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arab health

THE **OFFICIAL MAGAZINE** OF THE ARAB HEALTH EXHIBITION

A NEW VISION FOR THE HEALTHCARE LANDSCAPE WITH BLOCKCHAIN

ARAB HEALTH 2019 PREVIEW: BE AT THE FOREFRONT OF HEALTHCARE ADVANCEMENTS

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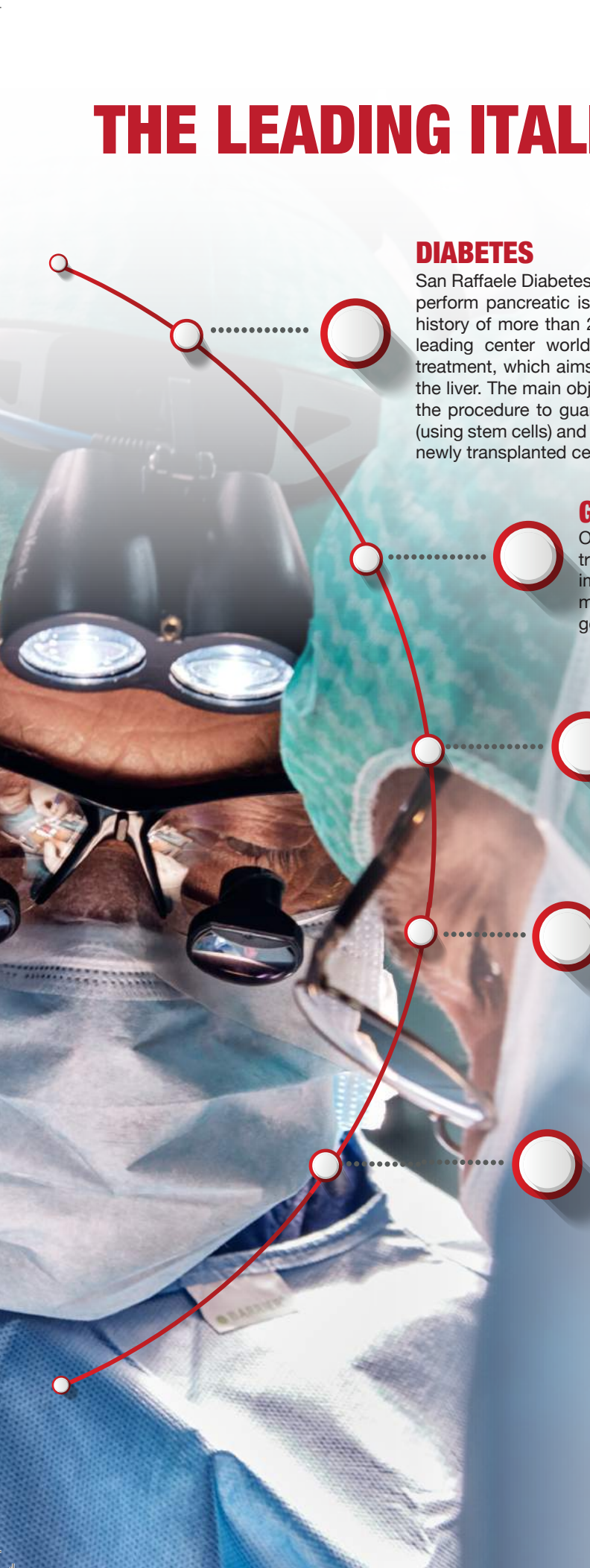
THE LEADING ITALIAN HOSPITAL GROUP



DIABETES

San Raffaele Diabetes Research Institute (DRI) has been the first center in the world (in 1990) to perform pancreatic islet transplantation to treat patients with type 1 diabetes. Today, with a history of more than 200 patients and 400 cell infusions, the Diabetes Research Institute is a leading center worldwide for the implementation and enhancement of this experimental treatment, which aims at recreating the function of insulin-producing cells in a host organ like the liver. The main objectives of DRI researchers working on islet transplantation are improving the procedure to guarantee cells engraftment, finding new and affordable beta cells sources (using stem cells) and controlling immune response after transplant to avoid degeneration of the newly transplanted cells.

GENE THERAPY - STRIMVELIS

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CARDIOVASCULAR

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ONCOLOGY

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ORTHOPAEDICS

Our centre has the largest number of orthopaedic admissions in Lombardy.With its 13,209 hip and knee prosthesis operations per year and 3,693 spine operations per year, it is a reference centre for locomotor system diseases.

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letter from the editor

Reshaping Healthcare Delivery

Being hailed as something close to a cure-all for just about everything, Blockchain is starting to show considerable promise in healthcare. In this issue, we examine its immediate benefits that can be employed right from the processing of prescriptions, patient identification to the saving of x-ray images. Plus, we also highlight how the industry is hedging its bet on 'Connected Care' and how it is now at a critical juncture in terms of its adaptation into mainstream healthcare delivery.

We also shed light on management practices, right from a conversation of the skills required to be an exceptional healthcare leader today, to our regular contributor, Vivek Shukla, Director, Healthcare & Lifesciences, Frost & Sullivan, discussing how hospitals make the mistake of positioning themselves on the 'features' that they have to offer and how an effective branding exercise can help them connect to their end user.

Furthermore, you can browse through the Arab Health Exhibition & Congress 2019 preview *(pages 8 to 11)* to find out all that's in store for the biggest healthcare event in the region that is now just a few weeks away. The event is gearing up to welcome more than 84,500 attendees from 160 plus countries, and we take a look at all the advances, research, and technologies that are going to be discussed, across the four days of the show. For more information and to register for the event please visit *www.arabhealthonline.com*.

Plus, in the 'Spotlight on Africa' pages, we feature speakers from the recently concluded Medic East Africa event, organised by Informa Life Sciences, who discuss the challenges the healthcare industry in the continent is facing, and the efforts being taken by the different African governments to achieve better health for all.

You can connect with us on Twitter @Arab_Health by using the #ArabHealthMagazine.

ARAB HEALTH

ARAB HEALTH 2019:
Be at the Forefront of Healthcare Advancements

The 44th edition of Arab Health Exhibition & Congress will take place from 28 - 31 January 2019 at the Dubai World Trade Centre, Dubai, UAE. This year's Congress will cover the latest updates and insights into cutting-edge procedures, techniques and skills across 11 CME-accredited conferences.

By Arab Health Magazine Staff

As the largest gathering of healthcare product manufacturers, service providers and trade professionals in the MENA region, Arab Health is gearing up to welcome more than 84,500 attendees from 160 plus countries in January 2019 for the 44th edition of the show. To be held from 28 - 31 January 2019 at the Dubai International Convention and Exhibition Centre, this is the perfect opportunity to stay abreast of the industry's latest trends and advancements and engage with more than 4,150 companies from 66 countries that will be showcasing the latest healthcare technology, products and services.

While evaluating the latest competing solutions in healthcare across all product categories, visitors can also connect with new suppliers, business partners and customers and gain new ideas to advance and grow your business.

Arab Health is, without doubt, the region's leading healthcare business platform in the MENA region. This first-class exhibition, combined with high-quality accredited medical conferences, has continued to grow and bring investment and new technologies into the Middle Eastern healthcare community for 43 years. Improve your knowledge and skills through educational opportunities available through conferences, workshops and training sessions.

Who Will Attend

Over the past 43 years, hundreds of thousands of healthcare professionals across the globe have made Arab Health an essential part of their yearly calendar.

Manufacturers of medical devices and equipment use Arab Health as an opportunity to showcase their latest products to the MENA region's healthcare industry. Companies vary from large organisations such as Siemens and Philips to smaller business houses exhibiting for the first time. With thousands of products on display, business deals occur every minute of the show, truly making Arab Health the place where the healthcare world comes to do business.

For professionals who are tasked with purchasing and procurement responsibilities for healthcare facilities, educational providers and medical specialty associations, Arab Health is the ideal platform to get ahead of the upcoming year's product needs.

Arab Health also provides a beneficial experience for all dealer and distributor job functions – from senior management of larger organisations that are looking to connect with key industry players, sales and business development professionals tasked with expanding their product portfolios and entrepreneurs hoping to source the next 'big product' to supply in their country.

What attracts practitioners to the show are the incredible insights it offers into the advancements of the healthcare industry through the exhibition, and the dedicated CME-accredited conferences and hands-on-training workshops that provide the opportunity for growth in multiple fields and disciplinaries.

Stay up-to-date

From state-of-the-art imaging equipment to the most cost-effective disposables; developments in surgery to advances in prosthetics, Arab Health continues to be at the heart of healthcare in the Middle East.

As the largest collection of healthcare product manufacturers and service providers under one roof, Arab Health Exhibition is also your one-stop shop for all your healthcare sourcing and procurement needs.

Accompanying the exhibition is a number of business, leadership and Continuing Medical Education (CME) conferences and workshops. With the aim of bridging the gap in medical knowledge, the carefully designed Congress provides the very latest updates and insights into cutting-edge procedures, techniques and skills.

11 CME-accredited Conferences

The 44th edition of Arab Health Congress will take place from 28 - 31 January 2019 at the Dubai World Trade Centre and the Conrad Hotel and will feature 11 Continuing Medical Education (CME) conferences for attending healthcare professionals.

New Venue

The Total Radiology Conference and the Obs-Gyne Conference will be held at the Conrad Dubai Hotel, directly opposite the main exhibition venue during the show. The new venue allows for more attendees to benefit from these conferences as well as further enhance the delegate experience.

NEW VENUE

TOTAL RADIOLOGY CONFERENCE

28-31 JANUARY 2019

This four-day scientific meeting will present the latest advances in medical imaging, accurate imaging diagnosis and improvement of care quality for radiology patients within the theme "Practical advice and updates in radiology practice."

What's New:

- The Total Radiology Conference will take place at the Conrad Hotel to provide you with a better experience!
- Leadership lectures: Management skills for radiologists
- Technical skills workshops and hands-on training for senior radiologists
- Masterclass on MRI for radiographers

ORTHOPAEDICS CONFERENCE

28-31 JANUARY 2019

This conference will offer the latest information on orthopaedic treatments, advancements and research breakthroughs. Delegates can discuss the state-of-the-art technological developments in the field, as well as the recent advances made in the diagnostics, management and therapeutics of orthopaedic diseases. This platform will also provide an opportunity to identify key areas for future research and developments in basic and clinical orthopaedics.

What's New

- Advanced and basic technical skills workshops and hands-on training
- More interactive sessions featuring debates and panel discussions

SURGERY CONFERENCE

28-31 JANUARY 2019

Discerning general surgeons can refine their procedural skills while also reviewing the latest best practice to perform advanced procedures in hepato-pancreato-biliary, minimally invasive surgery, upper GI, bariatric and onco-surgery. The conference will cover both theoretical aspects and case-based experiences to improve technical skills.

What's New

- Dedicated symposia on new topics: Management skills, tumour board review, HPB surgery
- A full day of biliary disease based on popular demand and delegate feedback
- More interactive sessions with audience polling on debates

OBS-GYNE CONFERENCE

NEW VENUE

28-31 JANUARY 2019

Placing emphasis on practical application of the evidence-based topics presented, this will cover the most up-to-date information on treatments and technologies available in the fields of Obstetrics and Gynaecology.

Regional and international experts will discuss the latest trends and treatments covering multiple sub-specialist areas such as imaging, maternal-foetal medicine, MIS, reproductive health and a myriad spectrum of women's diseases faced by practicing OBGYN professionals.

What's New

- The Obs-Gyne Conference will be held at the Conrad Hotel to improve your experience!
- Introduction of dedicated poster presentations sessions, enabling forefront research and emerging developments to be shared
- New sessions on hot topics such as imaging and high-risk obstetrics

GASTROENTEROLOGY CONFERENCE

28-29 JANUARY 2019

The agenda here is to provide a forum for all gastroenterologists within the region to exchange ideas, discuss innovative methods and review new developments within the field of gastroenterology. The programme addresses the hottest topics and controversies as well as the latest in essential knowledge to reduce procedural complications and hasten patient recovery.

What's New

- Technical skills workshops after the conference
- More expert speakers from the U.S. and the UK

DIABETES CONFERENCE

28-29 JANUARY 2019

Participants will learn about the latest, most relevant developments in diabetes prevention, treatment and management. Clinicians can expect a lively exchange of ideas and information related to the technology, treatment and prevention of diabetes and related illnesses.

What's New

- Technical skills workshops and hands-on training
- Agenda features a non-biased technology-focused session

PAEDIATRICS CONFERENCE
28-29 JANUARY 2019

- Hear from notable experts from around the globe as they present the most up-to-date information on diagnosis and treatment of paediatric conditions. This is also a unique opportunity to witness the future of paediatrics as it unfolds and to network with leaders in paediatrics from around the world.

What's New

- Now a two-day comprehensive and concise programme featuring top international speakers
- Interactive masterclasses designed to address common challenges, led by international faculty

PUBLIC HEALTH CONFERENCE
30-31 JANUARY 2019

The conference agenda covers several important areas in which public health bodies can contribute to making overall emergency and disaster management more effective. Speakers will discuss health effects of some of the more important sudden impact disasters and potential future threats while outlining the requirements for effective emergency medical and public health response to these events.

What's New

- Two-day comprehensive agenda
- Each session offers a global, regional and local speaker for a well-rounded perspective

ANAESTHESIA CONFERENCE
30-31 JANUARY 2019

Held under the theme 'Tailoring anaesthesia to the individual's needs', the programme will enable anaesthesia specialists to apply the latest research with the patient at the heart of decision-making and is designed to minimise patient risk, reduce errors and optimise outcomes in a variety of challenging conditions.

What's New

- Up-to-date global perspective on solutions to the key challenges in the field of anaesthesia
- 20 plus speakers
- Over eight interactive Q&A sessions giving delegates face time with anaesthesia gurus

EMERGENCY MEDICINE CONFERENCE
30-31 JANUARY 2019

Through the inclusion of trauma focused symposiums, this carefully designed programme aims to deliver advanced educational content for both emergency and trauma physicians that are involved in emergency and critical care. International and regional expert speakers will provide evidence-based global insight into the efficient and effective management of complex emergency cases, by addressing the latest research, guidelines, and controversial topics.

What's New

- Practical advice shared to support improved multidisciplinary care when addressing complex case presentations
- Dedicated debates on the latest controversial topics for each session
- Inclusion of trauma focused symposiums within the conference

QUALITY MANAGEMENT CONFERENCE
30-31 JANUARY 2019

This conference will provide senior level delegates with the unique opportunity to engage with world-class quality management experts; all having distinct insight into the pitfalls and potentials, concerning healthcare quality specifically. Focusing on 'practical steps', this year's conference serves as a practical guideline for healthcare professionals, with the tools and techniques for supporting effective quality planning, quality assurance, quality control and quality improvement, being openly shared.

What's New

- New speaker line-up including speakers from renowned international organisations
- KPI hands-on interactive workshop session
- Dedicated discussions following each session
- Latest regional perspectives on solutions to challenges in the field of healthcare quality management AH

ARAB HEALTH EXHIBITION & CONGRESS 2019

Dates: **28 - 31 January 2019**
Venue: **Dubai International Convention and Exhibition Centre**

Exhibiting companies: **4,150+**
Exhibiting countries: **66**
Dedicated country pavilions: **39**
Expected attendees: **84,500+**
Conferences: **11**
Expected delegates: **5,800+**
Total countries represented at the show: **160+**

INNOVATION HUB

"Healthcare systems, particularly in regions such as the Middle East, are creaking under the strain of expanding populations and expensive gateways to health. A shift towards preventative methods is needed more than ever as an alternative to curative medicine where appropriate. Healthy lifestyle apps, telehealth and patient engagement through technology will be key."

Thom Soutter, Business Development Director, Synapse Medical Services

What ground-breaking technologies will shape the future of healthcare? What game-changing innovations will offer provisions for cutting-edge care, improved operational efficiency, better patient outcomes, and reduced costs?

Come, discover the significant breakthroughs and the latest healthcare innovations at the Innovation Hub – Arab Health's new dedicated zone!

Innovation Hub includes:

Innovation Showcase: At this dedicated showcase area, you can meet and discover the start-ups, SMEs, and innovators. Located within the central Plaza Hall, companies will demonstrate new products and innovations that will contribute to shaping the future of healthcare. Product areas to explore:

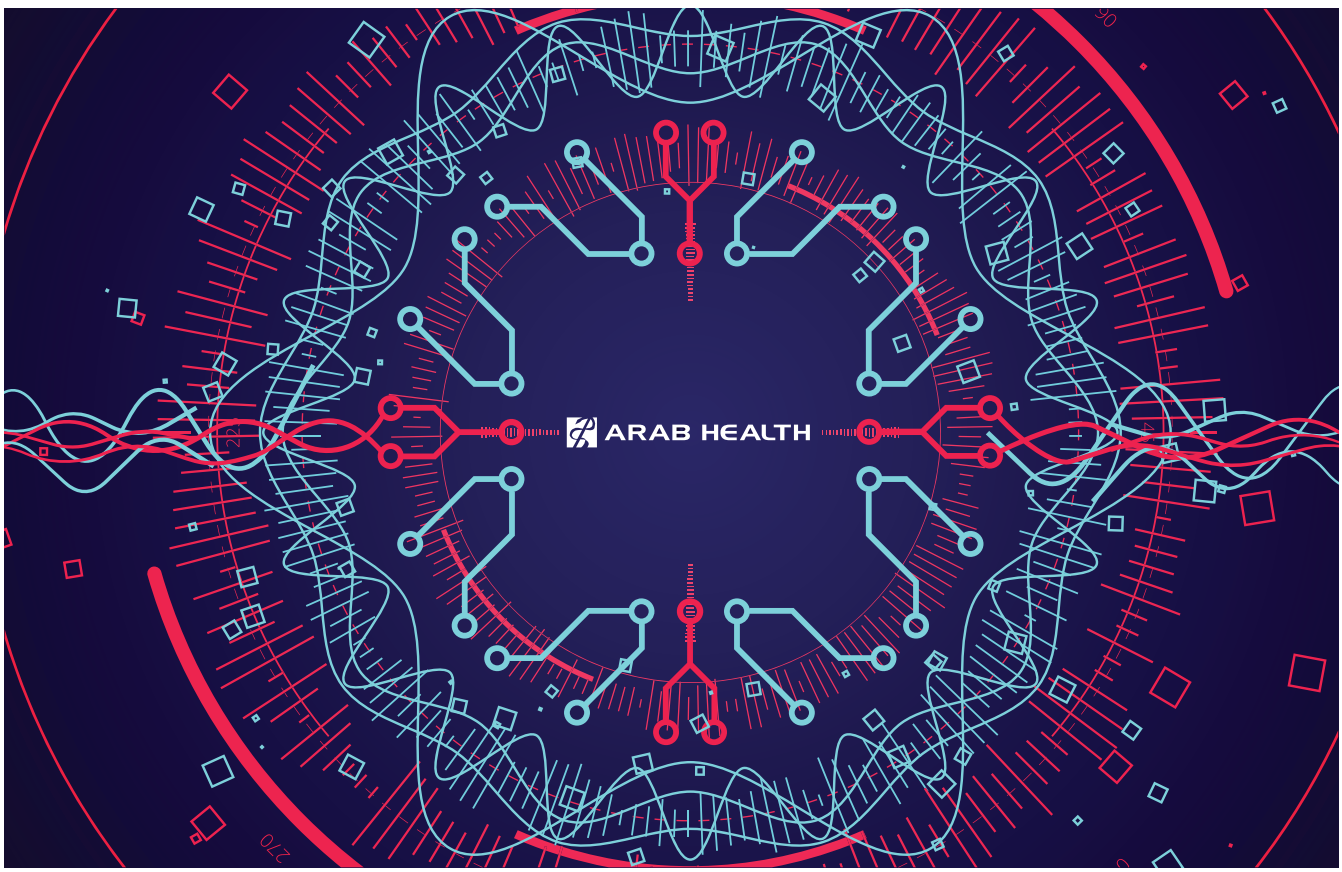
- Artificial intelligence
- Disease management devices and technology
- Health monitors and home care devices
- Healthcare start-up companies
- Mobile device accessories
- Smart watches, fitness trackers and applications
- Telemedicine platforms

