



Vol. 01 Issue 04, July-August 2017

# MEDIWORLD

Middle East



## Commitment to make a sustainable healthcare provision

Jawed Zia, Country President, Novartis India

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Expecting a stronger  
patient experience from  
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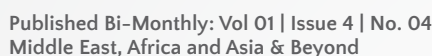
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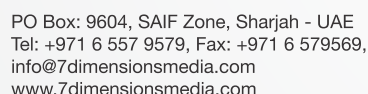
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## Artificial Intelligence (AI) and 'human touch'

Bringing out a new magazine edition always comes with its unique but rewarding challenges. As the clock ticks reminding of approaching deadlines, some extra hours are needed for those last minute changes. And it is no different with our *MediWorld ME* Magazine - we are constantly striving to present the latest developments in medical technology and related industries to our loyal readers both in print and online. It is also among our major objectives to create the ultimate platform for knowledge-sharing and promoting the products and services offered by global as well as local players.

Boasting a vast population with an ever-increasing demand for better quality healthcare services, India is at the forefront of generic-drug production. As the experts point out, the low-income groups who form the bulk of the population can hardly afford to buy expensive and imported drugs. Being a self-pay market, most people are on their own to access even basic healthcare services. With such challenges in mind, we have talked to Novartis India on health and pharma industry in India and what steps need to be taken by the government to improve health services for every citizen in the country.

Another interesting article in this edition talks about Artificial Intelligence (AI) in healthcare industry and people's perceptions of robots replacing human practitioners. Although the people surveyed expressed their willingness to engage with AI and robots in their needs, 'human touch' still remains a key component of the healthcare experience.

Furthermore, the news section compiles the most relevant developments in medical technology and healthcare services industries and once again we witness how Dubai and the UAE is leading the region in attracting more international patients with its huge investment projects. An international patient is almost always accompanied by other family members who would be interested in discovering the city and contribute to the economy in many ways. That is why governments all around the world have now realized the value of offering the best healthcare services for overseas patients and its direct and indirect contribution to the economy.

As always, your comments on improving our publication is most welcome and please do not hesitate to share your invaluable thoughts.

Sincerely,

**Editor, MediWorld ME**



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# Commitment to make a sustainable healthcare provision

With limited health insurance coverage and low government spending on healthcare, India needs better health infrastructure and a more robust healthcare financing system to broaden access, Novartis India notes



## Global leader in healthcare

As a science-based and patient-oriented healthcare company, Novartis strives to be a global leader in growing areas of healthcare. Following a corporate transformation Novartis globally focuses on three divisions with global scale and innovation power – pharmaceuticals, eye care and generic medicines. This has strengthened the future growth prospects of the company.

“India is a self-pay market, which coupled with widespread low affordability poses a significant challenge to the pharmaceutical industry in general. Yet, there is hope. India's economy is well placed to grow at a robust pace over the next five years.”

**- Jawed Zia,  
Country  
President,  
Novartis India**

In India, the Pharmaceutical business of Novartis India Limited is focused on Bone & Pain, Calcium portfolio, Gynecology and Neurosciences and the Generics business is focused on Gynecology, Anti-TB and Anti-infectives. Pharmaceuticals develops innovative, patent-protected medicines to enhance health outcomes for patients and health-care providers. The division is at the forefront of development and commercialization in oncology, primary care and specialty medicines.

Among the main business divisions, Alcon provides innovative products that enhance quality of life by helping people

worldwide see better. Its Surgical and Vision Care businesses offer a wide spectrum of eye care products. In addition, Sandoz products, which are focused in Retail Generics, Biopharmaceuticals & Oncology Injectables, and Anti-Infectives help make affordable, high-quality medicines available to more people.

## Wealth of experience

Jawed Zia is Country President, Novartis India responsible for the Novartis Group of Companies in the country and leads the Pharmaceuticals business as well. Mr. Zia has a wealth of experience gained in various geographies and functions across the globe. Having joined Novartis in 1987, he has a successful career history working across Pharmaceuticals, Consumer Health and Devices in positions of increasing responsibility across various functions of Market Research, Brand Management, Marketing Management, Division Management and Area Management in Ireland, Saudi Arabia, Turkey, Singapore, Canada, Switzerland and now in India.

A graduate in Clinical Pharmacology from All India Institute of Medical Sciences, New Delhi and holding an MBA from Trinity College, Dublin (Ireland), Mr. Zia has a deep knowledge and extensive experience of building businesses from inception. His innate ability to drive growth of people and businesses, build brands, transform operations and scale capabilities has been the hallmark of his success.

A firm believer in the power of innovation and collaboration, he is passionate about driving access to healthcare and has been steering the company towards 'Winning for Patients'. A strong proponent of the adage 'People are our greatest asset', he takes a keen interest in leadership development across the organisation.

MediWorldME has recently met with Mr Zia to find more about Novartis' product offerings as well as the outlook of the industry. Below is our discussion in a Q&A format.

**The fixation of ceiling prices of essential drugs by the pharma pricing regulator NPPA has impacted the profitability of the Indian pharma landscape. What's your take on it?**

Expansion of the National List of Essential Medicines (NLEM) has led to an increase in the scope of drugs subject to price control. The consequent moves by NPPA to bring an increasing number of drugs vide NLEM-2015 has certainly impacted the profitability of pharmaceutical companies in India.

Affordability, Availability and Access are equally

Focusing on better health infrastructure and a more robust healthcare financing system in order to broaden access, the government should increase its spend on healthcare to at least 3 per cent of the GDP. Life-saving drugs that are imported should be free of any taxes and duties to the benefit of the patient

important when looked at in the context of healthcare. Unfortunately, medicines are looked at with a singular focus, that of affordability which is invariably connected with price. Government spending on healthcare is still very low at 1.4 per cent of GDP, lower than even neighboring countries. All the other BRICS countries spend upwards of 3 per cent of GDP on healthcare. When viewed in the context of very limited health insurance coverage this gains importance.

It becomes imperative for this to change so that access to quality healthcare is available to all. India needs better health infrastructure and a more robust healthcare financing system in order to broaden access. Government should increase its spend on healthcare to at least 3 per cent of the GDP. This will in turn ensure universal health coverage. Life-saving drugs that are imported should be free of any taxes and duties to the benefit of the patient.

**What impact and will the recent government's push for prescribing the drugs by generic names would pose? What are the challenges faced by the company?**

India is a branded generics market. The mandate to prescribe medicines by generic names is full of challenges especially for the patient. The names of molecules are so complex it is hard to expect the medical profession to remember these names and to then write them on a prescription. Further, it means shifting the onus from the doctor to the pharmacy to issue the brand of choice. Also, it is all about trust that is reposed in a brand from a quality perspective.





The market for fixed dose combinations (FDCs) is estimated to be in the range of 35pc - 45pc of the total Indian Pharmaceutical Market. For a doctor to prescribe a medicine by his generic name, she/he will have to write down the various constituents that make up a drug. For example, a doctor prescribing Galvus-Met for diabetes will need to write Vildagliptin 50 and Metformin 500. Further, the patient will have to rely on a correct reading by the pharmacy. This can get even more complex.

For example multivitamin products have anything from three to 10 ingredients. Take the case of Becosules, a multivitamin formulation of vitamin B complex where the doctor will need to write Vitamin B12, B1, B2, B6, B3 and Folic acid with Vitamin C and Calcium Pantothenate. Till the time India progresses to a stage where literacy and technology progress to a stage where we can eliminate all chances for mis-reading a prescription, we will need

The mandate to prescribe medicines by generic names is full of challenges especially for the patient. The names of molecules are so complex it is hard to expect the medical profession to remember these names and to then write them on a prescription. Further, it means shifting the onus from the doctor to the pharmacy to issue the brand of choice.

Arogya Parivar was started in 2007 and broke even within 30 months of launch, which means it has long-term sustainability built in at its core. Today, it continues to show year-on-year business growth and scalability,



to continue with prescriptions by brand in the interest of the patient.

**Emphasis on healthcare is low as compared to the actual requirement. What are the steps taken by Novartis in this direction?**

India is a self-pay market, which coupled with widespread low affordability poses a significant challenge to the pharmaceutical industry in general. Yet, there is hope. India's economy is well placed to grow at a robust pace over the next five years owing to strong domestic consumption and increase in government spending on infrastructure. The overall operating environment especially with emerging digital technologies is expected to improve providing an opportunity for the pharmaceutical industry in the long term.

For rural communities, poor health is a cause of poverty, and poverty is a cause of poor health. Scalable interventions are needed to break this vicious cycle. The Healthy Family initiative of Novartis, started in India as Arogya Parivar, aims to do exactly this by empowering communities through health education and access to affordable medicines. Through a presence in 11 states in India, we see Arogya Parivar as a step in building healthy ecosystems.

both in terms of product offering and geographic expansion.

Through Arogya Parivar, we are bringing health education and affordable drugs against the most prevalent diseases that occur in rural areas but affordability of drugs is just the tip of the iceberg. The underlying question is: how can our healthcare system commit to make healthcare provision sustainable?

We need to look at the ecosystem of care holistically, and consider the other crucial elements that make healthcare systems function, notably the capacity to detect, diagnose and treat patients, and develop efficient distribution channels. That is why it is so important to define how to best unlock the other blockages, beyond affordability of drugs so that companies like Novartis can make their full range of medications available to all people in India in a way that adds value to the overall healthcare system.

**And the strength of your presence in the Gulf Cooperation Council (GCC) countries?**

Novartis is already present in the UAE market and in fact Dubai is the headquarters for the MENA (Middle East North Africa) countries.

