center in our cover story of the month.

Food safety is a crucial factor in the food manufacturing industry to ensure that public health is not at risk. The primary object of the testing is to look for micro biological dangers that might be dangerous to us such as ecoli and salmonella. Fluorescence spectroscopy is a non-destructive technique that is able to give rapid and sensitive results. The technique uses a light beam (usually ultraviolet) to excite electrons, thereby causing them to fluoresce. This light is then directed towards a filter and onto a detection mechanism where the molecule, or changes in it, can be measured and identified. This is measured by what is termed a fluorescence excitation spectrum. Read all about it in detail as to how this technique tests the food we eat.

Covid-19 can be and must be stressful on all of us, causing fearing and anxiety about a new pandemic that has yet to receive a vaccine. The first WHO enlisted global clinical Phase III trial of Sinopharm CNBG's inactivated vaccine to combat COVID-19 has started in Abu Dhabi and is inspired by the UAE Leadership's vision and commitment to overcome the pandemic through a global collaborative effort. We give you all the details in our exclusive feature highlighting in detail about the trials that are currently being conducted in the UAE.

When we think of Canada, we first think of vast peaks and sprawling glacial landscapes. That's all fine, but really the first thing that you need to know is that Canada is incredibly diverse and a global leader in healthcare IT. Canada is home to one of the most internet-savvy and technologically sophisticated populations in the world. Canada is highly competitive globally and is also an ideal location in which to establish a Health IT business. We explore Canada beyond its boundary as a diverse and pretty huge northern part of North America.

As always do subscribe to our newsletter which highlights the latest breakthrough in the industry and also give a thumb's up on all our social media channels (Facebook, Twitter, Instagram and LinkedIn). If you would like to be featured as our cover story, do in touch with me at ayesha@7dimensionsmedia.com for further details.

Sincerely,

Ayesha Rashid



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First mobile hearing center in the UAE



“One of the core responsibilities at Star Key Hearing Centers is our commitment to enabling better hearing care solutions and increasing the accessibility of hearing health by bringing the hearing services closer to the community, especially for those who cannot easily access traditional medical care yet are in urgent need,” explains Mohammad Kettaneh, Chief Executive Officer of Star Key Hearing Centers



In the healthcare industry, technology is taking the upfront as a primary component in managing patient care, staff processes and productivity in the office.

We can now safely say that the recent coronavirus pandemic crisis that has brought the world to its knees is the cause of this shift in paradigm towards mobility healthcare in the community and/or at home. As adoption of mobility occurs, the overall effects of health consumers and professionals asserting their growing expectations will generate stronger demand for technology in the healthcare industry.

The global healthcare mobility solutions market size is expected to reach \$227.1 billion by 2025, according to a new study by Grand View Research, Inc. The market is driven by increasing demand for digitalization of healthcare. Rising health-related expenditure is the biggest issue many countries are facing nowadays. Hospitals are struggling to provide quality care and cost-effective services to patients. Moreover, political instability, lack of proactive initiatives, and economic stress are the factors questioning the R&D funding in developing nations.

Moreover, the global elderly & disabled assistive devices market size was \$23,009 million in 2018 and is anticipated to reach \$35,599 million by 2026, registering a CAGR of 5.5% from 2019 to 2026. Assistive devices, as the term signifies are the medical devices that assist elderly as well as disabled people to form their various basic tasks such as walking, hearing problems, vision problems, and others. The mobility aids devices include wheelchairs, scooters, and others that alleviate disabled individuals with their mobility.

Star Key Hearing Centers, a UAE based hearing care solutions provider has launched its first mobile hearing center in the region that is in line with the 'National Home Screening program for People of Determination.' The home screening initiative was launched by His Highness Sheikh Mohammad Bin Zayed, Abu Dhabi Crown Prince and Deputy Supreme Commander of the UAE Armed Forces.

Mohammad Kettaneh, Chief Executive Officer of Star Key Hearing Centers, tells Ayesha Rashid of **Mediworldme** how their new mobile center is 'unique' and in line with the UAE government's focus on better healthcare technology.

One of the core responsibilities at Star Key Hearing Centers is our commitment to enabling better hearing care solutions and increasing the accessibility of hearing health by bringing the hearing services closer to the community, especially for those who cannot easily access traditional medical care yet are in urgent need.

Tell us in detail about your mobile center?

Star Key Mobile Service is the first mobile hearing center in the UAE and the first of its kind in the region, dedicated to serve hearing-impaired, especially elderly and people of determination anywhere in the UAE. The launch of Star Key Mobile Service came in line with the 'National Home Screening Program for People of Determination' announced by HH Sheikh Mohammad Bin Zayed, Abu Dhabi Crown Prince and Deputy Supreme Commander of the UAE Armed Forces.

The vehicle is fitted with the latest technologies of hearing and mobile hearing solutions along with high-end advanced medical equipment and staffed by skilled hearing professionals who are passionate to assist in any circumstance and anywhere in the UAE.

Furthermore, Star Key Hearing LLC (SKH) is a premier hearing care service provider in UAE since 2010, aims to provide audiology and hearing evaluation services and cutting-edge technology hearing devices to patients under both government and private healthcare institutions as well as to private individuals. SKH is committed to delivering professional, quality hearing healthcare while giving relevant education and awareness regarding the early identification and rehabilitation options for hearing loss.

What made you come up with a mobile center especially for people of determination?

Star Key Hearing LLC is committed to help develop and boost the healthcare services and finding solutions to the challenges faced by the people who have hearing concerns. The launch of the mobile hearing care vehicle comes in line with supporting the national efforts and initiatives of the UAE government. In light of the exceptional circumstances that the whole world is going through, Star Key Hearing LLC is extending its way in seeking to provide all possible protection and safety for citizens while continuously providing better healthcare services and easy access right at their doorsteps with a reachable and realistic approach of hearing services.

One of the core responsibilities at Star Key Hearing Centers is our commitment to enabling better hearing care solutions and increasing the accessibility of hearing health by bringing the hearing services closer to the community, especially for those who cannot easily access traditional medical care yet are in urgent need.

How 'unique' is the mobile center?

It is the first mobile hearing center in the UAE and the region, the uniqueness of Star Key Mobile Service lies in the passion and creative minds behind it. The advanced technologies implemented inside the vehicle give patients a complete hearing care just like the one provided in the main hearing clinics. It is a smart convenient solution that maintains patients' safety in all circumstances.

In addition, Star Key Mobile Service also provides hearing aids repair and wireless adjustment, custom earmolds production for behind the ear (BTE), completely in canal (CIC) and invisible hearing aids (IIC) are all performed with the support of the



Mohammad Kettaneh
CEO of Star Key Hearing Centers

latest equipment available in the vehicle such as 3D printer and 3D scanner for scanning, modelling and printing to enable prototyping and manufacturing.

These wireless equipment for hearing tests and unique hearing aids are manufactured by the international hearing aids leader - Starkey Technologies, worth to mention their leading product in the market which is the artificial intelligence technology. Furthermore, the AI technology helps its users track their body and brain activities and provide access to amazing features like translation to 27 languages and fall alert. It also helps visually impaired by identifying people and the surroundings around them.

How is this center in line with the UAE government's focus on better health technology services?

One of the main reasons why we launch this unique mobile center is supporting the local community and boosting the UAE government's vision in sustaining a healthy UAE community through the provision of comprehensive & responsive healthcare System. Star Key Mobile Service is playing a vital role in providing wide access for better hearing care to anyone anywhere in the UAE, regardless the physical conditions of patients.

Describe what's fitted inside the vehicle and why? Medical technology and supplies?

The mobile hearing care center is fully equipped with the latest technologies and wireless equipment that enable the capability of providing comprehensive and immediate mobile hearing care services. Various tests can be performed inside the vehicle including adult hearing tests, pediatric hearing tests (without sedation), middle ear measurements, and wireless video otoscopy. The clinic also provides hearing aids fitting and wireless adjustment, repair and maintenance, custom earmolds production, all are performed with the support of the latest equipment available in the vehicle such

as 3D printer and 3D scanner for scanning, modelling and printing to enable prototyping and manufacturing.

How skilled are your staff to handle all in terms of Covid-19?

Our teams are conscious and passionate about what they are doing as treating patient with care and maintaining patients' and the staff' safety is our first priority. Our team has a wealth of experience in this sector as they were all involved in the treatment process at our regular brick and mortar centers.

Apart from the mobile center, we have some of the most skilled team healthcare specialists in our centers located in Abu Dhabi, Al Ain and Dubai. Along with the unique audiology and hearing technologies that we have, from AI, smallest rechargeable hearing aid, to the 3D lab services, we are confident that we can deliver the holistic method of audiology service and making our best efforts to help in achieving a better hearing for every case in the UAE.

Precautionary measures taken?

The vehicle is equipped with all means of safety, protection and sterilization for each patient's safety, taking into consideration their health and safety as the company's top priority. We strictly adopt international standards when it comes to taking precautionary measures such as;

- Periodical sterilization & disinfection for the mobile center
- Staff are keen to put on personal protective equipment (PPE)
- Temperature screening for patients and staff
- Ensure patients' and staff' hands sterilization
- Ask patients to fill out the intake form to review any symptoms
- Maintain the social distance
- Safe and healthy dispose of the waste
- Sterilization of the place before & after each patient's visit

Any challenges faced?