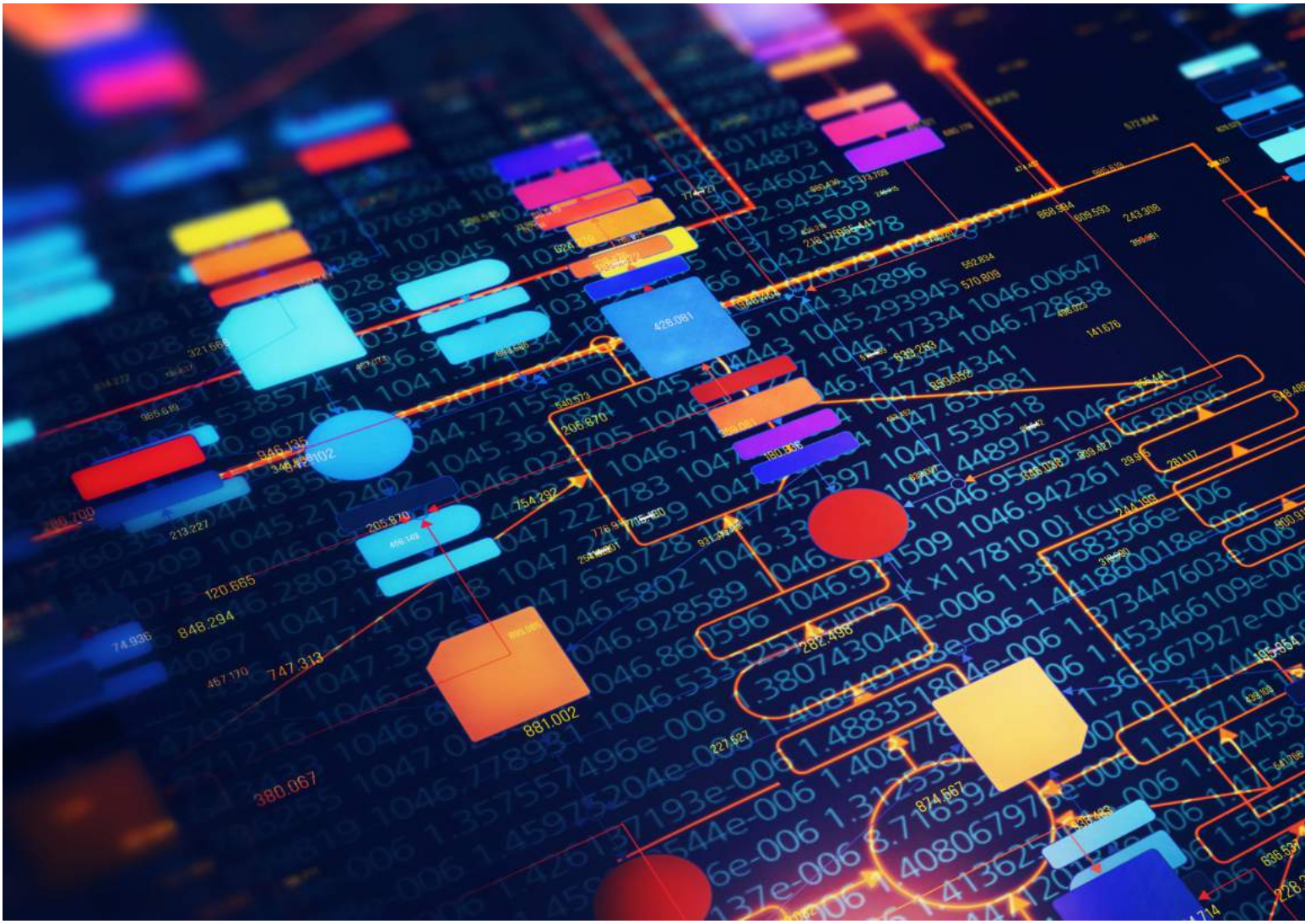
Innov8 Talks:

Come listen to start-ups and entrepreneurs present their healthcare innovations to a panel of industry experts and potential investors at the dedicated seminar theatre at the Innovation Hub.

Innov8 Talks will host eight pitches, each eight-minute-long, across each day of Arab Health. The judging panel will determine the best innovation.

At the free-to-attend sessions, discussions will be led by keynote speakers, setting the theme for each day. Furthermore, afternoon sessions will have a special regional focus.

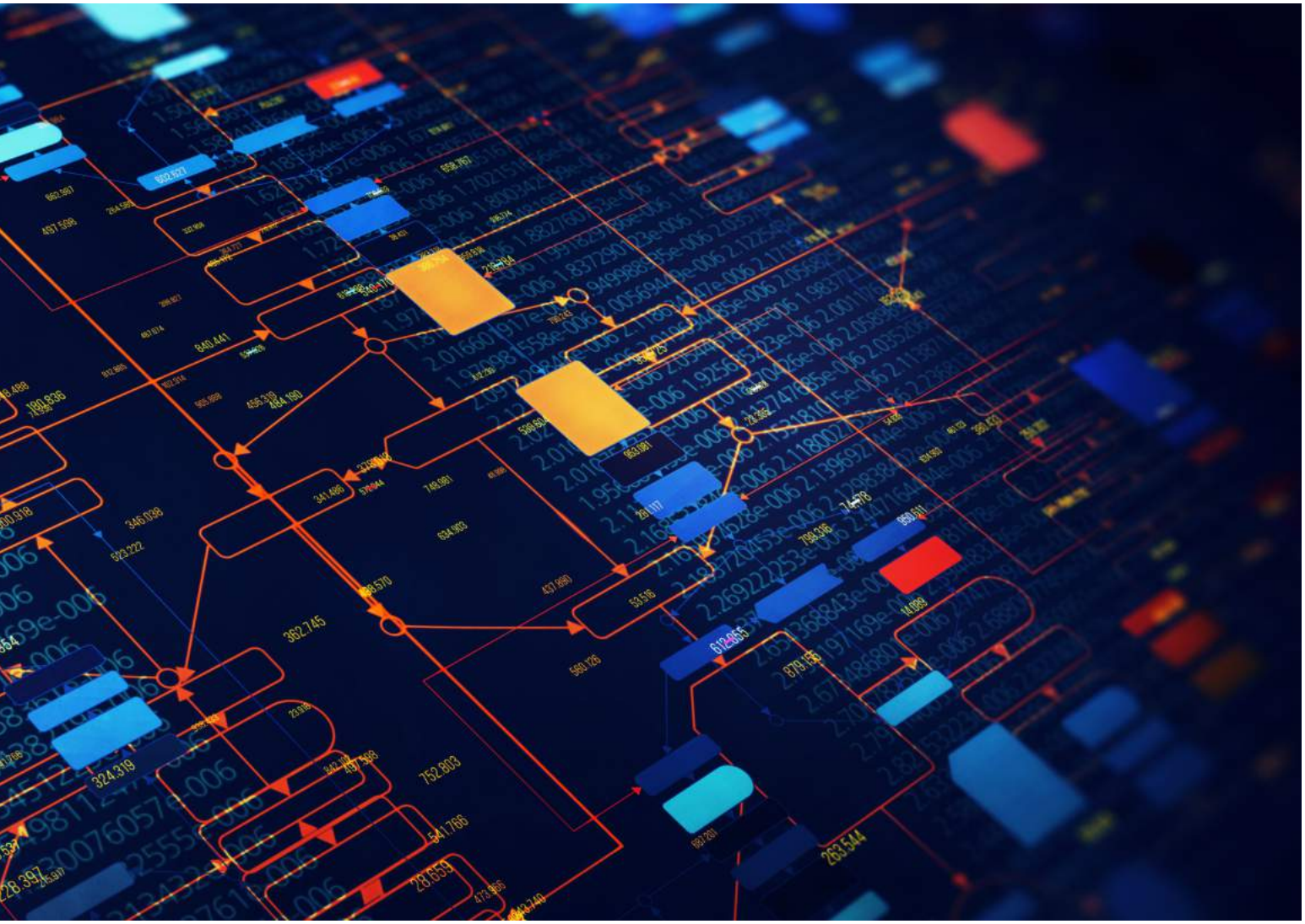




A New Vision for the Healthcare Landscape with Blockchain

From enhanced data security, digital patient identities and potential improvements in Precision Medicine and R&D, Blockchain offers a promising new paradigm

By Inga Louisa Stevens, Contributing Writer



When assessing the true value of interoperability in the economics of healthcare, Blockchain-based systems are often mentioned as having the potential to not only improve data reliability, but also to decentralise trust as security is increased, and to reduce transaction costs across the board due to increased system efficiencies.

Cy Brown, Chief Technology Officer of Global Health, a Dubai-based digital healthcare provider, was able to provide *Arab Health Magazine* with some insightful comment regarding the exciting opportunities Blockchain offers in the healthcare sector.

With extensive experience in the following three key fields – Artificial Intelligence (AI), Blockchain, and IT infrastructure – recognising that these elements combined are poised to transform the healthcare sector as we currently know, is an exciting prospect for Brown.

Q: Let's go back to basics – what is Blockchain?

To understand the scale of Blockchain's potential, lets cast our minds back. Do you remember how 25 years ago there were many objectors to the Internet and many thought it would never take off? Well, what we see today is a very similar set of circumstances.

Back then, the Internet was not easy to use, and you had to be technically minded even to attempt setting up a modem to utilise it. Tim Berners-Lee, a British scientist, invented the Internet in 1989 and he gave it to the world for free. It changed nearly everything we do in terms of how we do it; this has touched almost every area of our daily lives and working lives!

Today, Blockchain is most commonly associated with Bitcoin, however, besides that fundamental use case, Blockchain is probably one of the most significant game changing technologies that we have seen in the last few decades besides the Internet, as the underlying technology is where the real innovation has been recognised.

In 2009, Bitcoin was created which was a feature of Blockchain – a form of distributed computing and processing power offering a third-party transparent model of data. The parallel? This was also given to everybody to use for free. Also, the next parallel to draw is not many people understand it or how to use it, however, this is changing every day and we are on the cusp of significant change. ▶

Q: How does Blockchain provide opportunities in healthcare?

There are many opportunities with utilising Blockchain in healthcare with some immediate benefits that can be employed today. Firstly, in simple terms, Blockchain is a very secure ledger which means it can record entirely accurately any information stored or transacted on Blockchain. This can range from patient identification, the processing of prescriptions, to the saving of x-ray images. This can never be impacted by threats like viruses, denial of services and hacking.

You might ask how is this possible? This is the power of decentralised processing and storage. In simple terms, you are not able to attack a single computer and gain access to and control of all of the computers deployed on the network. In today's world, data integrity and protecting people's data is one of the most critical responsibilities of any organisation or institution.

Q: What effect will Blockchain have on Electronic Health Records? Do you have any other case studies where its use might be promising?

The impact of Blockchain on health records has so many benefits; first and foremost, security, as the records cannot be falsified or changed by anyone that is not authorised to do so. Once the record is added to your laptop or a device that could be lost or destroyed, Blockchain instantly stores the document and it is automatically updated across Blockchain keeping it safe and secure.

At the same time, it will allow easy access to whomever in healthcare needs to view your records to assist you. Similarly, it is also very transparent for the patient as they can gain access to the identical records, if needed.

However, this is not just a promising opportunity; this has already been deployed in Estonia where they have a fully digitised healthcare system where all records are now stored on Blockchain. Everyone in Estonia has a digital ID card that also verifies their access to healthcare and enables them to view their records and avoid the pitfalls where in many countries in the world we see fragmented health record systems, often unreliable due to proprietary systems that are slow to access.

Blockchain proves that it is already able to help solve this and be a more unifying core records system – this is real progress.

Q: What impact will adoption of Blockchain have on R&D in life sciences?

There are so many exciting use cases concerning process and discovery; this is perfect for Blockchain as it can be considered as a large, secure and transparent ledger (when needed).

Let us consider the complexity of life science research, investment, collaboration, and validation often in very large organisations, and across multiple borders. This requires scaled planning and infrastructure on a mammoth scale. Often, we see an element of paranoia from the organisations where more collaboration could advance and enhance the speed at which transformative developments could happen. These organisations are all worried and reluctant to share what they learn, fearing its theft and ultimately, loss of crucial intellectual property (IP).

Blockchain has an answer to this. This approach could basically mean the R&D process has access to safe collaboration literally as part of the inbuilt Blockchain features allowing only information to be shared and validated that each party has agreed in advance. With these parameters programmed into the Blockchain, we could see a significant shift in working practice that results in an increase in productivity and, ultimately, faster advances to the tough challenges we see in this field. At the same time, it offers a way to license and track the end products generated ensuring a reliable and measurable income.

Q: What is the true value of Blockchain for healthcare?

This is, of course, an interesting question. In terms of its real value for healthcare, and some of this may be subjective, but my view is that it will bring a robust, secure, data-rich and highly transferable infrastructure where we see far fewer errors and mistakes in the propagation and updating of patient records. This also will have a long-term cost benefit for healthcare in every area.

Very importantly, it will help with what is arguably one of the hidden costs in all services regarding healthcare by assisting the tracking of what the costs are, regarding which patient received which healthcare support related to which provider, especially when you consider the insurance sector and lowering fraud.

Also, the significant factor in all of this is that it helps healthcare become more tailored and structured towards a patient-centred view, over the long term, as ultimately the patient will have more control, transparency, and choices in the whole process.

Q: What do you see as the challenges to implementation/barriers to adoption?

There are some key challenges to overcome in the implementation on Blockchain technology into healthcare. First and foremost is the understanding of how this technology can help and, in turn, the adoption uptake and efficient delivery of the technology to help enhance and transform healthcare. As I mentioned earlier, think back to the beginning of the Internet and the struggles that were faced here.

However, the case for Blockchain is so compelling, and a considerable number of smart minds are working now to address this and design and innovate ways to bring this to market.

The overall barrier to this is, of course, the investment needed, as this will dictate how quickly the technological challenges can be surmounted to offer solutions and products that can be more easily integrated and adopted for healthcare in general.

Q: Will we see adoption of Blockchain for healthcare in the Middle East in the future?

You will indeed see precisely this in the Middle East and, much sooner than you think. We at Global Health are poised to roll out some pioneering products that will bring transformative healthcare forward. Our unique telemedicine, prognosis, and urgent assistance products will enable many of these key technologies to be utilised today harnessing Blockchain and AI with a hybrid solution approach.

However, besides what we offer, I would expect that healthcare approaches similar to Estonia will be the footprint of the way forward for healthcare in the Middle East. We will look back in 20 or so years from now and wonder how life was like before Blockchain changed how we deal with information as a whole – that I can be quoted on! AH

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CONNECTED CARE: The New Healthcare Paradigm

The holistic view that puts the patient at the centre of the healthcare system

By Inga Louisa Stevens, Contributing Writer

In an era of technological dominance and digital innovation, Connected Care is becoming the model of healthcare delivery that everyone is hedging their bets on and it is now at a critical juncture in terms of its adaptation into mainstream healthcare delivery.

According to the Alliance for Connected Care, that describes Connected Care as the "real-time, electronic communication between a patient and a provider, including telehealth, remote patient monitoring, and secure email communication between clinicians and their patients," challenges such as legal and regulatory barriers continue to limit mainstream acceptance of this technology.

Despite these challenges, healthcare providers such as hospitals, clinics and primary healthcare centres are adapting to Connected Care to help define the future of how they deliver care to their patient population. For Dubai-headquartered Aster DM Healthcare, the concept of Connected Care refers to the ability of a healthcare provider to be there for their patients beyond the walls of their clinics and hospitals.

"Since our very inception, we have believed in providing efficient and personalised medical care to our patients. And now with our Aster at Home services we are able to be there for our patients at any time during the day, for whatever their medical needs may be," says Dr Shaji Aleadath Hydrose, who is a general practitioner at Aster Clinic, Al Quoz in Dubai, UAE. "We believe that happiness in healthcare can be enhanced tremendously by delivering it in the comfort of the homes of the people who require it."

Aster home services consist of three primary avenues:

- Aster Chronic Care@home – This home care service involves the daily monitoring of diabetes and hypertension using an Intelligent Health Service Platform. This platform allows for remote glucose monitoring, remote blood pressure monitoring, real-time feedback, interventions, and customised advice.
- Aster Grace Nursing and Physiotherapy (Abu Dhabi) – The Aster Grace service provides nursing and physiotherapy services to patients at their homes. Services are delivered on an intermittent basis according to the plan of treatment established by the patient/family, patient's physician and home healthcare staff. These services include skilled nursing, physical therapy, home care doctor, respiratory therapy.
- Doctor on Call (800 Aster) – The 800 Aster service is a mobile medical practice available 24/7, 365 days in a year, at an individual's residence, hotel or workplace. Their physicians provide non-emergency treatment for fevers, upper respiratory tract infections, cough and colds, flu, vomiting and diarrhoea, allergic reactions dizziness, gastrointestinal and urinary tract infections etc. The service excludes major and surgical cuts, heart attack or cardiac arrest, substance abuse (alcohol, drugs, etc.), physical abuse, assault, or any other life-threatening injuries.

The use of connection technology is most prevalent at the Aster Chronic Care@home service. As Hydrose explains, "Every patient that avails of the service is provided with a Bluetooth enabled, wireless, sleek and advanced Blood Pressure Machine and Blood Glucose Machine. The patients are then advised by the doctor on the frequency with which to take their blood pressure and glucose readings, which are uploaded to our server using a smart app. These readings are constantly monitored by the Aster Chronic Care@home team, and if they pick up any panic values, the patient is immediately contacted, and remedial actions will be taken according to the advice of the clinician." ▶

Data analytics is central to the delivery of Connected Care at Aster DM Healthcare. The demographic data, medical history, past medication and the number of years that they have had high blood pressure or high blood sugar is collected from the 630 active patients using the Aster Chronic Care@ home service. This range is personalised for every patient, depending on the medical information that they provide.

Once the patient begins the service, their blood pressure and blood glucose levels will be constantly monitored. In case there is a deviation in any of these two metrics, the control centre would ask the patient the following questions:

1) What was your diet?
2) What kind of exercise did you do?
3) Did you take your medications?
4) Do you have anything specific to share?

The responses and the change in their blood pressure/blood sugar values will then be fed back to the patient's clinician. From there, the clinician or nursing assistant will give the patient the necessary advice needed to regulate their blood pressure/ blood sugar level back to normal.

"The core reason for the inclusion of technology in healthcare is to ensure that the same services are made available to patients, but at a greater convenience. With Aster Chronic Care@home, patients are given a special kit that includes items such as Bluetooth enabled Blood Pressure Machine and Glucometer," Hydrose explains. "Thus, the patients themselves are the ones that initiate the collection of data regarding their blood pressure and blood sugar levels. Due to the portable nature of the devices in the kit, patients do not need to be in one standard location every time they take their readings."

"Furthermore, apart from their regular quarterly visits, patients do not need to come all the way to see their clinicians.

Any changes in their numbers are dealt with and advised by their clinicians over the phone," Hydrose adds.

Meanwhile, under the FreeStyle Libre brand, Abbott Laboratories also provides a platform of digital solutions that helps people living with diabetes manage it more seamlessly while enabling them to connect and share their glucose data with their caregiver network. Through this platform, all concerned people will have a better understanding of their patient's diabetes status and will be empowered to provide better care and treatment to the patient.

Following the introduction of the latest life-changing technology in glucose monitoring by Abbott Laboratories for people living with diabetes, the value of the FreeStyle Libre Flash Glucose Monitoring System is further enhanced by FreeStyle LibreLink^ and LibreLinkUp~ mobile apps.

FreeStyle LibreLink is a mobile app that enables FreeStyle Libre system users to access glucose data directly from their smartphones, eliminating the need to carry the separate FreeStyle Libre reader (a handheld device used to scan the FreeStyle Libre sensor to get a glucose result).