-By Vasujit Kalia

# Expecting a stronger patient experience from healthcare providers

Most patients in the GCC believe not enough is being done to improve patient experience, claims new EY report

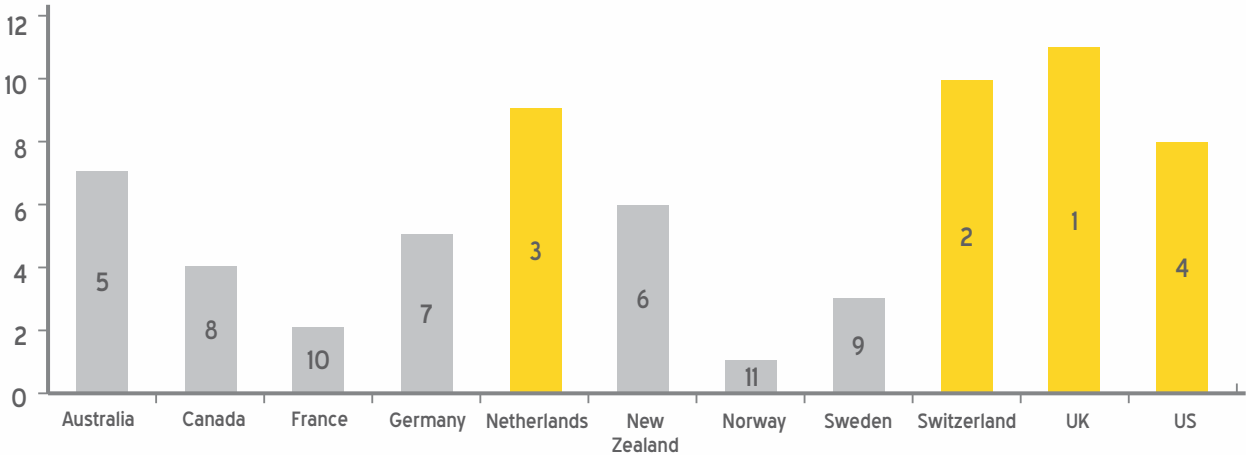
Consumers across the GCC are no longer satisfied with healthcare providers just meeting their basic physical needs and 85 per cent of respondents in the EY Report 'What is the cure for a better patient experience in the GCC?' believe not enough is being done to improve patient experience. Furthermore, 38 per cent of those surveyed have trust in their local healthcare system and most patients reported they would opt to get care for serious conditions outside the GCC region.

The patient experience is comprised of the various interactions that patients have with a healthcare system and is a critical component of overall healthcare quality. A positive patient experience focuses on the whole delivery of an interaction, from booking timely appointments to having their medical history easily accessible to healthcare staff across clinics.

From regulatory bodies to providers, many healthcare organizations in the GCC region lack a mature patient experience management function despite 82 per cent of

The UK, Switzerland, the Netherlands and the US have health systems that rank highest in patient-centered care

Patient centered care Index country rankings





The patient experience is comprised of the various interactions that patients have with a healthcare system. A positive patient experience focuses on the whole delivery of an interaction, from booking timely appointments to having their medical history easily accessible to healthcare staff across clinics.

### What patients told us

- 1 They have a low perception of the quality of care**  
Only 38% responded they have trust in the overall health care system. Most patients reported they would opt to get care for serious conditions outside the GCC region, in their homes countries, or in the west.
- 2 They do not trust health care professionals**  
Only 25% believed their doctors knew what was best for them & more than 25% considered the internet to be their main source for reliable health information over physicians. Qualitative interviews revealed that unsatisfied patients questioned health professionals' experience & qualifications, noting that a doctor's past experience is the greatest perceived indicator of his capability.
- 3 They have limited engagement and communication issues with front-**  
Findings revealed that patients have limited engagement with clinical staff, with a large number stating that they do not feel like they are being listened to. Communication challenges were also linked to inconsistent diagnosis.
- 4 They are frustrated when clinical staff have no prior knowledge of their medical history**  
In one-on-one interviews, patients often brought up the lack of a consistent medical history as a point of frustration, linked to slow resolution time and inconsistent diagnosis.
- 5 They don't like to wait**  
Patients often complained about long wait times & poor admin procedures, particularly during emergency room visits, when time is most critical. Waiting time had a strong impact on perceived quality of care & experience.
- 6 They are not feeling empowered to make health decisions**  
Sixty-nine percent of respondents said that they wanted to be more involved in medical decisions, and only 40% believed that they were being adequately informed about their health.
- 7 They have limited visibility on how to get access to appropriate care**  
Respondents voiced frustrations on finding up-to-date and consistent information on access to care, choice of clinicians and their availability, leading them to make uninformed decisions when selecting a provider and creating some suspicion in the appropriateness of received care.

healthcare professionals indicating that patient experience is a priority in their organization. In the same survey, 51 per cent of the healthcare professionals rate overall healthcare quality as inconsistent.

Andrea Longhi, EY MENA Healthcare Advisory Services Leader, explains: "Inconsistent quality of care has been a uniform challenge across the GCC. Establishing a patient experience management function will help improve accessibility to patients, quality of service, consistency and affinity. It will help patients appreciate the value of what they are paying for, improve loyalty and medical outcomes as healthcare providers recognize the importance of going beyond exemplary medical care to engage with patients."

The absence of a comprehensive patient experience

management function also leaves patients frustrated when clinical staff have no prior knowledge of their medical history, which is linked to a slower resolution time and inconsistent diagnosis. Limited engagement with clinical staff and the lack of consistency has only 40 per cent of respondents believing that they were being adequately informed about their health. Furthermore, only 34 per cent of patients are relying on their physician for healthcare information above any other source.

Mohammad Sear, Executive Director, Advisory, EY,

### Industry-wide challenges

#### Inconsistent patient case handling

Patient care agents are not fully informed on health care provider services, leading to hand-offs, unanswered patient queries and inconsistencies in care plans and follow-up care. As a result, low first-time resolution rates & longer case closure times are apparent, especially for rarer conditions.

#### Transient and high-turnover workforce

In the GCC region, health care professionals come from a multitude of countries with disparate standards of care and cultural norms. Despite standardized board examinations, cultural factors come into play, especially with bedside manner. In addition, turnover in staff is high, especially for the highly specialized, as demand for tertiary specializations tends to be lower as patients seek care outside the GCC region.

**A fragmented primary care system:** A fragmented primary care system and the lack of a strong general practitioner culture means that patients in the GCC region are less likely to develop personal relationships with their clinicians, leading to patients feeling less connected to their physicians. In addition, the patients are likely to visit a number of different doctors, putting a higher reliance on the accuracy of medical records and resulting in slower resolution rates & inconsistent diagnosis.

#### Lack of proper system integration and HMS systems

Although advances in this space are being made at a national level in some countries, data is fragmented and is currently collected, owned and managed by different health care provider functions, resulting in a lack of consistent information.

#### Lack of standardized health care outcomes and patient experience metrics

Methods of public reporting of quality, patient satisfaction data, and other indicators of patient experience are not standardized, creating a gray area for regulatory authorities to redesign the health delivery system and improve patient experience

#### Understaffed and overworked healthcare professionals

Health professionals often do not take the time to provide comprehensive diagnosis and care options to patients due to the large volume of patients seen during clinic hours.

#### Low patient awareness

Sources of information are sometimes fragmented or unavailable, with a lack of a central source for truth, resulting in patient frustration and over-reliance on word-of-mouth sources. This fragmentation can also lead providers to underuse, overuse and misuse services, posing a cost implication that will impact the provider's service quality



## Patient experience drivers

Driver	Sub driver				
Engagement	Communication with staff	Patient participation	Effective communication	Communication about medicine	Health empowerment
Reliability	Consistency in chronic disease management	Timely access	Responsiveness	Accessibility to care	
Evidence-based care	Perception of quality of care	Discharge information	Care transition	Quality of care	Health literacy
Emotional comfort	Respect	Trust (confidentiality and privacy)	Family support	Tolerance (culture, religion, gender)	
Physical environment	Cleanliness	Signage and wayfinding	Ambiance	Facilities	Layout
Digital	Digital adoption	Channel availability	Digital integration	Health literacy	Functionality

“Inconsistent quality of care has been a uniform challenge across the GCC. Establishing a patient experience management function will help improve accessibility to patients, quality of service, consistency and affinity. It will help patients appreciate the value of what they are paying for, improve loyalty and medical outcomes as healthcare providers recognize the importance of going beyond exemplary medical care to engage with patients.”

*Andrea Longhi, EY MENA Healthcare Advisory Services Leader*

further highlights: "Patient centricity is the key to sustainably delivering better experiences. To achieve this, stakeholders in the healthcare ecosystem must make patient experience a top priority at all times."

### Going digital

With the digital revolution, patients are becoming more aware, expectations are rising and demand to be involved in every step of the treatment is increasing. 69 per cent of respondents from across the GCC agreed that digital and mobile healthcare is the future with 78 per cent eager to use new health technologies to empower themselves in making health decisions. A further 83 per cent of respondents believe there should be a greater investment in healthcare technology.

“Although advances in the digital space are being made at a national level in some countries, data is currently collected, owned, and managed by different healthcare provider functions, resulting in a lack of consistent information.

In addition, methods of public reporting of quality, patient satisfaction data, and other indicators of patient experience are not standardized, creating a gray area for regulatory authorities to redesign the health delivery system and improve patient experience. Potential solutions for the GCC healthcare system include the digitization of electronic medical records, mobile applications, remote patient monitoring, and the automation of medical centers,” shares Dr. Fadi Al-Buhairan, EY MENA Digital Healthcare Leader.





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# Embracing ARTIFICIAL INTELLIGENCE (AI) for healthcare needs



## Middle East consumers are ready to embrace AI and robots for their healthcare requirements, a recent PwC report remarks

**W**ill artificial intelligence (AI) and robotics in medicine replace the human clinician? Not yet, but healthcare is changing and the public is ready. According to a PwC study, a majority of consumers are willing to receive care from these advanced technologies, which have the potential to transform healthcare delivery to make it better, faster and more accessible for all.

The findings are explored in PwC's report – What doctor? Why AI and robotics will define New Health – which is based on a commissioned survey of over 11,000 people from 12 countries across Europe, the Middle East and Africa. Across the EMEA region, more than half of respondents (55pc) said they were willing to use advanced computer technology or robots with AI that can answer health questions, perform tests, make a diagnosis and recommend treatment.

### Three main themes emerged from the findings:

- People are increasingly willing to engage with AI and robots if it means better access to healthcare
- Speed and accuracy of diagnosis and treatment is a

critical factor for this willingness

- Trust in the technology is vital for wider use and adoption; the 'human touch' remains a key component of the healthcare experience.

### Emerging markets are most open

For all questions throughout the survey, a pattern emerged between developed and emerging economies. People in countries with well-established, and therefore less flexible, healthcare systems (UK and Western/North Europe) were willing to engage with a non-human healthcare provider, but less so than those in emerging markets where healthcare is still being shaped and formed.

The survey found that even in the operating theatre, respondents would be willing for a robot to perform a minor surgical procedure instead of a doctor, with close to half and up to 73 per cent of all respondents willing. In the Middle East, willingness ranged from 50 per cent for the UAE to 55 per cent in Saudi and Qatar. Respondents in Nigeria, Turkey and South Africa were the most willing to undergo minor surgery performed by robots



(73pc, 66pc and 62pc respectively), with the UK the least willing (36pc).