1 - COVID-19 pandemic affected the preparation of the mobile center in terms of the planned time frame according to the delay of the global supply chain disruptions.

2 - The lockdown hours have delayed the delivery of some equipment as well as reaching some patients.

3 - The mobile center project was planned to be ready in later time, but because of the pandemic, we had to speed up the progress of the project despite all the challenges, in a time where many other businesses decided to slow down and minimize expenses, we insisted on finding solutions for hearing-impaired that reduce the impact and challenges caused by the pandemic.

4 - Communication with hearing-impaired with masks on is a bit challenging as in many cases patients rely on lip reading.

Despite all these challenges, our aim is to find any possible solution to maintain patients' safety and deliver quality service on time without them leaving their homes.

How will technology impact us in terms of Covid 19?



One trend emerging across industries is the rapid acceleration and adoption of providing remote and digital services enabled by special technologies. The hearing industry is among those increasingly using telehealth technologies to respond to the changing needs of our patients. One of the services that are integrated in our hearing solutions is 'Hearing Care Anywhere' that enables effective remote fine-tuning services without requiring an office visit.

Why is innovation and technology so important to you?

We appreciate both innovation and technology. The continued development of hearing solutions technology has opened wide doors for hearing care accessibility and created convenient solutions for hearing-impaired. One of them is the Artificial Intelligence technology that enables hearing-impaired and helps them to live easier and better life by providing tremendous services and features tailored for their daily-life needs, like: fall alerts, body activity tracking, reminders, translation, transcriptions and Hearing Care Anywhere.

In your opinion how is Covid-19 impacting the medical technology industry?

The pandemic has affected the global supply chain disruptions and served as a wake-up call for many aspects in the medical technology industry, and has accelerated the digital transformation. Apparently, the need for more smart medical technology and solutions that are ready to minimize challenges caused by a pandemic is a must now. We must be better prepared in terms of technology for any future pandemics.

In your opinion do you think Covid-19 will go away? Will the use of technology have a role to play?

Well, that's what we hope. We think it depends on what we, as societies, are doing to fight the virus. Actually, technology is playing a big role in terms of developing better ways to test and treat. Technology also found remote and digital ways for communications and continuing the progress of any work, even in the medical industry.



Light beams for food quality testing

The quality, safety, and authenticity of our food is of the utmost importance in society today. The ability to rigorously test these factors is therefore critical for scientists working within the food industry. One technique particularly suited to this task is fluorescence spectroscopy.

Fluorescence spectroscopy is a non-destructive technique that is able to give rapid and sensitive results. The technique uses a light beam (usually ultraviolet) to excite electrons, thereby causing them to fluoresce. This light is then directed towards a filter and onto a detection mechanism where the molecule, or changes in it, can be measured and identified. This is measured by what is termed a fluorescence excitation spectrum.

For a given fluorophore, emission and excitation wavelengths are mirror images of each other. The spectral intensity and/or peak wavelength of fluorophores is dependent upon variables including concentration, interactions with other molecules, pH, and temperature. Many organic molecules fluoresce under light and can thus be identified by spectroscopic methods. This includes amino acids, fluorescent proteins (FPs) and chlorophylls.

Two types of fluorescence spectrometry instruments exist: filter fluorometers (which use filters to isolate the incident light) and spectrofluorometers (which use diffraction grating monochromators.) Sources of incident light used include LEDs, lamps, and lasers. Lamps particularly used in the technique are xenon arcs and mercury-vapor lamps.

Fluorescence spectroscopy is a non-destructive technique that is able to give rapid and sensitive results. The technique uses a light beam (usually ultraviolet) to excite electrons, thereby causing them to fluoresce. This light is then directed towards a filter and onto a detection mechanism where the molecule, or changes in it, can be measured and identified. This is measured by what is termed a fluorescence excitation spectrum



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Fluorescence spectroscopy is employed as an analytical tool in many different industries besides the food industry including the chemical and pharmaceutical industries, sewage treatment, and the mining industry. It is eminently more sensitive than absorption techniques.

The term 'fluorescence' was first coined by Sir George Gabriel Stokes in 1852 in his paper 'On the Change of Refrangibility of Light' where he explained what he termed dispersive reflection.

In one of his famous experiments, Stokes placed quinine under the region of light corresponding to UV, causing the solution to glow with blue light. A few years later in 1858, Erasmus Bond used quinine in tonic water, making it one of the first food and drink components to have its fluorescence studied in a scientific manner. This experiment is still used to teach the fundamentals of fluorimetry.

In recent decades there has been a notable increase in the use of fluorescence in food studies. With the development and improvement of computers and spectroscopic instrumentation, fluorescence spectroscopy has helped to improve food quality and security for billions of people. The field has made significant progress from the 1980s onwards. In that decade multivariate data analysis methods were applied and reported.

Food is a complex system, with many different chemical components. For this reason, multidimensional measurement techniques are employed in studies. Conventional single emission/excitation spectra cannot fully characterize the fluorescent patterns of food samples. By utilizing multidimensional measurement techniques, a fingerprint of the food sample can be constructed.

Major food components are usually non-fluorescent but many minor components, conversely, are. These components affect factors such as nutrition and composition. Process-derived compounds can also fluoresce, as can food contaminants. All these compounds can affect food quality and authenticity.

There has been a growth in spectroscopic applications for food quality analysis over the past decades due to its non-destructive, rapid, and sensitive nature. This has been due to the widespread application of chemometric tools and improvements in the technical and optical aspects of spectroscopic equipment.

Food quality is one of the most important aspects of the food industry. Nutritive, physical, and chemical aspects of the food sample must be measured and understood to provide a quality product that helps consumers make an informed choice.

The quality of perishable foods (meat, eggs, dairy, fish and so forth) in particular is of utmost importance to the food industry. These foodstuffs are considered to be an



intrinsic part of a healthy diet, providing important vitamins, minerals, and essential oils that help the body and brain function healthily.

Fresh food has a limited shelf life and is affected by time-limited supply chains and storage processes, which means accurate analysis of their components improves freshness, safety, and profit. Microbial growth can also spoil food which can lead to outbreaks of harmful diseases such as listeria and salmonella.

Additives & preservation techniques for non-perishable & long shelf-life foods (for example, canned, pickled, and dry food products) can also be studied for quality using spectroscopic techniques. Using fluorescence spectroscopic methods in studies of food quality has helped the food industry improve the overall standard of the food we consume.

Recent studies have also helped to improve food preservation techniques and reduce harmful chemical and microbial adulteration.

Accurate labeling is of paramount importance for the food, leisure, hospitality, and retail industries. Consumers may have specific dietary, ethical, or religious needs which means they rely on knowing what their food contains. Therefore, food authenticity is of particular concern for these industries. Inaccurate food labeling may cause fatalities if a consumer is allergic to one of the ingredients.

Fluorescence spectroscopy is one of a series of physical analytical techniques that have been explored for the task of measuring the authenticity of food. The use of synchronous fluorescence and conventional excitation-emission matrix spectroscopy is of huge potential in this field. Combining the technique with multivariate analysis tools such as factorial discriminant analysis can improve results across the board.

A healthy diet and the safety of food we consume helps improves our overall standard of living. The food industry needs a wide-ranging toolkit of analytical techniques to ensure this. Fluorescence spectroscopy is just one part of this toolkit, albeit one which is growing in importance within the industry.

As we move into the future, fluorescence spectroscopy will no doubt continue to play an important role in this field. By utilizing new and complementary technologies such as deep learning and neural networks, fluorescence spectroscopy will continue to play a significant part in ensuring the highest standards of food quality.

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World's First Phase III covid-19 clinical trial inactivated Vaccine begins in the UAE



The trials are being operated by health practitioners from SEHA who are providing facilities at five of their sites in Abu Dhabi and Al Ain in addition to a mobile clinic to ensure the trials are readily accessible to volunteers participating in the program

The first WHO enlisted global clinical Phase III trial of Sinopharm CNBG's inactivated vaccine to combat COVID-19 has started in Abu Dhabi and has been inspired by the UAE Leadership's vision and commitment to overcome the pandemic through a global collaborative effort.

H.E. Sheikh Abdullah bin Mohammed Al Hamed, Chairman of the Department of Health, Abu Dhabi, was the first individual in the world to commence the trial of a Phase III inactivated vaccine for COVID-19. The Department's Acting Undersecretary, Dr. Jamal Al Kaabi was the second volunteer to trial the vaccine showcasing the commitment of the UAE Government and the Health Authorities to find a cure for humanity's biggest challenge of the 21st century.

The world's first Phase III trial is the result of a cooperation partnership between Abu Dhabi based G42 Healthcare, currently at the forefront of the battle against COVID-19 in the UAE, and Sinopharm CNBG, the world's sixth largest vaccine manufacturer, ranked 169th on the Fortune Global 500 list of 2018.

The trials are being operated by health practitioners from Abu Dhabi Health Services (SEHA) who are providing facilities at five of their sites in Abu Dhabi and Al Ain in addition to a mobile clinic to ensure the trials are readily accessible to volunteers participating in the program.

