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MEDiWORLD Middle East

Sameena Ahmad
Managing Director, Alpen Capital (ME Ltd)

Healthy outlook for GCC healthcare industry

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MediWorld ME aims to create the ultimate platform to share the latest news, updates & developments from the healthcare & medical technology industry within & beyond the GCC countries

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Editor's Note

Steady growth seen in healthcare industry

Among the major categories of expenses for any household are healthcare and education. Though the rate for each may differ from one country to another, families will always need to budget properly for their education as well as healthcare needs. In line with growing populations, governments all over the world also allocate considerable portion of their annual budgets to provide the best of these services to their people. This is also true for the GCC region as the population is expected to increase to 61.6 million by 2022, of which nearly 17 per cent will be people aged 50 years and above.

Our cover story this edition takes a look at the GCC healthcare industry; the role of the government and private sectors in its growth; current healthcare expenditures; market dynamics; challenges ahead as well as the technology trends shaping the industry.

The experts highlight that 'Current Healthcare Expenditure (CHE) in the GCC is to reach US$104.6 billion in 2022. Expanding population, high prevalence of Non Communicable Diseases (NCDs), rising cost of treatment and increasing penetration of health insurance are the factors auguring growth'. In addition, the outpatient market size is to grow at an average rate of 7.4 per cent to US$ 32.0 billion between 2017 and 2022 and inpatient market is anticipated to increase at a CAGR of 6.9 per cent to US$45.4 billion. These expected growth rates and total value of the market are factors worth considering for all service and product manufacturers and providers in healthcare industry.

Considering the limited space in our print edition, we strive to include and promote several new and advanced products introduced by the industry's leading players. Agfa HealthCare is known to be the first manufacturer to develop image processing algorithms specifically for chest radiography. Our article tells more about the company's latest offering 'MUSICA3', which intrinsically performs scatter subtraction based on an analysis of the image frequencies.

Healthcare doesn't always have to be a serious and costly affair. That is why we explore a new medical tourism destination each time taking the 'pain' out of the process. With exquisite beaches and gorgeous scenery, Thailand is among Asia's top destinations for medical tourism for a wide range of reasons including low cost of treatment. This beautiful country continues to attract lots of patients from the GCC and is determined to keep its top position for the years to come.

As always, we look forward to receiving your invaluable support and comments on our magazine.

Editor, *MediWorld ME*

MEDIWORLD Middle East

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Medical Destination

Healthy outlook for GCC healthcare industry

Alpen Capital's latest report forecasts steady growth for the GCC healthcare industry as the region's Current Healthcare Expenditure (CHE) is projected to reach US$104.6 billion in 2022

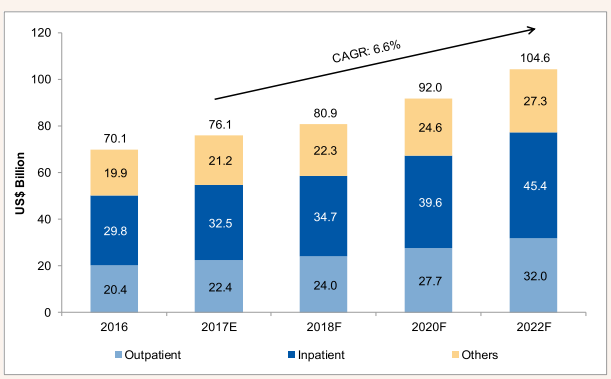
Technology will remain the core factor in upgrading the GCC healthcare sector over the coming years. Technologies such as electronic health records, e-visits, telemedicine, connected medical devices, robotic procedures, health monitoring wearables and health analytics are gaining acceptance in the region.

Alpen Capital recently announced the publication of its GCC Healthcare Industry report, which covers the recent trends, growth drivers, and challenges in the industry, along with Alpen Capital's outlook until 2022. The report also profiles some of the prominent healthcare companies in the region, highlighting their financial and valuation metrics.

"GCC healthcare industry continues to offer a wide gamut of investment opportunities. Though traditionally regional governments played an instrumental role in building the sector, shrinking oil revenues have slowed spending. At the same time, the role of private sector is increasing, encouraged by government incentives, mandatory health insurance and other reforms. Given the changing demographic and epidemiological structure, mandatory health insurance, and government initiatives to encourage private sector participation, we expect to see steady growth in private sector investments in the healthcare industry," says Sameena Ahmad, Managing Director, Alpen Capital (ME Ltd).

"Even though regional governments continue to shoulder a sizeable part of the healthcare expenditure, in the backdrop of budget deficits, the importance of private sector participation is being widely discussed across the GCC nations. With increasing opportunities for the private sector, the healthcare industry is witnessing a surge in mergers and acquisitions. The inorganic route is being adopted by new players to enter the market and by existing providers to expand market share, physician practices and medical capabilities," adds Krishna Dhanak, Executive Director, Alpen Capital (ME) Ltd.

Exhibit 1: Forecast of CHE in the GCC



Source: Alpen Capital, WHO, IMF, WTW, MOH and Statistical organizations in the GCC

Note: E – Estimate, F – Forecast; The market size during 2016 is based on actual healthcare indicators and inflation

> "GCC healthcare industry continues to offer a wide gamut of investment opportunities. Given the changing demographic and epidemiological structure, mandatory health insurance, and government initiatives to encourage private sector participation, we expect to see steady growth in private sector investments in the healthcare industry." - Sameena Ahmad, Managing Director, Alpen Capital (ME Ltd)

Bright outlook

Current Healthcare Expenditure (CHE) in the GCC is projected to reach US$104.6 billion in 2022, registering a CAGR of 6.6 per cent from an estimated US$76.1 billion in 2017. Expanding population, high prevalence of Non Communicable Diseases (NCDs), rising cost of treatment and increasing penetration of health insurance are the factors auguring growth.

Given the ageing population and an expected increase in the frequency of visits to clinics for treatment and preventive care, the outpatient market size in the region is predicted to grow at an annualized average rate of 7.4 per cent to US$ 32.0 billion between 2017 and 2022. The inpatient market is anticipated to increase at a CAGR of 6.9 per cent to US$45.4 billion. Current Health Expenditure on 'Others' is expected to grow at compounded annual average rate of 5.2 per cent during the forecast period. Growing size of population, and rising cost of medicine and ancillary services will be the forces driving the spending on other healthcare services.

Between 2017 and 2022, country wise CHE is anticipated to expand at annual average growth rates between 2.6 per cent to 9.6 per cent. The growth range is wide due to country-specific projections of population, cost of healthcare and other factors. The UAE and Oman are likely to witness growth rates of above 9 per cent, in anticipation of a fast-growing population, implementation of mandatory health insurance and above regional average medical inflation rates. Saudi Arabia, which is the region's largest market, is expected to see a 6.1 per cent growth in CHE.

In view of the anticipated rise in number of patients, the region is expected to require 12,358 new hospital beds by 2022. This translates into an estimated annual average growth of 2.2 per cent from 2017 to reach a collective bed capacity of 118,295. The high incidence of chronic cases has led to an increase in demand for beds, particularly in specialized areas of care.

Although the general hospitals are not running at optimal capacity, the need for beds is rising due to limited availability of specialty hospitals, long-term care centers and rehabilitation centers, among others.

Growth drivers

Rising and ageing population, increase in life expectancy and low infant mortality rate are the key demographics driving the region's healthcare system. The GCC population size is anticipated to increase by 6.6 million individuals to 61.6 million by 2022, of which nearly 17 per cent will be people aged 50 years and above.

An increase in the incidence of non-communicable diseases has brought about changes in the epidemiological profile of GCC countries. Considering the high cost and length of treating such lifestyle ailments, the healthcare expenditure in the region is expected to rise.

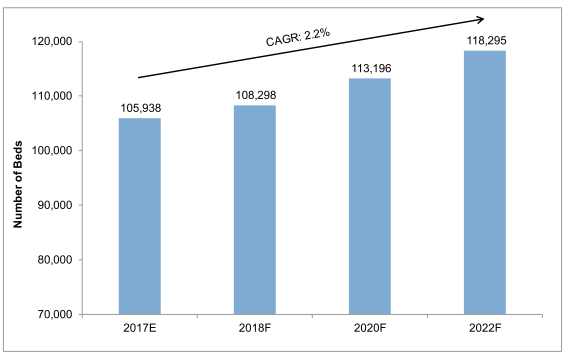
Governments across the region have either made health insurance mandatory or are in the process of doing so. The gradual rollout of compulsory health covers across the region will increase the utilization of medical services at private healthcare facilities.

Regional governments have framed long-term strategies aimed at capacity expansion, enhancing the effectiveness of the delivery system, encouraging public-private-partnership (PPP) models, developing medical education and digitization. Such strategies will upgrade the capacity and quality of care.

The GCC has over 700 healthcare projects worth US$60.9 billion in various stages of development. This massive project pipeline is likely to augment the scale of healthcare services over the coming years.

Medical tourism is an integral part of the economic diversification plans of the GCC countries and subsequently has been receiving stimulus from the governments. Dubai and Abu Dhabi are at the forefront amongst the GCC nations in attracting medical tourists.

Exhibit 2: Forecast of Demand for Hospital Beds in the GCC



Source: Alpen Capital, WHO, IMF, WTW, MOH and Statistical organizations
Note: E – Estimate, F – Forecast

Challenges ahead

Being largely hydrocarbon-dependent, the fall in oil prices has widened fiscal deficits of the GCC countries, compelling the governments to curtail expenses. With the government shouldering a large part of the CHE, a low-price oil environment had inhibited the growth of healthcare sector.

Another major challenge faced by the healthcare providers is the limited availability of skilled healthcare professionals. An inherent shortage of professionals locally, nationalization of jobs, high attrition and rising staffing cost are hindering growth.

The cost of healthcare has been rising due to growing incidence of lifestyle diseases, technological advancements and limited availability of specialized care. Gross medical inflation rates ranged between 5.0 per cent and 12.0 per cent in the GCC countries during 2017, with the UAE witnessing the highest rate.

The GCC healthcare system has limited capacity and technology to treat ailments such as cancers, neurological disorders and cardiovascular diseases. This has led to locals and expatriates travelling overseas for specialized medical treatment. Some of the hospitals and clinics in the region lack reporting methods related to quality, patient experience and leading international practices, resulting in an inconsistent quality of services.

The UAE and Oman are likely to witness growth rates of above 9 per cent, in anticipation of a fast-growing population, implementation of mandatory health insurance and above regional average medical inflation rates. Saudi Arabia, which is the region's largest market, is expected to see a 6.1 per cent growth in Current Health Expenditure.

Health trends

The rapidly growing prevalence of lifestyle diseases and ageing population are prompting investments in long-term and post-acute care rehabilitation (LTPAC), specialized clinics and home healthcare providers.

To reduce incidences of lifestyle diseases and associated costs, the regional governments are devising ways to encourage preventive care. People in the region are also turning health conscious and proactively conducting annual medical checks/ screening. This is leading to a systemic change from curative care to preventive care.

Technology will remain the core factor in upgrading the GCC healthcare sector over the coming years. Technologies such as electronic health records, e-visits, telemedicine, connected medical devices, robotic procedures, health monitoring wearables and health analytics are gaining acceptance in the region.

In conclusion, an ageing population, the high incidence of NCDs, a focus on preventive care and quality enhancing reforms are reshaping and strengthening the GCC healthcare industry. The sector is offering immense potential in areas of specialized care, technology, primary healthcare care and medical tourism. The opportunities coupled with a friendly business climate are encouraging investor interest in the healthcare industry.

Mafraq Hospital, Abu Dhabi, UAE

Non-grid bedside chest imaging

With a wide range of products, Agfa Healthcare constantly aims to improve image quality and workflow using fractional multi-scale image processing, explains the latest white paper

Fractional Multiscale Processing (FMP) is the new mathematical substructure of Agfa HealthCare's image processing software, which further decomposes image components into elementary fractions for separate processing. FMP results in a more accurate multi-scale enhancement model, a balanced participation of all filter kernel pixels in the enhancement process, and better preservation of low-contrast details next to high-contrast steps.

With the advent of mobile digital radiography (DR) systems, combines with an ageing population, there has been a continual increase in the percentage of bedside (portable) check radiographs carried out in hospitals. In some cases, up to 50 per cent of in-hospital digital radiography procedures are now bedside chest exams.