Perhaps unsurprisingly, the situation changed dramatically when it came to major surgery, such as replacement of a knee or hip joint, removal of a tumour, or heart surgery. Even so, a significant percentage of respondents are still willing to undergo major surgery performed by a robot: ranging from 44 per cent in the UAE and Saudi Arabia to 45 per cent in Qatar, compared with 27 per cent in the UK.

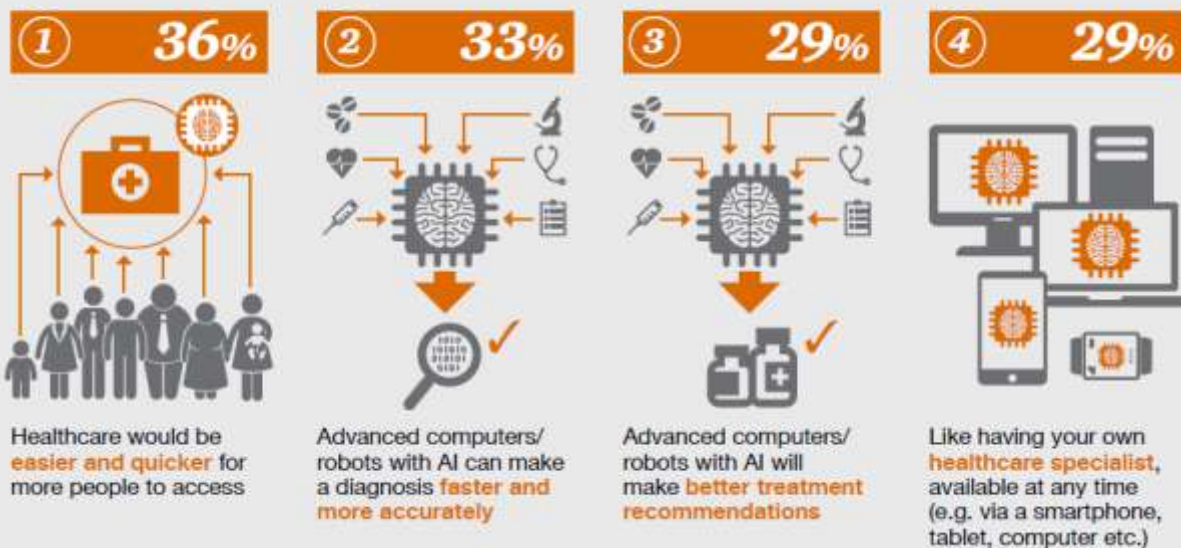
The survey also explored the key drivers for a person's willingness or unwillingness to use an AI-enabled or robotic health procedure or service. Easier and quicker access to healthcare services (36pc) and speed and accuracy of diagnoses (33pc) were the primary motivators for willingness, with lack of trust in robots being able to make decisions (47pc) and lack of the human touch (41pc) as the primary reasons for their reluctance. Although percentages varied across countries, these top two advantages and disadvantages were cited in this order across all countries with the exception of Saudi Arabia and Qatar, where respondents felt the lack of 'human touch' was the biggest disadvantage.

Dr Tim Wilson, Middle East Health Industries Leader, PwC, says: "Whether we like it or not, AI and robotics



A combination of clinical workforce shortages and a young, digitally savvy population in the Middle East means the region could leapfrog other countries in AI and robotics in healthcare, PwC expert says

#### The top advantages in order were:



Two-thirds of the Middle East are willing to replace human doctors with AI and robots and willingness in EMEA is at 55 per cent; with 66pc, 65pc and 62pc in Saudi Arabia, Qatar and the UAE respectively, highlights the PwC report.

are the future of healthcare, and the Middle East is poised to take advantage. Access to quality, affordable healthcare, and good health for everyone are the ultimate goals of all health systems, including the Middle East. And when you combine clinical workforce shortages in the Middle East, with more positive factors like a young, digitally minded population that, according to our survey, is willing to adopt AI and robotics, PwC thinks the Middle East could leapfrog

Accessibility and accuracy is seen as benefits, while trust and the human element are key challenges with the report highlighting next steps for government, business & the profession

other countries in these technologies. We would like to see the Middle East invest and become a global center of excellence for AI and robotics in healthcare, bringing benefits locally and becoming a place that other countries look to for healthcare innovation."

#### Enumerating next steps

Governments need to create quality standards and a regulatory framework which are applicable to and obligatory for the entire healthcare sector, as well as the appropriate incentives for adopting new approaches.

Healthcare professionals need to understand how AI

private sector has the opportunity to disrupt healthcare for the good.

Decision-makers at healthcare institutions need to develop an evidence base, measure the success and the effectiveness of the new technology and prioritize and focus on what consumers want and need.

Dean Arnold, Europe, Middle East, Africa Leader, Health Industries, PwC, adds: "It's clear that people are becoming more and more willing to embrace new technologies such as AI and robotics for their healthcare needs. But governments, businesses and the healthcare profession as a whole need to start thinking very differently about how we provide healthcare to our citizens. We need to think very carefully about our implementation strategy for different parts of the world. There will be challenges for all of us."

The survey was conducted in November 2016 by YouGov, the world's premier qualitative and quantitative research suppliers. 11,086 people from 12 countries participated in an online survey, including nationally representative



and robotics have the potential to work for and with them in a medical setting as well as throughout the healthcare eco-system, and be open to change.

Patients need to become more accustomed to AI and robots and discover its benefits for themselves.

The private sector developing AI and robotics need to create solutions to solve the big issues of demand and resource that every health system faces. In essence, by providing AI and robotic-driven solutions, the

samples for Belgium, Germany, the Netherlands, Norway, Sweden, Turkey and the UK; and urban representative samples for Nigeria, Qatar, Saudi Arabia, South Africa, and the UAE.

Established in the Middle East for 40 years, PwC has firms in Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Oman, the Palestinian territories, Qatar, Saudi Arabia and the United Arab Emirates, with around 4,000 people.



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## using a pocket-sized device

**An insulin pump is a small device about the size of a small cell phone that is worn externally and delivers precise doses of rapid-acting insulin to closely match the body's needs**



**D**iabetes is one of the world's most dire healthcare challenges on which your life and death depends upon. This is driven mainly by urbanization, ageing population and unhealthy lifestyle.

One of the main risk factors include obesity. However up to 70 per cent of type 2 diabetes cases can be prevented or delayed by adopting healthier lifestyles, equivalent to up to 150 million diabetes cases by 2035.

Out of a couple million UAE residents, around 20 per cent now suffer from diabetes. Medical experts believe that the economic successes of Middle Eastern countries have led to the rise in fast food and less exercise, which negatively affected public health. Despite all this, the human cost of diabetes is unbeatable as one person dies of diabetes every seven seconds.

The number of people who suffer from diabetes worldwide is 387 million and this number is expected to reach 592 million by 2035. When it comes to diabetes prevalence, seven countries out of top 20 are from the Middle East and North African region with the Gulf States leading the unfortunate statistics.

*MediWorld ME* met with Medtronic, a global healthcare solutions company with 88 thousand employees and presence in 160 countries, to discuss how we can regulate to a healthy lifestyle with the use of Insulin Pump Therapy. According to the company's spokesperson, the Middle East region in general and the United Arab Emirates have some of the highest prevalence rates of diabetes in the world. The International Diabetes Federation Atlas reveals that more than 1,000,000 people in the Emirates are living with diabetes. Prevalence is increasing in the UAE given the rapid economic growth, sedentary lifestyles and unhealthy diets.

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While Type 1 diabetes, which affects the insulin production in the pancreas, represents 10 per cent of total diabetics, requires much more control, education, support and management. Type 1 diabetics, have to inject insulin and hence are at risk of High and low blood sugar fluctuations, requiring more technologies to control and manage their condition.

SmartGuard technology is used to automatically suspend insulin delivery when sensor glucose levels are predicted to approach a low limit and automatically resume insulin delivery once sensor glucose levels recover



### Insulin Pump Therapy

An insulin pump is a small device about the size of a small cell phone that is worn externally and can be discreetly clipped to your belt, slipped into a pocket, or hidden under your clothes. The pump delivers precise doses of rapid-acting insulin to closely match your body's needs:

**Basal Rate:** Small amounts of insulin delivered continuously (24/7) for normal functions of the body (not including food). The programmed rate is determined by your healthcare professional.

**Bolus Dose:** Additional insulin you can deliver "on demand" to match the food you are going to eat or to correct a high blood sugar. Insulin pumps have bolus calculators that help you calculate your bolus amount

based on settings that are determined by your healthcare professional.

According to Medtronic, the insulin pump is for insulin-dependent patients, either on multiple daily injects and / or Type 2 Diabetics requiring insulin. Patients will need to talk to their doctor about pump therapy as part of their overall diabetes management plan, including lifestyle habits and changes.

SmartGuard technology is used to automatically suspend insulin delivery when sensor glucose levels are predicted to approach a low limit and automatically resume insulin delivery once sensor glucose levels recover.

### Lifestyle & health benefits

Insulin pump therapy provides more flexibility to your lifestyle while giving you greater control of your diabetes.

**Flexibility:** Since the insulin pump uses only more predictable rapid-acting insulin, you will not need to follow a strict schedule for eating, activity and insulin injections. You can eat when you are hungry, delay a meal if you want, even broaden your food choices. If you do activities that lower your blood sugar such as riding your bike, playing with your kids, or gardening, you can reduce your basal rate so that your blood sugar does not drop too low. If you are sick or have an infection and tend to have an

Controlling diabetes is considered much, much easier with a pump. One important advantage is when a pump user travels by plane with their insulin pump, they can simply adjust their basal rate to cover any time differences and they can do their bolus when their meals arrive.

Traditional, long-acting insulin can 'pool' under the skin, resulting in uneven absorption rates causing unpredictable lows and highs. Insulin pumps use only rapid-acting insulin, which is absorbed with more predictability so you can deliver smaller, more precise doses of insulin when that's all your body needs.

increase in your blood sugar, you can increase your basal rate so that your blood sugar does not go up too high. You can also change your meal bolus based on the foods you choose to eat.

**Fewer injections:** With multiple daily injections, you can give yourself at least 120 injections per month. With insulin pump therapy, you only have to change your infusion set about 12 times per month.

**Reduced complications:** With more precise insulin delivery, you can also gain better control of your diabetes. With proper insulin pump use, you can be four times more likely to achieve your target A1C and potentially reduce your low blood sugars by 84 per cent. Since insulin pump therapy can help you achieve better control, you can reduce long-term complications of diabetes such as eye, heart, kidney and nerve damage.