Over the past few months, G42 Healthcare has established a massive throughput laboratory to speed up the detection of the disease; manufactured essential PPE; conducted research into new vaccines and drug therapies and used its advanced AI capabilities to map and predict trends in the outbreak, virus mutations and help combat the disease.

The UAE was the preferred choice for the cooperation partnership to conduct the Phase III trials for the inactive vaccine as the nation is home to over 200 nationalities, allowing for robust research across multiple ethnicities and increasing its feasibility for global application on the success of the trials.

The UAE Health Authorities have recently issued a permit for up to 15,000 volunteers to take part in the trials. G42 Healthcare and SEHA are working towards achieving a minimum of 5,000 participants in the first stage of the program to ensure the robustness of the results.

Today's clinical trial commencement is the start of a series of national initiatives to both foster population health and to enhance the UAE's medical research and development capabilities, including the local capacity to manufacture the vaccine.

Conducting trials

The trial formally began in the presence of the Chinese Ambassador to the UAE, H.E Ni Jian; senior health department officials and G42 Healthcare and Sinopharm CNBG representatives. The first group of volunteers including UAE nationals and expatriates received the vaccine at Sheikh Khalifa Medical City recently.

The clinical trials are being conducted under the strict guidance and supervision of the Department of Health Abu Dhabi and SEHA – the Abu Dhabi Health Services Company. The trials follow all international guidelines stipulated by the

World Health Organization (WHO) and the United States Food & Drug Authority (USFDA).

The study, if successful, will be approved and accredited by the Ethics Committee for Scientific Research in Abu Dhabi.

Commenting on the start of the program, UAE Principle Investigator Sheikh Khalifa Medical City CMO and Chairperson of the National COVID-19 Clinical Management Committee Dr. Nawal Ahmed Alkaabi said, "Our participation in this trial enables us to make a major contribution in the global fight to combat the COVID-19 pandemic. It is a matter of national pride that we are able to help facilitate the trial process that could have a worldwide impact and help people around the world to benefit from research and – if successful – the manufacture of a vaccine to fight back against this disease."

The phase III clinical trial follows the success of the phase I and phase II trials conducted by Sinopharm in China, which resulted in 100% of the volunteers generating antibodies after two doses in 28 days. The phase III trials are open to individual volunteers aged between 18 and 60 living in Abu Dhabi and Al Ain and will last for three to six months, with the volunteers required to be available for follow ups during this time.

A key factor for COVID-19 vaccine is the urgency around global implementation. Computing power, data processing and diagnostic analysis are G42 Healthcare's global competitive advantage to support the successful delivery of the world's first phase III trials of inactivated vaccine.

G42 Healthcare CEO Ashish Koshy said, "We are enormously proud that Sinopharm CNBG has partnered G42 Healthcare in this groundbreaking phase III clinical trial in the UAE. Using our AI solutions, super-computer, and advanced diagnostics solutions for COVID-19, G42 Healthcare is uniquely postured to conduct these trials. G42 Healthcare will be responsible for running clinical operations for this trial. We will be leveraging our group's technical and our own business capabilities to compute, correlate and provide fast and synthesized insights by deploying multiple AI models on the data generated during the trials to accelerate the much-awaited results. G42 Healthcare will be mobilizing the logistical management of the trials taking in learnings from its proven capabilities in CRO management, clinical site initiations, and other E2E program management activities."

Mr. Jingjin Zhu, President, Biological products, Sinopharm CNBG added, "The United Arab Emirates is a nation of innovation and tolerance that is home to individuals from every part of the world and ethnic background. We will work closely



with our partner to complete this clinical trial successfully, and make this vaccine available to the people in need worldwide. With the full support of local authorities, cutting-edge technologies provided by our partner G42 Healthcare, and high-quality services and supports from the medical and clinical entities, we will jointly contribute to the battle against COVID-19 worldwide.

Now that the trials have officially commenced, G42 Healthcare and the UAE Health Authorities will shortly launch a public awareness campaign to encourage UAE residents to participate in this critical to humanity clinical trial program.

Test exemption

Volunteers taking part in the Phase 3 clinical trial for a coronavirus vaccine are exempted from Covid-19 screening outside the bounds of the study, authorities have said.

The Ministry of Health and Prevention said those who have received the initial vaccine under the trial will not be required to take additional Covid-19 tests.

"The Ministry of Health and Prevention, in co-ordination with the Department of Health Abu Dhabi, has exempted volunteers of the Phase III Covid-19 vaccine trials from performing any other Covid-19 tests outside the trial's framework," the department said.

"The Ministry also decided to use the Al Hosn app to identify volunteers so they can benefit from the exemption, and they are required to install the application on their smartphones."

The World Health Organization has recognized four clinical trials for Covid-19 vaccines that have reached Phase 3 – one American, one British and two Chinese.

If the UAE trial is successful, the vaccine will be approved for use among the public and manufacturing will begin to produce it at scale.

Expansion of vaccine trials

The UAE announced recently that its phase 3 clinical trials for coronavirus vaccine are now open to volunteers outside of Abu Dhabi for the first time.

In a statement carried by state news agency WAM, the UAE's Ministry of Health and Prevention said it is now dedicating the Al Qarayan Health Center in Sharjah as the first center outside the Emirate of Abu Dhabi to register, screen and test volunteers wishing to participate in the world's first Phase III clinical trials of an inactivated vaccine to combat COVID-19.

The move has been taken in cooperation with the Abu Dhabi Department of Health, Abu Dhabi Health Services Company, SEHA and G42 Healthcare.

Al Qarayan Health Center has the capacity to register and screen over 500 volunteers a day and is open to residents from Sharjah and neighboring emirates as the trials continue to gather nationwide momentum since the launch of #4Humanity campaign in July.

It is being managed by G42 Healthcare in partnership with the ministry and will play a central role in facilitating procedures for registering volunteers and conducting necessary tests.

Commenting on the development, Health Minister Abdul Rahman Bin Al Owais said, "The UAE health sector adopts a flexible and multi-track strategy in dealing with the COVID-19 pandemic, which depends on competent authorities conducting the largest possible number of medical tests and providing necessary care for the infected persons."

"Meanwhile, we are strengthening our cooperation with international partners to support the development of a safe vaccine against the disease. Thus, expanding the geographical scope of the #4Humanity campaign to include all emirates aims to enhance the results of clinical trials and ensure the safety and effectiveness of the vaccine on a larger segment of individuals".

Al Owais added, "We are optimistic about achieving promising results that would support the global efforts being made to develop the vaccine. Allocating Al Qarayan Health Center as the first center outside of Abu Dhabi to register, screen and test volunteers is yet another a distinct contribution from the UAE, to be added to its impeccable record of achievements in the field of clinical research thanks to the country's advanced infrastructure, the efficiency of its health system and ability to conduct medical research according to the highest international standards".

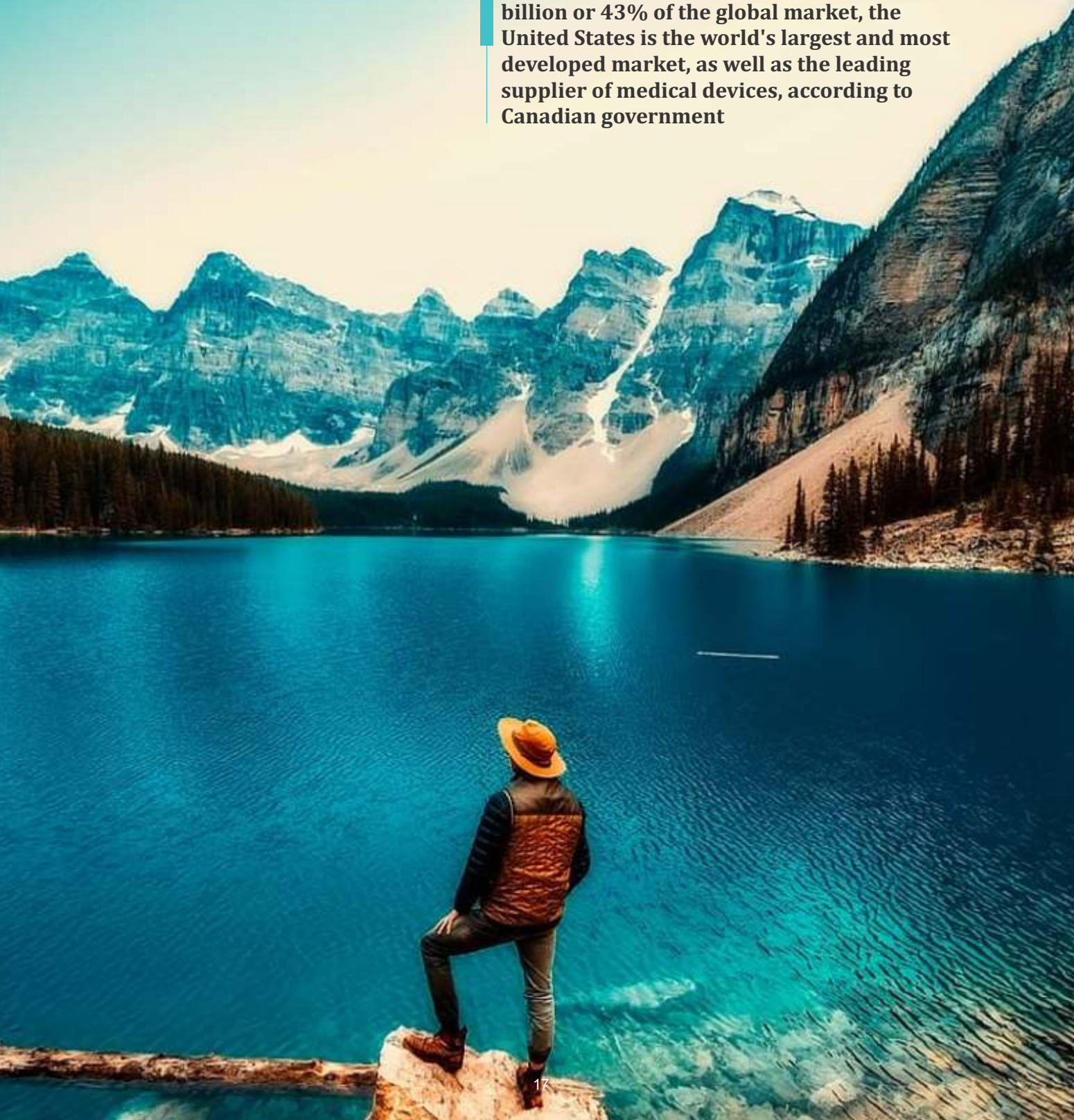
CEO of G42 Healthcare, Ashish Koshy, said, "The #4Humanity program has captured the imagination of residents in every emirate who are keen to volunteer and help find a cure for the world's biggest health challenge of the 21st Century.