LibreLinkUp is an app that enables caregivers of people living with diabetes to remotely monitor their loved ones' glucose readings.

"With this integrated and innovative solution, the patient remains at the centre of attention and care. Healthcare providers are also empowered to efficiently manage their patients' diabetes by uncovering glucose trends and insights via graphs and reporting available through a cloud-based software called LibreView," explains Hani Khasati, who is the general manager at Abbott Diabetes Care for MENA & Pakistan.

Connected Future

Looking towards the future, conversations turn towards what components are able to further enhance and enable more integrated Connected Care – be it technological advancements, strengthened stakeholder partnerships, better funding models, or the influence of deeper patient engagement in the Connected Care model.

According to Hydrose, some of the elements that can enable connected care further include a greater use of technology – video tools, digital apps, cloud servers to store information, and more sophisticated equipment to gather greater patient data – to provide remote care from the physicians to the patients.

"In addition, the development of technology will allow us to deal with more medical conditions remotely, and precisely, thereby providing more holistic treatment to patients while making it convenient for them to get themselves treated," he adds.

The security and safety of medical equipment that facilitates Connected Care is also of critical importance and is a huge consideration for healthcare providers and medical device and software manufacturers as we continue to develop the capabilities of Connected Care. According to Tom Moore who is vice president of worldwide OEM sales for McAfee, like any other Internet of Things (IoT) devices, medical equipment is a vulnerable attack surface.

"Network- and cloud-connected medical devices used in clinical settings – nurse stations, patient monitors, communications, networks, diagnostic devices, testing, scanning systems, blood gas analysers, and more – are just as much at risk as healthcare IT networks, laptops, and tablets," he explains. "Typical attacks targeting such devices are ransomware, internal and external data exfiltration, distributed denial-of-service attacks, malware introduced via infected external memory devices, and network attacks. A single connected medical device can potentially be exploited to enable large-scale data theft."

Moore describes a typical threat scenario that targets poorly secured medical devices – all of which could have devastating implications, with the potential for costly data breaches.

"For example, this could be an employee (either inadvertently or with malicious intent) who installs malware on a connected medical device via a USB drive. The malware connects the infected device to an external command and control server and the perpetrator could wipe out the data and overwrites a server's Master Boot Record affecting hundreds or thousands of devices, potentially disabling them."

While McAfee helps medical device manufacturers thwart attacks and comply with strict regulatory mandates and requirements by providing an array of embedded security solutions, it is the responsibility of the entire healthcare continuum to ensure that patients remain adequately protected in this era of Connected Care facilitated by advances in technology. AH

The security and safety of medical equipment that facilitates Connected Care is also of critical importance and is a huge consideration for healthcare providers and medical device and software manufacturers as we continue to develop its capabilities.

WHAT MAKES AN EXCEPTIONAL HEALTHCARE LEADER?

Exploring key behaviours needed for effective leadership in a rapidly-changing industry

By Deepa Narwani, Editor

Healthcare delivery and patient circumstances are constantly changing today, and leaders have to continue to learn new abilities and skills to keep up. There is now an increasing need for leaders to be equipped with the knowledge and skills to respond to different challenges such as how to lead across different levels of healthcare in a timely, cost-effective and seamless manner, giving prevention as much priority as treatment and considering how different healthcare systems can be better integrated across diverse primary, secondary and tertiary providers. This brings up the key question of how can leaders then create and foster an environment in which they, and the people they manage, are constantly learning?

Dr. Ravi Trehan who moved to the UAE two years back after spending 15 years working in the National Health Service (NHS) UK, held a number of leadership positions throughout his career, but his move motivated him to take up this challenge seriously and professionally. At present, he is a Consultant Orthopaedic Surgeon at Mafraq Hospital, Abu Dhabi. He is also associated with the University of Sharjah as Adjunct Assistant Professor, College of Medicine, as it is his passion to spread knowledge and train juniors.

He shared: "In my opinion, a healthcare leader should be skilful and knowledgeable in his field, an active listener, with an ability to respond and adapt as per the situation, empathetic towards patients and staff, with significant short-term and long-term set goals and vision for the organisation."

Combatting Challenges

The regional healthcare sector is one of the most dynamic industries, facing unique leadership challenges around the rapid expansion and digital transformation of the sector, while continuing to meet international standards, and the need for public and private sector collaboration to meet the needs of a young and growing population with a range of chronic lifestyle diseases. Today's healthcare leader has to clearly and regularly identify challenges that the industry faces and be equipped with the skills and knowledge that the team needs to overcome these challenges.

In an interview with *Arab Health Magazine*, Dr. Stephen Brookes QPM, Programme Director, MSc in International Healthcare Leadership (IHL), The University of Manchester - Middle East Centre, in Dubai, discussed the challenges plaguing the healthcare industry and its leaders.

He said: "One of the biggest leadership challenges that I have seen around the world is inequality and no matter how ▶

well off a nation is, there are still huge pockets of inequality in healthcare. And certainly, in developing countries, this is a big issue."

Another challenge Brookes cited was making prevention a priority, as much as treatment. "Research has shown that for every pound invested in prevention, you can get a seven-pound return. This is clearly illustrated by the significant drop in diabetes in the region and that has been possible because of the focus on preventative strategies rather than treating the illnesses," he highlighted.

Other hurdles include bringing primary, secondary and tertiary healthcare together; along with bringing private, public and hybrid systems together in terms of focusing on putting patients at the heart of what healthcare leaders do. He stressed that it doesn't matter if care comes from the private or public sector, the patient has to be at the core of that system, which also has to be financially stable.

"For example, the preventative agenda, according to me, works best in Bahrain. It is a small, compact state and its Ministry of Health believes in prevention.

"To what extent the private sector puts a priority on prevention as the public sector does is yet to be seen. Ultimately, it's about the public value and having a collective vision in terms of what you want your healthcare system to be," he added.

International Exposure

Brookes heads the MSc in International Healthcare Leadership (IHL) that was launched in Dubai by The University of Manchester – Middle East Centre in September last year with 20 students and this year the university has received applications for more than 25 students, attracting participants from the UAE, Saudi Arabia, Kuwait, and Lebanon, among others. The university is launching this programme in Manchester, UK, in March next year and also runs it in Singapore. The programme has also recently received university approval to recruit in Shanghai and Hong Kong and is looking to expand further in the Middle East region.

Brookes said: "One of the questions I have encountered is that why does the programme have the word "international" in it? I believe that it is important to address this as there is so much out there to learn and the world is becoming smaller due to improved communication.

"One of the strengths of this programme is that we are targeting professionals and don't call them students but programme participants. Here they learn as much from each other as they do from the programme and the programme, that is us, learns from them. We are very keen to encourage the sharing of good practice and that's why the international element is a critical part of that."

He highlighted that the programme has four golden threads: internationalisation; leading through networks, you don't just lead within your own team or department, you lead outside of organisations; encouraging creativity and innovation within appropriate boundaries of risk, but not being risk-averse, and putting the patient at the heart of everything. The design of the programme and assessments are based on these principles.

Although the content taught is the same in all the centres, each cohort has different face-to-face workshops that are tailored to that region. For example, one of the workshops in Singapore was about the 'development of plans of preparedness and the collective leadership challenges', where the participants had to role play and present back in terms of what their case would be and a work-based assignment was to go back to their organisation and look at the prepared case if there was one. One of the other activities participants did in their final workshop was 'negotiation around an emerging pandemic'.

Dr Stephen Brookes

Maximising Potential

After spending almost 20 years with NHS, Dr. Feroza Dawood, Consultant Obstetrician and Gynaecologist, moved to the UAE in 2016, in order to broaden her clinical experience. She shared: "I believe that a healthcare leader should have a vision of the way forward and strive to deliver high-quality clinical services in any setting. A healthcare leader should possess qualities of self-awareness, self-confidence, resilience, determination, and self-reflection in order to be an effective leader and manager. A leader should also be able to inspire a shared purpose and influence, motivate and engage their teams."

Having held many managerial and administrative roles, Dr. Dawood applied for the MSc in IHL degree as she wanted to enhance her existing managerial experience with a formal structured course.

"Moving to the UAE exposed me to an entirely different healthcare system as there is a conglomeration of government and private healthcare and this is very different from the NHS. The course has enlightened my understanding of cultural and organisational diversity and more explicitly, has provided the knowledge of how to adapt to change.

"I have also gleaned a wealth of information about quality improvement strategies and the course has equipped me with imparting information of formal strategy improvement models. So far, a crucial learning experience has been about self-reflection and gaining a more profound understanding of my personality, my strengths and weaknesses, self-improvement and application of these at work and personally," she added.

The programme has been divided into two segments – the online module that uses cutting-edge e-learning with expertise from the University of Manchester. The second part is face-to-face workshops, as the personal interaction between tutors and participants is integral and the only requirement of people joining is that they need to come to Dubai twice a year for five days, for these residential workshops.

Brookes explained: "In effect, we are bringing the study to them, but they still get the same quality of learning and degree as they would when they would have chosen to study at a university. This is what blended learning is all about. The principle is that the learning needs to show its impact in the workplace while ticking academic boxes."

He said: "In Dubai, we have a pharmacist, a biogeneticist, and even an engineer who wants to get more engagement in healthcare. He told me that being on this programme helped him achieve a new position and he is now working in San Francisco in the biomedical field.

"As programme director, I do have the discretion to accept students who might not have a first degree but have a 10-year or more work experience in healthcare and more importantly a passion for healthcare. We don't just get just clinicians starting their careers, but also have consultants on-board. The beauty of the programme is that its growing thanks to word of mouth and is creating international networks around the world."

Being a skilled healthcare leader means being aware of the fact that everything within the purview of the leadership role is about people. A course such as this teaches participants skills that give them the confidence to be a leader. It offers a wider perspective of healthcare, along with insight, greater intellectual awareness, improved communication skills and strategic problem solving, which leadership is all about. It aims to equip leaders and managers with the latest knowledge and global healthcare best practice and helps facilitate experienced managers to transfer their skills into the healthcare economy.

After looking for the right course for the past few years, Dr. Trehan thought that the MSc in IHL had all the essential components mandatory to develop himself as an effective leader. He found the course content relevant to his current position, and has learned new but tried and tested methods, to work within a team, form a new group and lead from the front.

"I have learned a lot about quality and service improvements methods through their "action learning" approach and put those into practice at my hospital. My quality department and CMO were impressed and agreed to make relevant changes. This course is much more than a degree on paper; it helps to evolve a leader from within," he added.

Leading the Way

Prevention takes time, is difficult to measure, so often it gets ignored and that's why public value as a concept versus performance review is much more important because most leaders tend to dismiss things that cannot be measured. Generally, leadership development is dealt with in a different silo to leadership practice and for it to be effective these two have to be part of the same cycle. Leadership development should be carried out, practiced, the impact should be observed, reflected on, and then improved. This requires a collective sense of leadership development with a commitment from senior leaders of the organisation.

"The concept of a virtual leader is emerging – a leader cannot be in all places, all the time, and neither should they be. The leadership should focus on the collective and has to move away from the individual focus. A three-letter word that gets in the way of leadership is ego. You have to leave ego outside the door and replace it with value-based leadership and I think incorporating technology smartly into practice has the potential to do that," Brookes concluded. AH

A course such as this offers a wider perspective of healthcare, along with insight, greater intellectual awareness, improved communication skills and strategic problem solving, which leadership is all about. It aims to equip leaders and managers with the latest knowledge and global healthcare best practice and helps facilitate experienced managers to transfer their skills into the healthcare economy.

The course is accredited by Manchester Business School – Association to Advance Collegiate Schools of Business (AACSB International), Association of MBAs (AMBA), the European Quality Improvement System (EQUIS) and Dubai's Knowledge and Human Development Authority (KHDA).

Expanding Skill Set

Anyone who is remotely connected to healthcare can be eligible for admission, Brookes enlightened, as the course is looking to bring together clinician and non-clinician leaders or aspiring leaders. The participants should have an accepted first degree, two years' experience in healthcare leadership or management roles, and a good command of the English language proven with an International English Language Testing System (IETLS) test.

INFECTION PREVENTION

Buy-In is Essential to Antibiotic Stewardship Efforts

By Kelly M. Pyrek, Editor in Chief, Infection Control Today, Informa

Earlier this year, professional societies updated a joint position paper underscoring the synergy of infection prevention programmes and antibiotic stewardship programmes.

"The issues surrounding the prevention and control of infections are intrinsically linked with the issues associated with the use of antimicrobial agents and the proliferation and spread of multidrug-resistant organisms," says Mary Lou Manning, PhD, CRNP, CIC, FSHEA, FAPIC, lead author of the paper published concurrently in the *American Journal of Infection Control and Infection Control and Hospital Epidemiology*. "The vital work of IPC and AS programmes cannot be performed independently. They require interdependent and coordinated action across multiple and overlapping disciplines and clinical settings to achieve the larger purpose of keeping patients safe from infection and ensuring that effective antibiotic therapy is available for future generations."

The joint position paper, endorsed by the Association for Professionals in Infection Control and Epidemiology (APIC), the Society for Healthcare Epidemiology of America (SHEA), and the Society of Infectious Disease Pharmacists (SIDP), updates a 2012 paper that affirmed the key roles of

infection preventionists (IPs) and healthcare epidemiologists (HEs) in promoting effective use of antimicrobials in collaboration with other healthcare professionals. The new paper highlights the synergy of IPC and AS programmes, including the importance of a well-functioning IPC programme as a central component to a successful AS strategy.

"It is important that all clinicians depend on evidence-based IPC interventions to reduce demand for antimicrobial agents by preventing infections from occurring in the first place, and making every effort to prevent transmission when they do," says 2018 APIC president Janet Haas, PhD, RN, CIC, FSHEA, FAPIC. "IPC and AS programmes are intrinsically linked, making effective collaboration essential to ensure patient safety."

The authors acknowledge that successful AS programmes require a significant investment on the part of the healthcare facility. As Manning, et al. (2018) explain, "AS programmes have been shown to improve patient outcomes, reduce antimicrobial agent-related adverse events, and decrease AMR. To date, primary strategies include prescriber pre-authorisation and prospective audit and feedback, with supplemental strategies such as guidelines and clinical pathway development, intravenous-to-oral conversion protocols, limiting inappropriate culturing, and provider education. Changing practices and prescribing patterns and learned behaviours of physicians, nurses, pharmacists, and other healthcare providers will take time and investment, but is critical to affecting a long-term solution to the rise of AMR and CDI infections. It is equally important that all clinicians depend on evidence-based IPC interventions to reduce demand for antimicrobial agents by preventing infections from occurring in the first place, and making every effort to prevent transmission when they do. IP and HE leaders are credible IPC subject-matter experts with additional social and behavioural skills to effectively engage the different professional disciplines to promote, implement, support, sustain, and evaluate IPC strategies across practice settings – many of the same skills needed by those leading AS programmes."

The authors urge healthcare leaders to prioritise IPC and AS as part of wider patient safety initiatives and recommend that IPC and AS leaders collaborate in communications to the C-suite. "Given the ▶

facilitate nursing's supporting role in initiating antibiotic timeouts, performing antibiotic reconciliation during patient transitions of care, and educating patients and families about safe and appropriate antibiotic use. For example, a recent study found that nurse prompting of antimicrobial review during daily rounds can lead to significant reduction in antimicrobial agent use, providing another mechanism of sustaining antimicrobial awareness. Additionally, IPs and HEs often participate in unit-based safety teams (e.g., the Comprehensive Unit-Based Safety Program) and can facilitate an interprofessional, unit-based discussion of AS needs by inviting relevant AS team members to join the meetings. Furthermore, collaborative efforts to have the stewardship team contact the IPC team when they identify and/or approve antibiotic therapy for patients with infections caused by certain MDROs, and IP assistance in training bedside nurses in appropriate culture techniques are examples of how IPs and stewards can expand the capacity of both teams. Similar to IPC interventions and actions, flexibility and tailoring AS approaches to local needs is essential."

"IPs and HEs engage a diverse range of clinical disciplines across practice settings in HAI prevention. The work of physician and pharmacist AS programme leaders is greatly enhanced by the support of other key groups, including IPC programmes," says Elizabeth Dodds Ashley, PharmD, MHS, BCPS, Duke University Department of Medicine and president of SIDP.

Myers adds that institutional leadership can help clear barriers to IPs' involvement in AS programmes. "No team in a facility on any subject will be successful in an institution where leadership does not remove the barriers to success," he says. "In situations where these kinds of barriers exist, an analysis by the antimicrobial stewardship programme identifying impediments to full involvement of all relevant resources needs to be conducted and shared with leadership. Only then can the barriers be removed. And most healthcare institution leadership know the cost of treating an MDRO is more expensive than treating a non-MDRO infection. They also know new broad-spectrum antibiotics are more expensive than the older more narrow-spectrum antibiotics."

It may take incentives to entice greater IP participation moving forward. "This will be a moment of truth for IPs," Myers acknowledges. "IPs often are confronted by healthcare providers asking why they should do something that is more work (and lowers a patient risk for infection) compared to a shorter process (that puts a patient at greater risk for infection). And we sometimes say, if the patient gets an infection it is a lot more work for you."

Myers adds, "Skilled IPs are really stretched to full capacity and we always will be. But the one tool an IP uses every time a new standard or issue comes is the risk assessment. We are always prioritising and reprioritising what we do. And I don't know many acute care IPs that don't consider MDROs an issue in their institution. So, I have little doubt IPs will become more and more active team members in this endeavour."

Myers says there are additional ways that IPs can help reduce antimicrobial use in an institution. "I think we are seeing more and more studies come out discussing clinical testing stewardship," he says. "When I started out many years ago it wasn't unusual to see a specimen cup at the nurse's desk with some brilliant green purple tinged sputum. It would stay there for hours awaiting the physician to complete their round and the nurse would then show the specimen to the physician and state something like, "The patient coughed this up earlier, do we want to culture this?" And the physician without looking at the patient's WBC or temperature or O2 sats would say, 'Yes' and while the specimen was clinically unimportant and not handled correctly, when the results came back antimicrobial therapy would be initiated. We must be smarter than we used to be. Members of the care team need to act as reminders for each other, hold each other accountable and keep each other informed. This means when a patient has one loose stool let the physician know, but also let the physician know if the patient is on stool softeners. If a nurse is supposed to get a sample of diarrhoea and the patient hasn't had a bowel movement in 24 hours, every nurse should feel comfortable asking the physician if they still need the test, as this is an appropriate question. With the new PCR tests, we are capable of detecting the presence of organisms, that while pathogenic in sufficient quantities, may also be just colonisers or in some cases just that patient's normal flora. So, inappropriately ordered tests or poorly gathered specimens probably have a much bigger consequence than in the past. Unless all care providers are only running tests that are currently clinically appropriate, our antimicrobial stewardship will not be as successful as it needs to be." AH

References available on request.

synergy between AS and IPC programmes, IPC and AS programme leaders should seize every opportunity to benefit from each other's expertise and organisational influence and partner when making the case for programme support and necessary resource allocation to clinical and administrative leadership."

"As nursing students, nurses are taught to fully understand the reasoning and nuances behind why their patient is taking a certain medication, including antibiotics," says infection prevention consultant and paper co-author Steven J. Schweon, RN, MPH, MSN, CIC, HEM, FSHEA, FAPIC. "This continues after licensure and interfaces with antibiotic stewardship. Before administering the antibiotic to the patient, the nurse must understand why this particular agent is being ordered. What are the patient's signs, symptoms, and culture results? Are there any antibiotic allergies? Does the patient have a history of being colonised with a multidrug-resistant organism (MDRO)? Is the dosing correct, is the duration of therapy appropriate, can the medication be given orally instead of intravenously? Is the patient's condition and treatment plan correctly communicated during care transitions? Can the antibiotic be discontinued? Can we initiate active monitoring and defer on the antibiotic? Daily, as patient advocates, nurses must be cognisant of all these basic issues and monitor the patient's condition. In my view, this is non-negotiable."