**Precise dosage:** Insulin pump therapy provides more predictability in the way insulin works in your body. Traditional, long-acting insulin can 'pool' under the skin, resulting in uneven absorption rates causing unpredictable lows and highs. Insulin pumps use only rapid-acting insulin, which is absorbed with more predictability so you can deliver smaller, more precise doses of insulin when that's all your body needs.

**Medtronic reveals that MM640G system thinks about how to make your day easier due to many features like:**

\* **Bolus wizard:** this feature automatically calculates and recommends correct doses so patient can manage their insulin more conveniently and precisely. It can help reduce mistakes in calculating insulin doses.

\* **Personalized settings:** helps patients closely match their insulin needs to their daily routine. Patients can set friendly reminders or personalized bolus doses and basal patterns according to their needs.

\* **No more daily injections** are required

In addition, MiniMed™ 640G was inspired by years of feedback from healthcare professionals who want technology to be intelligent, easy and convenient to tailor therapy to individual patients' needs.

- **Informative Bolus Wizard™**
- **Discreet and easy to use remote bolusing**
- **Preset bolus and personalized basal pattern options**
- **Programmable treatment reminders**

Basal insulin can be delivered in such a way to accommodate variations in basal insulin requirements

and can be changed every half an hour in order to allow matching insulin dose according to patient needs. For example the pump can be set to deliver more insulin in the early morning hours to correct for an increase in BG caused by hormonal activity known as dawn phenomenon. Basal rate can also be adjusted temporarily while exercising for example to accommodate the temporary change of insulin needs. In case of illness or stress basal rate can be temporarily increased to avoid hyper.

All of this will help the patient not only be satisfied and have more flexibility in their everyday life but also help in controlling their sugar levels and keep them as much possible close to target range.

### Travel friendly

Controlling diabetes is considered much, much easier with a pump. One important advantage is when a pump user travels by plane with their insulin pump, they can simply adjust their basal rate to cover any time differences and they can do their bolus when their meals arrive.

The bolus wizard feature automatically calculates and recommends correct doses according to blood glucose value, the amount of carbohydrates, target range and active insulin amount.

Pump users need to wear their pump on their belt or put it in their pocket. Insulin pump is connected to body via infusion set where the cannula is inserted subcutaneously and automatically by a small device called quick setter.

When the suspend before low feature is on, the pump will automatically stop the delivery of insulin to protect the patient from hypoglycaemia. When the alert before high or alert on high is on, patient can be alerted before or when reaching their hyperglycaemia limit where they can take a correction dose of insulin to bring sugar levels back to target range.

### Alternative to injections

This innovative system is considered much superior treatment option compared to MDI due to many advantages and features that pump therapy provide the patient with like:

\* The bolus wizard calculator automatically calculates correct amount of insulin needed.

\* Only rapid acting insulin is used with pump therapy compared to two types of insulin used with MDI including long and rapid acting. Note that in normal physiology only rapid acting insulin is released from a healthy pancreas. Also rapid acting insulin is preferred because it has the least variability.

\* With insulin pump therapy there is much less skin pricking and a cannula need to be changed every three days where with MDI patient need minimum of four injections per day. So with pumps there is 10 times less injection.

Despite all the advancements, Medtronic constantly strives to improve patient outcomes and as such it will continuously improve its solution ranging from technology and algorithm that help the pump replicate the pancreas to connectivity to overall patient experience.





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# *A world leader in healthcare*

## **Germany boasts the largest healthcare product market in Europe & leads globally in pharma and R&D industries**

Germany is the second largest unit of the European territory and a third ranking in a survey done recently for average age expectancy, which is 78 years. The country also stands third in the list of practising physicians and low mortality rate. Spending approximately 12 per cent of its GDP on health care, which is better than any other part of Europe, about 87 per cent of the total population is covered under insurance.





**L**ow wage earners get a part of the expense reimbursed by the government.

In addition, Germany boosts Europe's second largest population (after Russia) and the strongest economy ranking fifth in the world in Purchasing Power Parity (PPP) terms. Since unification in 1990, Germany has spent considerably to harmonize productivity and wages across the country and prosperity has increased on the back of German exports, particularly of machinery, vehicles, metals, chemicals and other goods

Germany's healthcare industry employs 4.9 million people including doctors, engineers, chemists, physicists, mathematicians, and pharmacists. The medical devices sector employs around 170,000 of these in more than 11,000 companies. It is predicted that Germany will continue the trend towards an ever-ageing population. By 2050, half the German population will be older than 48 years and one third will be 60 years or older.

needed in emerging markets. Despite massive funds being poured into its economy, the former German Democratic Republic still lags behind, with people in the West resentful for paying more than they initially expected.

#### **Advanced healthcare system**

The healthcare in Germany is divided into two sectors, the gesetzliche Krankenversicherung (public health insurance) and the private Krankenversicherung (private medical care). The German market for healthcare products is the largest in Europe and the third largest in the world. From 1996 to 2007, health expenditures rose from € 195 billion to € 252.8 billion. The share of the healthcare expenses of the German Gross Domestic Product (GDP) is at a rate of 10.4 percent. The Statutory Health Insurances (SHIs) bear more than half of the healthcare expenditure (€ 252.8 billion).

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It is predicted that Germany will continue the trend towards an ever-ageing population. By 2050, half the German population will be older than 48 years and one third will be 60 years or older.

The German government's declared goal for health policy is to keep standards of quality high while keeping the healthcare system affordable. The government's 'High-Tech Strategy' supports innovation in the sectors of biotechnology, pharmaceuticals, and medical devices.

According to the Euro Health Consumer Index, which placed it in 7th position in its 2015 survey, Germany has long had the most restriction-free and consumer-

oriented healthcare system in Europe. Patients are allowed to seek almost any type of care they wish whenever they want it.

#### **Pharmaceutical market**

With a tradition of invention in the medical field that brought Aspirin, Germany has been an attractive pharmaceutical market for years. It is the world's third largest pharma market behind the US and Japan, with sales worth an estimated €30.7 billion in 2010.

Approximately 62 per cent of pharmaceuticals produced in Germany are exported, therefore this is a crucial area for the industry and vulnerable to what happens to the European currency.

According to the German Federal Statistical Office, healthcare expenditure totalled €278.3 billion in 2009, increasing 5.2 per cent compared to 2008. It corresponded to 11.6 per cent of GDP (10.7pc a year earlier). The public healthcare bill has increased significantly since reunification and the hospital sector is the most costly. Administrative fees represent a third of the bill, according to the BMG and around 15 per cent is spent on pharmaceuticals.

#### **Most generics-friendly country**

Germany's strong and growing generics market is the largest in Europe. In the public system it accounts for 30 per cent in value and 60-70 per cent in volume. Since 2004, incentives have been given to pharmacies to offer generics and substitution is usually compulsory.

The R&D industry association claims Germany is the 'the most generics-friendly country in the world' and that their actual share is 80 per cent. 'Original products often lose almost their entire market share to generic drugs within a few months after a patent expires. An average of over 86.5 per cent of prescriptions and around 78.4 per cent of sales in the generics-eligible market were generated by imitation products in 2010,' argues the VFA report 'Statistics 2011, the pharmaceutical industry in Germany'. A subsidiary of Novartis and big player in Germany, Sandoz is second in the world after Teva, now top supplier of generics to the largest health insurer.

#### **Biotech clusters**

There are biotech clusters in Munich, Heidelberg and Cologne, and companies in this sector have had government support, although government regulations, for example on the use of stem cells, remain restrictive. The German Stem Cell Act was amended in 2008 to allow the import of cell lines harvested before May 1, 2007, although there is a general ban on creating and working on human embryonic cell lines.

Germany ranks lower than other European countries on innovation, despite its pioneering successes in the 1970s and heavy investment by companies, particularly big pharma. To increase competitiveness, the German federal government created BioRegio in the mid-1990s, a contest with financial rewards for the strongest biotech regions.

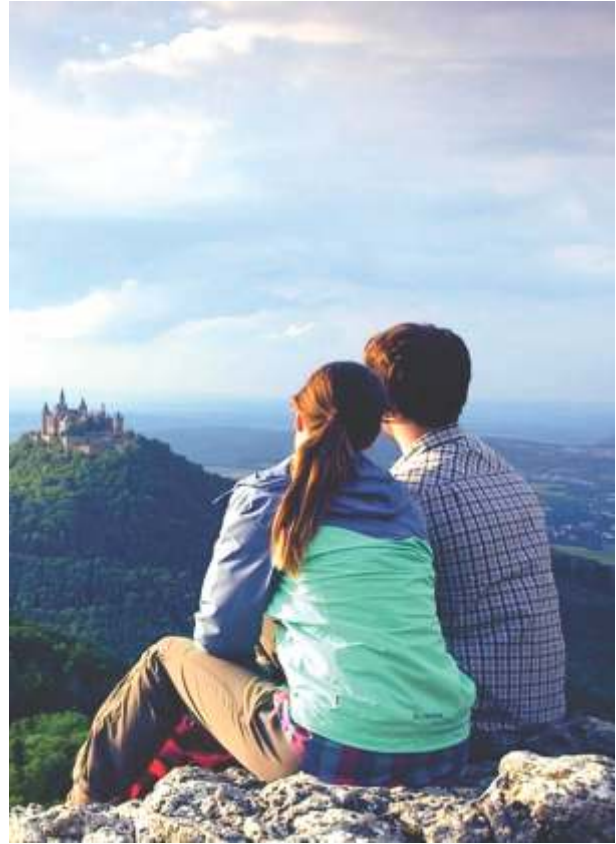
After a short boom and bust period, the government launched the 'Pharmaceuticals Initiative for Germany' in 2008 to stimulate the sector through partnerships, focusing on clinical trials, allocating R&D grants, interest-reduced loans and special partnership programmes. Each state also has its own R&D grant programs for small and medium sized companies.



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Today, biopharmaceutical sales account for 16 per cent of the German pharmaceutical market and are expected to grow up to 20 per cent by 2020. Despite the excellence of German scientific research and business practices, the industry suffers from lack of investment due to risk aversion and a negative image.

Around 80 per cent of biopharma sales fall into applications in metabolism (especially insulins for treating diabetes), immune-mediated diseases, cancer and disorders of the nervous system.



#### **Attractive R&D industry**

However, the general business environment, plus the traditional innovative and adaptable nature of the R&D industry are still attractive propositions in a mature and solid market. The ageing population will need new and more effective therapies, particularly in oncology, heart disease and Alzheimer's.

But a shrinking labour force will mean fewer contributions to sickness funds. This model worked well once but is becoming stretched and outdated.

Out-of-pocket contributions are likely to increase, as treatments become more personalised and the private sector may take more patients who can afford total freedom and access to the latest therapies.