"Since the launch, it became quickly apparent of the strong desire of health authorities and residents across the UAE to play their part and help ensure the success of these trials at a truly national level. Our teams are now working closely with MOHAP and SEHA to ensure our advanced technology and measurement process complements their frontline testing of volunteers."

Canada

A global leader in healthcare IT

In 2017, the global market for medical devices was valued at \$360 billion, excluding in vitro diagnostics. With a market of \$155 billion or 43% of the global market, the United States is the world's largest and most developed market, as well as the leading supplier of medical devices, according to Canadian government



Canada lies in the northern part of North America. Its ten provinces and three territories extend from the Atlantic to the Pacific and northward into the Arctic Ocean, covering 9.98 million square kilometers (3.85 million square miles), making it the world's second-largest country by total area. Its southern and western border with the United States, stretching 8,891 kilometers (5,525 mi), is the world's longest bi-national land border. Canada's capital is Ottawa, and its three largest metropolitan areas are Toronto, Montreal and Vancouver.

A developed country, Canada has the 17th highest nominal per-capita income globally as well as the 13th highest ranking in the Human Development Index. Its advanced economy is the tenth-largest in the world, relying chiefly upon its abundant natural resources and well-developed international trade networks. Canada is part of several major international and intergovernmental institutions or groupings including the United Nations, NATO, the G7, the Group of Ten, the G20, the United States–Mexico–Canada Agreement and the Asia-Pacific Economic Cooperation forum.

Dynamic healthcare system

Canada has a decentralized, universal, publicly funded health system called Canadian Medicare. Health care is funded and administered primarily by the country's 13 provinces and territories. Each has its own insurance plan, and each receives cash assistance from the federal government on a per-capita basis. Benefits and delivery approaches vary. All citizens and permanent residents, however, receive medically necessary hospital and physician services free at the point of use. To pay

**With nearly
400,000 general
practitioners,
along with
specialists,
nurses,
pharmacists,
healthcare
professionals,
more than 700
hospitals and
1,600 long-term
care facilities.**

for excluded services, including outpatient prescription drugs and dental care, provinces and territories provide some coverage for targeted groups. In addition, about two-thirds of Canadians have private insurance.

Canadian Medicare — Canada's universal, publicly funded health care system — was established through federal legislation originally passed in 1957 and in 1966. The Canada Health Act of 1984 replaces and consolidates the two previous acts and sets national standards for medically necessary hospital, diagnostic, and physician services. To be eligible to receive full federal cash contributions for health care, each provincial and territorial (P/T) health insurance plan needs to comply with the five pillars of the Canada Health Act, which stipulate that it be: Publicly administered, comprehensive in coverage conditions, Universal, Portable across provinces and accessible (for example, without user fees).

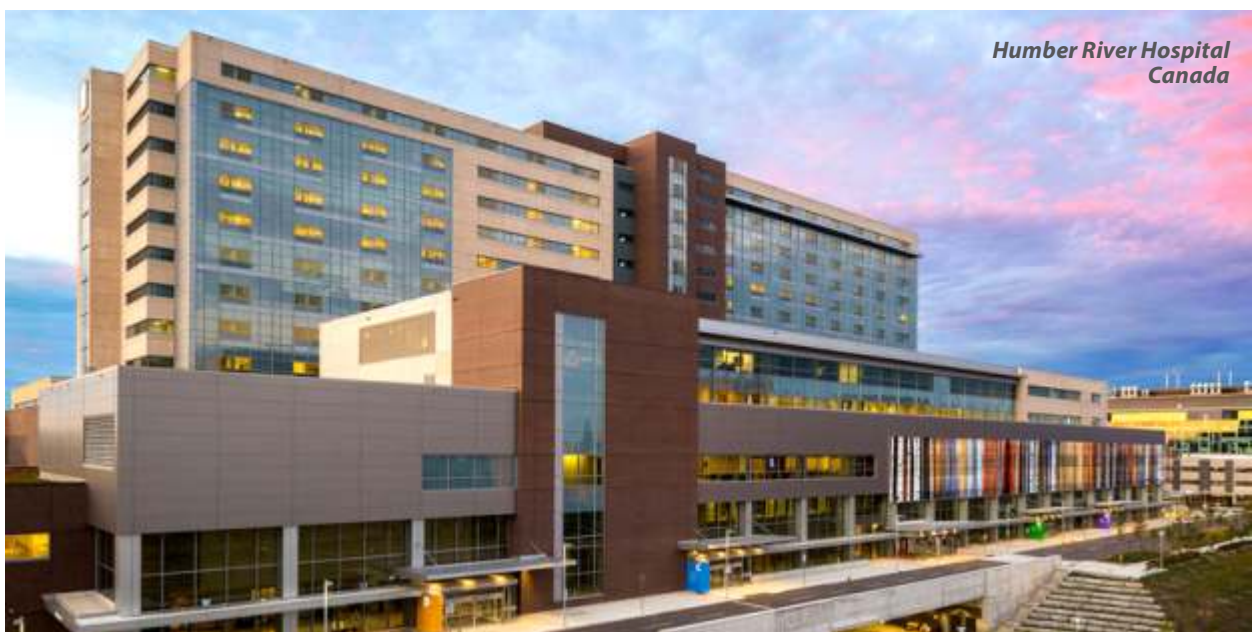
Medical technology sector

Canada is home to one of the most internet-savvy and technologically sophisticated populations in the world. Canada is highly competitive globally and is also an ideal location in which to establish a Health IT business.

The Health IT space is an important and rapidly growing field within the Information Technology and Healthcare sectors in general and remains a priority for Canada as demonstrated by a strong commitment from public and private sectors.

Canada's healthcare sector is one of the country's most information-intensive industries.

With nearly 400,000 general practitioners, along with specialists, nurses, pharmacists, healthcare professionals,



***Humber River Hospital
Canada***

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more than 700 hospitals and 1,600 long-term care facilities.

Managing health information across these areas has created a wealth of expertise in how Health IT can be leveraged to reduce inefficiencies in the healthcare system. The healthcare industry is the largest vertically-integrated industry in Canada. Canada spends about 11.2% of GDP on healthcare, and is growing at an annual compound rate of 7%.

Canada is also ideally positioned for selling into the largest Health IT market in the world – the United States. Canada has adopted several international standards, such as the Classification of Health Interventions (CCI), Digital Imaging and Communications in Medicine (DICOM), Health Level 7 (HL7), and others which makes it easy for Canadian Health IT companies to develop products equally marketable in domestic as well as international markets.

Some examples of multinationals making successful and profitable investments in the Canadian Health IT market include Microsoft; Agfa; General Electric (GE); Philips Healthcare; IBM Canada Healthcare; Siemens Canada; and McKesson Canada.

Medical devices sector

In Canada, medical devices are regulated under the Food and Drugs Act as a Class I, II, III or IV with Class I representing devices that present the lowest risk and Class IV the highest. The Food and Drugs Act provides a definition of a regulated medical device.

Examples of medical devices include pacemakers, artificial heart valves, diagnostic and imaging equipment, in vitro diagnostics, dialysis equipment, hip and knee implants, synthetic skin, surgical tools, infusion pumps, life support machines, catheters, bandages, as well as some information and communications technologies.

In 2017, the global market for medical devices was valued at \$360 billion, excluding in vitro diagnostics. With a market of \$155 billion or 43% of the global market, the United States is the world's largest and most developed market, as well as the leading supplier of medical devices, according to Canadian government.