Schweon adds, "Infection preventionists continue to be fully invested with patient safety, including antibiotic stewardship activities. Fully leveraging AS activities can ensure less antibiotic use, less antibiotic resistance and MDRO development, and less adverse events such as C. difficile. Resultantly, this will lead to optimal patient outcomes, a target that all IPs strive for."

The cultivation of nursing and infection prevention champions are essential for the support of AS programmes, "Champions for antimicrobial stewardship or other healthcare issues are always best identified by looking for people who are passionate about the subject and have at least some credibility among their peers," says paper co-author Frank Myers, III, MA, CIC, FAPIC, assistant director of infection prevention and clinical epidemiology for UCSD Health. "One mistake many people make is going back to the people they have worked with in the past and been with whom they have been successful. The nurse who is passionate about reducing surgical site infections may not have that same level of passion over antimicrobial stewardship. So, pick those nurses you know care passionately about medication education and MDROs and have them involved in your initial efforts."

Time-starved and overburdened, many IPs may hesitate to add AS-related duties to their responsibilities; however, Myers says most IPs have already been working in this arena. "As with any perceived new role there is concern and cries of, 'I can't do one more thing,'" he says. "But this isn't really a new role. In the days before the electronic medical record it was routine at some institutions that if a lab value wasn't critical, the nurse would tell the physician that the patient had new lab results and review them. Now, we are setting the expectation that when rounding with the physician, the nurse is to help initiate antibiotic time-outs, assist in performing antibiotic reconciliation during patient transitions of care, and educate patients and families about safe and appropriate antibiotic use."

Myers adds, "As for recruiting IPs to antibiotic stewardship again, IPs have been playing a role whether we have recognised it or not. We have been measuring the outcomes of poor antimicrobial stewardship for a long time. A MRSA case or C. difficile or CRE or ESBL case is often an outcome of poor antimicrobial stewardship."

The three societies present their position against a backdrop of increased awareness of antimicrobial resistance among healthcare providers, policy makers, and the public, and national action plans and forums designed to address the issue, which emphasise the important role of IPC programmes in advancing successful AS interventions across the continuum of patient care.

"IP and HE leaders are IPC subject matter experts who are also trained with social and behavioural skills that allow them to effectively engage with different professional disciplines within healthcare to promote, implement, evaluate, support and sustain IPC strategies across practice settings. These are similar skills as those exhibited by leaders of successful AS programmes," says Keith Kaye, MD, MPH, FSHEA, president of SHEA.

APIC, SHEA, and SIDP support the CDC Core Elements of AS framework and identify the synergy of IPC and AS within each element of the CDC recommendations. In addition, the three societies believe that microbiology laboratory staff members and clinical microbiologists play an essential role in successful IPC and AS programmes.

As Manning, et al. (2018) explain, "The CDC identifies core elements associated with successful AS programmes – seven elements for hospitals and LTC facilities, and four elements for outpatient facilities – and provides a framework for implementation."

Core element No. 4, requires action, and as Manning, et al. (2018) add, "Although IPs and HEs may not be involved in pre-authorisation or prospective audit and feedback interventions, they do engage a diverse range of clinical disciplines across practice settings in HAI prevention. IPs have substantial contact with bedside nurses, often together reviewing patients who develop HAIs as part of routine daily activities. They can leverage these strong collegial relationships to influence and ▶

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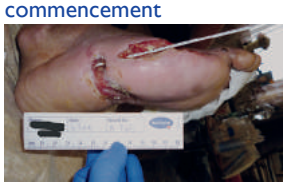
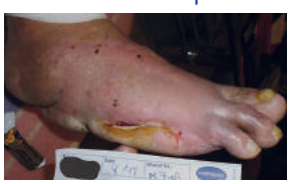


After 10 months TopiCare therapy



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How Printing and Mobile Technology can IMPROVE PATIENT SAFETY

By Wayne Miller, Healthcare Director EMEA, Zebra Technologies

The delivery of global healthcare today presents clinicians and other medical staff with a range of challenges. These include: securing patient data, dealing with an aging population, short staffing, meeting strict targets and, unfortunately, dealing with increasing litigation cases when things go wrong. Indeed, patient safety is a serious global public concern. Estimates show that in high income countries, as many as one in 10 patients is harmed while receiving hospital care, with nearly 50 per cent of accidents being preventable.

While statistics like this may seem like hyperbole, the stark reality is that medical errors are reported to be the third-leading cause of death after heart disease and cancer. A recent Johns Hopkins study claims more than 250,000 deaths in the U.S. every year from medical errors. Meanwhile, the World Health Organization (WHO) estimates that strategies to reduce the rate of adverse events in the European Union would lead to the prevention of more than 750,000 harm-inflicting medical errors per year. This, in turn, would lead to over 3.2 million fewer days of hospitalisation, 260,000 fewer incidents of permanent disability, and 95,000 fewer deaths per year. As a result, calls for safer

health systems and high-quality legislation on patient safety are growing in weight.

Fortunately, help is at hand in the form of technology. The right application of technology can enhance clinician communication, improve medication safety, reduce potential medical errors and boost the overall patient experience. At the heart of this medical revolution is the use of printing technology and mobile computers to ensure smooth operations are achieved in hospitals. This form of technology can help reduce human errors, ensure data is used to its maximum benefit and, perhaps most importantly, drive cost savings.

Reducing Human Errors

One of the major errors still taking place in medical care today is clumsy information capture. In fact, it might come as a surprise to learn that even in 2018, most European hospitals still record essential patient data in hand-written form. To improve this situation, scanning and printing technologies should be used to collect and print patient information accurately and swiftly.

When a patient is first admitted into a hospital ward, details such as date of birth, case history and allergies must be captured accurately. If this information is not recorded correctly, it can have a negative result. Indeed, the immediate recall of patient information is vital, and any delay caused by lost documents, smudged lettering or misspelling could prove fatal. As an example, around 10 per cent of blood bags are incorrectly administered due to human error. In the case of blood transfusions, using an auto ID system with barcode tracking from printers and mobile computers could reduce the error rate to less than 1 per cent.

Naturally, there is a far greater risk of the wrong medicine being administered if details are hand-written. This is especially true if blood samples are cryogenically frozen for many years, to be used in a later medical treatment or process. Furthermore, printing technology can improve the vital administration of patients giving and receiving blood. If patient information is accurately recorded by scanners, printers and mobile computers, there is less chance of the wrong blood type being administered to the patient when it comes to the process of cross-match labelling.

Fatigue is an extremely common reason for human error. After a long shift when a vital decision is due, technology could assist to eradicate the margin for error. For example, if mobile computing is used, information on a printed drug label can be linked back to a system that will check decisions against medical history at the touch of a button. In this case, technology will help enhance the safety of patients and the reputation of a medical organisation.

Data Use in Healthcare

Better use of data capture and analysis means a better healthcare system for the future. One way to improve healthcare provision is to look at potential mistakes in patient care and to carve out a 'lessons learned' manual.

In healthcare today, there is an expression known as "near misses". This applies when errors in medical practice almost took place, such as the incorrect administration of medicines. Properly captured and learned from, these near misses can drive effective staff training for the future. Similarly, information sharing is important in finding new treatments and possible cures for life-threatening diseases.

While there are undoubtedly benefits to data sharing and analysis, data security must be paramount to all endeavours. Advice to healthcare organisations is to make sure a stringent data security strategy is in place. With the EU-wide General Data Protection Regulation (GDPR) effective from May 25 2018, there is a great incentive for the healthcare industry in the EU to get it right due to GDPR-related penalties. Failure to protect patient data could result in an individual organisation landing a fine of €400,000. And this movement is set to impact data protection regulation across the globe.

Driving Cost Savings

The use of printing technology and mobile computers has another very useful selling point: enabling cost savings within the healthcare system. One area where cost savings need to be reduced is in litigation.

Unsafe medical practices and medication errors are a leading cause of avoidable harm in healthcare. Globally, the cost of medication errors has been estimated at €42bn annually. The use of technology can help minimise litigation by ensuring vital information such as when to administer the right drug or blood bag for a transfusion is clearly labelled or recorded.

Technology: The Future Diagnosis

Today, technology can drive efficiency, safety, productivity and visibility across global healthcare. There is clear evidence that technology can save money and help reduce litigation culture. In the future, it's possible that access to medical records will be conducted via smartphones, the same way that one might see bank account details.

There's no doubt that printing and mobile computing technology can play a huge part in running a more efficient healthcare system. The challenge today is that large parts of the healthcare industry are still stuck in the dark ages, using handwritten forms instead of capturing information electronically. This must change if clinicians are to deliver care that matches our modern, digitally-focused lifestyles. AH

First Minimally Invasive Total Gastrectomy in Dubai Saves Life of Young Cancer Patient

By Kamakshi Gupta, Communications Analyst at Dubai Health Authority

Life was going on as usual until one-day, 38-year-old engineer Ghulam Abbas needed to make a choice – life without a stomach, or death from stomach cancer.

"It's the most devastating decision and yet the answer was clear, I had to do whatever it took to save my life. I did not want my children to grow up without my presence; I did not want to lose the opportunity to see their milestones, watch them laugh, even fight. I was not going to give up on my family and me. I just wanted to hold on to life," said Abbas. "I had only one question. How would I be able to survive without a stomach?"

Abbas has two children, a one-and-a-half-year-old son and a six-year-old daughter. He was diagnosed with stage three cancer after he walked into Rashid Hospital's Gastroenterology clinic complaining of sudden weight loss and vomiting. Tests revealed he had a huge tumour that covered almost his entire stomach.

Gastric cancer is the second leading cause of cancer-related death and the fourth most common cancer worldwide.

Dr Ali Khammas Alyammahi, head of general surgery and consultant laparoscopic surgeon at Rashid Hospital, said, "In young patients unfortunately we see the cancer is very aggressive. There was no option but to conduct a total gastrectomy. We decided to perform the surgery minimally invasively, which has multiple advantages as opposed to open surgery. We have performed several colon cancer surgeries using this technique but for a total gastrectomy, it was the first-of-its-kind surgery in Dubai."

Before the surgery, doctors wanted to evaluate his response to chemotherapy.

Dr Omar Al Marzouqi, consultant laparoscopic surgeon said, "Sometimes in aggressive cancers of this kind, the tumour increases in size and spreads rapidly even while the patient is on chemotherapy. We do not expose such patients to surgery. After two months of chemotherapy at Dubai Hospital, his tumour shrunk in size, so we decided to go ahead with the surgery."

Abbas said, "After the chemotherapy I felt better. I was on nasal feed for two months

38-year-old engineer Ghulam Abbas who underwent a total gastrectomy after being diagnosed with stage three cancer

and post the chemotherapy I actually ate four proper meals over the next few days. So, I hoped that chemotherapy would be enough to tackle the tumour."

However, Abbas was informed that chemotherapy only shrinks the tumour but leaving a cancerous tumour inside the stomach is a ticking time bomb. He was left with no option but to undergo surgery.

"I was relieved to know that it will be a minimally invasive surgery. It meant that I could have a quicker chance for recovery."

However, he had one wish before the surgery. "I asked the doctor if I could have chicken biryani as my last meal before the surgery. My wife prepared it and my brother carried it to the hospital. I sort of gorged on it!"

The next day Abbas went into a five-hour surgery. Dr Al Marzouqi performed the surgery with his team. He said, "Traditionally such a surgery would involve opening up the abdomen vertically from the stomach to the pelvis, but minimally invasive surgery is the way forward in many cases as it is less invasive and leads to much faster recovery time.

"For colon cancer cases we have used this method several times, but this type of surgery was the first in Dubai. We laparoscopically removed the total stomach and the lymphatic drainage system from the root. We then reconstructed the whole area in such a way that the small bowel (small intestine) functions as the stomach."

The surgery was a success; the pathology report showed that the surrounding area was also free of cancer-cells. "In medicine there are markers for quality assurance. In such surgeries, the minimum number of lymph nodes that need to be removed are 26; we got more than double of that, we were able to remove 56 nodes."

Abbas is still undergoing chemotherapy at Dubai Hospital as a preventive measure.

Dr Al Marzouqi said, "It is normal to question how a person can live without a stomach. However, the body is able to bypass the stomach's main function of storing and breaking down food to gradually pass to the intestines. Without a stomach, food consumed in small quantities can move directly from the oesophagus to the small intestine."

Abbas needs to be very mindful of the quantities he consumes. He has to nourish his body in tiny meals throughout the day. "Here the credit goes to my wife. She meticulously prepares small meals for me and I keep track of how often I need to eat. Post the surgery I was on watery liquids and then I moved on to thick liquids. I will soon start consuming small non-spicy meals.

"I've adapted to this new pattern. Things could have been worse. I'm here, alive, what more could I possibly ask for?" AH

DHA Launches World's First Comprehensive Healthcare Change Management Framework

Article provided by Dubai Health Authority (DHA)

DHA has designed the world's first comprehensive healthcare change management framework and is currently highlighting this framework at international conferences. This is yet another first for the Emirate and the idea behind this framework is to have a structured three-year change management roadmap to help uplift the health sector and create a stimulating and motivating environment for employees.

The framework has been designed in collaboration with GE Healthcare.

Patient care and satisfaction are at the heart of this framework and DHA officials said that patients will be able to witness noticeable improvements in the quality of health services within a year. Factors such as waiting time, appointment systems, empowering patients with digital tools such as apps etc., will be part of the changes the community can expect.

The transformation framework is one of the components of the overall change management programme at the Authority. The other pillars of the programme include the Awtaad initiative, which will qualify more than 180 DHA employees in change management and culture transformation.

The initiative began in May this year and out of 383 applicants, 52 were selected. Of those, 48 graduated; they are now change agents to help the Authority achieve its goals in change management transformation.

HE Humaid Al Qutami, Director-General of the Dubai Health Authority said, "The healthcare transformation journey is important to create a stimulating and motivating environment for employees as well as to provide patients with the highest-quality of patient centric care and convenience. Change management is an effective way of achieving these goals in a fast and efficient manner."

The Authority will implement several change management mechanisms that include training and education, stakeholder engagement including community engagement etc.

Dr Mohammed Al Redha, Director of Project Management Office said, "Change Management addresses cultural changes that are essential throughout the life of any healthcare organisation. The development of the framework was the first step, now we will move towards its implementation. It is a three-year project, over the course of this time we will implement and measure a number of programmes to help achieve improvements in organisational processes, methodology, healthcare provision as well as patient care and satisfaction."

He said the core of the transformation strategy is to ensure better patient outcomes and to contribute to improved community healthcare. "Change management is necessary for all organisations and the way forward to achieve effective management and optimal services."

The Authority will also carry out a culture assessment and transformation process as part of the overall transformation journey.

CREATING A PATIENT-CENTRED HOSPITAL OF THE FUTURE

GSD Healthcare hosted a 'Privileged Talk #GCC Healthcare Strategies Towards 2020' to discuss the impact of technology, innovation and digitalisation on hospital care.

By Deepa Narwani, Editor

Currently, the healthcare industry is undergoing a revolution of sorts thanks to the numerous advancements in surgical robotics, cloud computing, virtual reality (VR) therapies, and the Internet of Things (IoT), among other innovations. Although Artificial Intelligence (AI) won't be replacing practitioners anytime soon, but will, however, have an instrumental role to play in healthcare delivery.

Shedding light on how digitalisation has provided opportunities to change the traditional way in which healthcare is delivered, and particularly in shaping hospital care, recently, GSD Healthcare (GSD), the Dubai-based company of San Donato Hospital Group, held an event titled "The Hospital of the Future – GCC Healthcare Strategies Towards 2020" that was attended by professionals and key decision makers from the healthcare industry.

The panellists included Dr. Mohammad Abdul Qader Al Redha, Director at Dubai Health Authority (DHA), Abdulrahman Alqhatani, VP for Health System Transformation Ministry of Health Saudi Arabia, and Director, National Emergency Medicine Support Program, Riyadh, Francesco Galli, GSD's CEO, Maher Abouzeid, President and CEO, Eastern Growth Markets at GE Healthcare, Muthanna Abdul Razzaq, President and CEO of the American University of the Emirates, Dubai, and Verdiana Morando, Head of Education and Consultancy of GSD Healthcare. At the event, these decision makers shared their views, strategies and solutions that are being implemented to shape the future of hospital care.

Dr. Al Redha highlighted how the programme planning committee of the DHA is looking ahead today at what will be the medical workforce of the next 50 years. He expressed that the new generation won't be interested in being hospital bound. In the near future, he sees procedures, such as getting a stent, being done in a shopping mall.

"Life is moving online and the convenience of not going out of the way is catching up in healthcare. There needs to be a rethink in the way hospitals are designed in order to pave the way for more accessible facilities. The focus in the future will surely be on beautiful designs, art, wellness, and natural features, and not just marble and

granite. However, hospitals are still a valid investment and the DHA will meet this demand, with a difference. The emphasis going forward should be on the redesign of hospitals and well as redesigning prevention schemes," he said.

On the other hand, Saudi Arabia's healthcare sector is undergoing a massive transformation. Alqhatani said that there is rising effort being put to get treatment or procedures done outside of hospitals, along with investing in activities such as telemedicine. The country is also reimagining the way in which its healthcare workers need to be trained in order to avoid building new hospitals, and is also looking at updating the curriculum in universities in order to incorporate the latest advancements.

He highlighted: "Currently, we have 300 hospitals, 40,000 beds, 75 billion Riyal budget for Ministry of Health, and 270,000 employees, and want to build an integrated healthcare system. We are looking at ways to engage the community, the private healthcare sector, and train healthcare workers in different specialities."

As technology advances and the healthcare industry moves toward more outpatient procedures, such as telemedicine and self-monitoring, prevention should be promoted today so that in the future patients will only go to hospitals for complicated surgeries and emergencies.

From L-R: Alqhatani, Abouzeid, Morando, Al Redha, Galli, and Abdul Razzaq.

According to Abouzeid, patient experience is of the utmost importance and customers have to be at the centre of healthcare delivery. He stressed that the power of big data, precision health and medicine are changing the dynamic of the industry. In fact, the UAE and Saudi Arabia are leading the way in this transformation as they realise that the public sector needs to be a regulator, not an operator. These governments are now looking at seamlessly working with the private sector and introducing new technologies that will allow them to work faster and efficiently.

"In the future, doctors should be there to just double check on the patient. The hospital of the future would most likely be an "empty hospital" or a space that will be used only for emergency cases. Early prevention is a key for this goal and health tech should be increasingly applied as it helps to reduce the costs, and diagnoses at an early stage, thereby increasing survival rate," he concluded. AH

Futuristic Facility

At the event, Galli displayed GSD's plans for its very own hospital of the future – the new IRCCS Istituto Ortopedico Galeazzi, which is being revamped at the moment and will be ready within three years. The state-of-the-art hospital will be surrounded by green space, will be extremely connected to different services, and will be spread across 150,000 square metres over 16 floors.

"For us, the Galeazzi Hospital is the hospital of the future. It merges research, university and clinical practice. It will feature a hub-and-spoke-model in which the point of care is guaranteed by continuous data sharing between hospitals, and will incorporate big data and robotics in its practice. Last but not the least, it will establish patient happiness as a culture," he added.

A rendering of the upcoming Galeazzi Hospital in Milan.

Integrating Africa: BRIDGING THE HEALTH GAP

By Dr Amit Thakker, Chair of Africa Healthcare Federation, Nishit Shah, Director of Africa Health Business, and Joelle Mumley, Marketing and PR for Africa Health Business

Africa's population is growing rapidly. Over the past 20 years, it has increased annually by 2.5 per cent and is expected to rise to 2.4 billion by 2050. Africa also bears 25 per cent of the global disease burden and is served by merely 2 per cent of the world's healthcare workforce. As the population booms, there will be an increasing need for high quality, accessible healthcare services to achieve universal health coverage (UHC), where all people will have the health services they need without facing financial hardship. The target to achieve UHC by the year 2030 was set out in Sustainable Development Goal (SDG) 3 and provides a goal for the continent to work toward. While investment in healthcare and coverage of key health services is increasing, Africa still has a long way to go.