Generics represent a strong segment, useful as a cost containment tool and well established with doctors and patients receptive to the message that they bring savings, although price controls are also stringent. Biosimilars are also growing and have been favoured by the same cost cutting policies that have boosted generics, now with legal backing from the EU, according to PM Live website.

Up to 2010, Germany ranked as the fifth best place for pharma after the US, Australia, Canada and Japan, according to Business Monitor (Business Environment Rating) but it is losing ground. The biotech segment can be a success if more venture capital is found, as the German government is supporting innovation through generous grants, even if price restrictions and stricter regulations will affect all new products being launched.

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# Dubai Health Authority launches Information Security project



The Dubai Health Authority (DHA) announced it has launched an Information Security project, which is in line with the vision of the Dubai Cyber Security Strategy launched by Vice President and Prime



Minister of the UAE and Ruler of Dubai His Highness Sheikh Mohammed bin Rashid Al Maktoum with an aim to strengthen Dubai's position as a world leader in innovation, safety and security

The DHA's Board identified several phases of implementation for this project, which include: information gathering, security analysis, policies and procedures, risk assessment, plan development, application, business continuity, workshops and outreach and the final phase is internal audit.

The Authority has established a senior monitoring and evaluation Committee, that will oversee the implementation of information system management and controls, promote a culture of information security and disseminate information to DHA staff. The committee will also conduct periodic review of the system, follow-up of all internal and external audits, and review the risk assessment methodology periodically.

The project comprises of the following core concepts: management and governance of information security, management of information and related assets, risk management of information assets, incident

management, access control, operations management, systems and communications, planning for business continuity and activities, ownership, development and management of information systems, information protection, role and responsibilities of human resources, legislative regulation and oversight, ensuring information security and performance evaluation.

H.E. Humaid Mohammed Al Qatami, Chairman of the Board and Director-General of the DHA, said that in line with the vision of the Dubai Cyber Security Strategy launched by Vice President and Prime Minister of the UAE and Ruler of Dubai His Highness Sheikh Mohammed bin Rashid Al Maktoum, DHA will ensure implementation of the project that is vital to further protect health information in a digital environment.

DHA is working at various levels to ensure they adhere to these standards and in fact the Authority is the world's first government health organization to receive Uptime Institute (UTI) Tier III Data Center design certification.

DHA has recently launched the first phase of its 'Salama' project, which is DHA-wide project that aims to provide patients and doctors access to medical records through a patient portal and ensure that the electronic patient medical record is available across the DHA health facilities.

After all phases of the Salama project will be completed, the DHA will also work on implementing the NABIDH (pulse) project. NABIDH stands for Network & Analysis Backbone for Integrated Dubai Health. The project will enable the creation of a unified medical record for each individual in Dubai by connecting the information contained in all public and private healthcare facilities. NABIDH's community view of patient's health record will lead to improved quality and patient safety, reduced cost and evidence-based care.



## Dubai Science Park unveils opportunities in healthcare



Dubai Science Park (DSP), the Middle East region's first science-focused business community, hosted a business breakfast at its Laboratory Complex in partnership with leading regional law firm Al Tamimi & Company.

Attended by a delegation of healthcare professionals and entrepreneurs, the focus was on current opportunities and enablers within the healthcare



sector that have been identified by the Pharmaceuticals and Medical Equipment Task Force of the Dubai Industrial Strategy 2030 for the first time. The event also addressed the importance of effective intellectual property protection.

Experts from Dubai Science Park and Al Tamimi & Company delivered presentations on the topics, followed by an interactive question-and-answer session and an opportunity for networking.

Marwan Abdulaziz Janahi, Executive Director at Dubai Science Park & Chairing Member of the Pharmaceuticals and Medical Equipment Task Force of the

Dubai Industrial Strategy 2030, said: "Lately, the team at Dubai Science Park has focused on collaborating with The Executive Council of Dubai and other key stakeholders with the objective of identifying industry opportunities and enablers that are enhancing Dubai's healthcare sector."

He added: "The Pharmaceuticals and Medical Equipment Task Force of the Dubai Industrial Strategy 2030 has identified several core industry sectors as outlined during the presentations, such as

3D printing, supragenerics and nutraceuticals, that we will be focusing on, ensuring that Dubai Science Park continues to act as an enabler to the science sector. We are delighted to share our findings for the first time at this week's breakfast event and we hope delegates find the information valuable to their respective organisations."

Presenting the recommendations of the project commissioned by DSP, Hasan Kapar, Head of Consulting Services at QuintilesIMS, identified five key sectors that support the Dubai Industrial Strategy's objectives of diversifying the UAE economy. He said "Some of the most promising opportunities in the healthcare sector at the moment in terms of size, growth prospects, investment intensity and differentiation capabilities in the Middle East region include 3D printing, nutraceuticals, blood plasma, and next-generation sequencing. Countries such as Ireland and Singapore have led the way, however, Dubai offers unique opportunities for manufacturers through dedicated business enablers such as Dubai Science Park."

In the near future, the Pharmaceuticals and Medical Equipment Task Force will appoint specialised working groups for each of these areas. The industry experts will be tasked with the implementation of the goals to meet an ambitious timeline, showing tangible results starting in one year's time and stretching over a ten-year period.

Ahmad Saleh, Partner and Head of Patents & Designs (R&D and Innovations) at Al Tamimi & Company, noted that attracting manufacturers that bring innovative pharmaceutical and medical equipment solutions and products to the UAE market requires strong intellectual property protection.

## China, Russia and Africa are new target markets for healthcare tourism



The core team from Dubai Medical Tourism Council, Dubai Health Authority (DHA), responsible for healthcare tourism in the Emirate, visited Canadian Specialist Hospital, who is one of the DXH (Dubai Health Experience) Group members since the inception of the initiative. During the visit the team met the International patient team and other doctors to share the plans and discuss strategies to attract more patients into the city.

Dubai witnessed an influx of 326,649 international patients from various parts of the world in the calendar year of 2016 up 9.5 per cent from the previous year.

"It is a matter of pride that Dubai has come to be considered as a benchmark in healthcare, by many of our neighbors, in such a short time. Statistically, we have a strong influx from our neighbouring nations and the Asian region. Our strategies are being channeled into making Dubai a preferred healthcare destination in the other

African nations, China and Russia among other countries," stated Dr. Layla Al Marzouqi, Director of the Dubai Medical Tourism Project, Dubai Health Authority.

Plans are underway to strengthen Dubai's position in the health care sector, on the basis of sophisticated infrastructure and adoption of the latest equipment. Close to 80 per cent of the hospitals in Dubai are accredited, marking it as the city with the highest number of accredited hospitals. This is further augmented with a team of 35,000 healthcare professionals from 110 nationalities greeting patients in their own language.

Dr. Yashar Ali, CEO, Canadian Specialist Hospital commented, "Canadian Specialist Hospital has a fully functional department dedicated to international patients. We have been promoting Health Tourism since 2006 and are recognized as one of the leading health tourism centers in Dubai. We offer a variety of packages for people with different needs and resources including orthopedics, ophthalmology, dental, dermatology, wellness and preventive health check-up and assisted reproductive techniques."

Dubai is currently placed 75th globally and 1st in MENA for providing quality of life to its residents. Medical care and health considerations are among the deciding factors taken into account in achieving this distinction.

Hussain Anani, COO, Canadian Specialist Hospital stated, "Support from the tourism, hospitality and aviation industry would be a boon in achieving the industry's goals. Initiatives to set up dedicated channels with international and local travel agents, hotels and passenger carriers would be instrumental in providing a comprehensive package for those in need of medical attention".

## Oman Health Exhibition to take place in October

The event organisation company Omanexpo is preparing to hold the seventh edition of Oman Health Exhibition and Conference from 9 to 11 October 2017 at the new Oman Convention & Exhibition Centre.

Leveraging rapidly emerging opportunities in Oman's health and healthcare market as a result of the government's billion-dollar investment into the industry, the recognized biggest healthcare platform in Oman will once again provide a beneficial trade platform for companies to access these opportunities and showcase the best of their products and services to a dedicated audience.

Ahmed Sayed, exhibition director, Oman Health Exhibition & Conference, says "We are continuously finding ways to enhance our platform such that our exhibitors, stakeholders, and visitors are assured of a worthwhile return on investment by ensuring proper representation of all the key sectors within the health and medical industry, and offer new and diversified range of products, services and technologies. We also want to help encourage new investments into Oman's health resources and current projects."

"We are expecting over 150 companies from 18 countries, which will showcase the latest medical products and equipment, personal care products, diagnostic and laboratory equipment, pharmaceutical products, physiotherapy and orthopaedic technology that range from eye care, skin care, cosmetic, infertility treatment consultancy, and more," he adds.

The organizers are also expecting the biggest hospitals, clinics and healthcare centers from, India, Italy, Japan, Korea, Malaysia, Thailand and the US. This year's edition will see the show's first-time association with Turkey as a country partner, who will bring in over 30 companies representing the health and medical sectors, as well as a high-profile delegation of government representatives and key industry professionals from the private sector.

A special feature will be the India pavilion, organized by India Health Plus, recognized as India's premier medical tourism expo, which will feature leading manufacturers and healthcare providers from India. Adding value to the exhibition are the Germany and China pavilions, and the Iran pavilion, seen to be the biggest one so far in any health exhibition in Oman.



## Half a million unskilled construction workers urged to consume O.R.S Tablets



Health experts at Clinova urged thousands of unskilled workers working in the UAE to consume O.R.S Hydration Tablets. The Hydration tablets help to maintain hydration at work during summer. In the UAE, heat increases the risk of dehydration and heat stress for the workers. Most at risk are those working outdoors performing physically intensive labour and indoor workers who are exposed to high temperatures with poor ventilation. This includes miners, construction workers, office workers, transport workers, air hostess/pilots, domestic workers, warehouse workers and fire-fighters to name a few.

A Japanese study of airport workers working in high temperatures supports the case for consuming O.R.S. The study of 153 workers at Tokyo International Airport found that ineffective hydration caused poor productivity and problems with concentration, potentially impacting on safety in the workplace. The study concludes that an intake of oral rehydration salts during outdoor work in a hot environment would be effective in preventing industrial accidents and heatstroke.

"Improving hydration is the key to self-protection for workers in hot climates. These workers should drink a lot of water and consume O.R.S. Tablets. Heavy outdoor work in the heat can cause substantial electrolyte losses. As such, O.R.S. Tablets which are rich in electrolytes and minerals replenish the lost electrolytes, helping labourers perform at peak," said Arsalan Karim, Director, Research and Development, Clinova Ltd.