Anti-scatter grids are normally recommended for use with chest radiography in order to improve image quality. Using grids can result in improved contrast detail by reducing the amount of scatter radiation reaching the detector. This is particularly true for medium- to large-sized patients.

But, delivering acceptable image quality from bedside imaging can often be challenging for a technologist, due to equipment and exposure limitations as well as patient pathology .

Agfa HealthCare's MUSICA image processing is designed to optimize detail contrast under all conditions, whether or not a grid is used. Thus, there is no need for it to mimic the effect of a grid. In this regard, it is conceptually different from conventional image processing, and can process chest images taken with or without a grid, without distinction, using the same algorithm.

In its latest white paper, Agfa demonstrates MUSICA's advanced Fractional Multiscale Processing (FMP) technology for these (difficult) bedside chest exposures, and shows how Agfa HealthCare uses state-of-the-art technology to improve the delivery of quality daily care for critically ill patients, as stated by a participating radiologist.

Grid Limitations:

Although using grids is optimal from a physics standpoint, in a bedside imaging setting there are a number of resulting challenges:

- Grids need to be properly centered and positioned
- Grids get damaged over time
- Grids may create aliasing artefacts in the images
- Grids typically require a higher radiation dose
- Grids require longer exposure times

Because of these time- and effort-consuming requirements, the use of anti-scatter grids is often avoided in bedside chest radiography.

With its maneuvrability, safety features, and ease of use, the wireless DX-D 100+ enables powerful imaging on the go. Instant image capture, gold standard MUSICA image processing software, and workstation connectivity enhance bedside workflow productivity and maximize image quality, with dose reduction potential capabilities to support use of the lowest dose reasonably achievable.

Chest Radiography

Agfa HealthCare was the first manufacturer to develop image processing algorithms specifically for chest radiography, and for many years MUSICA has optimized non-grid bedside image contrast.

While other technologies attempt to produce an image that resembles the equivalent image taken with a physical anti-scatter grid, MUSICA intrinsically performs scatter subtraction based on an analysis of the image frequencies. Detail contrast can thus be improved, almost up to the level of a properly exposed grid image.

Introduced with MUSICA3, Fractional Multiscale Processing (FMP) further optimizes lung vessel detail, while minimizing the effects of noise and scatter radiation.

In addition to the Fractional Multiscale Processing, MUSICA allows specific tuning or parameter adjustment for non-grid chest imaging, providing additional enhancement. These parameters are versatile and, unlike other products on the market, no system calibration or other pre-requisite is required. The MUSICA concept thus supports greater flexibility to adapt to customer-specific preferences.

The MUSICA3 Chest+ package includes an extra parameter set for optimal bedside chest image quality and facilitates a mix of grid and non-grid imaging workflows.

However, it is to be noted that this application does not replace grid exams in all circumstances (nor does any other technology). Exams taken with a grid under optimal conditions (non-bedside images) can still be superior.

Clinical Image Quality Study

An internal bench test was performed using chest phantoms to simulate both normal-weight and obese patients. This study showed that MUSICA3 chest processing with parameter enhancement could potentially improve the image quality of non-grid chest images to nearly that of a standard MUSICA (Genrad) processed grid image (with a dose reduction factor of 1 .6 for the non-grid images).

However, this phantom testing did not reveal how pathology would be affected by the extra enhancement, and thus what degree of enhancement would be acceptable for radiologists in actual clinical

use, depending on patient size and variable X-ray doses. Therefore, a study based on clinical images, including readings by radiologists, was initiated. An elaborated study design was used to derive the optimal MUSICA3 parameter settings, as well as contextual information.

For this purpose, clinical, non-grid bedside chest images from various ICU units were collected from a total of five different hospital sites in the USA, Germany and Belgium. A sample of 25 patient cases was used for evaluation, including DR and CR technology, as well as a representative dose range, different patient sizes and various pathologies.

'For processing' raw images from these patient cases were reprocessed with established processing (MUSICA2 Genrad) and with the newest version of Agfa HealthCare's multi-scale processing (MUSICA3 Chest, including FMP) at default settings, with three different levels of processing enhancement (weak-moderate-strong). The assessment was carried out by six experienced radiologists (two each from the USA, Germany and Belgium).

> All DR solutions include features and technologies that minimize exam preparation time, procedure time and the wait for images, enhancing user and patient satisfaction. And they offer a choice of fixed, tethered and wireless detectors with Cesium Iodide (CsI) or Gadolinium Oxy-Sulphide (GOS) technology. CsI detectors also offer the potential for dose reduction.

Improvement in images

MUSICA3 multi-scale processing yields significant improvement in image contract for bedside chest images of normal-weight to obese patients taken without anti-scatter grid. This is particularly noticeable with obese patients. Grid artefacts, long exposure times and un-diagnostic images due to misaligned grids can be avoided.

For non-grid bedside chest images, a statistically significant improvement was seen when using fractional multi-scale processing (MUSICA3) at the minimum and moderate enhancement settings over standard multi-scale image processing (MUSICA2) across all readers and patient sizes (thin to obese).

An even greater improvement was seen when the thin patients were excluded. For normal-weight to obese patients, using minimum enhancement, 81 per cent of the images were rated better than the standard multi-scale processing.

With the moderate enhancement, 77 per cent of the images were rated better. The improvement was more pronounced for images done at higher kVp as well as for images done with lower doses. Image enhancement can be easily optimized using the MUSICA image processing adjustment parameters.

Also, regarding the MUSICA3 default processing for chest, the moderate enhancement was shown to offer a statistically significant improvement for non-grid bedside chest images. Commercially, this MUSICA3 chest enhancement image processing is referred to as 'Chest+'.

MUSICA3 Chest+ vs. anti-scatter grids

As 25 non-grid bedside chest images were evaluated comparing MUSICA3 Chest+ to MUSICA2 Genrad image processing, these images were further compared to images from the same patient acquired on another day using a physical anti-scatter grid (ratio 6:1) and increased X-ray dose, and processed using MUSICA 2 Genrad image processing.

While the technologists were trained on the proper use of an anti-scatter grid, this comparison points to many of the typical shortcomings of chest exams taken under these conditions, including grid handling and alignment, variation in patient position and dose (with grid and without grid), and the time difference (and possible pathology change) between the two exposures.

Readings of these image sets were carried out by two experienced radiologists from the hospitals from which the bedside chest images were acquired (specifically, from the ICUs of two typical, larger German hospitals). Both DR and CR images were included. Features for daily control in ICU were identified by the readers, and the images were rated on a quality scale from 1 to 10 (absolute scoring). The overall image quality difference between MUSICA3 Chest+ and MUSICA2 Genrad processing was proven to be significant by means of a T-test with a confidence level of 95 per cent.

Clinical Practice: Conclusion

For bedside chest images, the clinical experience confirmed that MUSICA3 Chest+ was clearly preferred over MUSICA2 Genrad image processing; the MUSICA3 Chest+ non-grid images were rated significantly higher than the MUSICA2 Genrad images carried out with or without a grid.

Specifically, the radiologists felt that the improvement in lung field detail achieved with the MUSICA3 Chest+ image processing without a grid was greater than that achieved using MUSICA2 Genrad processing, even if a grid was used and at an increased dose.

The fact that using a grid and approximately 1.6 times higher dose yields little or no improvement in image quality for the bedside examinations may be attributed to the practical circumstances (and the shortcomings) of grid handling in this situation. In practice, the results for images taken of a patient in an X-ray room with a wall stand, more controlled conditions and different (higher) doses could be expected to yield more favorable results for the grid images.

However, for mobile non-grid imaging, optimal lung field visualization as provided by MUSICA3 Chest+ was seen by the radiologists as the most important aspect of a bedside chest examination. This potentially outweighs the additional improvement of the mediastinum gained by using a physical anti-scatter grid with MUSICA2 Genrad processing at a higher (1 .6x) exposure.

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Osso VR validates Virtual Reality training platform

Osso VR is a validated virtual reality surgical training platform designed for surgeons, sales teams, and hospital staff of all skill levels. The product offers highly realistic hand-based interactions in immersive training environments that contain the latest, cutting edge procedures and technology.

Osso VR offers highly realistic hand-based interactions in immersive training environments that contain the latest, cutting edge procedures and technology

Educating surgeons is progressively becoming more difficult due to a phenomenon called the 'training gap'. This gap is the result of the procedures that need to be learned becoming more complex and also more numerous - while due to work hour restrictions and other factors like electronic medical record systems - the time we have to learn them is reducing. The result is that an ever-increasing percentage of surgeons graduates from their training either feeling or being rated as unable to operate independently.

This is especially an issue when it comes to learning to use newer medical technology. Typically a surgeon will learn about a new device at a one day "course," and then be expected to use that device on a patient. Unfortunately, there is a course-to-case gap of often 4-6 months before the surgeon actually uses the device in the operating room. This leads to a much higher complication rate and limits adoption of newer and more effective medical technology.

Virtual Reality (VR) has the ability to transport the medical personnel inside the human body – to access & view areas that otherwise would be impossible to reach. Currently, medical students learn on cadavers, which are difficult to get hold of and (obviously) do not react in the same way a live patient would. In VR however, it is possible to view minute detail of any part of the body in stunning 360° CGI reconstruction & create training scenarios which replicate common surgical procedures.

The global market for Virtual Reality in healthcare is projected to reach US$3.8 billion by 2020, driven by technology advancements in healthcare IT, expanding applications into diverse medical disciplines, and increasing demand for rehabilitation and simulation training. VR technology continues to gain visibility as a potent diagnostic tool in the form of fully immersive 3D simulation for clinicians in the treatment of phobias, autism, post-traumatic stress disorder (PTSD), depression, anxiety and severe pain in burn victims.

Justin Barad, *MD*
Co-Founder/ CEO

The US represent the largest market worldwide. Strong R&D increased investments in VR technology by the government and private companies and the large base of early adopters are major factors supporting the country's dominance. Asia-Pacific is projected to emerge as the fastest growing market with a CACR of 23.2 per cent over the analysis period, led by developing healthcare infrastructure and strong appetite for innovative medical technologies capable of lowering healthcare costs, adding economic and societal value and enabling patients lead healthier and higher-quality lives.

Osso VR is a validated virtual reality surgical training platform designed for surgeons, sales teams, and hospital staff of all skill levels. The product offers highly realistic hand-based interactions in immersive training environments that contain the latest, cutting edge procedures and technology.

The *MediWorld ME* team met with the Co-Founder/ CEO Justin Barad, MD to discuss how Osso VR is currently focused on solving training gaps for orthopaedic and spine therapies, and how it is also expanding into other specialties and procedures.

Surgical simulation platform

As technology continues to advance, the need for newer and more specialized forms of training continues to rise. But there are no resources available to teach surgeons both the new and existing ways of doing things. The result is that most surgeons aren't getting enough training and it increases risks for patients every time they're on the operating table.

Osso VR is a clinically validated, award winning surgical simulation platform that can be used anytime and anywhere to practice medical procedures in a hands-on way.

"Osso VR's modules are designed with the needs of users of various levels and roles. For example, a junior resident may want to focus on the basic steps of a procedure while an expert surgeon years into practice may want to focus on how to handle complications and rare events" - *Justin Barad.*

"Osso VR's modules are designed with the needs of users of various levels and roles. For example, a junior resident may want to focus on the basic steps of a procedure while an expert surgeon years into practice may want to focus on how to handle complications and rare events", Barad notes.

Technology used

Osso uses virtual reality to enable surgeons to perform realistic orthopaedic surgery, replacing an old, complicated, expensive manual simulation created by the aptly named Sawbones Corp. Sawbones provides a realistic moulded plastic model of the bone for orthopaedic training and practice. The models are expensive and can only be used once.

Much of Osso VR's business comes from medical device manufacturers, who now have a way to show surgeons the benefit of the new implants and techniques while training them in their use. Studies show surgeons who train with Osso's system achieve test results twice as good as good as those trained using current methods. Osso VR works with most high-end consumer VR technology such as the Oculus Rift and HTC Vive.