The complexity of medical device products continues to increase with the inclusion of multiple technologies into a given product. Technologies such as advanced materials, microelectronics, biotechnology, and software and informatics are now routine technologies featured in medical devices. Canadian and international companies continue to innovate further to develop new products and enhance the features of existing medical devices.

Firms in the medical device sector are highly R&D intensive and technology based.

However, Canada's medical device sector is a highly diversified and export-oriented industry that manufactures equipment and supplies. Purchasers include Canadian and international hospitals, physician's offices, laboratories, clinics

The sector is driven by product innovation. The industry is able to draw on world-class innovative research being conducted in Canadian universities, research institutes and hospitals, some of which has been spun-off into Canadian medical device companies. Approximately 10% of Canada's medical device companies have spun off from Canadian research organizations. Innovation, Science and Economic Development Canada, December 2015 approximately twenty percent of companies are pre-market^{Footnote2}, approximately 20% of companies are pre-market.^{Footnote3}

The sector is dominated by SMEs by number, and foreign-owned global companies by market share.

The industry is primarily based in the three largest provinces, Ontario, Quebec and British Columbia.

Uptake of health information technologies has been slowly increasing in recent years. Provinces and territories are responsible for developing their own electronic information systems, with national funding and support through Canada Health Infoway. However, there is no national strategy for implementing electronic health records and no national patient identifier.

According to Canada Health Infoway, provinces have systems for collecting data electronically for the majority of their populations; however, interoperability is limited. In 2017, 85 percent of GPs reported using electronic medical records, but

patients have limited access to their own electronic health information.⁴³

Fight against Covid-19

Over the past several months, Canadians have been following public health advice and doing their part to help prevent the spread of COVID-19. As restrictions ease to resume economic works, the Canadian's continue to work together to contain the virus and keep fellow Canadians safe and healthy.

The Prime Minister, Justin Trudeau, and the Premier of Ontario, Doug Ford, recently announced that COVID Alert, a new national mobile app, is now available to Canadians for free. The app, first developed in Ontario, helps notify users if they may have been exposed to someone who has tested positive for COVID-19.

Use of COVID Alert is voluntary, and serves as another tool to help limit the spread of COVID-19. Once the app is fully functioning in their province or territory, users who test positive for COVID-19 will receive a one-time key from their health authority that they can enter into the app. When the key is entered, COVID Alert will notify other users who may have come in close contact with that person for at least 15 minutes in the past 14 days, so they can contact their local public health authority for guidance.

To safeguard the confidentiality and privacy of all Canadians, the app uses strong measures to protect any data it collects, and does not track a user's location or collect personally identifiable information. The Privacy Commissioners of Canada and Ontario were consulted on the development of COVID Alert, to ensure the highest level of privacy for Canadians using the app.

The Government of Canada has been working in close partnership with the Province of Ontario to launch the COVID Alert app. Health authorities in Ontario will be the first to begin distributing one-time keys. The Government of Canada is also working with the other provinces and territories to bring their jurisdictions on board in the coming weeks and months.

An expert Advisory Council will ensure the app meets the highest standards in public health outcomes, privacy, and technology. The members of the Council reflect Canada's regional and cultural diversity, and cover a wide range of expertise, including health, privacy, data governance, science, and innovation. Their advice will inform the implementation and rollout phases of the app.

The new COVID Alert app is just one example of how the Government of Canada is working with the provinces, territories, and other partners to protect the health of all Canadians, and support efforts to restart the economy gradually and safely.

"While we have made good progress over the past few months, COVID-19 remains a very serious threat to the health of Canadians. As we continue to gradually restart our economy, innovative technologies like this new app will help us keep our families and communities safe and healthy," said Justin Trudeau, Prime Minister of Canada.

"Built with a privacy-first approach, COVID Alert is a safe and easy-to-use tool that Ontarians can download to protect themselves, their loved ones and community from COVID-19. This Ontario-made app keeps people informed about being potentially exposed to the virus, allows them to act quickly to stop the spread of the virus and is a key tool in our case and contact management strategy. I encourage all Ontarians to download the app, as early detection of cases will be important as we continue to carefully reopen more of the province," explains Christine Elliott, Ontario's Deputy Premier and Minister of Health.

In other news, WELL Health Technologies, recently announced that it has entered into a definitive asset purchase agreement with Cycura Inc., a private Ontario corporation. Under the terms of the Agreement, WELL has agreed to acquire all of the assets related to Cycura's Services Division, which provides various cybersecurity offerings, including penetration and vulnerability testing, security focused code reviews, incident response services, cybersecurity training, cybersecurity M&A advisory and technical due diligence services, and more. Total consideration payable by the Company in connection with this Transaction is approximately \$2.55M, subject to certain holdbacks, adjustments and time-based payments.

"Our over-arching objective at WELL is to allocate capital to themes and opportunities that benefit from the digitization of healthcare; as such, we see cybersecurity as a compelling opportunity for WELL's capital allocation program due to the quality of revenues and the burgeoning growth in the industry," said Hamed Shahbazi, Chairman and CEO of WELL. "WELL is committed to providing cyber security protection and patient data privacy across all of its businesses including primary care, Electronic Medical Record (EMR), telehealth and digital health solutions. We've already been working with the talented team of experts at Cycura for more than a year and are very pleased to now bring their proficiency in cyber security, data protection and privacy within WELL."

Cycura provides its cybersecurity services to a number of high-profile companies in various industries across Canada, including a collection of healthcare related clients focusing on mental health, telemedicine, health insurance and benefits, and other disciplines. Cycura has also recently completed technical security assessments on medical devices used nationwide in both acute care and long-term care settings. In the past 12 months, Cycura's Services Division has generated revenues exceeding \$1.7M. The Transaction is expected to be immediately accretive to WELL, contributing double digit EBITDA(1) margins.

WELL intends to retain all key employees related to Cycura's Services Division, which will not only continue to provide the high quality of service that it has come to represent to existing clients, but also grow Cycura's portfolio of products and services. Post Transaction, Cycura will continue to be led by CEO Iain Paterson, alongside VP of Services Melinda Coulter, who both previously worked under the office of the CISO at eHealth Ontario, which houses the healthcare records of 13M Ontario citizens and acts as the main data share for the majority of Ontario's hospitals. Prior to that Mr. Paterson was also the Information Security Officer for Trillium Health Partners, one of the largest hospitals in Canada.

Energy efficient robotic prosthetic legs for a natural walk

Researchers at the University of Michigan have developed robotic prosthetic legs which use motors that were originally designed for use on the robotic arm of the International Space Station. The motors allow the prostheses to move more naturally, producing less stress on the hips of users, and they are also quieter and more energy efficient than pre-existing robotic legs.

Conventional prosthetic legs require the wearer to move their hips abnormally to raise the foot and swing the leg forward. This can make walking difficult, and can place strain on the hips over time. Robotic legs could help to provide a more natural gait for wearers, but current models have several limitations, including joint stiffness, and loud motors. This new design aimed to change that.

"We designed our joints to be as compliant, or flexible, as possible," said Toby Elery, a researcher involved in the study. "Our robotic leg can perform and even react like a human joint would, enabling a naturally free-swinging knee and shock absorption when contacting the ground."

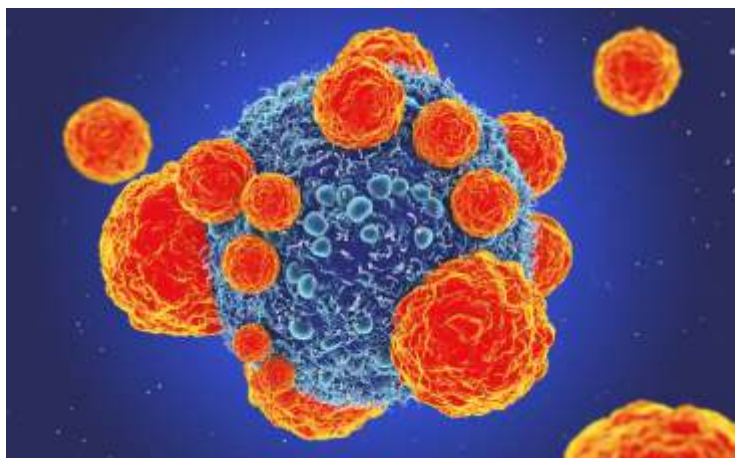
Typically, robotic prosthetic legs contain small motors that spin quickly, requiring significant gearing to allow them to apply a reasonable amount of torque. However, this is inefficient and noisy, and makes the joints stiffer. These new motors, which the researchers have positioned at the ankle



and knee of the prosthetic legs, are more powerful, requiring very few gears to apply a sufficient amount of force for locomotion. The design also incorporates regenerative braking to charge the battery, significantly increasing the energy efficiency of the design.

"Our prosthetic leg consumes approximately half the battery power of state-of-art robotic legs, yet can produce more force," said Robert Gregg, another researcher involved in the study. "If the joints are stiff or rigid, the force is transferred to the residual limb, and that can be painful. Instead, we use that force to charge the battery."

The prostheses have been trialed by amputees, and so far, have been positively received, providing a more natural gait and assisting with walking. "In some cases, they have observed that they feel like muscles in their hips and back are working less with our leg, compared to their conventional leg," said Gregg. "We're able to reduce compensations at the hips."