With daytime summer temperatures in the Gulf regularly exceeding 40 degree Celsius for prolonged periods of

time often with high humidity, particularly in the morning and afternoon, the extreme environmental conditions make heat-related illness the most important health issue facing outdoor workers in the region. In addition, physical exertion produces heat at a higher, faster rate. This increased heat production can result in an increase in body temperature, which above a certain temperature, can be difficult to control. Therefore, it is important to develop ways to cool down the body to help maintain core temperature and reduce the negative effects of thermal stress.

"For workers performing manual labour in a thermally stressful environment, the maintenance of an adequate level of hydration is essential to minimise the risk of heat illness and avoid excessive fatigue. Drinking enough water is not the only solution. O.R.S. Tablets should be consumed as it has enough electrolytes necessary for the bodies to function properly. The hydration tablets not only keep the workers properly hydrated, but also make them healthier, safer and more productive, no matter what the weather or working conditions," added Arsalan Karim.

Clinova's O.R.S. Tablets are a ground-breaking, balanced formula of glucose, electrolytes and minerals which when added to water help maintain optimal hydration for outdoor workers. It has been noted that more than half a million unskilled workers work at construction sites in Dubai, according to statistics issued by the Permanent Committee for Labour Affairs (PCLA). The UAE has a long-standing commitment to protecting workers' rights and has served as a role model in protecting and caring for workers' rights and providing a safe working environment with fair treatment.



## WHO estimates cost of reaching global health targets by 2030



The SDG Health Price Tag, published in The Lancet Global Health, estimates the costs and benefits of progressively expanding health services in order to reach 16 Sustainable Development Goal (SDG) health targets in 67 low- and middle-income countries that account for 75 per cent of the world's population.

The analysis shows that investments to expand services towards universal health coverage and the other SDG health targets could prevent 97 million premature deaths globally between now and 2030, and add as much as 8.4 years of life expectancy in some countries. While most countries can afford the investments needed, the poorest nations will need assistance to reach the targets.

"Universal health coverage is ultimately a political choice. It is the responsibility of every country and national government to pursue it," Dr Tedros Adhanom Ghebreyesus, WHO Director-General, wrote in a commentary accompanying the paper in The Lancet Global Health.

The SDG Health Price Tag models two scenarios: an "ambitious" scenario in which investments are sufficient for countries to attain the health targets in the SDGs by 2030, and a "progress" scenario in which countries get two thirds or more of the way to the targets.

In both scenarios, health systems investments such as employing more health workers; building and operating new clinics, hospitals and laboratories; and buying medical equipment account for about 75 per cent of the total. The remaining costs are for medicines, vaccines, syringes and other commodities used to prevent or treat specific diseases, and for activities such as training, health campaigns and outreach to vulnerable communities.

Under the "ambitious" scenario, achieving the SDG health targets would require new investments increasing over time from an initial US\$ 134 billion annually to \$371 billion, or \$58 per person, by 2030.

The analysis shows that 85 per cent of these costs can be met with domestic resources, although as many as 32 of the world's poorest countries will face an annual gap of up to US\$ 54 billion and will continue to need external assistance. High-income countries were not included in the analysis but other estimates show they can all afford to provide universal health coverage with essential health services to their citizens.

The ambitious scenario includes adding more than 23 million health workers, and building more than 415 000 new health facilities, 91 per cent of which would be primary health care centres.

The investments could prevent 97 million premature deaths – one every five seconds over 15 years – including more than 50 million infants and children who are either stillborn or die before their fifth birthday, and 20 million deaths from non-communicable diseases such as cardiovascular disease, diabetes and cancer. Life expectancy would increase by between 3.1 and 8.4 years, and 535 million years of healthy living would be added across the 67 countries.

The "progress" scenario would require new investments increasing from an initial US\$ 104 billion a year to \$274 billion, or \$41 per person, by 2030. These investments would prevent about 71 million premature deaths and boost health spending as a proportion of GDP to an average of 6.5 per cent. More than 14 million new health workers would be added, and nearly 378,000 new health facilities built, 93 per cent of which would be primary health care centres.

## Sensor Patch Market worth \$562.1 million by 2023



According to a new research report "Sensor Patch Market by Product (Temperature, Blood Glucose, Blood Pressure/Flow, Heart Rate, ECG, Blood Oxygen), Application (Monitoring, Diagnostics), End-User Industry (Healthcare, and Fitness and Sports), and Geography - Global Forecast to 2023", published by MarketsandMarkets™, the Sensor Patch Market is expected to be worth USD 562.1 million by 2023, at a CAGR of 47.03 per cent between 2017 and 2023. The growth of this market is mainly driven by increasing per capita healthcare expenditure and disposable incomes in OECD countries, consumer preference for wearable in health monitoring application, and comfortability offered by sensor patch.

The large market of blood glucose sensor patch is mainly attributed to the increasing number of patients with

diabetes across the world. According to World Health Organization, about 422 million people were affected by diabetes in 2014 worldwide. Many patients with diabetes have been advised to monitor blood glucose on a regular basis. Monitoring glucose level regularly is essential to keep diabetes under control. The demand for self-testing devices is driving the sensor patch market. The painful pricking procedure used by other glucose monitoring devices can be considerably avoided by implementing sensor patches.

Diagnostics application of sensor patch is now being accepted in the healthcare industry as the current and historical data gathered by sensor patches assist clinicians with precise diagnostics. There is increasing scope for diagnostics sensor patches in childcare as infants cannot communicate about their health status.

North American consumers in general focus on value and functionality. The demand for sensor patch is increasing in North America as a result of the demand for technologically advanced medical devices and monitoring devices that can be used in homes for the growing aging population. The increase in R&D in the field of wearables, in terms of new and improved technologies, and the rise in demand for improved lifestyle are the two crucial factors driving the market in this region. The increasing R&D capabilities are broadening the application areas of sensor patch in different industries such as fitness and sports and healthcare.

## Internet of Medical Things shakes up development of medical devices

As patients are increasingly asserting their right to choose the therapy that best suits them, demand for better access to their medical data is intensifying. The shift in the balance of power during decision making is compelling healthcare providers to find more efficient ways of extracting meaningful information from medical records to present to patients. This has heightened the need for analytics to process the voluminous data produced by advanced, connected and smarter patient monitoring devices, which, consecutively, has turned the spotlight on the Internet of Medical Things (IoMT). According to a recent press release, meaningful insights accrued from the range of connected medical devices and monitoring tools can help patients make lifestyle changes or better manage an existing disease, and simultaneously aid clinicians by facilitating decision making.

"Sharing of medical data or transmission of medical data through the cloud is a recent trend and is gaining traction, even in developing nations, with the healthcare industry becoming digitized," observed Frost & Sullivan TechVision Industry Analyst Bhargav Rajan. "IoMT will accelerate the development of advanced medical devices that can seamlessly transfer structured information to electronic health records more efficiently than existing technologies."

Internet of Medical Things (IoMT) Revolutionizing Healthcare is part of Frost & Sullivan's TechVision (Medical Devices & Imaging) Growth Partnership Subscription.

IoMT is an amalgamation of medical devices and applications that can connect to healthcare IT systems using networking technologies. The analysis covers product-centric and process-centric functions of the technology.

While the benefits are many, IoMT has inherent IT security vulnerabilities that expose highly sensitive data to cyber and phishing attacks. Technologists are attempting to resolve this issue by employing blockchain technology, which enables a highly secure, decentralized framework for data sharing. Using a combination of artificial intelligence and blockchain technology, companies can keep an audit trail of all transactions. Predictive modeling used in combination with big data analytics can reduce healthcare costs and improve patient experiences and outcomes.

"Blockchain technology in IoMT will allow patient records to be automatically fed with real-time data of the patients, which will subsequently be sent to healthcare providers over a secure network through a web-enabled platform," noted Rajan. "Through this process, personalized care can be delivered to a patient in a remote location."

Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants.

## Cigna acquires Zurich Insurance Middle East



Cigna Corporation, a global health services company, announced the acquisition of general insurer, Zurich Insurance Middle East (SAL). The acquisition, which was successfully completed in June marks the beginning of a new phase of operations for Cigna as the premier provider of both health and wellness services to individuals, employers and government entities across the Middle East. With this acquisition, Cigna will operate in the UAE, Lebanon, Kuwait and Oman, further complementing its capabilities across the region.

In line with regulatory compliance, the newly acquired entity will be called 'Zurich Insurance Middle East, a Cigna-owned company.' The company will assume a name that aligns with the Cigna brand once all formalities have been completed.

In the Middle East region Cigna delivers group health products and services for small businesses and family-owned enterprises through to multinational companies.

Through its new entity, Cigna will be able to provide even more personalized products to individuals, employers, and government entities; 24/7 customer support; multilingual call centres located across nine global locations; specialized clinical services, and access to one million medical and healthcare professionals and facilities worldwide.

Jason Sadler, President of Cigna International Markets said: "Cigna has enjoyed a strong presence in the Middle East for more than 15 years through our local partners. Today, we mark a significant new phase of our journey and commitment to the region. Cigna aims to improve the health, well-being and sense of security of our regional customers by providing full access to our global expertise and wide range of specialized healthcare benefits, products and wellness programs."

Cigna has named Arthur Cozad, former CEO of Cigna Taiwan, as CEO for Middle East markets. Earlier this year, Cigna opened offices at the Dubai International Financial Centre (DIFC) to serve as its regional headquarters, providing management support and specialist services to its regulated entities across the GCC.

Howard Gough, CEO of Cigna for the MENA Region, Global International Private Medical Insurance (GIPMI), and Global Government segment, added: "We are witnessing a dynamic change within the GCC region's healthcare sector, defined by regulatory reform and national agendas that prioritize the importance of quality healthcare. Cigna's healthcare benefit products and its preventive wellness solutions meet a vital need for companies, and local and globally mobile individuals."

## Big Data in Healthcare & Pharmaceutical Industry to reach \$4 billion in 2017

"Big Data" originally emerged as a term to describe datasets whose size is beyond the ability of traditional databases to capture, store, manage and analyze. However, the scope of the term has significantly expanded over the years. Big Data not only refers to the data itself but also a set of technologies that capture, store, manage and analyze large and variable collections of data, to solve complex problems.

Amid the proliferation of real-time and historical data from sources such as connected devices, web, social media, sensors, log files and transactional applications, Big Data is rapidly gaining traction from a diverse range of vertical sectors. The healthcare and pharmaceutical industry is no exception to this trend, where Big Data has found a host of applications ranging from drug discovery and precision medicine to clinical decision support and population health management.