Osso VR is built on Unity game engine; you probably wouldn't consider the graphics to be super photorealistic. Dr. Barad explains that the purpose of

With Osso VR, orthopedic surgeons can not only freely look and move around their environment with a VR headset, but the hand controllers allow them to hold and manipulate tools and devices in the right sequence and 'operate' on a patient's leg with accurate and precise movements.

Osso VR is not to train with minute precision; it is to get users comfortable with the sequence of events in a surgical procedure and to train them how to use the different tools and devices.

"As users continues to train with the software, these steps eventually become muscle memory, allowing them to focus more on precision and technique when it comes time to operate on live patients. Dr. Barad also warns that overly realistic graphics could have unintended negative consequences with the 'uncanny valley" phenomenon.

Immersive training environment

The typical training process for surgeons largely consists of low-tech instruction manuals and videos, and often involves traveling to one-day surgical training courses. On occasion, there might be a single brief training procedure on a cadaver. It is often many months later that the surgeon is thrown into the operating room to perform the newly learned technique on real patients without having had any real practice. It's no wonder that residents can become so uneasy during their first live surgeries, and patients consequently can be averse to being operated on in teaching hospitals or treated with new surgical techniques, tells Dr. Barad.

With Osso VR, orthopedic surgeons can not only freely look and move around their environment with a VR headset, but the hand controllers allow them to hold and manipulate tools and devices in the right sequence and 'operate' on a patient's leg with accurate and precise movements. Osso VR makes the experience as accurate as possible and grades your performance based on time, accuracy, and other metrics that surgeons are typically evaluated on.

"The immersive VR headset allows you to transport yourself into a virtual operating room where you can then practice whatever procedure is desired. Our advanced interaction system allows for intuitive and realistic movements that in clinical studies have been proven to translate to real world skill transfer".

Osso VR is designed to improve patient outcomes:

"We do not claim on the website that Osso VR itself will save the lives of patients in any given scenario, however, we are working to both make and prove that Osso VR will improve patient outcomes."

Training medical staff

Typically newer medical technology provides more value, which means it improves patient outcomes, decreases costs to the system or both. By increasing the adoption of newer medical technology outcomes for patients are improved and this allows more patients to be treated by conserving healthcare dollars spent.

"The training gap is only getting worse and is unlikely to improve. We need to change the way we learn about new medical technology in order to adapt to the new level of complexity in surgery and medical devices that is rapidly becoming the standard.

"We capture all data and metrics from run throughs that through our analytics engine is visualized in an easy to understand way that can provide actionable information to improve trainee, and even trainer, performance," adds Dr Barad.

Surgical training has not changed significantly in over a 100 years.

"We have proven that Osso VR is clinically effective and is a valuable and effective solution for the growing training crisis in the surgical field. We are currently focused on surgical training but this includes most users associated with the procedure including surgical techs, sales reps, circulator nurses, surgeons and assistants.

"Yes, we are constantly upgrading the platform and increasing the quality in addition to performing constant validation that it is actually leading to skill transfer and are already in talks with various regions outside the US to make our technology available on a global level. Stay tuned," concludes Dr Barad.

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Asia's major medical tourism hub: Thailand

The Thai pharmaceutical market, valued at $4 billion in 2012, is the largest in Southeast Asia. By 2020, this value is expected to increase to $9 billion.

The Thai economy is the world's 20th largest by GDP at PPP and the 27th largest by nominal GDP and became a newly industrialized country and a major exporter in the 1990s. Manufacturing, agriculture, and tourism are leading sectors of the economy.

Formerly known as Siam, the Kingdom of Thailand is a country at the center of the Indochinese peninsula in Southeast Asia. With a total area of approximately 513,000 sq km (198,000 sq mi), Thailand is the world's 50th-largest country. It is the 20th-most-populous country in the world, with around 69 million people.

Thailand is a constitutional monarchy and has switched between parliamentary democracy and military junta for decades, the latest coup being in May 2014 by the National Council for Peace and Order. Its capital and most populous city is Bangkok. Myanmar and Laos border it to the north, to the east by Laos and Cambodia, to the south by the Gulf of Thailand and Malaysia, and to the west by the Andaman Sea and the southern extremity of Myanmar. Its maritime boundaries include Vietnam in the Gulf of Thailand to the southeast, and Indonesia and India on the Andaman Sea to the southwest.

The Thai economy is the world's 20th largest by GDP at PPP and the 27th largest by nominal GDP. It became a newly industrialized country and a major exporter in the 1990s. Manufacturing, agriculture, and tourism are leading sectors of the economy. It is considered a middle power in the region and around the world.

Medical tourism hub

With a high quality of medical services and affordable prices, Thailand has become a major hub for medical tourism in Asia. Thailand's facilities, technologies, quality of medical services and expertise all factor in to attract healthcare services of medical devices, pharmaceuticals and medical food.

The country offers state of the art facilities and technologies, internationally certified medical services, excellent medical expertise, highly qualified medical professionals and a wide range of high standard hospitals. Thailand has a significant number of internationally accredited medical facilities.

In order to develop Thailand into an 'International Health Center for Excellence', the Ministry of Public Health, the national focal point for implementation of the Medical Hub Policy, recently executed its second strategic plan (2012 – 2016). The plan encompasses four major areas: medical services, integrative wellness centers, development of Thai herbs and traditional and alternative Thai medicines.

Thailand is one of the world's largest medical tourism markets, with the number of international patients continuing to rise. According Ministry of Public Health and the Kasikorn Research Center, Thailand welcomed more than 2.5 million international patients in 2012, a 13 per cent increase from 2011. Thailand's 2012 revenue from medical tourism was between $4.0 billion and $4.7 billion, up from $3.2 billion in 2011.

Thailand also attracts thousands of international patients with its traditional and alternative medicines. Alternative medicine uses herbal medicines, biofeedback, and acupuncture in lieu of drugs. A broad range of practices is used including homeopathy, naturopathy, chiropractic and acupuncture. The Thailand Public Health Ministry has formally supported the field in an effort to promote Thai traditional and alternative medicines in hospitals nationwide.

In order to develop Thailand into an 'International Health Center for Excellence', the Ministry of Public Health recently executed its second strategic plan (2012–2016). The plan encompasses four major areas: medical services, integrative wellness centers, development of Thai herbs and traditional and alternative Thai medicines.

The initiatives that Thailand has undertaken to strengthen its position as the medical hub of Asia have created opportunities for continued growth in related fields, including the medical services, medical device and pharmaceutical sectors. As a result, Thailand has become an excellent location for investment.

The Thai pharmaceutical market, valued at $4 billion in 2012, is the largest in Southeast Asia. By 2020, this value is expected to increase to $9 billion. As Thailand has developed into the medical hub of Asia, its pharmaceutical market has also experienced significant growth.

Medical technology sector

Thailand emerged as a leading medical tourism destination because of its robust medical services sector. Millions of medical tourists from all over the world are drawn to the country by its high-quality internationally certified medical services, cutting-edge medical equipment, and experienced physicians at affordable prices.

Thailand offers world-class medical facilities. Thai hospitals are among the best in Asia to be Joint Commission International (JCI) accredited. Thai Hospitals also offer advanced medical equipment such as Picture Archiving and Communication Systems (PACS). These systems provide a wide range of imaging services, including radiotherapy, CT and MRI scans angiography, cardiology, fluoroscopy, ultrasounds, dental imaging and mammography. The images are stored in the hospital's network, and doctors can access the data anywhere in the hospital. Additionally, the Cyber Knife Robotic Radiosurgery System is an alternative treatment for tumors. The Cyber Knife treatment involves delivering beams of high dose radiation to tumors with extreme accuracy while also being pain-free.

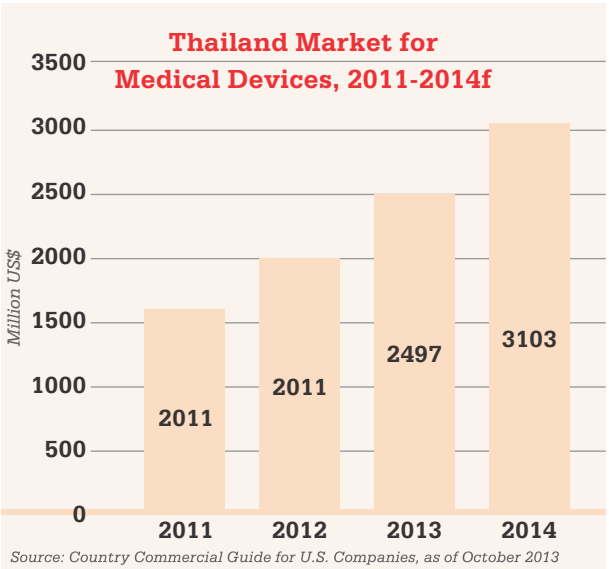
International patients visit Thailand for a variety of treatments including general check-ups, dentistry, cancer treatments and so on. The price of surgery services in Thailand is far lower than the price of similar procedures in the USA or Europe. Thailand also narrowly edges out Singapore in surgery price comparisons, contributing to the country's domination in the global medical tourism market.

In addition to Thailand's competitive pricing, the country's high standards and quality care contribute to its market success. Thai private hospitals rank among the highest in healthcare and nursing standards.

Domestic manufacturing

The Thai government's continued efforts to develop the country into an Asian medical hub have driven demand of medical services and devices. Although a wide range of medical devices area manufactured domestically. Thailand still relies heavily on imported medical devices, especially sophisticated and higher-end devices. This backdrop centers an opportunity for new investment in high-end medical device manufacturing in Thailand.

Increased demand in the healthcare market is a key driver of the Thai medical device industry. As



Source: Country Commercial Guide for U.S. Companies, as of October 2013

Thailand's universal healthcare system continues to develop, demand for medical devicesa n d services is likely to increase as well. .

According to the chart above, the market for medical devices has strongly grown. In 2012, the market for medical devices in Thailand was $2 billion, a 2.4 per cent increase from the previous year. The market is predicted to reach $2.5 billion and $3 billion in 2013 and 2014, respectively.

Many leading medical device companies invest in Thailand because of the country's high market growth potential, abundance of raw materials, skilled and affordable labor, excellent infrastructure, advanced production technology and high-control standards. Additionally, the government offers attractive investment incentives for investment in the medical device sector.

"The Royal Thai government has placed a greater emphasis on the medical devices sector. Recently, the Royal Thai government announced a strategic plan to promote investment, research and development for medical devices in order to increase local production and reduce reliance on imports.

"The Thai medical sector has seen robust and consistent growth owing to national health insurance schemes; a medical tourism policy and the strategic government plan to develop Thailand as a Medical Hub of ASEAN. These factors create great opportunities for investment, R&D and the expansion of medical device production in Thailand," notes Preecha Bhandtivej, President of Thai Medical Device Technology Industry Association.

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"Positive outlook for Gulf-based healthcare businesses in 2018"

Around 90 per cent of Gulf-based healthcare companies are positive that their business will grow in 2018, an exclusive Hanover Health survey recently revealed. Strategic communications firm Hanover spoke to 65 senior executives taking part in this year's Arab Health congress in order to gauge the growth potential of the healthcare industry in the Middle East. Almost all respondents were "positive" or "very positive" their business would grow in 2018.

Around one third [29pc] of respondents believe an expansion of government policy will be the top growth driver for their industry, followed by an uptick in private and public government spend [27pc] and the Middle East's ageing population [26pc].

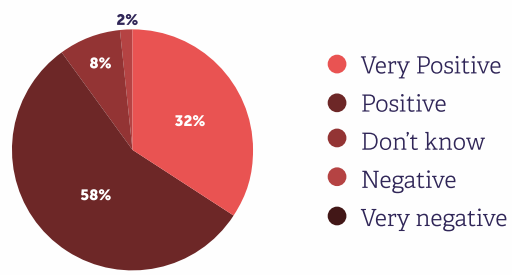
Andrew Harrison, Managing Director of Hanover Health said: "The results of the Hanover Healthcare Business Barometer demonstrate the very real business opportunity in healthcare in the Middle East. But smart, strategic communication, coupled with global issues and regulatory expertise is needed to capitalise and catalyse business growth."

A quarter of respondents [25pc] said regional geopolitics was a key challenge to business growth, followed closely by the increasingly competitive healthcare market [23pc].