Researchers have demonstrated that a fatty acid called dihomogammalinolenic acid, or DGLA, can kill human cancer cells.

The study, published in *Developmental Cell* on July 10, found that DGLA can induce ferroptosis in an animal model and in actual human cancer cells. Ferroptosis is an iron-dependent type of cell death that was discovered in recent years and has become a focal point for disease research as it is closely related to many disease processes.

Jennifer Watts, a Washington State University associate professor and corresponding author on the paper, said this discovery has many implications, including a step toward a potential treatment for cancer.

DGLA is a polyunsaturated fatty acid found in small amounts in the human body, though rarely in the human diet. Compared to other fatty acids, such

Fatty acid could kill human cancer cells

as those found in fish oil, DGLA is relatively understudied.

Watts has been researching dietary fats including DGLA for nearly twenty years, using the nematode *Caenorhabditis elegans* as an animal model. A microscopic worm, *C. elegans* is often used in molecular research because it is transparent and allows scientists to easily study cell-level activity in a whole animal over its relatively short lifespan. Results found in the *C. elegans* cells are also often transferable to human cells.

Watts' research team discovered that feeding nematodes a diet of DGLA-laden bacteria killed all the germ cells in the worms as well as the stem cells that make the germ cells. The way the cells died carried many signs of ferroptosis.

"Many of the mechanisms we saw in the nematodes were consistent with the hallmarks of ferroptosis in mammalian systems, including the presence of redox-active iron and the inability to repair oxidized lipids, which are like molecular executioners," said Marcos Perez, a WSU doctoral student and first author on the paper.

First technological solution for advanced health monitoring of stroke survivors

Group of biomedical engineers from biotech company Gruppo Fos Lithuania together with researchers at Kaunas University of Technology and Lithuanian University of Health Sciences have patented technology for advanced health monitoring of stroke survivors. It is the first solution in the world which monitors and analyses simultaneously a patient's health parameters from the affected part of the brain and those of the cardiovascular system.



Stroke is a sudden impairment of the cerebral circulation, resulting in the death of the brain cells, neurons. Neurologists estimate that 1 hour of the interrupted blood supply to the brain is equivalent to 3.6 years of aging. Therefore, the first rule for the medical personnel while reacting to acute stroke is "time is brain", which means that help needs to be provided as soon as possible. Post-stroke rehabilitation starts instantly after the medical condition of the patient is stabilized. Global statistics reveal that 18 per cent of stroke survivors experience the second stroke in 4 years' time.

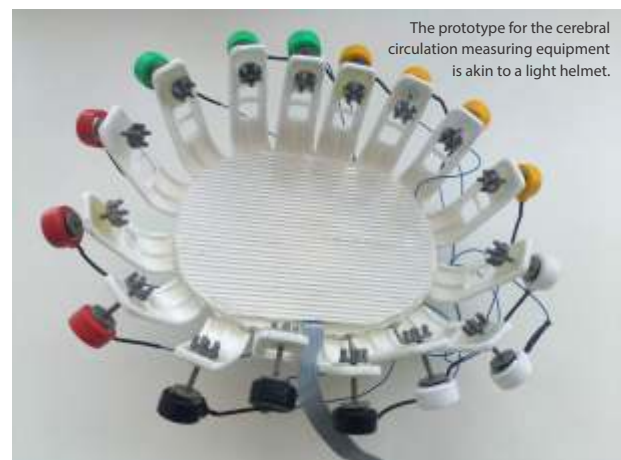
The system created by Lithuanian researchers includes a synchronic recording of the following parameters: electrocardiogram (ECG), photoplethysmogram (PPG, an optically obtained graph that allows detecting blood volume changes in the microvascular bed of tissue) and electrical bio-impedance cerebral monitoring (in order to detect changes on electrical properties of cerebral tissue). These signals can be analyzed and compared against each other; any delays, deviations and the dynamics of change are being observed and recorded. Two groups of variables are being measured – those reflecting changes in cerebral tissue, and the indicators of cardiovascular system health. As they are being analyzed simultaneously, more information about the health of the patient is being obtained than while interpreting each variable separately.

"Our technology is intended for post-stroke follow-up including monitoring of the brain damage dynamics and observing cardiovascular parameters, such as blood pressure and atrial fibrillation, which are connected to the increased risk of stroke. The patented invention is the system of collecting multimodal signals from the human organism, which can potentially provide us with new information about the health parameters of stroke survivors", explains the biomedical engineer of Gruppo FOS Lithuania Mantas Mikulenas.

According to him, the system created in Lithuania is the first in the world. There is no equivalent medical technology which would monitor and register all these parameters, vital for preventing the recurrence of stroke among survivors, and

would provide integrated advanced analysis of the collected data.

"The main challenge lies ahead – the road of medical technologies to patients is very long, especially if the invention is complex and its efficiency needs to be proved by clinical research. However, we already have a tool, which can be adapted for concrete practical solutions. Hopefully, before long our technology for integrated health monitoring of stroke survivors will be available for medical personnel and patients",



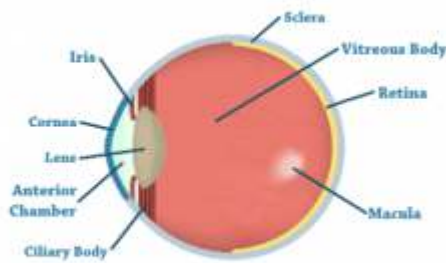
says the director of Gruppo FOS Lithuania Rosita Makauskiene.

The invention is being developed by three partners – Gruppo Fos Lithuania biotech company, Kaunas University of Technology, Lithuanian University of Health Sciences. All the partners contributed equally to the invention accordingly to their fields of competences – development of the idea, technological implementation and medical research and testing.

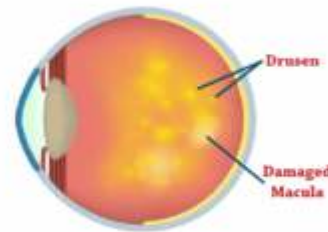
The first prototype of the system has already been developed. In the near future, it will be tested with patients. The invention is being commercialized by Gruppo Fos Lithuania Biomedical Engineering Centre, established in 2015 by Italian high technology solutions company Gruppo Fos.

Researchers at John Hopkins University use nanoparticles to treat macular degeneration

Macular Degeneration



Healthy Eye



Eye w/ AMD

Wet age-related macular degeneration and a number of other eye diseases, including congenital conditions, are related to mutated genes that result in blood vessel abnormalities. These can be treated with gene therapy, but delivering genetic material has proven to be difficult when dealing with large gene sequences that are common in retinal conditions.

Viruses have been the go-to vectors for delivering genes into the eye, but the immune system wants to fight them. Too often this results in poor efficacy on follow-up treatments. Moreover, they are not good at carrying large genetic payloads and there's also a risk of cancer.

Now, researchers at Johns Hopkins University have devised a way to tightly pack long chains of DNA into nanoparticles and deliver those into the eye. Once inside the cells of the retina, the DNA bundles are released to promote the production of a therapeutic protein without worrying about any viral side-effects.

To make this possible, the team created a novel large polymer molecule to compress the DNA bundles very tightly. This molecule is biodegradable and leaves the eye and the body once its job is done. The compact vessel of the DNA and the polymer is small enough to enter living cells without causing damage.

Initially, the scientists delivered genetic material for a fluorescent protein into the eyes of mice to see whether it gets into the cells and produces the protein. Even months later, the eyes of the mice continued to glow. Once it was confirmed that



the approach works and does so for a long time, the researchers delivered a gene that produces a protein (vascular endothelial growth factor (VEGF)) that leads to abnormal blood vessel growth into a group of rats. These animals developed blood-vessel growth similar to that seen in people with wet macular degeneration.

The last experiment was essentially the opposite, delivering gene therapy that generates a protein that deactivates VEGF. This is the same therapy as that already available but in the form of a nanoparticle that produces long-term effects and doesn't require frequent eye injections. The results showed that after the nanoparticle injections, the animals had a 60% reduction in abnormal blood vessels compared with the controls, and the effect lasted for over a month.

"These results are extremely promising," said Jordan Green, Ph.D., professor of biomedical engineering at the Johns Hopkins University School of Medicine, in a press release. "We have the ability to reach the cells most significantly affected by degenerative eye disease with non-viral treatments that can allow the eye to create its own sustained therapies."

Covid-19 expected to boom medical devices industry



Doctors could soon see an unexpected silver lining from the cloud of COVID-19: better data on patients. Because of the fear of going to the doctor, patients may drive a boom in medical devices that monitor their health from afar.

Venture capitalist Harry Glorikian, author of "MoneyBall Medicine: Thriving in the New Data-Driven Healthcare Market," said doctors are already using wearable technology to monitor our heart rate, blood pressure, stress, sleep patterns and more. Glorikian, who is based in the Boston area, said this usage of the technology will make a big difference in keeping people healthy.

"Because I have an Apple watch," Glorikian said, "I've been doing the EKG that they have ... and all of a sudden [the doctor] gets to take a look at me over X number of months that I haven't seen him, rather than the one measurement when I'm in the waiting room."

While wearable technology isn't new, Glorikian said the pandemic is making the advancements more critical, since people don't want to go to doctor's offices.