Social and economic development in certain areas has significantly improved across the African continent and there is great potential to achieve more. One of the primary obstacles is the large burden of disease, which continues to be a barrier to faster development. It has become a significant cause for concern for policy makers, prompting the African Union Ministers of Health to harmonise all existing health strategies into the Africa Health Strategy (AHS) under Agenda 2063: The Africa We Want. This visionary document provides a strategic direction to Africa's efforts in creating better health for all.

The AHS converges all health initiatives and calls on multilateral agencies, bilateral development partners and other stakeholders in Africa's development to build their health contribution around this strategy, which recognises that the capacity of the private sector is not yet fully mobilised. Clause 111 (c) states that, "Member States will review their Health Plans and will address issues of accountability within the health sector. They will also put in place advocacy, resource mobilisation and budgetary provision as a demonstration of ownership. They will also undertake monitoring and evaluation at country level and report to the RECs and AU Commission. They will also ensure participation of civil society and the private sector in the development and review of national health programmes and create a conducive environment for this to happen. Member states will also harmonise their policies and strategies to ensure coherence."

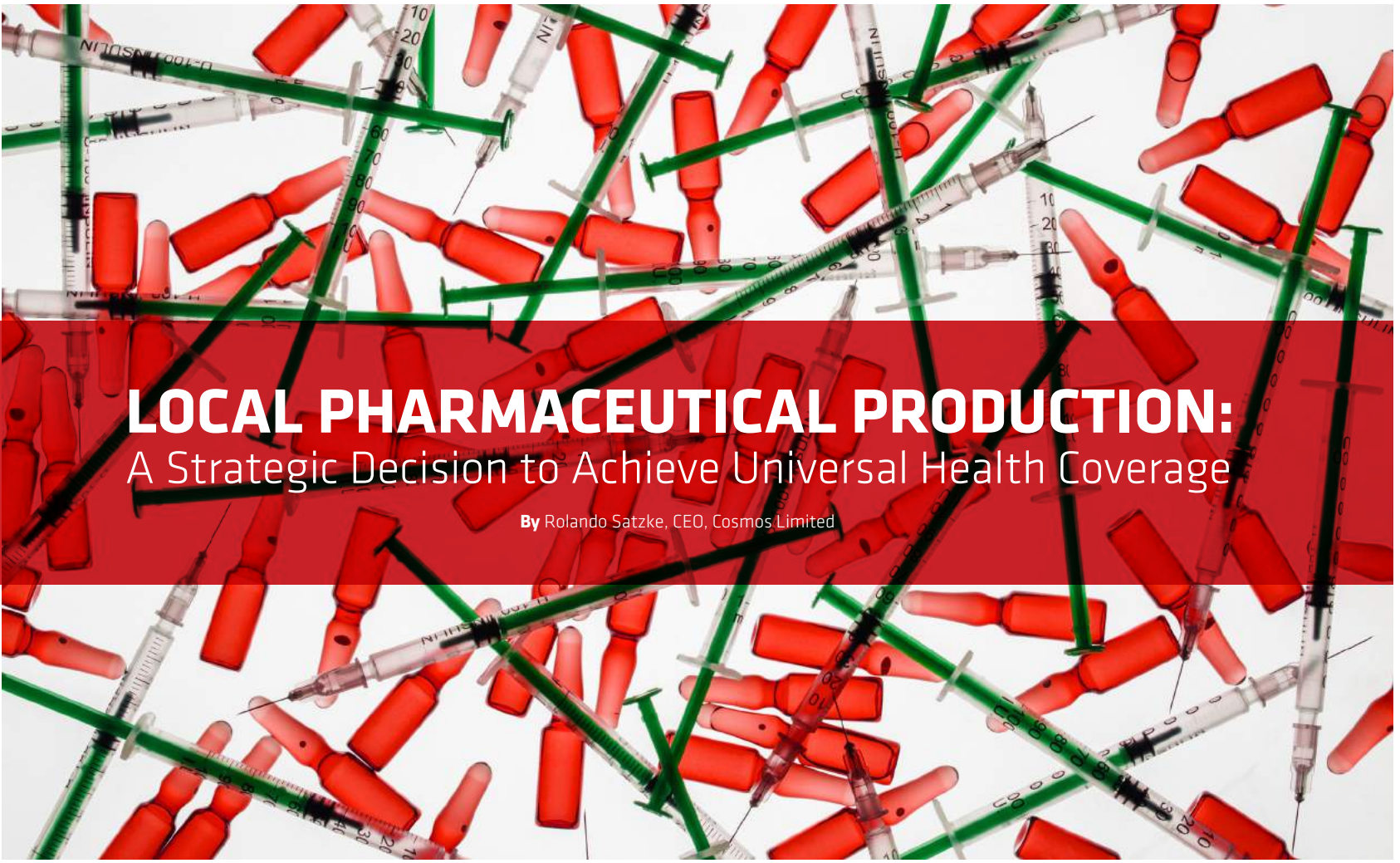
With this backdrop, it is essential for Africa to focus on how the private health sector can bridge the gap towards achieving the goals set out in AHS. This includes robust frameworks, policies and governance, as well as integration of the private sector. To effectively achieve this, both the public and private sectors have an important role to play.

The public health sector, led by the African Union, should work to establish policies and frameworks that set the stage for the private sector to reach its potential. Due to significant resource constraints, governments are quickly realising that they are unable to carry the full burden of providing health services to their respective countries. Government policies should create an enabling environment for the private sector, incentivising them to invest in the health sector, thereby strengthening the sector and the overall economy. Additionally, there should be an increase in integration, first regionally, but eventually across the entire continent. When countries are more integrated, the best practices, ideas and resources of each nation can spread across borders and improve overall health outcomes. In this process of integration, standardisation is also needed. Policies and regulations need to be uniform for continental and international trade within Africa to happen seamlessly. When nations have different quality standards, it makes it very difficult for resources (including medications, equipment, or even health workers) to cross borders and benefit both countries. This will also increase a sense of inter-dependence between African nations and reduce Africa's dependence on foreign aid.

The private health sector, led by the Africa Healthcare Federation (AHF), needs to work closely with the AU and individual African countries to advocate for policies that benefit the entire health sector. By working together, the public and private sectors can become more than the sum of their parts, each benefiting from the strengths and resources of the other.

The private sector also needs to be aware that investing in healthcare is worthwhile, both for long term economic development at the national and continental levels, as well as the profitability of their own organisations. Achieving the Global Goals for Sustainable Development opens up $12-30 trillion of economic opportunities for the private sector with at least 50 per cent located in developing countries. The $12 trillion can be realised through 60 market "hot spots" in four economic systems: food and agriculture, cities, energy and materials, and health and well-being. This has the potential to create 380 million new jobs by 2030, with almost 90 per cent of them in developing countries; 46 per cent of these will be in Africa, with an estimated 28 million health jobs in Africa. Within the health and well-being pillar, key investment opportunities and market hotspots have been identified in the areas of risk pooling, disease management, remote and tele-monitoring amongst several others.

There is no question that Africa faces significant challenges when it comes to achieving UHC. Its rapidly growing population, the significant disease burden as well as financial constraints all represent substantial obstacles to overcome. However, with leadership from the African Union and the Africa Healthcare Federation, promoting collaboration between public and private health sectors, there are many reasons to be optimistic. The private sector has so much to offer and with further integration between nations across the continent, this potential will only increase. If public and private sectors can collaborate, the SDG target of achieving UHC by 2030 is within Africa's reach. AH



LOCAL PHARMACEUTICAL PRODUCTION:
A Strategic Decision to Achieve Universal Health Coverage

By Rolando Satzke, CEO, Cosmos Limited

Private health insurance companies in Kenya informed losses claiming that over 40 per cent of health expenditure go into pharmaceuticals. If we compare this with international standards, we find out that Kenya is spending almost double in pharmaceuticals. On the other hand, even the 20 per cent of the Kenyan population, with some kind of health insurance, public or private, have to spend out of pocket for most of the healthcare costs, as the insurance topping is exhausted fast by purchasing the prescribed medicines.

What are some of the reasons for this disproportionately high pharmaceutical expenditure?

The supply chain of imported medicines is surely one of them. Importation of medicines involves six to seven intermediation's from the manufacturer to the end patient, each of them adding operational costs and margins. In an environment without regulations, this system could increase up to 400 per cent the original price, explaining how in most cases same medicine brands are more expensive in Kenya than in their origin countries, where the purchase power is higher, and the health insurance system achieved universal coverage. Some countries like India have overcome this challenge by having a Maximum Retail Price (MRP), which is printed on the package of the drugs. This ensures that patients cannot be charged higher than the MRP.

Another reason for the high medicine costs is the low prescription rate per generic denomination. In Kenya, almost all prescriptions are branded. In addition to the lack of patient awareness and poor empowerment of the key pharmacist roll, the situation leads to the dispensation of high-priced medicines. The first 20 purchased products in private hospitals, representing more than 30 per cent of the total spend in medicines, are originator brands, many times more expensive than quality generics available in the market. Substituting these 20 brands could save over Ksh 1 billion per annum to patients and insurance companies. A nice business for few, but it is not sustainable in the long term. The dispensation of generics in the U.S. is at 86 per cent, Germany at 81 per cent, UK at 78 per cent and Canada at 73 per cent. Most of these countries have achieved universal health coverage for their population and it is imperative that we adopt this prescribing pattern as well.

Another topic is the missing insurance premiums for low income patients. Service providers seem to not care about medicine costs as long insurances pay most of it. In countries with a strong health insurance

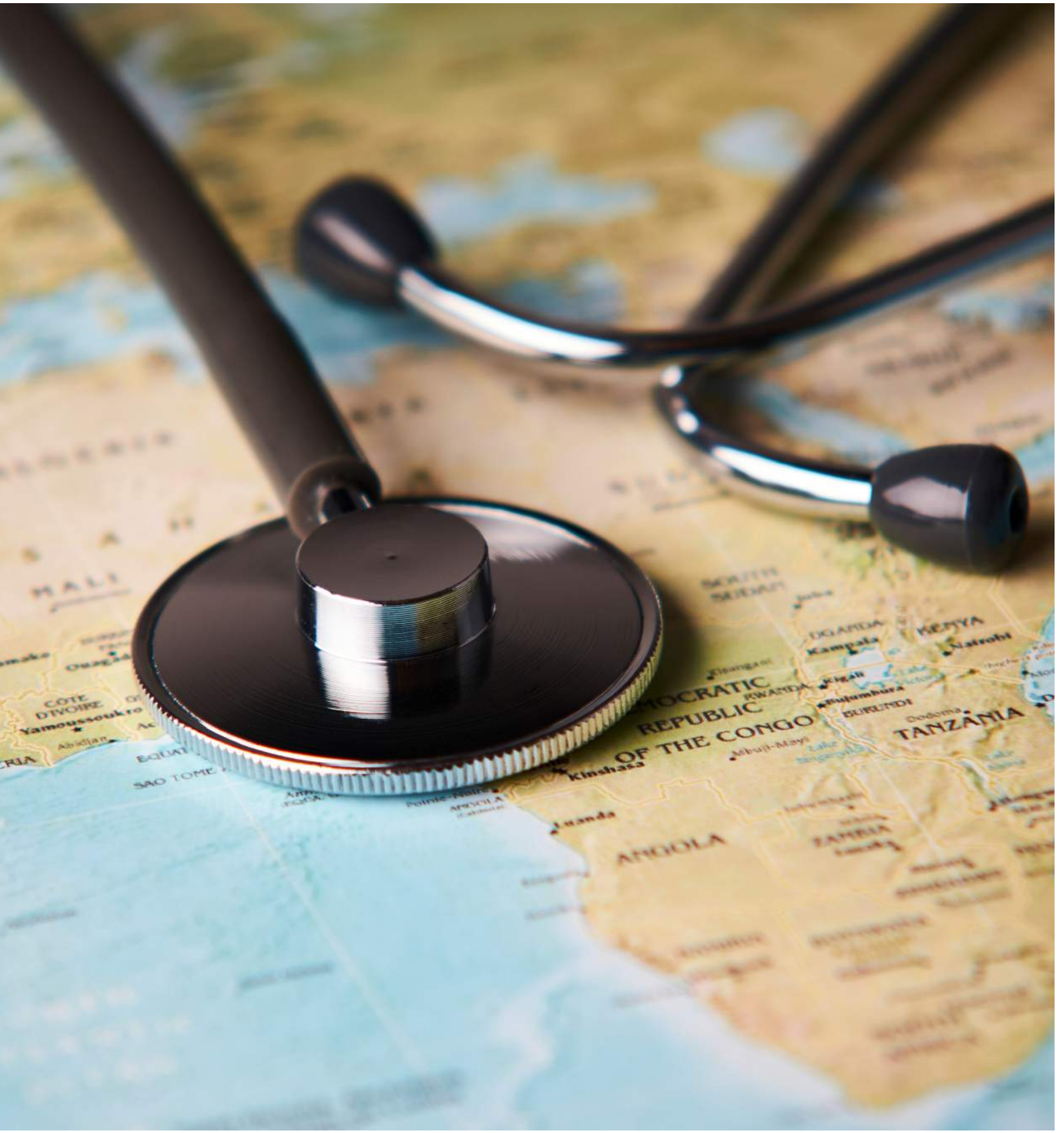
system, like Rwanda, medicine costs are much lower as a result of defined product formularies and standardised treatment guidelines and costs. With prescriptions guided by generic product formularies, pubic and private health insurances could offer much more affordable premiums for a larger portion of the population without access to healthcare. At the end, with an enlarged market, everybody is going to benefit.

Finally, there is the opportunity of the contribution of local pharmaceutical manufacturing. Some stakeholders argue that local manufacturing is poor in capacities and quality. But facts are telling the opposite. Local manufacturing companies in Kenya, like Cosmos Ltd., are leading the market in consumption, supplying the public sector to much lower costs than the imported brands. Kenya has about 33 local pharmaceutical manufacturing companies, some of them have reached international quality standards, recognised and certified by international agencies of strong regulated markets. The contribution of local manufacturing to the country economy and to the reduction of healthcare costs is largely proven. The success of the industry in Bangladesh and Ghana are the result of strong government support that created an enabling environment for growth and improvements to quality, scope and scale of production. Locally manufactured drugs can be up to 40 per cent cheaper than those that are imported since they do not incur to the costs related to the long supply chains, improving the much-needed availability and affordability.

The Pharmacy and Poisons Board should lead the public education on generics, highlighting the measures put in place to guarantee the quality and safety of all drugs manufactured locally. The quality of the locally manufactured drugs is also better guaranteed since the regulators are able to adequately monitor and supervise, as opposed to costly supervision of manufacturing sites in other countries. Even the U.S. FDA with its relatively high capacity and much larger budget for inspections, is concerned that it is unable to effectively control production quality in the entire Asian region. Studies claim that about 35 per cent of worldwide sales of counterfeit medicines can be traced back to India. A recent investigation showed, for instance, that generic drugs exported from India to Africa are of lower quality than those for domestic sales or exports to middle income countries.

Most countries that have vibrant pharmaceutical manufacturing industry achieved it because of the goodwill and support from their governments, which is something we need to embrace in Kenya. We fully support the country's Four Pillars Strategy of President Uhuru Kenyatta, as local manufacturing could decisively contribute to two of the four pillars, including universal health coverage.

To achieve the ambitious and possible goal, strong coordination and leadership among policy makers is required. Some successful proven measures, like price preferences in public procurement and corporate tax exceptions, will definitively enhance the local manufacturing sector. Larger production scales will have an impact in quality and costs, improve the access to medicines by reduction of prices, reduce supply chain costs, contribute to the national commercial balance, develop local capacities, employ professional talents, promote joint ventures, technology transfers and attract foreign investments. AH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EAST AFRICA:

The Next Pharmaceutical Manufacturing Platform

By Danny Mutembe, CEO, Conseil Medical Supply and Co-Founder Rwanda Healthcare Federation

Health is a major challenge for Africa where HIV/AIDS, TB and Malaria, and a myriad of other diseases, kill millions of people each year. This terrible human cost is a major factor that impedes the continent's efforts to escape poverty. Many deaths could be prevented with timely access to appropriate and affordable medicines.

As a matter of fact, health is a very important prerequisite to achieving the Millennium Development Goals (MDGs). Since the year 2000 substantive amounts of money have become available through international organisations such as The Global Fund to increase access to life-saving drugs. Very few of these drugs are currently procured from African producers. In a globalising world this might seem appropriate, but the specific realities in pharmaceuticals mean that further development of local manufacturing has the potential to positively impact the health outcomes in developing countries, as well as adding to economic growth.

In sub-Saharan Africa (SSA), where the overall pharmaceutical market size is worth US$ 20 billion annually, the production of life-saving medicines is furthermore concentrated in very few countries: 50 per cent of pharmaceutical manufacturing takes place in South Africa and an additional 40 per cent in Nigeria, Ghana, Kenya and Uganda combined.

These pharmaceutical markets are expected to have a compound annual growth rate of 12 per cent in 2018 according to IMS Health Reports. The Sub-Saharan Africa Pharmaceutical Yearbook (July 2011) also notes that pharmaceuticals alleviating chronic conditions such as hypertension and diabetes represent lucrative growth opportunities, as do those for the therapeutic segments including anti-infectives, cardiovascular, diabetes, respiratory, oncology and central nervous system medicines. The anti-infective pharmaceutical market, which comprises antiretrovirals, antimalarials and antibiotics, is expected to represent close to 45 per cent of sales, remaining the primary market due to the high malaria burden. The cardiovascular segment represents 11.8 per cent of sales, and the central nervous system and oncology 4.3 per cent and 3.3 per cent respectively. However, oncology medicine is forecast to generate growth of 12.9 per cent per annum, driven primarily by an expanding middle class and underlying strong economic growth.

Therefore, Africa remains one of the fastest growing economies in the world. The recent signing of the African Continental Free Trade Area (AfCFTA) in Kigali this March will boost intra-Africa trading with a combined GDP of US$ 2.5 trillion; where 44 out of 55 countries have already signed the treaty.

The overall African Pharmaceutical sector is worth US$ 30 billion per annum and is expected to be worth US$ 65 billion by 2020. However, the pharmaceutical manufacturing sector in Africa contributes to only 25-30 per cent of the continent's needs. The continent depends largely on imports from Asia, frequently with long lead times. The pharmaceutical sector is seen as a strategic sector, and high dependency on imports of essential medicines have raised security concern about the continuity of supply.

Countering Counterfeits

In addition to the low pharmaceutical production capacity, the African continent is confronted to an even bigger problem – counterfeits.

Counterfeited medicines represent a US$ 1 billion industry worldwide where over 30 per cent of those medicines are sold in parts of Africa, Asia and Latin America.

According to the World Health Organization (WHO), substandard and counterfeited anti-malarial medicines cause about 120,000 deaths every year in Africa.

African governments have become increasingly aware of the problems posed by counterfeiting and several initiatives have come to exist including the Anti-counterfeit Network Africa, which was launched in Uganda in February 2016. Also, a Customs Watch system, a surveillance request system that involves the recording of trade marks with Customs, is becoming more popular in Africa with countries such as Algeria, Côte D'Ivoire, Egypt, Kenya, Mauritius, Morocco, South Africa, Sudan and Tunisia already participating in the programme, while countries like Ghana and Egypt are providing an informal Customs Watch service. In 2008, the Anti-Counterfeit Act was passed by Kenyan lawmakers establishing an Anti-Counterfeit Agency.

In East Africa, the access to quality medicines is limited by the existence of a few pharmaceutical plants whereby a lesser number are WHO pre-qualified. This creates reliance in imported medicines with high prices.

The combined Pharmaceutical market size of the East African Community (EAC) in 2017 was about US$ 4 billion with a big volume spent on essential medicines, particularly Antibiotics, ▶

Antimalarials, Anthelmintics, Disinfectants, Analgesics and Anti-Retroviral medicines.

Another challenge for the African continent is the non-uniform registration requirements. The East African Community has come up with harmonised registration and inspection guidelines.