Other potential hinderances to growth include, conversely, government policies [19pc] as well as payer focus on value and price [15pc].

Hanover launched its Middle East Health practice, and in 2017 won EMEA Healthcare Consultancy of the Year at the SABRE Awards for the second year running. Hanover Health supports clients across the healthcare industry, including pharmaceutical and medical technology companies, healthcare service providers, charities, and government bodies.

How positive are you that your business in the Gulf region will grow in 2018?



Health Department announces new primary care family medicine model

The Department of Health in Abu Dhabi, DoH, has announced new standards for primary healthcare providers that come into effect starting from 1 January 2018, in a bid to improve patients' access to quality family healthcare and encourage ongoing relationships with their family physician.

As per the new standard, DoH will no longer issue new licenses for general healthcare clinics in Abu Dhabi as of 1 January 2018, with the exception of those located in construction sites, hotels, schools, sports and social clubs, and companies.

Mohammed Hamad Al Hameli, Acting Under-Secretary at DoH, said, "Our newly adopted Primary Care Standard is very patient-centric; it's based on our commitment to continuously improve patient care, safety and satisfaction. It will enhance our community healthcare offering from several points of view: disease prevention, health maintenance, patient counselling, diagnosis and treatment of acute and chronic diseases. By implementing this family medicine model of care, we are ensuring that residents receive the highest quality of care, which in turn, allows us strengthen our goal of fostering a healthier Abu Dhabi."

All licensed, specialized and medical healthcare facilities aiming to practice Family Medicine must first submit a 'Change in Type' application, subject to meeting the DoH's Primary Care Standard. Through this application, the facility's type will officially be changed to Primary Healthcare Centre.

Similarly, hospitals in Abu Dhabi wishing to provide Primary Healthcare services must initially meet the DoH's Primary Care standard, and submit a request to include this service on their Clinical Support Services List in the Health Facility Licenses system at the DoH.

UAE reliable healthcare destination: Sheikh Nahyan bin Mubarak

The United Arab Emirates has rapidly become a reputable and reliable center of excellence for comprehensive healthcare in the region, stated Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Tolerance, during his keynote speech at the 2nd International Growth and Development Conference-2018 (IGD-2018).

"The leaders of our country have promoted both public and private healthcare enterprises. The UAE, under the wise leadership of President His Highness Sheikh Khalifa bin Zayed Al-Nahayan, strongly supported by the Vice President, Prime Minister of the UAE and Ruler of Dubai, His Highness Sheikh Mohammed bin Rashid Al Maktoum, and His Highness Sheikh Mohamed bin Zayed Al Nahayan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the Armed Forces, is a country committed not only to providing the best care for the sick and injured but also to promoting healthy habits and preventing disease. The concerns of this conference mirror the concerns of this country," Sheikh Nahyan said.

"The power of tolerance to foster human well-being is familiar to us in the UAE. In this Year of Zayed, the centennial of the birth of the founder of the United Arab Emirates, the late Sheikh Zayed bin Sultan Al Nahyan, we are recalling his dedication to "tolerance, compassion, and dialogue" in dealing with leaders of other countries. Those attributes also characterised his leadership of our new nation. Sheikh Zayed welcomed talented and ambitious people from all over the world to live and work in the UAE. Like healthcare professionals, he did not discriminate between the country's guests. Furthermore, his tolerance, compassion, and dialogue promoted the creation of a peaceful, cooperative, and productive global society marked by extraordinary diversity," he added.

Dr. Ayesha Al Dhaheri, Chair of the Conference, said, "The IGD Conference-2018 with the theme of Healthy Ageing: Paediatric to Geriatric is the first such event to be held in the region. It will feature leading keynote speakers, session speakers and poster presenters. More than 55 researchers will present their research on topics related to healthy ageing, along with age-related changes in metabolism and body composition, as well as the effects of conditions that develop during the ageing process."

DHA to use latest technology as part of Dubai Future Accelerators initiative

The Dubai Health Authority, DHA, has selected four firms for the fourth cohort of the Dubai Future Accelerators initiative, the Artificial Intelligence, AI, and its deployment in the healthcare setting a key focus during this cycle.

In the cycle, the authority is discussing the implementation of virtual health through an app, which uses AI technology to provide remote General Practitioner, GP, consultations round-the-clock. Additionally, the app syncs with 400 devices, including Apple and Android products, so that information about the patient's sleep pattern, exercise routine, number of calories burned and daily activity is recorded.

This information is available to the GP along with the patient history at the time of consultations. The app will soon have emotional analysis, so when you use it for virtual video calling your GP prevents you from answering health-related questions dishonestly.

The DHA Dubai Future Accelerator team is working with the app creator, to see how this technology can be implemented in Dubai and they are working on an Arabic version of the app. They are also discussing the use of a headgear to detect stroke, and are working with a firm that is researching the use of artificial pancreas for diabetic patients and an AI clinic.

Dr. Mohammed Al Redha, Director of the Executive Office for Organisational Transformation in DHA, said, "The aim of the DHA as part of the Dubai Future Accelerators initiative is to explore the latest in technology. We aim to revolutionise the way healthcare is delivered while focusing on patient-centric care. We are looking for ways to improve the lives of patients and on ensuring patients lead a high quality of life to the best extent possible. Technology also has the power to improve efficiencies of the overall health sector, improve healthcare management and bring down the cost of care."

هيئة الصحة بدبي
DUBAI HEALTH AUTHORITY

Infor launches Healthcare Enterprise Analytics


Tarik Taman

Infor, a leading provider of industry-specific cloud applications, announced Infor Healthcare Enterprise Analytics, a comprehensive solution that will provide healthcare organizations with greater insight into their operations, supporting their efforts to improve outcomes and lower costs.

Powered by the Infor Birst Cloud Analytics platform, the solution will transform complex data from any source into a comprehensive picture of patient and population health. Infor Healthcare Enterprise Analytics is part of Infor CloudSuite Healthcare, a complete software platform that includes solutions for finance, supply chain, human capital, and clinical interoperability.

Improving visibility to reduce the cost of care, while improving outcomes, is a top strategic priority for most hospital executives. With an analytics solution that can turn data into insights, healthcare organizations can identify opportunities for continuous improvement. They can get a better view of operational productivity, urgent care performance, Emergency Department (ED) statistics, physician comparisons, & re-admission rates, for example.

"Addressing the issues related to data quality, aggregation, and processing is integral to creating a viable analytics environment, for the long-term, in healthcare organizations," said Tarik Taman, Vice President and General Manager for IMEA, Infor. "The benefits of our modern cloud analytics solution are both operational and strategic. The solution gives healthcare organizations the ability to automate and standardize the process of connecting, preparing and relating data, which speeds up time-to-value."

As healthcare organizations continue to grow and acquire other providers, having a single source of truth across all entities is critical for timely and accurate decision-making. They need a modern, secure cloud analytics platform to reduce IT costs, while providing new analytics capabilities to key stakeholders.

The solution will include dashboards specific to five key stakeholders, including the Chief Executive Officer (CEO), the Chief Financial Officer (CFO), the Head of Supply Chain, the Chief Human Resource (HR) Officer, and the Chief Nursing Officer (CNO). The dashboards will include operational, clinical and quality Key Value Indicators (KVIs) that drill down into data that reveals challenges related to cost variability across the continuum of care, promotes discussion about the relationship of cost to quality (in that better care is more cost effective), and supports population health initiatives, etc. (A KVI is the metric on which the highest ranking person in a particular functional area gets measured.)

Infor Healthcare Enterprise Analytics will provide them with a new level of trusted insights and decision-making by connecting people and their data through a network of analytics services.

Delta to offer real-time Bluetooth tracking on container shipments

With the introduction of new Bluetooth tracking technology, Delta will soon become the first U.S. passenger airline to provide, real-time tracking for unit load devices (ULDs). This move marks a new era for Delta Cargo and the more than 500 million kilograms of cargo it flies annually. The technology will replace manual tracking for all shipping containers, called ULDs, which move cargo shipments, baggage and mail globally.

“Our customers have told us they want improved tracking and immediate transparency for ULD shipments, and this best-in-class product will deliver exactly that,” said Shawn Cole, Delta Vice President - Cargo, “Our innovative tracking technology, in conjunction with our 24/7 cargo control center, gives us the competitive edge when it comes to serving our customers.”

Real-time ULD tracking information will also allow Delta's cargo control center to more accurately monitor and reroute shipments that are delayed due to irregular operations, like inclement weather.

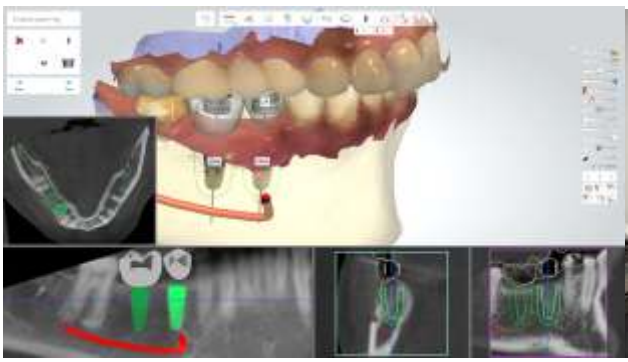
When implemented, the new tracking system will also enable Delta to produce electronic unit control receipts, which is required by the International Air Transport Association when ULDs are transferred between parties – making Delta the first airline to offer a fully automated solution for customer transactions.

Delta was the first major airline to test Bluetooth tracking technology, beginning in 2016, and has since deployed readers to 23 locations. By the end of 2018, the tracking system will be available on all of Delta's ULDs, with more than 1,400 readers tracking customer shipments at more than 200 airports across six continents.

The airline's current GPS-enabled cargo tracking products, including a recently-announced service for highly time-sensitive shipments called Equation Critical, will continue to be available for both narrow body and wide-body aircraft shipments traveling internationally and within the U.S.

MEDIWORLD Middle East

New dental practice puts patient education before treatment



The secrets to healthy teeth are education and prevention, according to the CEO of a new dental practice that promises to be a 'different kind of dentist'. Dr. Per Rehnberg and his team of specialists believe they can quickly become the number one practice in the emirate by taking a different approach to oral hygiene that is based on patient education and understanding, rather than expensive and invasive treatments.

Snö opened its modern looking flagship dental hub, late last year, offering state-of-the-art technology, including 3D X-rays, full 3D scanning and printing, computerised anaesthetic and a fully digital lab.

Dr. Per, who holds more than three decades of experience and has led practices in his home country of Sweden as well as Denmark and Norway, admits the Snö strategy may risk it going out of business, but believes it is the best way to prevent dental problems and ensure their patients stay healthy.

He explained: "Before we opened we carried out a lot of research to see what kind of dental service was currently being offered in the UAE, including doing some 'mystery shopping' ourselves. We believe that by focusing on improving our patients understanding of good oral hygiene rather than just carrying out expensive treatments we can very quickly make a big difference for our patients.

"We want to actually share the 3D images with patients and explain it to them. We want to educate patients on not just how to clean your teeth better, but why, and we even encourage them to get second opinions from other clinics.

"Improving our patients' understanding of dental care and helping them prevent problems that need treatment does not make sense from a business perspective, but we believe this is how a dental practice should be run and we are confident our patients will appreciate the overall standard of care we will provide for them & their families."

Snö Dental's hub in Delma Street is a four-storeyed 1,300 sq m clinic with 13 ergonomic, individually housed Planmeca dental chairs enabling multiple specialists to treat more patients. The practice boasts 26 staff, including a senior team of vastly experienced specialists from around the world, enabling them to offer evidence-based treatment.

Dr Gun Norell, who has worked in dentistry in various parts of the world for over 30 years, is also a great believer in preventative methods. She has moved to the capital from Dubai where she was a pioneer of the Inman Aligner treatment, which can reduce the amount of treatment needed to gain straight teeth.

Dr Gun said: "The Inman Aligner is a great example of how our approach to patient care is minimally invasive. It reduces and even replaces the need for drilling and veneer insertion, which can often lead to future root canal problems as the teeth are made weaker when they are drilled into. By offering minimally invasive treatments and methods, we are aiming to stick to our values of Superior, Gentle and Trusted, which we think all of our patients will see the benefit of very quickly."