"All of a sudden, now you're giving people — I don't want to say 'no choice,' but now they need these things. It changes how you get care, where you get care, who's going to give you that care. I mean, you can see a very large business model shift if this stays the same way it is," Glorikian said.

And many more technological advances are likely on the way. The first six months of this year saw U.S. digital health companies collect nearly \$5.5 billion in venture funding, the most ever raised in six months, according to Rock Health, a venture fund dedicated to supporting health care technology.

Jed Constantz, a health care consultant who specializes in primary care finance and delivery, said he's excited by the possible advancements in technology, but added that as tech wizards rush to create new stuff, they need to think very

carefully about how medicine has been practiced.

"All too often, technology has attempted to re-engineer the process of care rather than leverage the most efficient process of care. And so the venture capital, investor-backed efforts — I have found them to be largely ignorant. And they wonder why they don't get traction," Constantz said.

Constantz pointed to the creation of electronic medical records, which were supposed to instantly revolutionize medicine. While it has become hugely helpful to have all patient information in one place, it was an onerous process at first. Constantz said doctors and nurses spent much too much time inputting information instead of interacting with patients.

Bob Phillips is a family physician and executive director of the Center for Professionalism and Value in Health Care, a thinktank that says it's dedicated to studying and improving the quality of primary care in America. Phillips agreed that health monitoring technology can be terrific tools for doctors — allowing for sharing data like blood glucose and blood pressure levels — but emphasized that the new information patients have been sending over the past few months has been the result of their fear of going to his office.

After all the online appointments and in-home monitoring, Phillips said, his patients told him what they want is facetime. And not of the iPhone kind.

"Some of those were people with lots of health conditions, and they really wanted to check in and talk about what they'd

been doing for exercise, whether their weight had gone up or gone down, how it was affecting their diabetes. And some of them just wanted a physical. They wanted someone to touch them and tell them they were OK," Phillips pointed out. "People want those trust and healing relationships, and while technology can enable that, it's not going to replace it."

Phillips also said he worried that as health technology advances, there will be a large gap between those who can afford devices and those who can't, exacerbating disparities in health care between rich and poor communities. He said that history has shown when insurance companies start getting involved, the cost of medicine — whether it's procedures or devices — tends to go up, because people with insurance generally don't care about prices.

Mai Pham, the former Chief Innovation Officer at the Center for Medicare & Medicaid Innovation, said that in addition to rising costs, she's concerned tech firms will most likely want to produce gee-whiz gadgets that look great in advertisements, but aren't very valuable to doctors.

"It's very interesting that you can track your heart rate and your blood pressure 24 hours a day. But for most normal, healthy people, that's not as much additional value. It's really for patients who have specific chronic conditions or other risk factors where that might become more important," Pham said.

Pham said she would like to see simple, but not-terribly-sexy technology that could, for instance, help people remember when to take their medications.

"Things that automatically dispense medication for them, or something that will give their physicians more real-time data on which medications they're actually taking? Right. Or perhaps it's, you know, environmental data from their home or their activities in their home sent back to the physician that can help the physician track their progress — or their deterioration," Pham said.

So far, Pham's concerns are justified. According to the venture firm Rock Health, much of the venture money handed out this year went to companies developing online platforms — for medical data, telemedicine, digital pharmacies and fitness classes — which the majority of Americans are unlikely to use in the short term.

But money is also going to things that could affect a huge number of people, like wearable defibrillators that can stem cardiac arrest and more efficient ways to deliver mental health counseling at a distance.

The fact remains that Americans are still worried about going to the doctor. As long that is true, people may be willing to try new technologies that they resisted before.

Keyvan aviation creates new antibacterial uniforms to protect people from bacteria and viruses



Istanbul based company Keyvan Aviation has created new antibacterial uniforms that use materials designed to protect people from viruses and bacteria without cabin crew having to wear personal protective equipment (PPE) over their uniforms.

"To achieve ICAO 'clean crew' advice, we built Airlines Cabin Crew Uniform with new safety design to cover the entire body and used antibacterial fabric to actively inhibit viruses and kill bacteria upon contact on the surface," said Seden Bolat, Keyvan Aviation strategy advisor.

"Our uniforms are made of 97% cotton and tested according to international standards. They are produced from fabrics suitable for sensitive skin. In addition, the moisture vapor transition feature in the fabric provides comfort throughout the day. Since microorganisms such as bacteria that cause odor require prerequisites such as food, temperature and humidity, textile products that come into contact with the skin become an ideal biosphere for microorganisms. Anti-Odor odor suppression technology, which we use in our fabrics, catches scent molecules and controls unpleasant odors, ensuring that the uniform smells clean. Our uniforms provide a fit look and are subjected to special processing during manufacturing to reduce pilling and haining tendencies. Cloths that have the feature of easy cleaning when exposed to dirt and stain do not lose their shape when washed thanks to the elastic structure."

Bolat added, "By keeping the textile free of viable viruses and bacteria, our produced uniform minimizes the potential for re-transmission of pathogens from textile.

Boehringer Ingelheim announces positive results from Phase III trial in adults with chronic diseases



Boehringer Ingelheim - one of the world's leading pharmaceutical companies has announced positive top-line results from the EMPEROR-Reduced Phase III trial in adults with chronic heart failure with reduced ejection fraction. The trial met its primary endpoint, demonstrating superiority empagliflozin (10mg) versus placebo on top of standard of care, in reducing the risk for cardiovascular death or hospitalization due to heart failure.

Many Middle Eastern countries have observed increases in the prevalence of risk factors for heart failure, which is seen to develop in their populations at least 10 years earlier than in Western counterpart populations. The risk factors include diabetes mellitus, obesity, and hypertension. Heart failure with reduced ejection fraction occurs when the heart muscle does not contract effectively and pumps out less blood to the body compared to a normally functioning heart. Symptoms associated with heart failure include breathlessness and fatigue, which can severely impact upon quality of life. There remains a high unmet need in the treatment of heart failure, as approximately 50 percent of all those diagnosed with the condition die within five years.

The EMPEROR-Reduced clinical trials form part of the EMPOWER clinical program, one of the broadest, most comprehensive trials of any SGLT2 inhibitor, exploring the impact of treatments across cardio-renal-metabolic conditions. Building on findings from EMPA-REG OUTCOME®, these positive results demonstrate that empagliflozin has the potential to fill unmet therapeutic needs for people with this highly prevalent condition.

Full results from the EMPEROR-Reduced trial will be presented in a hot line session at the European Society of Cardiology (ESC) congress 2020, which is being held 29 August. A second trial, EMPEROR-Preserved, the results of which are expected in 2021, will explore the effect of empagliflozin on cardiovascular death and hospitalization for heart failure in adults with heart failure with preserved ejection fraction - an area of high unmet need as there are currently no treatment options available for people with this form of heart failure.

2nd tent for DPI screening opens in Seih Shoaib



Tamouh Healthcare has announced that it will open its second new tent for laser-based DPI screening in Seih Shoaib 'after the checkpoint' on Sunday to mitigate the crowd being experienced at the first tent in Ghantoot area.

The DPI technology has been adopted recently to detect suspected cases of COVID-19 before entering the Emirate of Abu Dhabi, as it shows result in a few seconds.

The move comes to preserve public health and to curb the spread of the virus.

Tamouh explained that the new tent will be three times larger than the first one, and will be allocated to families only so that they can serve them better.

While, labors will continue to be prohibited from entering or exiting the emirate as per an official decision issued by the Abu Dhabi Emergency, Crisis and Disaster Committee for the COVID-19 Pandemic.

Due to high demand for the laser-based DPI screening to enter Abu Dhabi, the committee stressed the necessity of planning and conducting checks in advance whenever possible to avoid any possible congestion or delay.

The new tent will have the capacity to serve 2,400 appointments daily.

Meanwhile, Travellers with a negative COVID19- test (PCR) result will continue to be allowed to enter the emirate within 48 hours from receiving the result, the Committee stated.

Those wishing to enter Abu Dhabi can register to book an appointment via the website. The process takes a few minutes to enter name, Emirates ID number, phone number, date of birth, country, city and nationality for residents, Tamouh added.

During the past days, the first tent was allocated to families only due to the large turnout of workers who flocked to the tent for the screening in order to enter Abu Dhabi.

It will be available for all following the opening of the new tent, which will be allocated to families only, Tamouh confirmed.

Amana Healthcare launches therapy program for post COVID-19 patients



Amana Healthcare, the Middle East's leading provider of post-acute care services, has launched a first-of-its-kind therapy program to rehabilitate patients who have been left with serious health issues and impairments after recovering from COVID-19.

Drawing on the Mubadala Healthcare provider's established expertise working with long-term care patients and offering specialized rehabilitation for conditions such as strokes and traumatic brain injuries, spinal cord injuries, the new program is being deployed as part of its broader efforts to mitigate the effects of the global pandemic.

While an immediate priority in hospitals at the outset of the pandemic has been to save the lives of patients with severe complications from COVID-19, with the network's hospitals declared free from COVID-19 attention is now turning to rehabilitation for discharged patients. To this end, Amana has devised a four-stage process that helps to restore the physical and cognitive functions that are often diminished in the aftermath of the disease, particularly over long periods of care in an ICU.