The African Medicine Regulatory Harmonization (AMRH) initiative aims to accelerate the access of medicines by improving the fragmented system of product registration in Africa, and in the East African Community in particular. The EAC was the first Regional Economic Community (REC) in Africa to launch Medicine Regulatory Harmonization (MRH) project in March 2012 with the purpose of harmonising medicines registration in the East African Community Partner States in order to increase the rapid availability of essential medicines in the region and to enable free movement of medicines within the region; with the ultimate goal to have a harmonised and functioning medicines registration system within the East Africa Community in accordance with nationally and internationally recognised best practices.

In 2012, the EAC designed a Regional Pharmaceutical Manufacturing Plan of Action (EACRPMPoA) to guide partner states of the EAC towards collective and synergistic evolution of an efficient and effective pharmaceutical production sector, capable of making significant contributions to meeting national, regional and international demand for medicinal products until 2027 and beyond. The action plan is closely aligned to the short, medium and long-term goals and policies of the EAC and individual member states and serves to complement past and present regional economic community and pan-African strategies.

The plan recommends strategic interventions to be applied at firm, institutional, national and regional levels to improve the business environment for pharmaceutical manufacturing, strengthen associated regulatory capacity and further develop human resource capacity through a programmatic approach. Specifically, the plan has set out the following primary strategic objectives:

1. Promotion of competitive and efficient pharmaceutical production regionally; Through usage of incentives such as preferences of up to 15 per cent on tenders for locally manufactured products
2. Facilitation of increased investment in pharmaceutical production regionally; this is through restricting certain imported products that can be locally (regionally) manufactured
3. Strengthening of pharmaceutical regulatory capacity in the region;
4. Development of appropriate skills and knowledge on pharmaceutical production in the region;
5. Utilisation of TRIPS flexibilities towards improved local production of pharmaceuticals, and
6. Mainstreaming innovation, research and development within regional pharmaceutical industry.

The key ingredients to the successful medicine regulation harmonisation are:

- Strong leadership of the Regional Economic Community and prompt decision making exemplified by the East African Community
- Partner States expertise harnessed for capacity enhancement
- Strong Public Private Partnership
- Private sector engagement at all levels of the harmonisation process
- Training in regulatory skills
- Government commitment for continued participation of National Medicines Regulatory Authorities' staff in harmonisation activities and beyond
- Advocacy by The New Partnership for Africa's Development (NEPAD), the World Health Organization (WHO) and other partners

As of today, domestication and implementation of processes have commenced in the Partner States; the expansion to other regulatory functions such as Pharmacovigilance and Post Market Surveillance (PMS); the regulatory requirements are harmonised, joint inspections are conducted and decision making are streamlined among Partner States' National Medicine Regulatory Authorities, which is ultimately an asset for investment.

Development of Regional Pharmaceutical Policy, Legal and Regulatory Frameworks and establishment of Central Agency are underway, which will lead to the establishment of a single regional Regulatory Agency. AH


BRAND

Brand Building BEYOND LABELS

By Vivek Shukla, Director, Healthcare & Lifesciences, Frost & Sullivan

For most people branding begins and ends with the name, logo and tagline. Many healthcare providers do compromise on the brand by relegating it to one support department who will manage the social media and will print some brochures.

In reality, a brand is much more than that. Branding as a concept encompasses the entire soul, fibre and character of the company. Brand has a wider scope and it is relevant to the entire operations, support and strategic planning functions in the organisation.

Globally, there is a lot to be learnt as far as strategic brand management in healthcare is concerned. Different regions will have different challenges. But the fact that the gaps need to be addressed still remains. Are healthcare systems learning enough from other global brands like Mercedes, Pepsi, Apple, Toyota, etc.? Well, the answer is no.

To provide clarity on what an effective brand building would entail in a hospital, the following points have been listed below:

Brand Values: Branding starts with the inherent values of a firm. These values are more often than not, given by the founders and top leaders of the organisation. It is imperative for everyone to take a step back and see what the organisation stands for. In case of hospitals, it could be philanthropy, enhancing the quality of life, bringing world-class services to the area, etc. Whatever the philosophy, it needs to be discovered, articulated and used to form the basis for the brand to be created.

The idea is to find the uniqueness in the inherent fibre of the brand. Every human being is unique in some way or the other, and so is every brand. One only has to dig deep enough to discover what the uniqueness is.

Brand Positioning: Once it is clear what the branding is for, one needs to look at how this will be positioned in the market. Needless to say, it cannot be the same as anyone else as each hospital will need their own unique position.

Many hospitals make the mistake of positioning themselves on the 'features' that they have to offer. As a result, they are unable to connect to the end user. It would be more relevant for the target audience if they positioned themselves on the benefit that the features would translate into. For example, JCI accreditation is a feature which translates into better treatment outcomes as a benefit. So, focusing on the accreditation rather than the benefit will not resonate with the target group.

Not to forget, the positioning of a brand is a matter of perception. In branding, perception is reality. A brand is positioned by the image it creates for itself in the minds of the people.

Brand Identity: This is where the name, logo and tagline come into the picture. We can add house colours, font type, etc. to the list. The identity has to be consistent to the unique position that we want to create. In some parts of the world, most hospitals, till recently, had green colour as part of its branding. Whereas, it is acceptable that there are ample reasons for green being allocated to healthcare, it is also contradictory to the concept of branding that green colour should be used by every brand. Of late, we have been seeing non-green branding for hospitals, which makes the hospital brand more visible in the marketplace. If a colour is being decided for a hospital brand, it will make sense to choose something that is not being used by others.

The identity [name, logo and tagline] has to be appealing enough so that the image of the brand can be created with ease. The recall will be good and the preference will be favourable for the brands that have likeable and unique identities.

Brand Personality: This is a concept which is very closely linked to the identity. Every brand has a personality. It may sound

A judicious mix of each kind of communication vehicle is a must. The number of newspaper ads and outdoor hoardings have to be determined based on certain organised facts and data. Press and media play a vital role in building healthcare brands.

strange, but leading brands work hard at creating a persona out of their brands. For instance, the overall personality of a brand like Virgin Atlantic is distinct from a brand like Lufthansa. These differences are created by planning the colours, words, images and other attributes carefully. Similarly, the hospital brand can be a modern male doctor, or a caring mother, etc. Whatever one needs to create, it has to be crafted deliberately and must augment the brand position.

Brand Promise Delivery: Once the brand's unique position, identity and persona are in place, the time comes to deliver whatever will be promised. Many hospitals boast of high quality, but their clinical outcomes are not up to the mark. Many hospitals boast of great doctors, but most of their doctors operate as islands of excellence without seeing eye to eye with each other. Similarly waiting times, interiors, staff attitude and a lot of other things needs to be diligently worked at in order to create a consistent brand experience. It is fundamental to the success of a brand, that the promise and its delivery should be consistent every single day.

One of the key factors that determine the delivery the brand promises is the staff behaviour and outlook. A premium hospital promising a great patient experience with all the frills cannot afford to have a staff that is badly dressed. A hospital that promises utmost care and concern for its patients cannot have a grumpy looking front office person. Staff outlook and attitude plays a vital role in delivering the brand. One may be surprised to see how many hospitals have never communicated to their staff about what the brand has promised to the outside world. There is absolutely no thinking through or training of the staff about delivering the brand promise. No wonder many healthcare providers are unable to figure out why the branding efforts have failed in spite of a hefty sum being paid for designing of adverts. Sometimes, healthcare providers make the mistake of going ahead with the advertising blitz without ensuring that the expectations they create will be met at the ground level. This shooting in the foot results in lost reputation over a period of time.

Brand Communication: A healthcare brand communicates with its audience on multiple platforms. It speaks to them primarily through advertisements and press and media and other philanthropic initiatives. For each communication there must be an objective. It is imperative that each communication talks about the uniqueness of the brand. This uniqueness needs to be relevant to the audience it is speaking to.

A judicious mix of each kind of communication vehicle is a must. The number of newspaper ads and outdoor hoardings have to be determined based on certain organised facts and data. Press and media play a vital role in building healthcare brands. The brand can get its initiatives endorsed and liked by the popular press and create a favourable image for itself. In the modern times, online media and social networking also plays a very significant role in shaping the opinion for a brand. Healthcare providers can overlook media [including web media] on its own peril.

Brand Loyalty: No discussion on branding is complete until we talk about brand loyalty. In healthcare, brand loyalty is a peculiar concept. Providers cannot [and mostly do not] wish for the patients to get sick and come back again. In such a scenario, how can a hospital talk about loyalty? The answer is – people can refer the hospital/provider to their friends in case they ever need the services. This can be done by brand advocates who can swear by the capabilities of the brand to deliver what it promises.

Another form of loyalty in healthcare arises with patients who need to visit the facility repeatedly for their medical condition. This is true for chronic ailments or for conditions like pregnancy, physiotherapy, etc. Brands serious about loyalty will not only want to retain the patients for the entire cycle of care that they can provide but would also like to monitor the number of new patients who came as a result of reference given by this existing patient. I have not seen many brands doing that in healthcare, even though there have been calculations proving that a five per cent increase in loyalty can push up the sales by up to 20 per cent!

There is so much more that can be said about branding for healthcare services. However, as a starting point, if whatever is mentioned above can be incorporated in building the healthcare brand, one will stand a fair chance of creating a sound platform for robust growth. AH

Vivek Shukla, Director, Healthcare & Lifesciences, Frost & Sullivan

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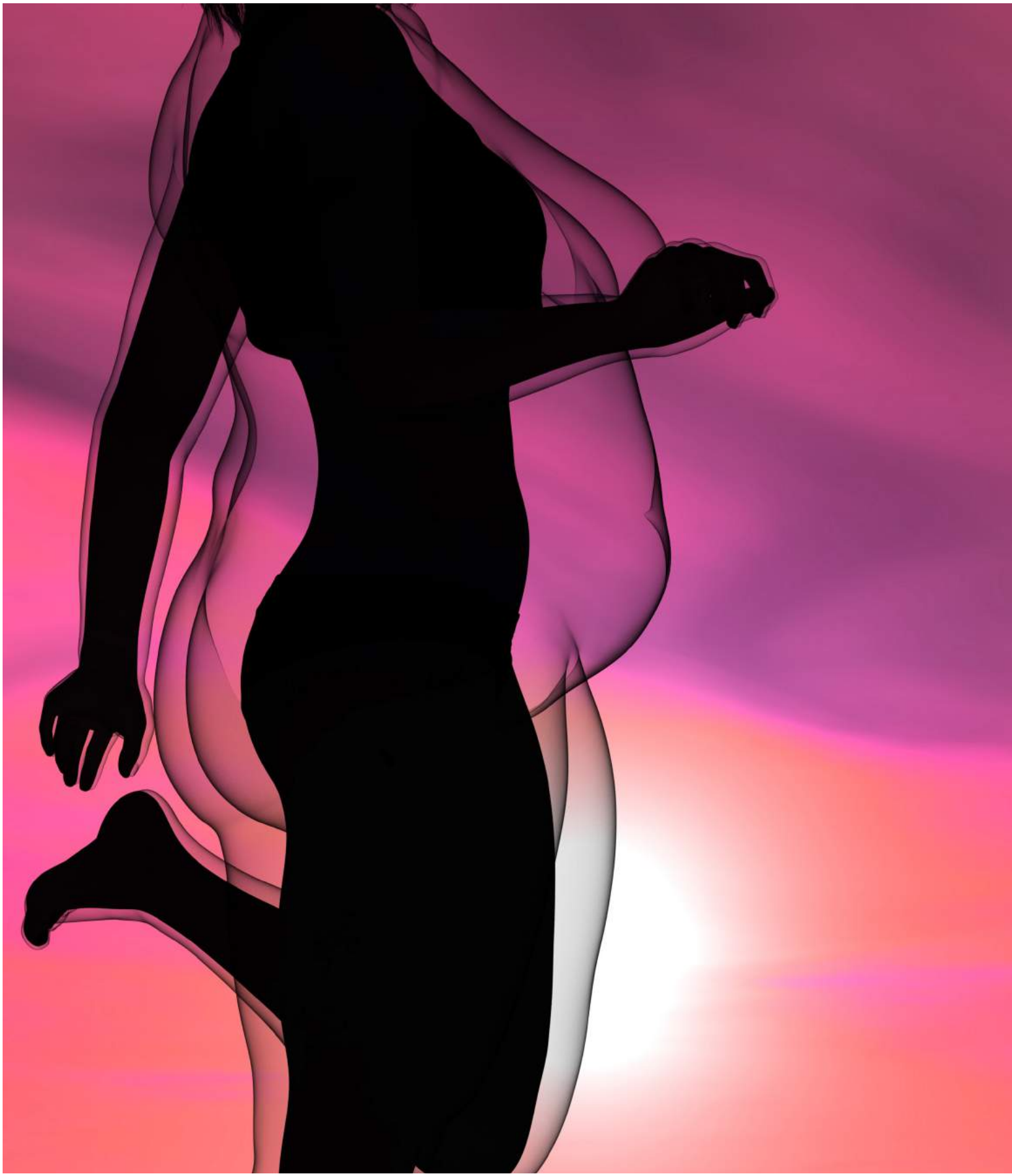


COMMON COMPLICATIONS OF Bariatric Surgery

By Evangelos Efthimiou, MSc, FRCS, FRCS (General Surgeon), Consultant General, Laparoscopic and Bariatric Surgeon

It is beyond doubt that obesity is a global pandemic, with the World Health Organization approximating 2.3 billion adults to be overweight and >700 million to be obese in 2015. It is a chronic illness identified in children, adolescents, and adults worldwide and in the U.S. alone, 35 percent of adults (roughly 100 million people) and 17 per cent of children are obese.

It is therefore not surprising that today bariatric surgery has become an important player in tackling the heat burden of obesity. Bariatric surgeries are one of the most rapidly growing operative procedures performed worldwide, with an estimated >340,000 operations performed in 2011, and in Asia alone the absolute growth rate was 449 per cent between 2005 and 2009.

Over the past five years the number of weight-loss operations performed in the U.S. has been relatively stable with an estimated 179,000 bariatric surgeries performed in 2013. Of those, 34 per cent were gastric bypass, 42 per cent were sleeve gastrectomy, 14 per cent were gastric band, and 1 per cent was biliopancreatic diversion with duodenal switch. The remaining six per cent were revisional procedures.

Complications following surgical treatment of severe obesity vary based upon the procedure performed and can be as high as 40 per cent. Below the major complications of bariatric surgery are outlined based on the different procedures individually.

Roux-en-Y Gastric Bypass

Roux-en-Y Gastric Bypass (RYGB) is one of the most common bariatric procedures performed today. The procedure involves the creation of a small gastric pouch and an anastomosis to a limb of jejunum. This causes restriction in the amount of food as well as bypassing a part of the small bowel, limiting absorption. Although complex, the gastric bypass in expert hands is considered the gold standard of the bariatric procedures by many experts.

Outlined below are some of the common complications arising after the procedure:

Anastomotic Stenosis

Anastomotic stenosis, at the gastrojejunostomy, is believed to occur in six to 20 per cent of patients post RYGB. The cause is uncertain, but proposed theories include: tissue ischemia, marginal ulcer, or increased tension on the gastro-jejunal anastomosis. Stenosis rate is higher in laparoscopic versus the open technique of RYGB and may be related to the use of circular staplers of small diameter. Anastomotic stenosis occurs when the anastomosis narrows to a diameter of <10 mm. Patients typically present in the initial post-operative period with nausea, vomiting, dysphagia, reflux, and possibly an inability to tolerate oral intake. The symptoms usually warrant endoscopy or an upper gastrointestinal series, both which can diagnose the condition. Endoscopic balloon dilation is usually the treatment and is most of the time successful, with 70-80 per cent responding to one dilatation.

Marginal Ulcers

Marginal ulcers typically occur at gastrojejunostomy site and have been reported in 0.6 to 16 per cent of patients. Common causes of marginal ulcers include poor tissue perfusion at the anastomosis, presence of foreign material (staples or suture), non-steroidal anti-inflammatory drug use, Helicobacter pylori infection and smoking. Treatment of marginal ulcers comprise mostly of acid suppression with a prolonged course of proton pump inhibitors, usually followed by an endoscopy to ensure healing. Medical management is successful in 85 to 95 per cent of patients, but surgery may be indicated if perforation occurs or if symptoms persist despite medical therapy.

Internal Hernias

Internal hernias occur in mesenteric defects that are created during a RYGB. These sites include the jejunojejunostomy

mesenteric defect, Petersen's defect (between the transverse mesocolon and Roux-limb mesentery) and in the transverse mesocolon in retrocolic bypasses. Internal hernias have been described in up to five per cent of patients after RYGB, and mesenteric defects are often closed with nonabsorbable sutures to reduce this incidence. Most bariatric surgeons will recommend closure of the mesenteric defects to decrease the risk of internal hernia. These usually are associated with successful weight loss possibly due to the re-opening of the hernial spaces due to reduction of the intra-abdominal fat and mesenteric fat. Conditions that increase the intra-abdominal pressure can precipitate internal hernia and our group has treated two cases of internal hernia presenting within a week from abdominoplasty for body contouring after gastric bypass. Internal hernias can be difficult to diagnose as their radiographic detection is complicated by their intermittency, with the pathognomonic "mesenteric swirl" sign on CT scan serving as the best indicator of diagnosis. In cases of diagnostic uncertainty diagnostic laparoscopy with inspection of the potential hernial spaces is recommended.

Dumping Syndrome

Dumping syndrome can occur in post-RYGB patients and is due to ingestion of large amounts of simple carbohydrates. There are two types of dumping syndrome: early and late. Early dumping syndrome has a rapid onset (15 minutes) and is the result of rapid emptying of food into the small bowel. Late dumping syndrome can also occur, but its pathophysiology is not fully understood and likely includes changes in hormonal and glycemic patterns. Treatment usually involves behavioural modification, such as small, frequent meals, and separating solids from liquid intake by 30 minutes. In addition, patients are asked to avoid foods that are high in simple sugars and consume a diet consisting of high fibre, complex carbohydrate, and proteins instead. In the author's experience, most patients exhibit symptoms of dumping but in the vast majority, patients are transient and respond well to dietary modification. In 0.5-1 per cent of cases, symptoms can be severe, persistent and difficult to manage.

Sleeve Gastrectomy

Laparoscopic sleeve gastrectomy (SG) is increasingly becoming a widely employed bariatric operation as it shows good weight

loss and resolution co-morbidities. The procedure involves stapling the stomach over a bougie and removes a large portion (around 80 per cent) of the stomach. The most common complications of SG include leaks, and stenosis of the sleeved stomach and gastroesophageal reflux disease.

Gastric Leaks

Gastric leak after SG is one of the most serious complications and can occur in up to 5.3 per cent of patients. Although the etiology is unknown, leaks are thought to be due to local factors at the site of the staple line, including inadequate blood supply and gastric-wall heat ischemia. In addition, the sleeved stomach produces a high-pressure system, which can complicate the healing process and lengthen the amount of time for a leak to close. The mainstay of treatment for leaks includes early diagnosis, adequate drainage and gastric decompression. Clinically stable patients usually undergo percutaneous drainage of any collections, antibiotic therapy, and parenteral nutrition to augment the healing process. Endoscopic therapy with the use of stents has been proposed for management of leaks, but it comes with its own complication risks as well.

Sleeve Stenosis

Narrowing or stenosis of the sleeved stomach is a possible complication after SG and the presentation can vary depending on the severity. Symptoms typically include dysphagia, vomiting, dehydration and the inability to tolerate diet. Two of the most common areas where stenosis occurs are the gastroesophageal junction and the incisura angularis, and this is usually diagnosed by a barium swallow test. Theories behind the development of narrowing or stenosis are over-sewing the staple line and using a bougie that is too small in size. Initial management of stenosis consists of endoscopic dilation. In cases where the area of stenosis is not amenable to endoscopic therapy, surgical intervention is necessary with conversion to a RYGB.