Julphar records sales of AED1.3 billion in 2017

Julphar, one of the largest pharmaceutical manufacturers in the Middle East and Africa, recorded sales of AED1.3 billion for the year ending December 31, 2017, despite the challenging and rapidly changing market environment.

The Gulf Pharmaceutical Industries Manufacturers reviewed non-audited preliminary financial results for 2017 and forecasts for 2018, following its Board of Directors' meeting, which was chaired by Sheikh Faisal bin Saqr Al Qasimi, Chairman of the Board of Julphar.

Julphar's General Manager, Jerome Carle, said, "In 2017, Julphar faced major challenges, such as currency headwinds, forex shortage, political instability and price cuts. However, key milestones have been achieved, including the official opening of our plant in Saudi Arabia, our entry into three highly important markets with large populations–Mexico, Uzbekistan & Sri Lanka – not to mention being ranked number one in the UAE for the first time. We also registered 130 new products last year & signed an important agreement with the Ministry of Health in the UAE."

He continued to say, "We are off to a solid start in 2018, as evidenced by the successful acquisition of Gulf Inject, new distribution agreements in Africa and Asia, all of which indicate a healthy outlook for the business. We are building up a solid pipeline and we are targeting double-digit growth in 2018 with the planned launches of 25 new products in UAE. We aim to increase our impact in the global pharmaceutical industry by enhancing our operations in emerging markets and increasing our presence in Africa."

Heart attack protocol can improve outcomes - research


Cleveland Clinic, OH, USA

Researchers in the United States have found that implementing a four-step protocol for the most severe type of heart attack not only improved outcomes and reduced mortality in both men and women, but eliminated or reduced the gender disparities in care and outcomes typically seen in this type of event.

The research by a Cleveland Clinic team was presented this month at the American College of Cardiology's 67th Annual Scientific Session and published in the Journal of the American College of Cardiology.

Cardiovascular disease is the leading cause of death in women, and STEMI (ST elevation myocardial infarction), caused by an abrupt and prolonged blockage of the blood supply to the heart, impacts about one million women each year. Previous studies have shown that women with STEMI have worse clinical outcomes, including higher mortality and higher rates of in-hospital adverse events.

Studies have shown women also typically have higher door-to-balloon times (time from when they arrive at the hospital to when they receive a coronary intervention such as angioplasty or stenting). They receive lower rates of guideline-directed medical therapy: for example, they are treated with lower rates of aspirin within 24 hours. Previous studies have attributed the differences in care and outcomes in women with STEMI to their being older and higher risk patients than men, suggesting that these disparities may be inevitable.

In this study, Cleveland Clinic researchers put in place a comprehensive four-step protocol for STEMI patients, designed to minimize variability in care. It included: (1) standardized emergency department (ED) cardiac catheterization lab activation criteria, (2) a STEMI Safe Handoff Checklist, (3) immediate transfer to an available catheterization lab, and (4) using the radial artery in the wrist as the first option for percutaneous (under the skin) coronary intervention, such as stenting. This approach has been shown to have fewer bleeding complications and improved survival when compared to using the femoral artery.

The results of the study showed improvements in both genders after implementation of the protocol, and substantial reductions in care differences between men and women. Prior to the protocol, women had significantly higher 30-day mortality than men (10.7 percent vs 4.6 percent) prior to the protocol. Providers were able to lower the overall mortality rates for both men and women, and the difference between the genders was no longer statistically significant (6.5 percent vs. 3.3 percent). In-hospital deaths of women with STEMI were reduced by about 50 percent.

In addition, there was also no difference in rates of major adverse events such as in-hospital stroke, bleeding, vascular complication, and transfusions after implementation. Prior to the protocol, mean door-to-balloon time for women was an average of 20 minutes longer compared to men, but afterwards, the times were equal between men and women. The system also resulted in equal rates of guideline-directed medical therapy in women.

MEDIWORLD Middle East

Risk of maternal death doubled in pregnant women with anaemia

Pregnant women with anaemia are twice as likely to die during or shortly after pregnancy compared to those without the condition, according to a major international study led by Queen Mary University of London of over 300,000 women across 29 countries.

The research, published in the journal The Lancet Global Health and financed by healthcare innovation funder Barts Charity, suggests that prevention and treatment of maternal anaemia must remain a global public health and research priority.

Anaemia, which is characterized by a lack of healthy red blood cells, affects 32 million pregnant women worldwide, and up to half of all pregnant women in low and middle-income countries (LMICs). Women in LMICs are at increased risk of anaemia due to higher rates of dietary iron deficiency, inherited blood disorders, nutrient deficiencies and infections such as malaria, HIV and hookworm.

Lead author Dr Jahnavi Daru from Queen Mary University of London said: "Anaemia in pregnancy is one of the most common medical problems pregnant women encounter both in low and high income countries. We've now shown that if a woman develops severe anaemia at any point in her pregnancy or in the seven days after delivery, she is at a higher risk of dying, making urgent treatment even more important.

"Anaemia is a readily treatable condition but the existing approaches so far have not been able to tackle the problem. Clinicians, policy makers and healthcare professionals should now focus their attention on preventing anaemia, using a multifaceted approach, not just hoping that iron tablets will solve the problem."

The study looked at data on 312,281 pregnancies in 29 countries across Latin America, Africa, Western Pacific, Eastern Mediterranean and South East Asia. Of these, 4,189 women had severe anaemia (a blood count of less than 70 grams per litre of blood) and were matched with 8,218 women without severe anaemia. This analysis is the first to take into account factors that influence the development of anaemia in pregnancy (e.g. blood loss or malaria infection) which may have been skewing the results of previous studies. The study results showed that, when all known contributing factors are controlled for, the odds of maternal death are doubled in mothers with severe anaemia.

Strategies for the prevention and treatment of maternal anaemia include providing oral iron tablets for pregnant women, food fortification with iron, improving access to antenatal care in remote areas, hookworm treatment and access to transfusion services.

UAE climate leading to high incidence of skin condition

Dr Uttam Kumar

Have you ever suffered from itchy dry skin and feel like there is no cure? Then you are not alone. It could be that you are suffering from eczema, a skin condition that it is very common around the globe. The hot and dry conditions of the UAE mean that symptoms can be exacerbated.

In general, terms "eczema" and "dermatitis" are used interchangeably. Eczema is a recurring, non-infectious, inflammatory skin condition and is most common in people with a family history of allergic disorders such as asthma, rhinitis or hay fever, since these conditions are based on genetics. In eczema, skin becomes red, dry, itchy and scaly, and in severe cases, may weep, bleed, or crust over – causing extreme discomfort. In more severe cases, the skin may become infected, suddenly flare up then subside for no apparent reason.

Atopic eczema is the most common type and generally when discussing eczema, it is this type that is being referred to. Worldwide, the prevalence is 15-20 per cent, with more than 30 per cent in developed countries. Cold winters in some regions of the world can lead skin to become excessively dry and, if not treated properly, can cause irritation and eczema to flare. Extremely hot weather, of the kind experienced commonly in the UAE, can also increase itchiness, with sweat irritating the affected skin.

Dr Uttam Kumar, specialist in dermatology at Burjeel Hospital explains that eczema is amongst the most common problems he sees in the clinic, along with allergies and urticaria (hives) and psoriasis. Many of these patients suffer in silence for longer than necessary.

Burjeel Hospital's team of dermatology experts are well equipped to treat most cases and help their patients alleviate any discomfort or stress they may feel from this skin condition. Steroids are often prescribed but are not a long term solution for treating eczema. They are only used to treat the initial inflammation. Eczema flare-ups can be avoided in many ways, for example, the skin should be kept moist by using bland emollients (moisturizers) which are allergen-free and fragrance-free. Other ways to prevent an outbreak can include: wearing 100 per cent cotton or soft fabrics, using a mild soap-free cleanser or hypo-allergenic bath oil in lukewarm water, avoiding heavy sweating, changing bed linen regularly as well as avoiding any exposure to dust mites (ventilating regularly).

Because of the genetic, and recurring, nature of the condition, eczema often cannot be fully cured but can be contained and symptoms lessened. Using emollient moisturizer will keep the dry skin hydrated and avoid any irritants you can identify, which might be in scents, fabrics and clothing or food.

SGLT2 inhibitors to top agenda at diabetes conference in Abu Dhabi

Imperial College London Diabetes Centre (ICLDC), part of Mubadala's network of healthcare providers, will host the sixth Advanced Diabetes Conference (ADC), featuring sessions by leading diabetes experts from the Middle East with a focus on SGLT2 inhibitors and their role as a first-line treatment of diabetes.

Set to run from 27 to 28 April 2018 in Abu Dhabi, the upcoming edition of the annual conference will provide a valuable learning opportunity for medical specialists in training, and a platform for established diabetologists, endocrinologists and other physicians with an interest in diabetes to exchange expertise. The interactive event aims to highlight the latest clinical practices and encourage networking among medical peers.

Representing ICLDC, two of the region's leading diabetes experts – Dr Mahamood Edavalath and Dr Lina Yassine – will debate whether sodium-glucose co-transporter 2 (SGLT2) inhibitors should be used as first-line therapy in type 2 diabetes patients with known medical history of cardiovascular disease. SGLT2 inhibitors represent a new class of diabetic medication developed exclusively for the treatment of type 2 diabetes. In combination with exercise & a healthy diet, they can greatly improve glycaemic control.

Other notable sessions will include a talk on practitioners' management of kidney disease by Dr Mustafa Ahmed, Consultant Nephrologist at ICLDC. The agenda will also comprise a series of lectures on gestational diabetes, diabetes in the elderly, genetics and diabetes, diabetic retinopathy and other relevant topics.

Dr Safdar Naqvi, Medical Director, Consultant Physician and Endocrinologist at ICLDC, said: "Recent figures from the International Diabetes Federation (IDF) confirm that the Middle East is particularly prone to and affected by diabetes and related complications. Given the pressing challenges associated with the condition, this year's Advanced Diabetes Conference is most timely."

According to the latest edition of the IDF Diabetes Atlas, the UAE with 17.3 per cent places third among countries with the highest age-adjusted comparative diabetes prevalence in the MENA region, right after Saudi Arabia and Egypt. If the current trend continues, the number of people with diabetes in the region is projected to increase by 111.8 per cent by 2045.

Forbes Middle East hosts its first healthcare event

Three panel discussions discussed future of healthcare, the next breakthrough in pharma and the GCC's implementation of machine medicine and 3D printing, artificial intelligence and robotics. Panelists expressed their keen interest in the country's vision and discussed potential markets and areas of interests amongst the pharmaceutical giants. KSA and the U.A.E. continue to be among the major markets for leading industry players and strategies opted by drug makers and healthcare providers.

Forbes Middle East has held its first healthcare event highlighting the current trends and potential opportunities in the healthcare sector, built around a series of panel discussions and keynote speeches by industry leader. Moderated by PwC, conversations centered around shaping the future of healthcare, finding a balance in pharma and implementing machine medicine.

Government representative, His Excellency Amin Al Amiri, Assistant Under Secretary at the Ministry of Health and Dr Ibtesam Al Bastaki, Director of Investment and Partnership, Dubai Health Authority were part of the discussions alongside industry leaders, including: Dr. Azad Moopen, Founder, Chairman and Managing Director of Aster DM Healthcare; Dr Thumbay Moideen, Founder of the Thumbay Group; Mohammed Ali Al Shorafa Al Hammadi, Managing Director and CEO of UEMedical; and Zanubia Shams, Co-Chair for Zulekha Hospitals.

Khuloud Al Omian, Editor-in-Chief of Forbes Middle East, said "GCC healthcare spending is expected to reach $69 billion by 2020. The healthcare ecosystem is currently witnessing a significant transformational shift, with technology playing a vital role. It will be a game changer for the sector, with innovation playing an important role. The private sector, together with government authorities will continue to be a key partner in the long-term development of the health industries."

His Excellency Amin Al Amiri, Assistant Under Secretary at the Ministry of Health highlighted the role of technology and innovation and shared acumen on the country's growing healthcare expenditure to promote healthcare services.

Dr. Stephen Brookes from The University of Manchester also discussed the future of healthcare, emphasizing the collaboration of public and private partnerships and global initiatives supporting healthcare promotions.