SNS Research estimates that Big Data investments in the healthcare and pharmaceutical industry will account for nearly \$4 Billion in 2017 alone. Led by a plethora of business opportunities for healthcare providers, insurers, payers, government agencies, pharmaceutical companies and other stakeholders, these investments are further expected to grow at a CAGR of more than 15 per cent over the next three years.

The "Big Data in the Healthcare & Pharmaceutical

Industry: 2017 – 2030 – Opportunities, Challenges, Strategies & Forecasts" report presents an in-depth assessment of Big Data in the healthcare and pharmaceutical industry including key market drivers, challenges, investment potential, application areas, use cases, future roadmap, value chain, case studies, vendor profiles and strategies. The report also presents market size forecasts for Big Data hardware, software and professional services investments from 2017 through to 2030. The forecasts are segmented for 8 horizontal submarkets, 5 application areas, 36 use cases, 6 regions and 35 countries.

Among the key findings of the report are: - In 2017, Big Data vendors will pocket nearly \$4 Billion from hardware, software and professional services revenues in the healthcare and pharmaceutical industry. These investments are further expected to grow at a CAGR of more than 15 per cent over the next three years, eventually accounting for over \$5.8 billion by the end of 2020.

Through the use of Big Data technologies, hospitals and other healthcare facilities have been able to achieve cost reductions of more than 10 per cent, improvements in outcomes by as much as 20 per cent for certain conditions, growth in revenue by 30 per cent, and increase in patient access to services by more than 35 per cent.



## Budapest Airport supports Cool Chain and Air Cargo Handling Conference



Budapest Airport, which is transforming its cargo facilities as part of its EUR160 million (HUF50 billion) BUD:2020 Development Programme, is backing two freight summits in the Hungarian capital this September.

Central Europe's leading cargo hub is sponsoring the Cool Chain Association Pharma and BioSciences Conference and the Air Cargo Handling Conference, in Budapest on 18-19 September and 19-21 September 2017 respectively.

Budapest Airport has recently opened two new state-of-the-art integrator buildings, and has started work on a dedicated freight centre called Cargo City, due to be completed in 2019.

"Budapest Airport is committed to providing high quality services to customers wanting to connect with the growing Central European marketplace," said René Droese, Property and Cargo Director, Budapest Airport.

"Working with these two important summits is a natural partnership as we continue to support the several companies boosting their business in the region and looking to connect to China."

Budapest Airport is the Host and the Dinner Sponsor for the Air Cargo Handling Conference. Droese will participate in a panel discussion on "Creating the Ideal

Cargo Hub" at the Air Cargo Handling Conference on Thursday, 21st September 2017.

Budapest Airport recently participated in an economic forum in Shanghai, China, and has reached a cooperation agreement with Ningbo Lishe International Airport, Ningbo, China to enhance trade and commerce between the two regions.

The two conferences in September are co-located, alongside the Unit Loading Device (ULD) Care Conference, at the Corinthia Hotel in Budapest. The Budapest Airport Cargo team will be available to speak to customers at both summits. To register for the 5th Cool Chain Association Pharma and BioSciences Conference, visit [coolchainevents.com](http://coolchainevents.com)

Budapest Airport, Hungary, is a leading international air cargo hub servicing 45 airlines, with a throughput of 112,143 tonnes of cargo in 2016, up 22.7 percent year-on-year. The Central European hub handled a record volume of 61,400 tonnes of cargo in the first half year of 2017, an increase of 21 per cent from 2016. Planning and design has started on a dedicated freight centre called Cargo City that will handle freighters operated by carriers including Cargolux, Turkish Cargo, and Qatar Airways Cargo, as well as belly cargo from its other airlines. Two new integrator buildings opened in the summer of 2017 measuring over 16,000 sq m.

## Clarius Wireless Ultrasound Scanners available with advanced features

Clarius Mobile Health, a healthcare technology company, has released advanced features and options for its wireless handheld ultrasound scanner for medical professionals on the go. The Clarius App 3.1 Eclipse with the enhancements is available now on the App Store and Google Play.

Clarius Ultrasound Scanners are intended for use as a visual stethoscope for clinicians to conduct quick scans and to guide short procedures. The Clarius C3 multipurpose ultrasound scanner is designed to image the abdomen and lungs; it also incorporates a virtual phased array for quick scans of the heart. The Clarius L7 is designed for guiding procedures and imaging superficial structures.

"Clarius Eclipse is our most important software release since we introduced the Clarius Wireless Ultrasound Scanner," said Kris Dickie, Director of Product Innovation



at Clarius Mobile Health. "It enables new features for all users and many premium options including Color/Power Doppler, spatial compounding for even better imaging, needle enhancement and three-in-one imaging capability on our C3 Scanner."

Clarius Eclipse incorporates enhanced capabilities for annotations, automated heart-rate monitoring during cardiac scanning, and easy bladder volume measurement. The new software makes it possible to simultaneously share an imaging screen with multiple devices by simply scanning a QR code, which is ideal for educational settings. It also offers a low power mode to extend battery life and prolong scan times. Some new features are pending regulatory clearance in some countries.

The Point-and-Shoot™ Ultrasound Scanners are powered by a rechargeable battery, which is easily exchanged when running low. Built with a magnesium case, Clarius Scanners are designed to withstand challenging environments and are water submersible for easy cleaning & disinfection.

## Viavi MicroNIR™ Tablet probe unlocks accelerated analysis of pharma tablets and pills



Viavi Solutions announced the availability of the MicroNIR™ Tablet Probe, a handheld probe attachment for the analysis of pharmaceutical tablets & pills, small volume samples, or single grain kernels. The probe is compatible with the MicroNIR Onsite spectrometer system. It is the latest addition to several accessories developed by the Viavi OSP (Optical Security and Performance Products) business.

Viavi's MicroNIR Tablet Probe unlocks accelerated analysis of pharmaceutical tablets and pills, food manufacturing and seed quality.

A shift toward miniaturized spectral sensors in near infrared (NIR) spectroscopy has led to increased demand for handheld, laboratory and portable options for rapid analysis. The shift is largely attributed to stringent quality requirements for drugs and excipients, growing concern for food and feed safety, pharmaceutical brand protection, drug authenticity, drug development and quality control. Demand for portable spectral sensing options has become increasingly diversified. Significant technological advancements have enabled the development of practical low-cost and rugged spectrometers over the past several years, including NIR-based instruments.

Viavi's MicroNIR Tablet Probe provides users with an easy sample measurement interface without strict and specialized control of the sample and spectrometer. In addition, the probe seeks to eliminate the occurrence of random scatter effects, which often results in analysis error. Use of the Tablet Probe with the MicroNIR OnSite allows field users to achieve repeatable, reliable and accurate results in difficult uncontrolled field environments.

"Demand for more NIR spectral sensing choices for field and process uses is growing across a variety of manufacturing industries," says Chris Pederson, Product Line Manager, MicroNIR. "Viavi OSP has observed this market demand and responded by offering the MicroNIR Tablet Probe. Designed as an easy to use accessory for the MicroNIR Onsite spectrometer, the tablet probe provides users with easy point & shoot material analysis capabilities, furthering rapid, repeatable and reliable data acquisition."



**7th International Conference on Dementia & Care Practice**

Ontario, Canada  
14-16 August  
<http://dementiacare.alliedacademies.com>

**Bio/Pharma Product Launch Summit**

Boston, USA  
11-12 September  
<http://www.cbnet.com>

**14th World Pediatrics Conference**

Los Angeles, USA  
11-12 September  
<http://pediatrics.cmesociety.com>

**World Drug Safety Congress Europe**

Berlin, Germany  
12-13 September  
[terrapinn.com/conference](http://terrapinn.com/conference)

**8th Arab Diabetes Forum**

20-22 September  
Cairo, Egypt  
[arabicdiabeticforum.com](http://arabicdiabeticforum.com)

**Building Healthcare Exhibition and Conference**

11-13 September  
Dubai, UAE  
[buildinghealthcare-exhibition.com](http://buildinghealthcare-exhibition.com)

**17th Dermatology Congress**

25-26 September  
Dubai, UAE  
[eventbrite.com](http://eventbrite.com)

**12th Pharma Middle East Congress 25-26 September**

Dubai, UAE  
<http://middleeast.pharmaceuticalconferences.com>

**International Conference on Fungal Diseases & Control**

25-27 September  
Dubai, UAE  
[fungalinfections.conferenceseries.com](http://fungalinfections.conferenceseries.com)

**11th Global Ophthalmologists Annual Meeting**

25-27 September  
Dubai, UAE  
<http://annualmeeting.conferenceseries.com/ophthalmologists>

**10th World Paediatric Congress**

28-29 September, Dubai, UAE  
<http://pediatriccongress.conferenceseries.com/>

**23rd World Nurse Practitioner Conference**

28-29 September  
Dubai, UAE  
<http://nursepractitioner.nursingconference.com/middleeast>

**Moscow MedShow**

29-30 September  
Moscow, Russia  
[medshow.ru](http://medshow.ru)

**7th International Conference on Traditional & Alternative Medicine**

3-6 October  
Dubai, UAE  
[traditionalmedicine.conferenceseries.com](http://traditionalmedicine.conferenceseries.com)

**International Conference on Healthcare and Life Science Research**

13-14 October  
Dubai, UAE  
<https://iaphlsr.org>

**4th International Conference on Rhinology and Otolaryngology**

18-20 October  
Dubai, UAE  
[otolaryngology.conferenceseries.com](http://otolaryngology.conferenceseries.com)

**14th Global Obesity Meeting**

23-24 October  
Dubai, UAE  
[obesitymeeting.conferenceseries.com](http://obesitymeeting.conferenceseries.com)

**10th International Conference on Neuropharmacology and Neuropharmaceuticals**

23-24 October  
Dubai, UAE  
[neuro.pharmaceuticalconferences.com/middleeast/](http://neuro.pharmaceuticalconferences.com/middleeast/)

**Patient Safety**

24-26 October  
Dubai, UAE  
[patientsafety-me.com](http://patientsafety-me.com)

**International Society of Addiction Medicine Conference**

26-20 October  
Abu Dhabi, UAE  
[isam2017abudhabi.ae](http://isam2017abudhabi.ae)

**Annual Radiology Meeting**

5-7 November  
Dubai, UAE  
<http://radiologyuae.com>

**8th Global Obesity Conference**

14-15 November  
Dubai, UAE  
[obesitymeeting.conferenceseries.com](http://obesitymeeting.conferenceseries.com)

**8th World Congress on Healthcare and Medical Tourism**

17-18 November  
Dubai, UAE  
[healthcare.global-summit.com/middleeast/](http://healthcare.global-summit.com/middleeast/)