Reflux

Gastroesophageal reflux (GERD) with symptoms including burning pain, heartburn, and regurgitation can occur as an early or late complication after SG. Anti-reflux medical therapy is usually the mainstay of treatment, however GERD unresponsive to medical therapy are typically treated by conversion to RYGB. There are emerging reports of increasing rates of late GERD following sleeve gastrectomy and potential development of Barrett's oesophagus with its potential association with cancer risk and the need for long term surveillance. In the author's experience, there is also increasing evidence of documented with manometry of oesophageal dysmotility following sleeve gastrectomy. As the sleeve gastrectomy is a relatively new operation, the exact effects of the oesophageal dysmotility post gastric sleeve in the long term remains to be seen.

Gastric Banding

Gastric banding (GB) is a restrictive procedure involving placement of an adjustable band at the gastric cardia near the gastroesophageal junction. The band can then be adjusted by injecting or removing saline from a subcutaneous port attached to it. GB is considered a safe as a bariatric procedure that does not alter the anatomy and has a very low mortality rate. Several complications are associated with it, most commonly band erosion, slippage and esophageal dilatation.

Band Erosion

Band erosion through the stomach has been reported in up to 1 per cent of GB patients. It is thought to occur as a result of an excessively tight band leading to gastric wall ischemia. Band erosion is usually diagnosed by endoscopy and warrants its surgical removal as treatment.

Band Slippage

Band slippage involves migration of the band from its normal position leading in turn to symptoms of food intolerance, epigastric pain, and acid reflux. Anterior band fixation by gastro-gastric sutures is commonly performed to prevent band slippage. It occurs in 3 per cent of cases and can appear any time after surgery either as an acute slippage or in a more chronic form. Diagnosis can be confirmed radiologically demonstrating an alteration in the normal position of the band. Depending on the presentation of the patient, surgical removal or repositioning of the band is usually required on an elective or emergency basis.

Evangelos Efthimiou's expertise is in general surgery, minimally invasive upper gastrointestinal surgery (gall stones, surgery for gastro-oesophageal reflux disease, and complex hernia surgery) and bariatric surgery and multimodal treatment of super obesity.

Esophageal Dilatation

Esophageal dilatation proximal to the band is a recognised complication and it is usually associated with long-standing bands. Although the exact mechanism is unknown reports associate its development with a band that is inflated excessively. Treatment initially involves band deflation with surgical removal of the band or conversion to a stapling procedure if symptoms fail to respond.

Intra-gastric Balloon

Although not a surgical procedure per se, intragastric balloons have recently played a pivotal role in serving as both primary standalone weight loss procedure and planned first stage of a definite bariatric surgery. Initially considered very safe, recent evidence has emerged regarding the observed complications of balloon rupture and migration, small bowel obstruction, gastric perforation and even death. This has led the Food and Drug Administration in the United States to place a warning to consumers and healthcare providers regarding their safety. AH


Nine per cent to 15 per cent of 13 to 15-year-old school children in several countries in the Arabian Peninsula (Bahrain, Oman, United Arab Emirates, Kuwait and Yemen) indulge in waterpipe smoking, mostly surpassing the prevalence of cigarette smoking.

THE SHISHA HABIT: A Global Epidemic

By Javaid Ahmad Khan, Professor, Section of Pulmonology and Critical Care Medicine, and Ayesha Butt, Medical Student, The Aga Khan University, Karachi, Pakistan

Shisha smoking – also called hookah, narghile, waterpipe, or hubble bubble smoking – is a way of smoking tobacco, sometimes mixed with fruit or molasses sugar, through a bowl and hose or tube. The tube ends in a mouthpiece from which the smoker inhales the smoke from the substances being burnt, into their lungs.

Traditionally shisha contains tobacco, exposing its users to nicotine, tar, carbon monoxide in addition to heavy metals, such as arsenic and lead. Hence, diseases like heart disease, cancer, respiratory disease and problems during pregnancy, which are characteristic of cigarette use are also encountered by shisha smokers.

Despite the many perils of shisha smoking, shisha is gaining popularity among the youth, which is a cause of great concern.

Epidemiology

The Global Youth Tobacco Survey concluded that, whilst cigarette smoking prevalence was decreasing among 13-15-year-olds, 33 out of 97 global regions showed an increase in other tobacco use which was mostly attributed to shisha. Nine per cent to 15 per cent of 13 to 15-year-old school children in several countries in the Arabian Peninsula (Bahrain, Oman, United Arab Emirates, Kuwait and Yemen) indulge in waterpipe smoking, mostly surpassing the prevalence of cigarette smoking. According to a recent survey 8.4 per cent of students in the U.S. smoked shisha, which is second only to cigarettes. A study in Karachi, Pakistan, revealed 22.7 per cent of medical and dental students are shisha smokers. In another study carried out at Aga Khan University Karachi, shisha prevalence was found out to be 53.6 per cent.

Attitudes Regarding Shisha Use

Social norms

Social norms affect waterpipe tobacco smoking in a similar fashion to cigarettes, working via peer influence through modelling or imitation of friends' behaviour, or through selective reinforcement by peers or parents of certain behaviours. For example, parental and peer waterpipe tobacco use is consistently and strongly associated with individual waterpipe tobacco use in a number of settings, including several Middle Eastern countries, Sweden, and the U.S. In a qualitative study across four countries in the Middle East, one participant was quoted as saying, "Now my father is enjoying smoking waterpipe with me. Every night, he prepares his waterpipe and asks me: don't you want to prepare your own?" (Woman, smoker, 18–25 years – Lebanon). This study concluded by suggesting that socio-cultural norms towards waterpipe tobacco far outweighed its health considerations. Social media may have a role to play, given that from a random sample of 5,000 waterpipe-related tweets in 2014, 87 per cent normalised waterpipe use by making it seem common, normal to use, and portraying it positively.

Descriptive norms

Descriptive norms, also known as perceived prevalence, are the belief about how most of the people act in a social group. The higher the perceived prevalence, the more likely that the individual will believe that behaviour is normative. In one study of more than 1,000 adolescents in Lebanon, more than 65 per cent perceived the prevalence of waterpipe tobacco use to be higher than it was (ie, had high pluralistic ignorance). In a similar study among more than 400 college freshmen at a U.S. university, just under half had high pluralistic ignorance, and pluralistic ignorance was associated with waterpipe tobacco use but not with cigarette or cigar use.

Injunctive norms

Approval or disapproval of waterpipe tobacco smoking is known as injunctive norms, and this area has mixed findings. Given waterpipe tobacco smoking is commonly performed as a social activity with friends or family, and a key feature of its use is sharing between users, it is seen as socially acceptable. In examples from Lebanon and Jordan, authors found that the encouragement from friends and family influenced waterpipe tobacco, whereas having friends who disapproved of waterpipe tobacco was associated with less use. This pattern has also been reported among youth in India, and in cross-sectional studies of Arab Americans in the U.S. and adolescents in Lebanon, friend and family influence was associated with waterpipe tobacco initiation for both male ▶

and female users. Among adolescents in Lebanon, nearly 30 per cent of waterpipe users had it paid for by their parents.

Despite this, disapproval of waterpipe tobacco use has been documented in literature. In a cross-sectional study among 547 university students in Jordan, about 30 per cent of users claimed that their parents would discipline them if they found out about their waterpipe use; interestingly, this figure was higher for men (35 per cent), compared with women (20 per cent).

Perceived risk

Risk perception is an important determinant of smoking behaviour and behavioural intention. Qualitative research from the U.S., United Kingdom, and Syria broadly suggest a reduced harm perception compared with cigarettes. The perceived lack of nicotine and addictive potential of waterpipe tobacco suggest that users have a strong sense of perceived control over their waterpipe tobacco use. In one study among university students in North Carolina, those who believed waterpipe tobacco to be less harmful than cigarettes had more than 2.5 times the odds of being a past 30-day waterpipe user compared with those who believed waterpipe tobacco to be as harmful as cigarettes.

A common misconception fuelling this epidemic is the belief that shisha use is not addictive or injurious to health because the water used in the pipe absorbs nicotine. The reality however is in stark contrast to this. Shisha smokers are exposed to enough nicotine to develop an addiction because only some nicotine is absorbed by water.

A study reports that 30 per cent of university students consider shisha to be less deleterious than cigarette. Twenty one per cent out of 206 male shisha smokers in Egypt shared a similar belief. Similarly, 60 per cent of the Pakistani populace considers cigarettes to be more harmful. Studies in Egypt, Malaysia and Jordan delineated similar attitudes.

However, water pipe smoking carries three additional health risks over cigarette smoking. Firstly, the coal over which shisha is smoked adds to the already long list of toxins present in tobacco. Secondly, a single shisha session results in the smoker inhaling up to 200 times more smoke than cigarette smokers. Thirdly, the rates of second-hand smoking associated with shisha are high due to its high social acceptance.

Because of the way a hookah is used, smokers may absorb more of the toxic substances also found in cigarette smoke than cigarette smokers do. An hour-long hookah smoking session involves 200 puffs, while smoking an average cigarette involves 20 puffs. The amount of smoke inhaled during a typical hookah session is about 90,000 millilitres (ml), compared with 500–600 ml inhaled when smoking a cigarette.

In a study about second-hand smoke in indoor hospitality venues in Pakistan the mean PM (2.5) value was 101 µg/m(3) (95 per cent CI 69-135 µg/m(3)) for non-smoking venues, 689 µg/m(3) (95 per cent CI 241-1138) for cigarette smoking venues and 1745 µg/m(3) (95 per cent CI 925-2565) for shisha smoking venues. The significant levels of SHS recorded in this study, in particular from shisha smoking venues, could represent a major public health burden.

Health Effects

Shisha smoking predisposes its users to a plethora of cancers like lung, bladder, and oral cancers. Dar NA reports that there is significant association between esophageal carcinoma and shisha smoking (OR=1.85, 95 per cent CI, 1.41-2.44). Its association has also been reported in studies conducted in China, India and Iran. Shisha also increases the risk of developing pancreatic and prostate cancer. There is significant association between shisha smoking and squamous cell carcinoma and

keratoacanthoma of lip. In terms of gastric cancer, a large 10-year prospective cohort study supported the association with waterpipe tobacco smoking even after adjusting for cigarette smoking. In this study, waterpipe tobacco smoking was associated with 3.4 (95 per cent CI: 1.6–7.1) times the risk of developing gastric cancer compared with non-smokers.

Shisha smoking also has detrimental effects on the cardiovascular system and after 45 minutes of shisha use, heart rates are found to be significantly increased. Many studies report that a mean increase in systolic and diastolic blood pressure and heart rate of shisha smokers is observed after shisha smoking. Moreover, serum concentration of HDL, Apo A in shisha smokers were significantly lesser than non-smokers whereas LDL-cholesterol, Apo B and triglycerides were significantly greater in smokers.

Hookah tobacco and smoke contain many toxins that can cause clogged arteries and heart disease. In a cross-sectional study from Iran of more than 50,000 participants, waterpipe tobacco users had nearly four times the odds of self-reported ischaemic heart disease or heart failure compared with non-users. In another cross-sectional study from Lebanon, 1,210 patients from four hospitals were evaluated for angiographically defined coronary artery disease. Patients with a long history of waterpipe tobacco smoking had three times the odds of severe stenosis compared with non-smokers.

Lung cancer, cancers of the food pipe, chronic obstructive lung disease, emphysema, precipitation of asthma attacks and pneumonia are some of the health hazards associated with shisha smoking. Regular shisha users have lung functions approximately 25 per cent lower than those who do not use this. Carbon monoxide and pulmonary function changes have also been reported in long-term waterpipe tobacco smokers. In one cross-sectional study in Pakistan, blood CO concentration was significantly higher in waterpipe tobacco smokers (10.5 per cent) compared with cigarette smokers (6.2 per cent) and nonsmokers (0.9 per cenr) ($P < .01$). Oxyhaemoglobin levels were significantly lower in waterpipe tobacco smokers compared with cigarette smokers and non-smokers. In another study of Saudi men and women, pulmonary function (forced expiratory volume at one second [FEV1], FVC, and FEV1/FVC)

was impaired in long-term waterpipe tobacco smokers compared with non-smokers.

A study in Saudi Arabia showed that total antioxidant capacity and vitamin C levels were lower in smokers than in non-smokers.

Furthermore, mothers who smoked water pipes every day while pregnant had babies who weighed less (at least 3½ ounces less) than babies born to non-smokers. Babies born to hookah smokers are also at increased risk for respiratory diseases.

A research has found that cognitive functions including attention, alertness, and memory were significantly impaired in healthy adult shisha smokers compared to non-shisha smokers.

Shisha smokers are found to be significantly more likely to have hypertryglycedemia (OR 1.63, 95 per cent CI, 1.25-2.10), Hyperglycemia (OR 1.82, 95 per cent CI, 1.37-2.41), Hypertension (OR 1.95, 95 per cent CI, 1.51-2.51) and abdominal obesity (OR 1.93, 95 per cent CI, 1.52-2.45).

It was evaluated that the practice of sharing a waterpipe mouth piece poses a serious risk of transmission of communicable diseases including Tuberculosis and Hepatitis. The waterpipe and the water inside the shisha apparatus can become an abode for bacteria such as those causing TB which can lead to the spread and transmission of the disease. There is also some evidence that Shisha use may also decrease the sperm count in men.

Addiction and Cessation

Whereas one session of shisha exposes users to an amount of nicotine equivalent to smoking one to five cigarettes, literature review has shown that for daily shisha smokers a single shisha session has nicotine exposure equivalent to 10 cigarettes due to cumulated increase in nicotine over time.

Similar signs of nicotine addiction are seen in shisha smokers as are seen in cigarette smokers: failed quit attempts, cravings and withdrawal symptoms despite claims that quitting shisha is "not at all hard".

The way forward

Changing perceptions:

The most important step in curbing the spread of shisha smoking is to reduce its social acceptance and make people aware about shisha being even more hazardous than cigarette smoking. Glamorisation of shisha and use in mainstream media should also be checked to prevent youngsters from indulging. Public health messages delineating the hazards of shisha smoking should be disseminated in electronic, print and social media. Awareness campaigns for school, college and university students should be organised and its perils should also be included in school curriculum.

Government actions and legislation

Measures like banning shisha cafes and banning shisha in restaurants should be implemented. Shisha cafes are a major cause of the spread of this habit and hence, they must be banned. Shisha smoking must be banned in all public spaces and educational institutions. Most countries in the region have laws banning smoking at public places. As shisha contains tobacco, laws should cover shisha in this ban as well. AH

References available on request.

THREE CRITICAL STEPS
to Business Continuity of Healthcare Organisations

By Gregg Petersen, Regional Vice President, Middle East & Africa at Veeam

The Digitisation of Healthcare

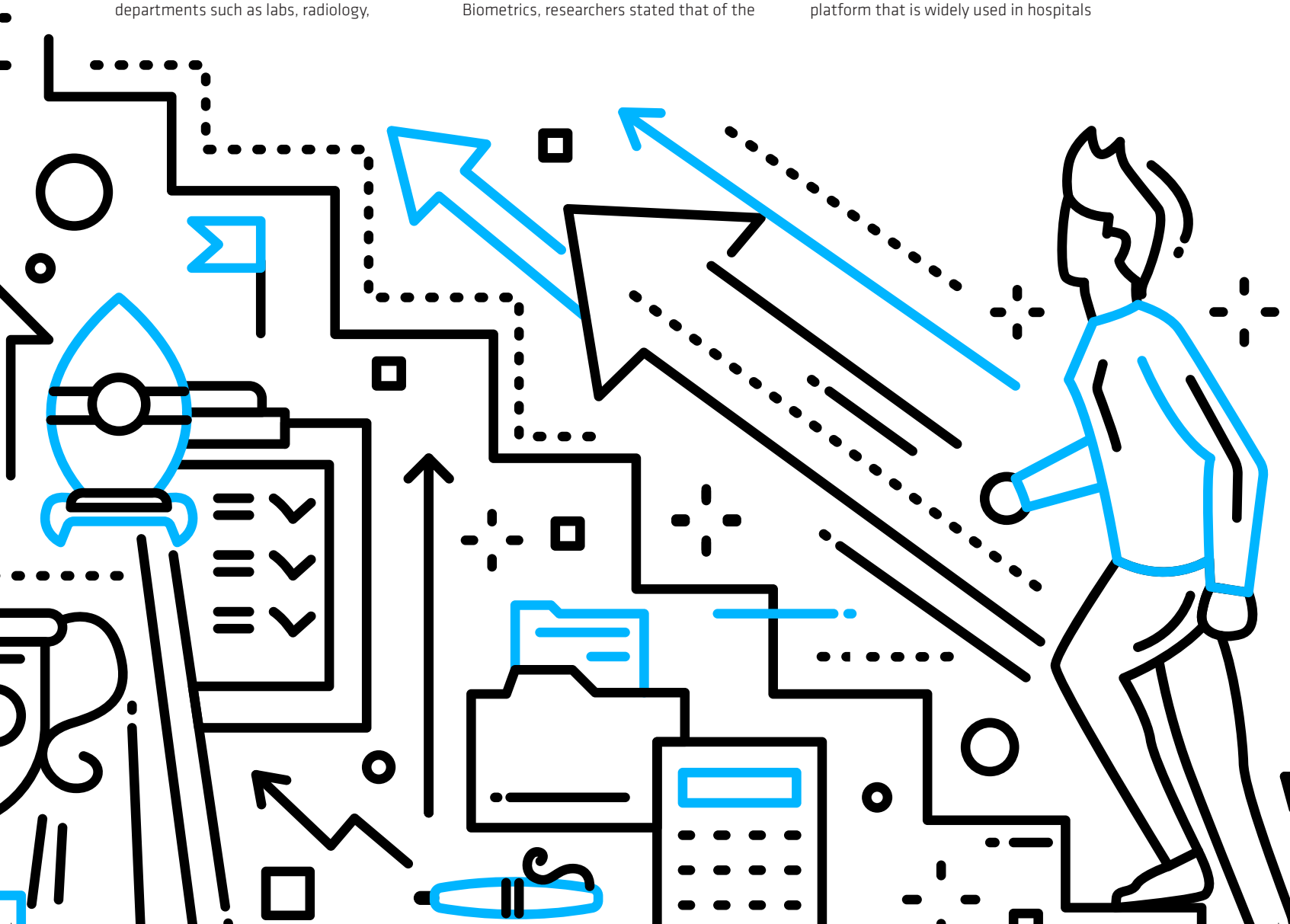
Understanding the direct link between technology and patient care is critical but can be overwhelming. Physicians rely on up-to-date patient information to make educated decisions on the best care. Access to patient data is critical to their care and can sometimes mean the difference between life and death. Electronic Health Records (EHRs) flow from system to system, hospital to hospital, from the point of the patient registration to data gathered in different departments such as labs, radiology, cardiology and more, to discharge. Couple that with financial and insurance data collected, and we begin to see the sheer magnitude of the availability impact on the healthcare industry.

Business Continuity—Keeping the Digital Life Alive

Downtime can have a catastrophic impact on digital life for caregivers, administrators, stakeholders and patients.

In a study published by the Journal of Biometrics, researchers stated that of the patient safety incidents reported to the U.S. Food and Drug Administration, 96 per cent were related to technical issues. Some incidents resulted in futile searches for test results, inability to read test results and duplicate orders for procedures.

On a broad scale, the WannaCry ransomware attack in May 2017 affected 230,000 computers and took down entire pillars of Britain's National Health Service (NHS). WannaCry is a virus that exploits a known weakness in Microsoft Windows, a platform that is widely used in hospitals



across the world. The virus blocks all data on computer systems until a ransom is paid, so every aspect of digital life for caregivers, administrators and patients is affected.

In this case, the virus infected medical devices, caused ambulances to be diverted, and shut down 16 hospitals in the UK. For other hospitals, with computer systems shut down, operations had to be cancelled and emergency services halted. In addition, patient records became inaccessible.

The Evolving Threat Landscape

Cyberthreats to healthcare include hackers, botnet attacks, exfiltration (stealing medical information) and malware such as ransomware. By all accounts, a cyberattack on a healthcare practice is a matter of when, not if. Cyberattacks can shut down healthcare practices and dramatically impact patient care. They can also severely damage the brand and incur steep regulatory penalties.