"In alignment with the U.A.E.'s Vision 2021, we continue to focus on fulfilling the need gaps in healthcare delivery and remain committed to making quality affordable healthcare easily accessible to people who need it the most. I believe in the 'power of now'. We are glad to be at the right place, at the right time and with the right support to turn the vision of world-class healthcare locally available into a reality."-*Dr. Azad Moopen- Founder Chairman and Managing Director, at Aster DM Healthcare*

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Industry leaders to meet at the International Congress for Joint Reconstruction

Dr. Ahmad bin Kalban,
CEO of Hospital Services Sector, DHA

Under the patronage of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and ruler of Dubai, the 6th edition of the International Congress for Joint Reconstruction Middle East (ICJR ME) is scheduled to take place from 24 March in Dubai, UAE.

The event is expected to attract worldwide attention, bringing together more than 1,500 prestigious industry leaders and experts, specialized in the fields of orthopedics and sports injuries from over 50 countries. The congress aims to highlight the technological advancements to create inroads towards the next steps in joint reconstruction.

ICJR ME, along with its expert Scientific Committee, hosts joint reconstruction specialists from across the globe to present and deliberate on the contemporary industry developments, techniques and technologies. Additionally, the Congress will run a full-day cadaver lab and nursing training programs. Being awarded 40.5 Continuing Medical Education (CME) points accredited by the Dubai Health Authority (DHA), the ICJR will subsequently offer its participants and attendees the chance to earn 20.5 CME Credit Hours.

Dr. Samih Tarabichi, Consultant Orthopedic Surgeon and Director General of Burjeel Hospital for Advanced Surgery, Dubai & also ICJR ME congress Chairman, said: "Hosting the sixth edition of the ICJR reflects our commitment and dedication to feature leading orthopedic technologies to the UAE and the region on a broader scale. This year's Congress welcomes 70 local and international speakers & showcases over 100 scientific lectures on diverse topics, specifically in joint reconstruction & engineering, while featuring 3-D printing as a pioneering technology in the Middle East."

The ICJR ME 2018 will host more than 30 companies promoting their cutting-edge equipment, tools, and products. Serving as a networking platform for joint replacement suppliers and practitioner and will feature key-note speakers such as Dr. Wolfgang Klauser, Dr. Philip Chapman, Dr. David Blaha and Dr. Ludwig Seebauer.

The International Congress for Joint Reconstruction is an independent, non-profit organization formed to change the status quo of orthopedic education dedicated to reinventing the ways we gain knowledge that improves patient outcomes. Established in 2011 as a regional subsidiary of ICJR, the conference has been successfully running for the past six consecutive years.

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The launch of Asia Derma in Singapore announced

INDEX Conferences & Exhibitions, member of INDEX Holding, recently announced the launch of Asia Derma, the Asia-Pacific Dermatology and Aesthetic Conference & Exhibition. The event will be held from 5-7 December 2018 at SUNTEC Convention & Exhibition Centre in Singapore. Asia Derma is set to be an exclusive platform dedicated to dermatologists, skin specialists and industry leaders in Asia-Pacific region.

Inspired by 18 successful editions of the famous Dubai Derma Conference & Exhibition, Asia Derma will be focusing on the Asia-Pacific markets. The 3-day scientific event is expected to witness the participation of more than 100 exhibitors and industry leaders & attract over 1,500 trade visitors & delegates.

Eng. Anas Al Madani, Vice-Chairman and Group CEO of INDEX Holding said: "While the global dermatology market is projected to reach 33.7 billion dollars in 2022, latest estimates by GBI market research suggest that the 'Asia-Pacific' region is the fastest growing market for dermatology devices leaving North America and Europe behind. With the increasing prevalence of skin disorders, increasing awareness of aesthetic procedures, developing technologies and rising disposable income in emerging markets, the Asia Pacific region is today driving the industry's quest for effective skincare solutions."

He added, "The 'Asia Derma' Conference and Exhibition has made its debut at the right opportune time in Singapore, which is the business and financial nerve centre of the Asia-Pacific region, and we hope visitors and participants attending this global international skincare event will take advantage of the highly interactive environment provided at the venue."

Professor Goh Chee Leok, Chairman of Asia Derma 2018 Scientific Committee, Singapore, said: "The inaugural Asia-Derma Conference & Exhibition will be held in Singapore in December, this year. The organising committee has planned a comprehensive scientific programme that will provide an exceptional opportunity for practitioners to share their experience, improve their knowledge, and enhance their skills in dermatology and aesthetic medicine. The trade exhibition, running parallel to the conference, will also create an opportunity for the industry professionals to introduce the latest skincare technologies in medical care."

Doctor Hasan Galadari, Co-Chairman of Asia Derma 2018 Scientific Committee, said: "Dermatology in Asia has always been a rich and robust specialty. What we promise in Singapore is a medium that will help showcase this, shed the spotlight on the specialty and the success of those who have practiced it. Information, knowledge and education will be key elements shared and the inaugural edition of Asia Derma will help do that."

Ultra-High-Field MR moving towards clinical use

Siemens has introduced the first 7 Tesla magnetic resonance imaging (MRI) scanner intended for future clinical use. Currently, magnet strengths of 1.5T and 3T MRI are used for clinical purposes. Higher field strengths have been used for research only.

One unique feature of the new "MAGNETOM Terra" scanner is the Dual Mode functionality, which allows users to switch from the cutting-edge research mode into the clinical mode in less than 10 minutes. This mode includes clinically validated protocols, and paves the way for customers to continue with high end research projects.

The core of the system – the new 7T magnet – is a complete new development. Siemens developed its first actively shielded 7T whole body magnet for MAGNETOM Terra, making this the first ultra-high-field scanner with all components designed, built and serviced by a single vendor. The first of these 7 Tesla magnets was installed at the Erlangen University Clinic, Germany in April 2015. The next MAGNETOM Terra units are scheduled for delivery early 2016, and the start of serial production is scheduled for beginning of 2017.

n simplified terms, an MRI scanner measures the rotation behavior of hydrogen nuclei that are first aligned in strong magnetic field and then excited with radio waves. The system detects the signal created by the excited nuclei. The decay effects of the MR signal provide information about the characteristics of the scanned tissue. The stronger the magnetic field, the better the ratio of the measured MR signal to the surrounding noise.

The ratio at 7 Tesla is about twice as high as at 3 Tesla – providing advantages like a substantially higher spatial resolution and better image contrast. This makes it possible to view finest details in brain structures, which can't be seen at lower field strengths. Morphological changes in cartilage and muscle tissue can also be recognized more clearly and at an earlier stage. A higher magnetic field also improves magnetic resonance spectroscopy, a technique that makes it possible to detect chemical elements, for example, to track metabolic processes.

Another innovative feature on MAGNETOM Terra is its eight parallel transmitter channels – an enhancement that was intended to be available only purely for research in the past. Clinical MRI scanners worked with only one transmitter channel. Multiple channels make it possible to excite a scanned anatomical structure more uniformly so as to get an improved image contrast. The multi-channel transmit feature is only available in the research mode on the MAGNETOM Terra. The receiving side in both clinical and research mode has up to 64 antennas, permitting very high spatial resolution of up to 0.2 millimeters in all directions.

According to Siemens, MAGNETOM Terra is still under development and not commercially available yet. Its future availability cannot be ensured. Some features of MAGNETOM Terra will remain ongoing research.

Fakih IVF organizes UAE Reproductive Symposium

Dr Michael Fakih

Fakih IVF Fertility Center is organizing the 7th edition of the UAE Reproductive Symposium on 23 March in Dubai, UAE. The symposium is set to bring together leading sector experts to share the latest advances in reproductive medicine, supporting the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, to make Dubai a global hub for medical excellence.

Dr Michael Fakih, Medical Director of Fakih IVF Dubai and Abu Dhabi, commented: "Since its inception in 2012, the UAE Reproductive Symposium has grown to become a crucial and highly respected platform for discussing the most important issues in our field, providing professionals in this field with an opportunity to work together to significantly improve their treatments and practises. The medical progress taking place in this sector is astounding and it is our duty to keep abreast of it so that we can help patients across the country and also position the UAE as a global leader in fertility and reproductive medicine."

The symposium is to engage a wide range of attendees including obstetricians, gynaecologists, urologists, infertility specialists, embryologists, lab personnel, nurses and trainees via a comprehensive agenda that discusses new techniques and treatment modalities in reproductive medicine, identified current clinical challenges in reproductive medicine and in-vitro fertilisation, and evaluated methods for individualising treatments based thereon.

This year's agenda explores both female and male infertility via keynote speeches including 'Stem Cell Therapy of Female Infertility: The Last Frontier', 'Male Infertility & Somatic Health: Nature or Nurture?', 'Updates in the Management of Male Infertility', 'Providing Optimal Fertility Treatment for the Patient with PCOS' and 'Recent Advances in Uterine Fibroid Treatment for your Infertile Patient'.

Dubai Derma attracts international audience

Under the patronage of His Highness Sheikh Hamdan Bin Rashid Al Maktoum, Deputy Ruler of Dubai, Minister of Finance and President of the Dubai Health Authority, the 18th edition of Dubai World Dermatology and Laser Conference and Exhibition - Dubai Derma, the largest event of its kind in the MENA region, dedicated to dermatology, skin care and laser, is set to take place on 19 March 2018.

Dubai Derma 2018 is expected to attract over 15,000 visitors and participants, while also witnessing the participation of 540 companies from 95 countries. The 3-day conference and exhibition, occupying 11,500 square meters is set to play host to 265 expert speakers, specialists of skin health from the region and the world while also featuring 72 workshops, 164 scientific sessions and 70 poster presentations. In addition, delegates and participants attending the premier global skin conference will have the opportunity to gain 18 CME Credit Hours from the UAE University.

Dubai Derma, this year, will dedicate two full days for Case Report Presentation and Competition, in order to encourage dermatology researches in the region and abroad, wherein dermatologists and resident doctors from different countries will be present to showcase their case reports. Moreover, a poster presentation competition will offer a unique opportunity for researchers in the UAE and abroad to present their work and illustrate their research methods and outcomes.

Running parallel to the conference, Dubai Derma Exhibition, aims to provide an ideal opportunity for exhibiting companies to network, partner and expand their businesses in the Skin Care, Aesthetic and Laser market among many other such fields. Furthermore, the exhibition will play host to a number of product launches and live demonstration of latest skincare solutions while also offering a highly interactive environment for visitors to experience the latest products and services in the skincare industry.

For the first time this year, Dubai Derma will jointly be held in conjunction with the 11th Asian Dermatological Congress by the Asian Dermatological Association while also hosting the first ever session of the American Academy of Dermatology in the Middle East, (AAD), which is the world's largest dermatologic society representing 19,000 physicians.

Dubai Derma will also be hosting the presidents of the five biggest Dermatology Associations in the world to take part in the event including: the American Academy of Dermatology (AAD), the European Academy of Dermatology and Venereology (EADV), the Asian Dermatological Association (ADA), the Indian Association of Dermatologists, Venereologists and Leprologists (IADVL) and the 24th World Congress of Dermatology (WCD).

Alfa Laval UltraPure pumps meet demanding pharma needs

Alfa Laval UltraPure pumps are specifically designed for the toughest, most demanding pharmaceutical applications. From high-value, high-risk productions where every second counts to reliability and repeatability process-driven productions, Alfa Laval UltraPure solutions aim to meet client needs.