**5th International Conference on Physiotherapy**

27-28 November  
Dubai, UAE  
[physiotherapy.conferenceseries.com](http://physiotherapy.conferenceseries.com)

**International Conference on Cancer Diagnostics**

27-28 November  
Dubai, UAE  
[cancerdiagnostics.conferenceseries.com/middleeast](http://cancerdiagnostics.conferenceseries.com/middleeast)

**22nd Global Vaccines & Vaccination Summit**

30 Nov-1 Dec  
Dubai, UAE  
[vaccines.global-summit.com/middleeast](http://vaccines.global-summit.com/middleeast)

**Global Cancer Meet and Expo**

4-6 December  
Dubai, UAE  
<https://globalcancermeet.com>

**29th World Psychiatrist Meet**

7-9 December  
Dubai, UAE  
<http://psychiatrist.conferenceseries.com>

**25th Global Diabetes Summit and Medicare Expo**

11-12 December  
Dubai, UAE  
[diabetesexpo.com/middleeast](http://diabetesexpo.com/middleeast)

**10th International Conference on Gastroenterology**

14-15 December  
Dubai, UAE  
[gastroenterology.conferenceseries.com/asiapacific](http://gastroenterology.conferenceseries.com/asiapacific)

**7th International Society of Nephrology**

13-16 December  
Dubai, UAE  
[nephrology.emanuae.com](http://nephrology.emanuae.com)





# Quick References

## BAHRAIN

**Royal Bahrain Hospital**  
Tel: +973 17 246 800  
[www.royalbahrainhospital.com](http://www.royalbahrainhospital.com)

**KIMS Bahrain Medical Centre**  
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[kimsbhrn@batelco.com.bh](mailto:kimsbhrn@batelco.com.bh)  
[www.kimsbh.com](http://www.kimsbh.com)

**Dr. Sulaiman Al-Habib Medical Center**  
Tel: +973 77 310 000

**Al-Amal Hospital**  
Tel: +973 17 602 602  
[admin@alamal-hospital.org](mailto:admin@alamal-hospital.org)  
[www.alamal-hospital.org](http://www.alamal-hospital.org)

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Tel: +973 17 344 700  
Email: [info@alhilalhospital.com](mailto:info@alhilalhospital.com)  
[www.alhilalhospital.com](http://www.alhilalhospital.com)

**Al-Kindi Specialised Hospital**  
[info@alkindihospital.com](mailto:info@alkindihospital.com)  
[www.alkindihospital.com](http://www.alkindihospital.com)

**American Mission Hospital**  
Tel: +973 17 790 025  
[www.amh.org.bh](http://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](http://www.bdfmedical.org)

**Bahrain Specialist Hospital**  
Tel: +973 17 812 080  
[bshinfo@bsh.com.bh](mailto:bshinfo@bsh.com.bh)  
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**Dr. Tariq Saeed Hospital**  
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**German Orthopedic Hospital**  
Tel: +973 17 239 988  
Email: [info@germanortho.com](mailto:info@germanortho.com)  
[www.germanortho.com](http://www.germanortho.com)

**Gulf Dental Specialty Hospital**  
Tel: +973 17 741 444  
Email: [denthosp@batelco.com.bh](mailto:denthosp@batelco.com.bh)

[www.gulfdental.com](http://www.gulfdental.com)

**Gulf Diabetes Specialist Center**  
Tel: +973 17 239 239  
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011-447-1900

**King Faisal Specialist Hospital and Research Center**  
Tel: 1990099 Ext 121

**Imam Abdul Rahman bin Faisal Hospital**  
Tel: 013-858-1111

**King Abdul Aziz University Hospital**  
Tel: 012-640-1000

**King Fadh Hospital**  
Tel: 012-660-6111

**Maternity & Children's Hospital (Jeddah)**  
Tel: 012-665-1636

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Tel: +965 4833618  
Fax: +965 4814977

**Hadi Hospital**  
Tel: +965 1828282  
[www.hadiclinic.com](http://www.hadiclinic.com)

**London Hospital**  
Tel: +965 883883

**New Mowasat Hospital**  
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[www.starcarehospital.com](http://www.starcarehospital.com)

**Al Hayat Hospital**  
Tel: 22 004 000  
[www.alhayathospital.com](http://www.alhayathospital.com)

**Hatat Polyclinic**  
Tel: +968 24-563641/2/3

**Al Raffah Hospital**  
Tel: +968 24618900/1/2/3/4  
[www.dmhealthcare.com](http://www.dmhealthcare.com)

**Badr Al Samaa Hospitals**  
Tel: +968 2 479 9760

**Barka Branch**  
Tel: +968 26884918  
[www.badralsamaahospitals.com](http://www.badralsamaahospitals.com)

**Kim's Oman Hospital**  
Tel: +968 24760100 / 200 / 300  
[www.kimsoman.com](http://www.kimsoman.com)

**Atlas Healthcare**  
Tel: +968 2 450 2560  
[www.healthcare.atlasera.com](http://www.healthcare.atlasera.com)

**The Royal Hospital**  
Tel: Oman – (+968) 24.59.90.00  
[www.royalhospital.med.om](http://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](http://www.squ.edu.om)

**Lama Polyclinic**  
Tel: +968 24799077  
[www.lamapolyclinicoman.com](http://www.lamapolyclinicoman.com)

**Muscat Private Hospital**  
Tel: (+968) 24583600  
[www.muscatprivatehospital.com](http://www.muscatprivatehospital.com)

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

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**Adam Hospital**  
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**Al Buraimi Hospital**  
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**Al Nahdha Hospital**  
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**Children's Emergency Centre (Al Sadd)**  
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**Al Amal Oncology Hospital (cancer treatment)**  
Tel: +974 4439 7800

**Hamad General Hospital (includes Accident and Emergency)**  
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**Rumailah Hospital**  
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[www.hmc.org.qa/en/](http://www.hmc.org.qa/en/)

**Al Ahli Hospital**  
Tel: +974 4489 8888  
[www.ahlihospital.com](http://www.ahlihospital.com)

**Al-Emadi Hospital**  
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[www.alemadihospital.com.qa](http://www.alemadihospital.com.qa)

## UAE

### PUBLIC HOSPITALS

**Rashid Hospital Dubai**  
Tel: 04-2192000

**Dubai Hospital, Dubai**  
Tel: +971- 4-2195000; 04-2714444  
[dhweb@dohms.gov.ae](mailto: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](http://www.ajmanpolice.gov.ae)

### PRIVATE HOSPITALS

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**American Hospital Dubai**  
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**Salama Hospital, Abu Dhabi**  
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**Dibba Fujairah Hospital**  
Tel: 09 2446666  
Near Dibba Police Station, 10  
Dibba, Fujairah

**Al Sharq International Hospital**  
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**Burjeel Hospital**  
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**Life Pharmacy, Dubai Branch**  
Tel: 04 222 5503

**Makkah Pharmacy - Sharjah**  
Call: 06 565 6994

### OPEN 24 HOURS

**Police**  
999

**Dubai Police Call Centre**  
901

**Dubai Police (Non-Emergency)**  
Tel: 04-609 6999

**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

**Directory Enquiry Services**  
Etisalat - 181  
Du - 199

*Disclaimer: Contact details in this section are for reference only. For any inquiries, please get in touch with the relevant authorities and entities directly as the contact details such as telephone numbers, email IDs and website addresses may change in time.*



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Section/Stream/Class: \_\_\_\_\_

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Mobile No: \_\_\_\_\_ Email: \_\_\_\_\_

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AN INCREDIBLY  
**JOIN US FOR: COOLCHAIN**  
OF EVENTS...

We invite you to join us for these two illustrious events that bring together Cool Chain industry leaders to discuss pressing challenges facing the industry today and what the future holds.



The poster features the Cool Chain Association logo at the top, which consists of two interlocking chains, one red and one blue. Below the logo, the text reads "COOLCHAIN ASSOCIATION" in a serif font, followed by "5<sup>TH</sup> PHARMA & BIOSCIENCES CONFERENCE 2017" in a large, bold, red font. The dates "18-19 SEPTEMBER" and the location "CORINTHIA HOTEL BUDAPEST" are listed below. The background of the poster shows a scenic view of the Chain Bridge in Budapest. At the bottom, it says "INTRODUCING PHARMA AERO" with a small logo and "OUR 2017 EVENT PARTNER".

COOLCHAIN ASSOCIATION  
**5<sup>TH</sup> PHARMA & BIOSCIENCES CONFERENCE 2017**  
**18-19 SEPTEMBER**  
**CORINTHIA HOTEL BUDAPEST**

INTRODUCING  
**PHARMA AERO**  
WE CONNECT PHARMA

OUR 2017 EVENT PARTNER

&



The poster features the Cool Chain Association logo at the top. Below it, the text reads "3rd-5th DECEMBER" in a large, bold, white font, followed by "Hilton DFW Lakes Executive Conference Centre" and the Hilton logo. The background shows the exterior of the Hilton DFW Lakes. Below this, there is a green box with a white border containing the text "Dallas Fort Worth THE LAST STOP ON THE AVIATION CALENDAR YEAR!" and three white arrows pointing upwards. The bottom section of the poster features the Cool Chain Association logo, the text "COOLCHAIN ASSOCIATION", "2<sup>ND</sup> PHARMA & PERISHABLES CONFERENCE 2017", and a large image of a highway leading to the DFW airport. At the bottom, it says "DFW DALLAS FORT WORTH INTERNATIONAL AIRPORT" and "OUR HOST FOR THE 2017 EVENT".

**3rd-5th DECEMBER**  
Hilton DFW Lakes  
Executive Conference Centre  
Hilton

Dallas Fort Worth  
**THE LAST STOP**  
ON THE AVIATION CALENDAR YEAR!

COOLCHAIN ASSOCIATION  
**2<sup>ND</sup> PHARMA & PERISHABLES CONFERENCE 2017**

**DFW** DALLAS FORT WORTH INTERNATIONAL AIRPORT

OUR HOST FOR THE 2017 EVENT

"It is a great pleasure to see where we started and where we are now. The organization is a lot more professional. We need to continue to listen to our members concerns as well as act as a strong unified voice for our industry. It would be great if we could look towards holding more conferences on the cool chain, including airport communities in our efforts going forward. We would like to continue to grow our membership base with people who are willing to make a change within the cool air cargo supply chain.

Our goal is to have more transparency and ultimately more collaboration".

*Stavros Evangelakakis*  
CHAIRMAN, COOLCHAIN ASSOCIATION

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