Dr Jason Gray, Senior Director for Clinical Operations at Amana Healthcare, says: "COVID-19 can confine patients to medium- to long-term care in an ICU or acute hospital setting. Recovery

brings new challenges, such as regaining breathing functions, physical movement, muscle strength, and healthy body weight and composition. Cognitive functions such as attention, memory and mood may also present psychological challenges. This is when the rehabilitation phase begins, and where Amana's post-COVID-19 rehabilitation program comes in."

Amana's post-acute rehabilitation (PAR) service is led by an in-house team of multidisciplinary (MDT) specialists which include physical medicine and rehabilitation physicians, physiotherapists, occupational therapists, respiratory therapists, dietitians, rehab nurses and social workers.

One of the patients who is undergoing the post-COVID rehabilitation program as teletherapy, is Shamilah Ahmad.

Shamilah says: "Recovering from COVID-19 seemed such a long way away once I was discharged from the hospital for the second time. This is where the post-COVID rehabilitation program from Amana Healthcare stepped in and changed the course of my recovery. For me, to have a team of multidisciplinary therapists who are looking after me, who care about not just my physical, but also cognitive wellbeing, gives me the strength to continue to fight the impact of this virus. I don't feel alone anymore as I had been made to feel previously. Psychologically this is a huge step in itself."

She says that the program has given her confidence in her ability to recover. "Through the help of this rehabilitation program, I hope to be able to get back to my normal life, and to return to work doing the job I love and the hobbies that I enjoyed. Amana's rehabilitation program has made this possible, and I feel and see improvement in myself daily and I hope to continue to make progress until I reach my goal."

Deborah Pierce, Director of Rehabilitation at Amana Healthcare and a New Zealand-trained physiotherapist, emphasizes that the four stages of the program coalesce with the input of different professional disciplines.

She says: "The four rehabilitation stages cover ICU step-down rehabilitation and ventilator weaning; specialized inpatient rehabilitation; home or tele/video rehabilitation; and specialized outpatient rehabilitation. An assessment is made as to whether all four stages of the program are necessary; from here, we can deliver the correct therapy to assist in returning the patient to pre-illness levels of function, activities and life roles.

"Our objective is to help patients get back to their pre-COVID life," adds Pierce. "Some patients need help getting off a ventilator but for many patients the challenge is to regain strength, mobility and independence after spending weeks immobile or comatose in a hospital bed. This is done by Amana's MDT team, and the program begins in Amana's rehabilitation facilities and continues in the patient's home."

Currently, inpatient referrals to Amana facilities come through those acute hospitals treating COVID-19 in the UAE. In contrast, outpatient tele/video rehabilitation and home rehabilitation can also be accessed directly by patients who have been discharged to their homes, or who have self-managed at home to date, but whose rehabilitation needs are yet to be addressed. This growing emphasis on telemedicine and homecare indicates a developing trend in the endeavor of overcoming the virus.

Etihad airways to provide premium passengers with microbebarrier face masks



As part of its new health and hygiene program, Etihad Wellness, premium passengers will receive a snood style facemask for use throughout their journey and beyond.

The soft reusable snood has been treated with MicrobeBARRIER fabric treatment, a broad spectrum antimicrobial treatment, laboratory tested and proven to reduce the presence of germs in fabrics. With this

long-lasting protective layer, the snoods are washable and reusable, making them environmentally friendly.

Travelers can choose to wear the snood around their neck like a scarf and when in close proximity to others, pull it up over their mouth and nose to protect themselves and those around them.

Made out of lightweight, breathable and stretchy jersey fabric, the snood is comfortable and ideal for travel because it can be easily slipped on and off as needed.

The safety, health and wellbeing of Etihad's guests is the airline's top priority, during and beyond the flight. The MicrobeBARRIER™ treated snood is one of the many initiatives the airline has introduced to create a healthier and cleaner environment.

Epson fosters the Middle East's smart robotics future

This pandemic period has made it apparent that being reliant on a few countries for production means that when the supply chains break down, countries face the situation of having a shortage of supply. By reshoring and localizing production, these challenges can be limited in the event of any future crises.

Reshoring and the further development of local manufacturing is aligned with Middle East transformation agendas, as it would see manufacturing driving diversified economic growth and enabling job creation. This is particularly true of UAE's Vision 2021 and Strategy for the Fourth Industrial Revolution, the Kingdom of Saudi Arabia's Saudi Vision 2030, and Egypt's Vision 2030.

Automated robotics are set to play a major role in supporting reshoring and local manufacturing. As automated robotics have become more accessible and affordable, they are now ideal for small companies, manufacturers, and the agricultural industry.

In factories, robots could enable enhanced production of medicines and personal protective equipment and in agricultural production, robots could help to plant, monitor and harvest crops safer, faster and more efficiently. Some industry experts expect robots to take on dangerous or routine tasks, working alongside people to increase production, free up valuable employee time, and allow for more business opportunities.

Robotics allows for the creation of new domestic jobs through reshoring, as businesses bring their production and distribution home. A new channel of jobs and opportunities in programming, engineering, AI and technology-based careers could also be created as robot fleets need to be programmed and managed.

PRODUCT LAUNCH

A Sharjah-based healthcare company has announced its latest venture; what it is dubbing the 'Middle East's first e-hospital'.

Mulk Healthcare, which is part of the UAE's Mulk Holdings International, has unveiled its digital hospital project designed to bring "disruptive futuristic healthcare solutions to consumers of the GCC," it said in a statement.

Launching as a downloadable app this August, the Mulk E-Hospital will reportedly offer a range of healthcare services, including initial doctor consultations, and post-hospital care.

What differentiates this solution from other regional telemedicine offerings is that the service will host medical specialists from all over the world. According to the company, Mulk E-Hospital will provide "quality healthcare from the best international experts in each medical field based in the United States, United Kingdom, Thailand, Pakistan, Europe and India, in addition to those in the UAE and other GCC countries.

"This way, [the] E-Hospital offers global healthcare services from a pool of international experts to the patients in the UAE," the statement added.

Over 2,000 doctors from around the world have already signed up with the service.

The case for virtual hospitals in the GCC and wider Middle East region is



stronger than ever, since the outbreak of COVID-19 that caused cities to be put under lockdown since late February. To avoid the spread of the coronavirus, residents in many regional territories have been advised to only visit a hospital or clinic for emergencies.

"E-Hospital is the future of healthcare services and brings the entire healthcare services [at] your fingertips – from booking an online appointment to online consultation; sharing health data; securing insurance approvals; getting medical advice; prescriptions... – all through the digital space," said Nawab Shafi Ul Mulk, president of Mulk Healthcare. "In this age of globalization and digitization, a patient's health issues don't need to be limited to the consultation or treatment of a few doctors in the neighborhood [they] live [in]. With Mulk E-Hospital, we are bringing the best consultant physicians and healthcare solutions to the patients through our app.

"Mulk E-Hospital is a hospital without borders and unlocks the potential of healthcare services with unlimited possibilities. The COVID-19 social distancing prohibits most patients to physically visit clinics and hospitals, and we are offering the perfect solution to address this concern."

Dubai Chamber's new PPE online marketplace



The Dubai Chamber of Commerce and Industry launched an online marketplace for personal protective equipment (PPE) amid growing demand.

The Rapid Response Initiative (RRI) is a free-of-charge platform that connects UAE companies and healthcare providers with reliable suppliers of PPE products.

According to Dubai Chamber, this comes after demand among businesses grew as they commit to complying with the safety measures introduced by the UAE government in order to contain the spread of COVID-19.

Potential buyers can find a wide range of medical products available on the platform.

These include surgical and reusable facemasks and shields, safety goggles, hand sanitizers, disposable gloves, medical gowns and coveralls, ventilators and thermometers.

UPCOMING EVENTS



**International
Growth &
Development
Conference**

02-04 September
Dubai



**Emirates Critical
Care Conference
(ECCC) Dubai, UAE**

03-05 September
Dubai



**Emirates
Derma**

03-05 September
Dubai



**International
Conference on
Medical, Medicine
and Health Sciences
(MMHS)**

11-12 September
Dubai



**International
Conference on
Nephrology
Therapeutics**

14-15 September
Dubai



**International
Conference on
Pharmaceutics and
Pharmacovigilance
(Pharma Conference)**

17-18 September
Abu Dhabi



**United Experts
Meet on Nursing
Education and
Nursing Practices**

17-18 September
Abu Dhabi



**MENA
International
Orthopaedics
Congress**

17-18 September
Dubai



**Annual GCC
Healthcare
5.0 Congress**

21-22 September
Dubai



**Head and Neck
Conference: The
Multidisciplinary
Approach**

26-27 October
Dubai



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Sharjah Airport is the first to offer IATA CEIV Pharma certified cargo handling services in the Middle East and Africa, via its sole ground handling agent Sharjah Aviation Services.

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- 10Ft (or 2 LD3) ULD dollies. Cooling range -18°C/ +25°C
- Bulk trailers 2500Kg / 14m³ capacity. Cooling range 0°C/ +18°C





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ANY OTHER, WE CARRY ALL YOUR HEALTH AND WELLNESS NEEDS,
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