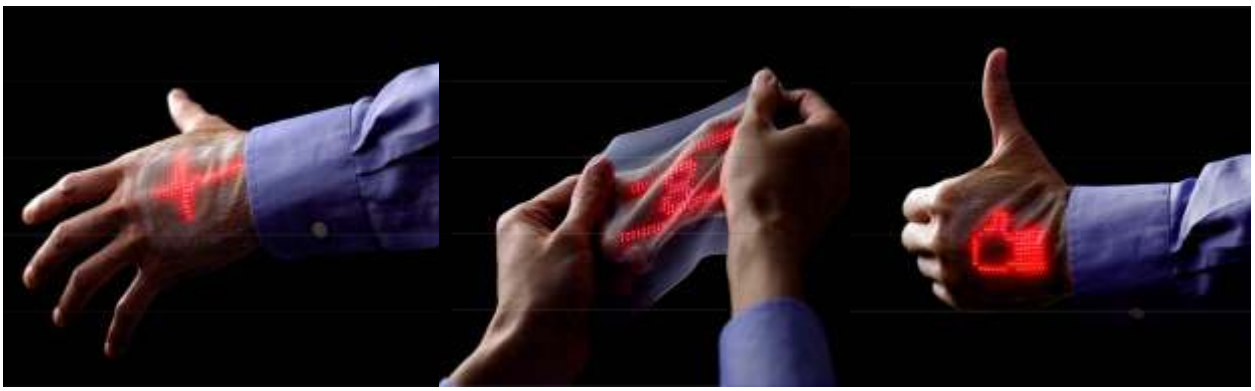
Alfa Laval UltraPure pumps feature a high level of attention to hygiene and repeatability to reduce the risk of contamination. Alfa Laval's downloadable Q-doc documentation, based on GDP (Good Documentation Practice), provides full details of the product and simplifies qualification, validation and change control to assure consumer safety.

In addition, all Alfa Laval UltraPure pumps use robust designs that are time-tested and proven in the pharmaceutical industry. Every UltraPure pump includes full documentation of the production chain, from raw material to delivered equipment, to guarantee the repeatability of your product and provide 100 per cent batch quality. Alfa Laval UltraPure pumps are cost-effective pumps that deliver maximum energy efficiency, a reduced C02 footprint, higher yields and increased uptime.

The company's equipment, systems and services are dedicated to assisting customers in optimizing the performance of their processes. The solutions help them to heat, cool, separate and transport products in industries that produce food and beverages, chemicals and petrochemicals, pharmaceuticals, starch, sugar and ethanol.

Alfa Laval's products are also used in power plants, aboard ships, oil and gas exploration, in the mechanical engineering industry, in the mining industry and for wastewater treatment, as well as for comfort climate and refrigeration applications. Alfa Laval is listed on Nasdaq OMX, and, in 2016, posted annual sales of about SEK 35.6 billion approx. 3.72 billion Euros. The company has about 17 300 employees.

Researchers develop ultrathin, highly elastic skin display



A new ultrathin, elastic display that fits snugly on the skin can show the moving waveform of an electrocardiogram recorded by a breathable, on-skin electrode sensor. Combined with a wireless communication module, this integrated biomedical sensor system - called "skin electronics"—can transmit biometric data to the cloud. This latest research by a Japanese academic-industrial collaboration is led by Professor Takao Someya at the University of Tokyo's Graduate School of Engineering.

Thanks to advances in semiconductor technology, wearable devices can now monitor health by first measuring vital signs or taking an electrocardiogram, and then transmitting the data wirelessly to a smartphone. The readings or electrocardiogram waveforms can be displayed on the screen in real time, or sent to either the cloud or a memory device where the information is stored.

The newly-developed skin electronics system aims to go a step further by enhancing information accessibility for people such as the elderly or the infirm, who tend to have difficulty operating and obtaining data from existing devices and interfaces. It promises to help ease the strain on home healthcare systems in aging societies through continuous, non-invasive health monitoring and self-care at home.

The new integrated system combines a flexible, deformable display with a lightweight sensor composed of a breathable nanomesh electrode & wireless communication module. Medical data measured by the sensor, such as an electro-cardiogram, can either be sent wirelessly to a smartphone for viewing or to the cloud for storage. In the latest research, the display showed a moving electrocardiogram waveform that was stored in memory.

The skin display, developed by a collaboration between researchers at the University of Tokyo's Graduate School of Engineering and Dai Nippon Printing (DNP), a leading Japanese printing company, consists of a 16 × 24 array of micro LEDs and stretchable wiring mounted on a rubber sheet.

"Our skin display exhibits simple graphics with motion," says Someya. "Because it is made from thin and soft materials, it can be deformed freely."

The display is stretchable by as much as 45 percent of its original length. It is far more resistant to the wear and tear of stretching than previous wearable displays. It is built on a novel structure that minimizes the stress resulting from stretching on the juncture of hard materials, such as the micro LEDs, and soft materials, like the elastic wiring—a leading cause of damage for other models. It is the first stretchable display to achieve superior durability and stability in air, such that not a single pixel failed in the matrix-type display while attached snugly onto the skin and continuously subjected to the stretching and contracting motion of the body.

The nanomesh skin sensor can be worn on the skin continuously for a week without causing any inflammation. Although this sensor, developed in an earlier study, was capable of measuring temperature, pressure and myoelectricity (the electrical properties of muscle), it successfully recorded an electrocardiogram for the first time in the latest research.

The researchers applied tried-and-true methods used in the mass production of electronics—specifically, screen printing the silver wiring and mounting the micro LEDs on the rubber sheet with a chip mounter and solder paste commonly used in manufacturing printed circuit boards. Applying these methods will likely accelerate the commercialization of the display and help keep down future production costs.

DNP is looking to bring the integrated skin display to market within the next three years by improving the reliability of the stretchable devices through optimizing its structure, enhancing the production process for high integration, and overcoming technical challenges such as large-area coverage.

BD launches circulating cell-free DNA blood collection tube for applications

BD (Becton, Dickinson and Company), a leading global medical technology company, announced the commercial availability of the CE-IVD marked PAXgene® Blood ccfDNA tube within the European Economic Area and Switzerland (Western Europe). The plastic blood collection tube, which includes a proprietary sample stabilization additive and BD Vacutainer® Hemogard™ technology to help protect healthcare worker safety, was designed to ensure accurate and reproducible results in molecular diagnostic testing applications using circulating cell-free DNA (ccfDNA), such as cancer and non-invasive prenatal tests. The product was developed by PreAnalytiX GmbH, a joint venture between BD and QIAGEN.

Cells, including fetal cells, tumor cells, or cells from transplanted organs, release DNA into the blood stream. This DNA can be analyzed using PCR or next-generation sequencing to understand genetic characteristics of a developing fetus, a cancer tumor, or a transplanted organ from a blood draw. Molecular diagnostic tests using ccfDNA enable clinicians to gain actionable biological insights without a tissue biopsy or similar invasive test.

The PAXgene Blood ccfDNA tube provides a solution for clinical laboratories to stabilize samples when the sample cannot be processed on the same day it was collected. Where standard EDTA tubes require processing within hours before cells die and release genomic DNA into blood plasma (thus changing the native ccfDNA profile), the PAXgene tube has a unique stabilization chemistry that enables collection and processing to occur days apart, addressing a critical logistical hurdle for reference labs offering molecular testing outside of the hospital setting.

"Many molecular diagnostic companies, particularly in the cancer space, are developing new tests for monitoring and screening patients. They need a safe, clinically acceptable system for blood collection and ccfDNA processing that is capable of stabilizing a sample so that ccfDNA extraction can occur after the sample is transferred to another location, something that's not possible with EDTA tubes," said Frank Augello, general manager, PreAnalytiX GmbH. "This product will help molecular diagnostics companies in Western Europe offering ccfDNA based tests to grow their markets more quickly and ultimately help more patients access leading edge care."

"Reducing the potential for preanalytical errors is critical to ensuring the accuracy of molecular diagnostic tests," said Uwe Oelmueller, Ph.D., vice president, head of MDx development sample technologies for QIAGEN, GmbH. "We are confident that the CE-IVD marked version of the PAXgene Blood ccfDNA tube will provide robust safety, and reliable and reproducible ccfDNA-based test results, helping to expand access to molecular diagnostic testing in Western Europe."

Since 2016, PreAnalytiX has marketed a research use only (RUO) version of the PAXgene Blood ccfDNA tube together with the QIAsymphony® PAXgene® Blood ccfDNA kit as a fully integrated and standardized system covering all preanalytical workflow steps from blood collection, stabilization, transport, storage and isolation of high quality ccfDNA. The RUO tube version has the same format and stabilization chemistry as the new CE-marked version. The RUO version of the tube will be discontinued as customers adopt the CE-IVD.

Merivaara introduces versatile operating table

Merivaara has unveiled one of the world's most versatile operating tables for elective procedures. The new, smarter Practico was designed to improve ergonomics with the industry's widest range of posture possibilities.

"Customers have been asking for a table like this for years," says Jyrki Nieminen, Merivaara's R&D director. "It has been in development for two years and we have received amazing feedback regarding the design, aesthetics and technical specifications."

Flexible, mobile operating tables are in high demand due to the rise in minimally invasive surgeries. The Practico family of operating tables is modular for a wide variety of surgical procedures. The Practico Max Hi goes up to 1143 mm (45 inches), while the Practico Max Lo goes down to 540 mm (21.3 inches), making it one of the lowest mobile tables on the market.

"The population is getting older, so it is important for a table to be lowered so it is comfortable to sit upon," Nieminen explains. "But a low table is even more important for the surgeon. Sometimes they have to stand on platforms in order for the patient to be at the right position. With the Practico the surgeon can put the patient exactly where he wants."

The table is also robust and can handle 280 kg. When you combine height adjustability with the tilt angle, Trendelenburg angle, and angles for both the back and leg sections, the Practico is impressively adaptable.

"We worked very hard on the design," Nieminen continues. "The base, wheels and covers are unique and resulted in an extremely compact base. There are deep cut-outs on the sides of the base so the surgeon can stand right next to the table."

They followed the time-honoured Nordic design principle of simplicity and utility. The base is tapered so that fluids flow off, and even screws are hidden so there are no dirt traps. It makes for fast and easy cleaning between procedures.

"Hospitals and clinics are increasingly using the C-arm for imaging, so we designed the Practico to give you the best access," Nieminen says. "The collaboration between an operating table and C-arm has never been this easy before."

A safety sensor in the base cover automatically stops the movement of the table when the leg section touches the base. It also has a simple and easy-to-use hand control with an intuitive user interface and several memory positions, saving staff from unnecessary hassle. The user interface is similar to other Merivaara products and can be connected to the Merivaara OpenOR integrated operating room management system.

3D OrbiSIMS launched to provide new insights into drug discovery


Prof Ian Gilmore

The National Physical Laboratory in the UK has launched the 3D OrbiSIMS – a new molecular imaging technology with the highest reported simultaneous spatial and mass resolutions. Such high performance is essential to reveal the biomolecular complexity in a single cell.

The concept was created by Prof Ian Gilmore, at NPL, who led the multidisciplinary team with experts in drug discovery at GSK and pharmaceutical science at the University of Nottingham and two leading mass spectrometry companies, ION-TOF GmbH and Thermo Fisher Scientific, which developed the instrument's technologies and integrated them into a single platform.

It typically costs around £1.4 billion to produce a new medicine. This cost could be reduced if candidates that fail at late stage were identified earlier. Currently, one of the major challenges is to measure the intracellular drug concentration. As identified in the Maxwell Report, high-resolution molecular imaging of drugs in the body is crucial in improving the effectiveness of drug discovery, by shedding light on fundamental biological processes, and revealing the drug distribution at the cellular level and across the body.

The 3D OrbiSIMS could help identify where drugs go at the cellular level to help answer long-standing questions about whether drug concentrations are sufficiently high in the right places to have a therapeutic effect, or if the medicine is lodging within cellular components and causing toxicity. If anomalies were spotted earlier it might help to explain toxicities or lack of efficacy of a medicine and reduce costly late-stage failures.

In basic biology, there is a growing realization that cells, even of the same type, have tremendous variability. Breakthroughs in genomics are beginning to reveal this single-cell heterogeneity. Super-resolution optical microscopy with the use of fluorescent labels has shone a new light on proteins, the machinery of life, with exquisite sub-cellular resolution.

However, the fluorescent labelling strategy is not appropriate for drug molecules and metabolites (small but important molecules) that are dynamically created and consumed. The world of these metabolites at the single-cell scale remains mysterious and elusive.

Prof Ian Gilmore, Senior NPL Fellow and founder of the National Centre of Excellence in Mass Spectrometry Imaging (NiCE-MSI) at NPL, says: "Mass spectrometry imaging is a rapidly developing method for biomedical imaging allowing new insights into fundamental biology and pharmacology. The 3D OrbiSIMS is an exciting new advance as it pushes the boundaries for label-free molecular imaging to the single-cell scale. This is beginning to reveal a surprisingly large heterogeneity of single-cell drug uptake and the effects of the drug on metabolites. This is a major step in realising our dream of achieving 'super-resolution' metabolic imaging."

Events CALENDAR

MARCH

Emirates Diabetes and Endocrine Congress
1-3 March
Dubai, UAE
edec-uae.com

DIAD-DIAL
1-3 March
Dubai, UAE
diad-dial.com

Evolving Practice of Ophthalmology Conference
15-17 March
Dubai, UAE
epomec.ae

IGDC - International Growth & Development
15-17 March
Dubai, UAE
igdconference.com

ArabLab Exhibition
18-21 March
Dubai, UAE
arablab.com

APRIL

Global Pharma Meet & Expo
2-3 April
Dubai, UAE
menamedtechforum.com

Kuwait Health Exhibition & Conference
3-5 April
Kuwait
kuwaithealthexhibition.com

Emirates Critical Care Conference
5-7 April
Dubai, UAE
eccc-dubai.com

World Health Sport Tourism Congress & Exhibition
5-8 April
Antalya, Turkey
http://hestourex.com

Healthcare Business International
10-11 April
London, UK
https://hbi2018.healthcarebusinessinternational.com

LogiPharma
10-12 April
Montreux, Switzerland
https://logipharmaeu.wbresearch.com

FIGO Regional Congress MEA
11-13 April
Dubai, UAE
figo.org

MEDICONEX
14-16 April
Cairo, Egypt
mediconex-exhibition.com

World Congress on Nursing & HealthCare
16-17 April
Dubai, UAE
http://nursing-healthcare.cmesociety.com

Dubai Int'l Spine Conference
21-23 April
Dubai, UAE
dubaispineconferences.com

Int'l Medical Tourism Exhibition
24-26 April
Muscat, Oman
medicaltourismfair.com

MENA MedTech Forum
25-26 April
Dubai, UAE
menamedtechforum.com

World Healthcare Congress
29 April - 2 May
Washington, DC, USA
worldcongress.com

UPCOMING

Annual Digital Healthcare Asia 8-11 May
Singapore
ibc-asia.com

Private Healthcare Summit
18 June
London, UK
https://summit.privatehealthcare.co.uk

Microbialmeet
19-20 June
Dubai, UAE
microbialconference.com

Annual Pharma Regulatory Affairs Summit
18-21 September
Singapore
ibc-asia.com

World Congress on Gynecology & Obstetrics
20-21 September
Toronto, Canada
http://scientificfederation.com/gynecology-2018

International Health and Wealth Conference
28-30 October
Penang, Malaysia
ihw-conference.com

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www.alhilalhospital.com

Al-Kindi Specialised Hospital
info@alkindihospital.com
www.alkindihospital.com

American Mission Hospital
Tel: +973 17 790 025
www.amh.org.bh

Awali Hospital
Tel: +973 17 753 300

Bahrain Defence Force Hospital
(also known as Bahrain Royal Medical Services or Military Hospital)
Tel: 973 17 766 666
www.bdfmedical.org

Bahrain Specialist Hospital
Tel: +973 17 812 080
bshinfo@bsh.com.bh
www.bsh.com.bh

Dr. Tariq Saeed Hospital
Tel:+973 17 822822
Email: tariplas@batelco.com.bh
www.dermaplast.com.bh

German Orthopedic Hospital
Tel: +973 17 239 988
Email: info@germanortho.com
www.germanortho.com

Gulf Dental Specialty Hospital
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Email: denthosp@batelco.com.bh
www.gulfdental.com

Gulf Diabetes Specialist Center
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Noor Specialist Hospital
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011-447-1900

King Faisal Specialist Hospital and Research Center
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Imam Abdul Rahman bin Faisal Hospital
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King Abdul Aziz University Hospital
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King Fadh Hospital
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Maternity & Children's Hospital (Jeddah)
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Dar Al Shifa Hospital
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Tel: +965 4833618
Fax: +965 4814977

Hadi Hospital
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www.hadiclinic.com

London Hospital
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New Mowasat Hospital
Tel:+965 1826666
www.newmowasat.com

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Email: info@starcarehospital.com
www.starcarehospital.com

Al Hayat Hospital
Tel: 22 004 000
www.alhayathospital.com

Hatat Polyclinic
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Al Raffah Hospital
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Badr Al Samaa Hospitals
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Barka Branch
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Kim's Oman Hospital
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www.kimsoman.com

Atlas Healthcare
Tel: +968 2 450 2560
www.healthcare.atlasera.com

The Royal Hospital
Tel: Oman – (+968) 24.59.90.00
www.royalhospital.med.om

Sultan Qaboos University Hospital Patient Services Department:
Tel: 00968 - 24415747
Operator: 00968 - 24413355 extension 4625 during working hours
www.squ.edu.om

Lama Polyclinic
Tel: +968 24799077
www.lamapolyclinicoman.com

Muscat Private Hospital
Tel: (+968) 24583600
www.muscatprivatehospital.com

Apollo Medical Center
Tel: (+968) 24787766 / 24782666 / 24787780
www.apollomuscat.com

Sultan Qaboos Hospital (Salalah)
Tel: +968 2 321 1555

Adam Hospital
Tel: +968- 244 - 25434055

Al Buraimi Hospital
Tel: +968 25652319

Al Nahdha Hospital
Tel: +968 24837800

QATAR

Al Khor General Hospital
Tel:+974 4474 5555

Children's Emergency Centre (Al Sadd)
Hotline: +974 4439 6059; +974 4439 2948

Al Amal Oncology Hospital (cancer treatment)
Tel: +974 4439 7800

Hamad General Hospital (includes Accident and Emergency)
Tel: +974 5584 7803

Rumailah Hospital
Tel:+974 4439 3333
www.hmc.org.qa/en/

Al Ahli Hospital
Tel:+974 4489 8888
www.ahlihospital.com

Al-Emadi Hospital
Tel: +974 4466 6009
www.alemadihospital.com.qa

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PUBLIC HOSPITALS

Rashid Hospital Dubai
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Dubai Hospital, Dubai
Tel: +971- 4-2195000; 04-2714444
dhweb@dohms.gov.ae

Latifa Hospital, Dubai
Tel: 04-2193000

Al Maktoum Hospital
Tel: 04-222 1211

Al Amal Hospital, Dubai
Tel: 04-344 4010

Hatta Hospital
Sha'biah, Hatta, UAE
Tel: 04-2195000; 04-814 7000

Police Post-Shaikh Khalif Hospital, Ajman
Call: 06 7050231
www.ajmanpolice.gov.ae

PRIVATE HOSPITALS

Al Amanah Medical Center
Sharjah
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www.alamanahmedicalcenter.com

American Hospital Dubai
Tel: +971 4 336 7777 – Oud Metha
+971 4 336 7777 – Dubai Media City

Salama Hospital, Abu Dhabi
Tel: 02 6966777

Dibba Fujairah Hospital
Tel: 09 2446666
Near Dibba Police Station, 10 Dibba, Fujairah

Al Sharq International Hospital
Tel: 09 2249999

Burjeel Hospital
Tel: 04 4070100
joseph.karama@amberclinics.com

Mediclinic Welcare Hospital
Tel: - 04-282 7788

Lifeline hospital (Jebel Ali Hospital)
Tel: 800 4677 4825 (toll free), +971 4 8845777

Iranian Hospital
Tel: 04-344 0250

Belhoul Speciality Hospital Tel: +9714-2140399, +9714-2733333, +9714-2140257

Medcare Orthopaedics and Spine Hospital
Tel: - 04-3768 400

Canadian Specialist Hospital
Tel: +9714-336 4444, +9714-7072222

Mediclinic City Hospital
Tel: +971 4 435 9999

Cedars Jebel Ali Hospital
Tel: +9714-8814000, +9714-8818816

Neuro Spinal Hospital
Tel: +971 4 3420000
+971 4 3157777

Zulekha Hospital
Tel: - 6005 24442; +9714-2678866

Al Zahra Private Hospital
Tel: +971 6 516 8902 / 7081

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Tel: +971 6 5452222

Central Private Hospital
Tel: 06-563 9900

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Makkah Pharmacy - Sharjah
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Dubai Police (Non-Emergency)
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Sharjah Police
Tel: 06-563 3333

Ajman Police
Tel: +971 6 740 9999

Fujairah Police
Tel: 09-222 4411

Ras Al Khaimah Police
Tel: 07-235 6666

Umm Al Quwain Police
Tel: 06-765 6677

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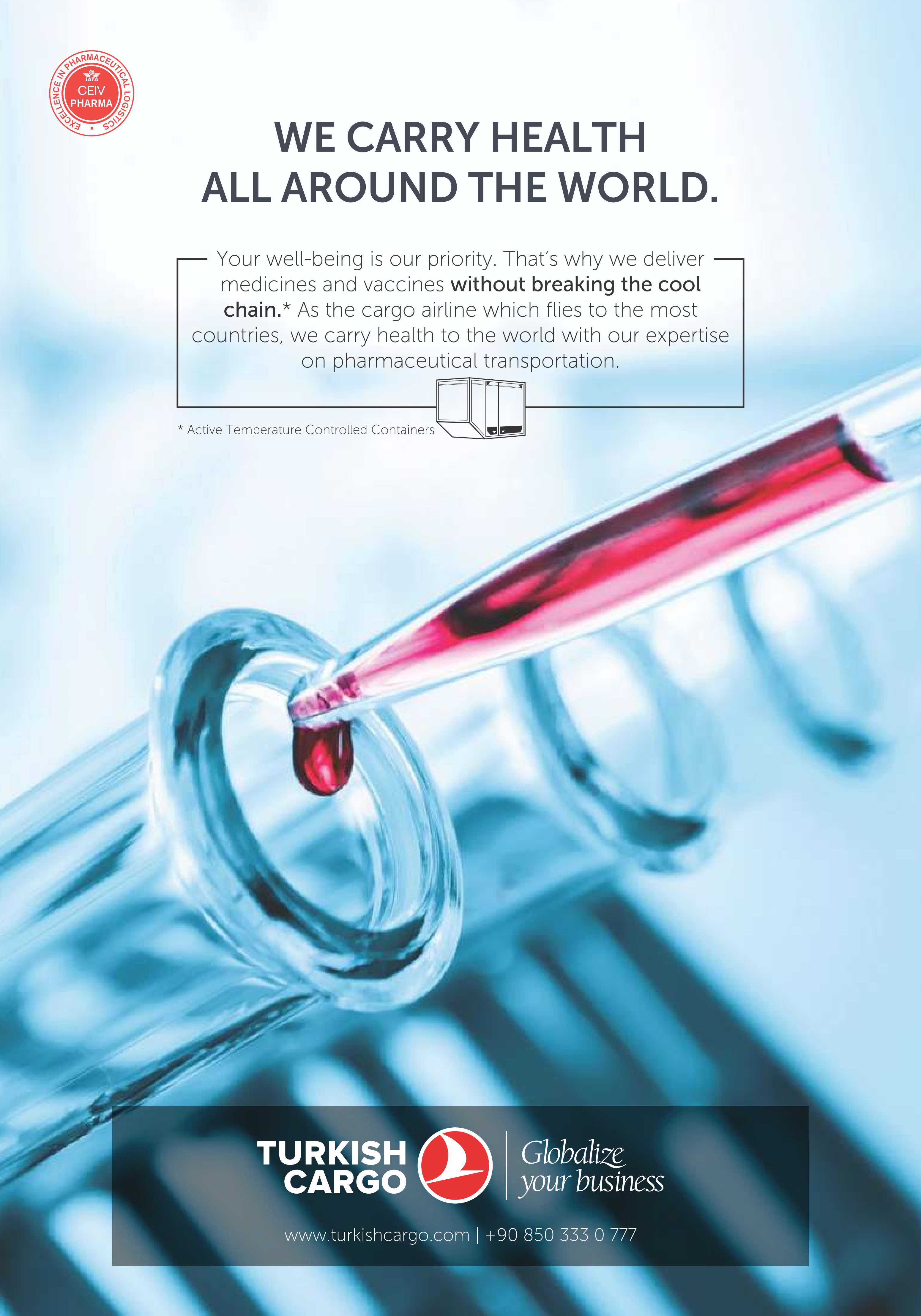

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