Securing Availability and Business Continuity in Healthcare

There are critical units in hospitals and care centres that have no allowable downtime. Some surgical procedures depend on real-time data from digital diagnostic equipment. Sadly, there have been cases of patient deaths due to downtime events. According to a recent report, downtime delayed post-surgery treatment that led to a permanent disability for one patient, and death for another patient when images could not be transmitted for diagnosis.

In addition to the tragic loss of life, if a healthcare practice is not able to immediately restore access to data it faces regulatory fines, lost consumer trust and damaged employee morale. The key to surviving and thriving in the new healthcare landscape is a reliable, comprehensive business continuity plan. A keystone of a business continuity plan in this context of digital transformation is availability.

Three Critical Steps

With so much at stake, healthcare organisations must address business continuity, and they must do so quickly and thoughtfully. The three most critical steps to healthcare business continuity are:

1. Ensure continuity and availability

- *Optimised backup and recovery strategy:* Organisations need fast, reliable, scalable backup and recovery tools designed especially for enterprises. They must be able to quickly restore backups to meet Health Insurance Portability and Accountability Act (HIPAA) and other regulatory requirements. A good guideline for backups is the 3-2-1 rule: Have at least three copies of your data, store the copies on two different media and keep one backup copy offsite.
- *Ensure you can quickly recover entire machines to the application level:* Verifiable recovery of every file, application and virtual server every time is a must-have.
- *Ensure data loss avoidance:* Your availability solution should enable you to achieve major improvements in recovery point and recovery time objectives (RTPO) of less than 15 minutes for all applications and data.

2. Achieve digital transformation agility

- *Cloud-based workload mobility:* To ensure you can quickly recover entire machines, deploy cloud workload mobility to better cope with change and manage data more easily. You also must have the ability to test all applications and upgrades before they go into production. For cloud-based workload mobility leverage Azure or other public clouds for test/dev environments. This provides an easy way to spin up servers and workloads quickly.
- *Workload mobility:* The complex infrastructure of an enterprise involves physical and virtual machines, as well as private, public or hybrid cloud. To achieve an optimal setup, you need the right data management and availability solution that provides a certain degree of flexibility, to manage and migrate data easily.

3. Enable analytics and visibility

- *Visibility and compliance to prevent system failure and downtime incidents:* The visibility tool you choose should have real-time monitoring and reporting for any virtual environments in your infrastructure.
- *End-to-end visibility for both physical and virtual machines:* To be effective, it must also have end-to-end visibility for both physical and virtual machines, in order to prevent possible failures of any type of application or system.
- *Creation of incidents based on events that happen in your environment:* Finally, it must generate incident reports based on the events that happen in your environment, so you can correct and modify as needed.

In conclusion, meeting the high digital expectations of next-generation patient care can feel like a moving target for healthcare IT. Downtime, data loss and data security breaches put everything that is important to a healthcare practice at risk. Downtime events can even put patient lives in danger. The fact is, no healthcare organisation can afford to be unprepared in the modern healthcare market. To be successful in the new landscape, healthcare practices must be confident in their business continuity strategy. A holistic availability strategy may include deploying cloud workload mobility, increasing visibility and compliance, and optimising backup and recovery strategy. AH

References available on request.

Gregg Petersen, Regional Vice President, Middle East & Africa at Veeam

Building a Transformational Quality Programme

By Cynthia L Deyling, MD, Chief Quality Officer, Cleveland Clinic, Cleveland, Ohio

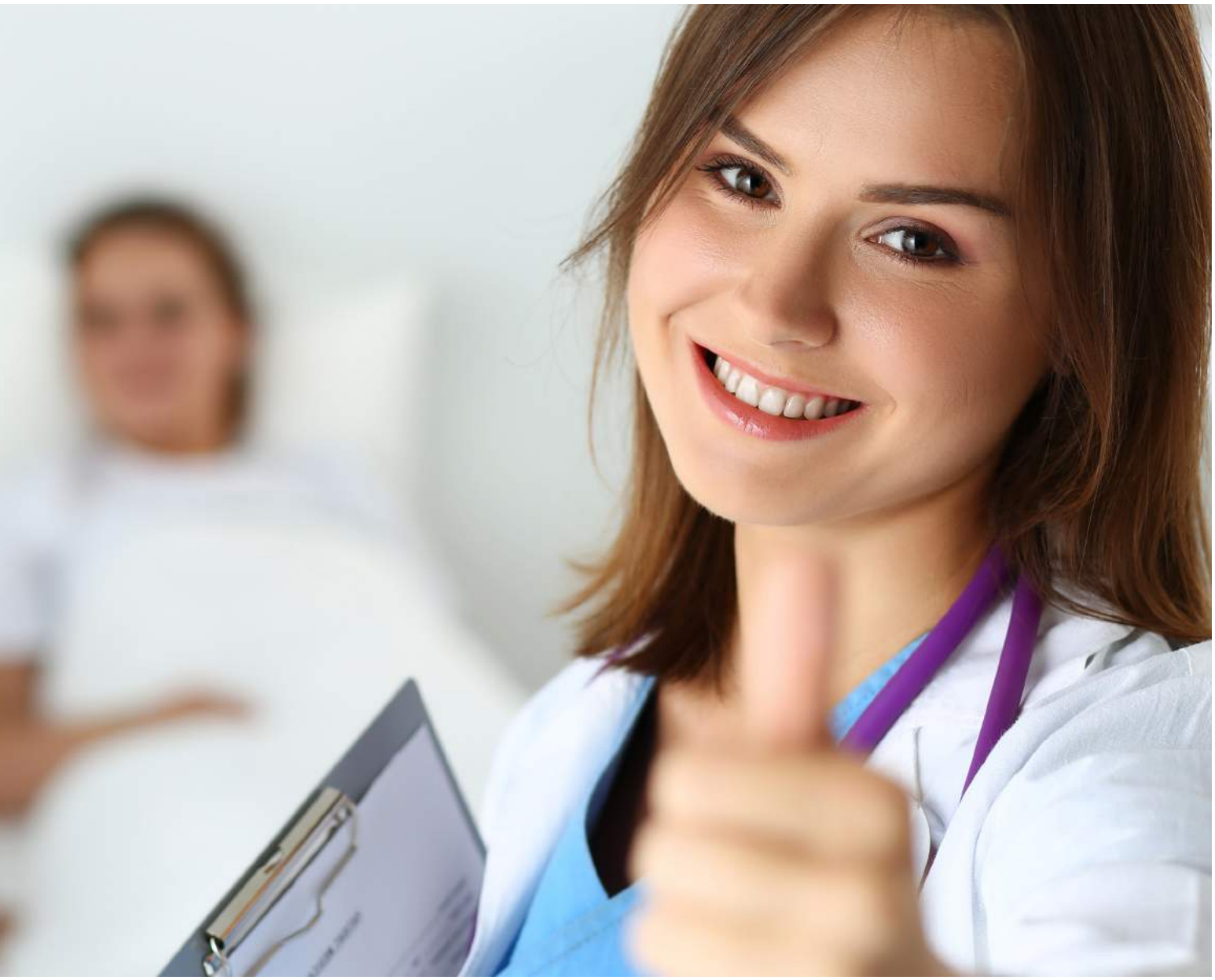
The need for transformative change in healthcare has never been greater. We face pressures from regulators, payers, and patients to provide safe, high-quality, affordable and accessible care. Every healthcare organisation is trying to respond to this change, though the results vary. We seek to change processes, meet goals, and enhance culture. But, we face a paradox: the outcomes we strive for rely on excellent teamwork and collaboration, but our structures are steeped in silos and fragmentation. Transforming healthcare requires altering how we work.

Let me share our journey. We realised that an organisational model was needed to support the highest quality care across our integrated care model. At Cleveland Clinic, we established a specific function, called Clinical Transformation, to coordinate efforts around safety, quality, patient experience, and continuous improvement. Our charge was to support the integration of our health system, ensure collaboration, and provide consistent tools to make it easy for caregivers and leaders to interact with subject matter experts. These centralised resources support our regional hospitals and clinical institutes to drive quality outcomes and serve our patients. Nursing partners and administrative support are catalyst to build local capacity for improvement. Patients are also an important partner in this work – inviting, listening and acting on their input helps us achieve better, quality outcomes.

While building this structure, we know that the resources are finite. Prioritisation is critical. To determine our priorities and measure progress, our work is carefully aligned to a Strategic Agenda Management process. This process engages stakeholders from across our health system in reviewing our mission – care of the sick, investigation into their problems, and education of those who serve – and establishing specific goals and priorities that define our work as an organisation. Safety and Quality goals are instrumental in this structure, and help prioritise where and how Clinical Transformation resources work. These goals and targets are created with our stakeholders from across the system, including our academic main campus and regional hospitals. We engage clinicians, administrators, quality professionals, and patients to help us define and set our priorities and our agenda. While we review comparative benchmarks and publicly reported measures, our goals must ultimately remain true to our mission.

Monitoring our progress and identifying performance gaps are essential. As such, area specific scorecards and dashboards were developed to measure progress and hold local leadership accountable to their metrics. Through monthly operating reviews with executive leadership, we can gauge progress, celebrate successes, and identify and remove barriers to success. Transparency of the dashboards across institutes, hospitals, providers and departments, allows us to readily identify high performing areas and share best practices. And a healthy competition certainly provides motivation to continuously improve.

High reliability principles are also critical toward achieving our goals. We have partnered with the Joint Commission to master the three components of high reliability: leadership commitment, safety culture, and robust process improvement. As leaders, we must commit to zero harm, which is reinforced through our strategic agenda, leadership meetings, and local venues. Our goals are aligned with these concepts and tied to aspirational targets for safety and harm events. Our safety culture is built on the premise that any caregiver can speak up and report safety concerns and our engagement survey results indicates this is working. Equally important to strengthening our safety culture is supporting our leaders through training and skill building. Finally, we use data-driven problem solving to drive



quality and performance improvement. Developing an internal improvement model and deploying various tools, such as Lean and Six Sigma, to our frontline clinical and administrative teams are a few examples. Above all, we recognise that improvement efforts must be driven by our frontline – those that are closest to the work, know best how to improve the processes. As our high reliability practices broaden and evolve, we continue see encouraging results in our outcomes, and there's a noticeable correlation between safety culture, caregiver engagement, and clinical outcomes.

Driving this culture requires involvement throughout the organisation, including our most senior leaders. Fortunately, our CEO and board members are committed to quality and safety. This commitment extends to our Board of Directors who uphold a responsibility for quality at Cleveland Clinic by actively participating in leadership rounding, team simulation training, and are serving on our quality committees.

Sustaining a high reliability culture requires constant attention and recognition. Be mindful of the importance to celebrate success with quality and safety events, e-mails, letters, and awards. A brief, handwritten thank you note sends a powerful message. Engaging and igniting your caregivers will bring endless benefits to your patients, their families and each other.

To Summarise

Set specific goals and targets and empower your frontline caregivers to drive improvement to reduce unnecessary variation. Ensure leadership is accountable to results and to culture. Leadership, the CEO, board members, physicians and all caregivers need to be engaged and focused on what adds value to your organisation; and remember the value in rewarding and recognising success. AH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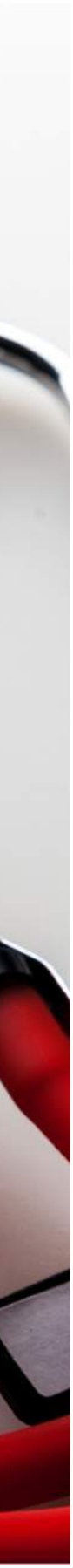

Transforming a Hospital's Culture Through Continuous

PURSUIT OF EXCELLENCE

By Rush University Medical Center

When confronted with a crisis, most hospitals mobilise their staff to put out the fire, offer congratulations all around and go back to their previous routine. But almost three years ago, Rush University Medical Center in Chicago decided to transform its culture into one where the fires simply don't get started in the first place.

After implementing the first stages of its new programme, the Continuous Pursuit of Excellence (CPE), "we are getting really tremendous results," says Richa Gupta, MBBS, MHSA, Rush's vice president for performance improvement and operational effectiveness, who has led the planning effort.

Employee engagement has improved across the board in those areas that were part of the first-year demonstration of how the system would work. In one inpatient surgical unit, patient satisfaction scores rose to 87 per cent in 2017, exceeding the target of 81.5 per cent. Employee engagement scores in the same unit zoomed from 42 per cent in 2016 to 61 per cent in 2017. Fewer patients experienced preventable harm at Rush in 2017 than in 2016, and more than one major equipment expense was averted.

After this first, yearlong test of its new way of approaching management of patient care, Rush leadership is convinced they can create an environment throughout the hospital in which satisfied patients and staff are the norm, mistakes are few, wait times are brief, and equipment is used so efficiently that less of will be needed over time.

An "Institutional Mindset Change"

CPE is not a project, it's an institutional mindset change. "To do healthcare well, you have to use these improvement tools everyday in the continued support of excellence. This is how we are going to run our organisation," Gupta says.

How has Rush developed this vigorous new approach? The hospital, which both Vizient and *U.S. News & World Report* consistently rank among the best in the U.S., is part of a relatively small cohort of hospitals so far to adopt a "lean" culture, while at the same time putting the well-being of the patient front and centre.

A Model of Efficiency

That term, "lean," has many meanings. But this use originates in a distinctive culture rooted in respect for people and continuous improvement fostered by Japanese car manufacturer Toyota in its factories and even its suppliers. A lean enterprise works assiduously to reduce waste in every department and activity while maintaining peak production. The approach requires the engagement of employees from the top of the organisation to the bottom, and typically a re-imagining of the role of leadership as well. Lean values have made inroads in recent years into American business, education, and other industries; now they are coming to healthcare.

Rush executives have been thinking about making this change for a while. The hospital engaged JWA Consultants of Mercer Island, Washington., to assist in their "lean journey." Senior managers travelled to a non-healthcare setting and a few different hospitals to see how the approach works, to understand the commitment and the "change in mindset" required, and to get a sense of the infrastructure and management system they would need to set up.

Then, Rush began its CPE journey. A primary goal of a lean culture is to "flip the pyramid" on its head, to empower the people who work closest to the point of care, with managers coming in as needed to support them.

"How do we get 10,000 problem solvers?" Gupta says, referring to Rush's workforce. "Our frontline people know best what the problems are, and how to solve them. Managers don't need to sit in offices telling people what to do; their role changes to supporting and coaching their teams."

The lean system is a profound change from the traditional management style. "To tell leaders we want to lead differently is a bold ask," Gupta says. "In most healthcare organisations directions flow from the top, but a lean culture really changes our role." ▶

Vice President for Performance Improvement and Operational Effectiveness Richa Gupta, MBBS, MHSA (left), and Chief Medical Officer Omar B. Lateef, DO, have led the planning efforts for Rush's Continuous Pursuit of Excellence programme.

Gupta's staff implemented a new daily management system in the demonstration units, which gives structure and transparency to communications. A key innovation was the huddle, a daily event when the staff of a particular area gathers to assess what's likely to come their way during the day. While CPE uses sophisticated methods to maintain its metrics, the heart of the programme is surprisingly low-tech, employing tools like colour-coded whiteboards to track how the day's activities are progressing.

"In five seconds, from five feet away, you should be able to tell what's going on in this unit just by looking at the board. Green dots signify smooth sailing; a blur of red is a day that needs management support to address issues," Gupta explains. "The hands-on nature of the whiteboards helps staff engage. We want people to own what's happening in their unit, to think about what they're putting on the board. It's meant to be very dynamic in nature."

Rush staff are telling their managers that even though some have been working in healthcare for decades, they've never before been asked for their ideas about ways to systematically improve both the enterprise and their own daily work.

"They love it," Gupta says of Rush's front-line personnel. "We're seeing an increase in staff engagement in CPE areas that's far higher than the rest of the organisation. This system gets people to understand and own their work. It offers a totally different level of empowerment."

CPE in Action

Although patient care is a hospital's business, patients aren't widgets; they're full of surprises. While it's easy to get caught up in the technical changes, Gupta says, "We've also had 19 per cent reduction in patient harm, and an increase in patient satisfaction."

Bernard Peculis, Rush's director of imaging services, notes that "in business, you can work to eliminate variants. In healthcare, every patient is different and has their own set of concerns. You have to see things coming, and be prepared to respond."

Peculis has been in the thick of the early stages of the transformation at Rush. He heads up the diagnostic imaging department, which has 10 different sections. Of those, the MRI and nuclear medicine areas were among the test units for the CPE, and have been picking apart their processes and putting them back together for about a year now. "Those two units have seen some real gains in term of operations efficiency," Peculis says. Four additional imaging sections joined the programme last fall.

Imaging is a major contact point for patients. "We want to ensure a positive experience," Peculis says. "Then, we want to reduce the time it takes until the final report is available. We do this by minimising idle room or table time. As soon as one [imaging session] is done, the next patient is ready to go."

In the past, the imaging department didn't have a holding area. "The techs had to deal with issues with little or no warning. A new holding area has become critical to ensuring a smooth flow into the imaging area. It allows techs to get a sense

"We're seeing an increase in staff engagement in CPE areas that's far higher than the rest of the organisation. This system gets people to understand and own their work. It offers a totally different level of empowerment."

of the patients as they present, and how they need to be prepared for their exams," Peculis explains.

The results in the test areas have been impressive. Peculis anticipated having to acquire a fourth MRI machine, but he's been able to defer that purchase. Instead, the department has substantially increased the number of patient tests per eight-hour shift on the existing scanners. "Historically, you'd have four to five cases per scanner on the first shift. Now, we're doing seven to eight," Peculis says. As a result, the wait time between a provider ordering a diagnostic test and the test starting has been cut from 16 to eight hours. Similarly, nuclear medicine personnel have rejiggered how they stack their work up through the day, and cut the number of cameras used from seven to three.

Empowering Employees

"It's not just about the equipment, it's also the staff," Peculis says. "They're focused on working efficiently. We've been so successful because our people are all engaged in taking accountability for the process."

Like other Rush leaders, Peculis has seen his job change significantly with the implementation of the CPE, even though the initiative is relatively new. "I've had to get out of my head the concept that being in leadership means you need to have all the answers," he says. "This is more about setting up an environment where people feel their feedback is valuable, and can drive change. It means being less directive and more supportive."

Early on, it became clear that CPE doesn't have an endpoint. "You just keep chipping away at obstacles as they crop up," Peculis says. He especially appreciates the daily huddle, where everyone has a chance to "get their arms around what they have in front of them for the day. As a result, you're less apt to have things blow up in your face.".

Peculis is confident that CPE is worth the big changes it's bringing to his department–and to Rush. "The end result is better service to the patient," he says. "CPE is built around meeting and exceeding patients' expectations about the care they receive." AH

BREAKING THE HABIT

By Raymond Dixon, lead addiction counsellor at the Nightingale Hospital in Marylebone, Dr Najem Al-Falahe, medical director and lead consultant of London and Surrey Care, and Dr Paul McLaren, adult psychiatrist at the Priory Wellbeing Centre Harley Street

Addiction – once thought of as a moral failing – is now widely recognised as a disease. Specialists from London's Harley Street Medical Area talk to *Arab Health Magazine* about how rounded, personalised treatment can help people fight this highly destructive illness. There are three world class clinics located in the area that specialise in the treatment of addition – Priory Wellbeing Centre Harley Street, Nightingale Hospital and London & Surrey Care.

"You can lead a horse to water, but you can't make it drink." That's what we say, often with a sigh, when contemplating those people who are seemingly incapable of helping themselves.

Lead addiction counsellor at the Nightingale Hospital in Marylebone, Raymond Dixon has a slightly different spin on this hoary old proverb. "You can lead a horse to water. You can't make it for a normal life."

Dixon helps addicts of all stripes find their way into and through a series of treatment programmes – and, as a recovering addict himself, he knows all too well the barriers that can stand in the way of success.

The complex nature of addiction means that these barriers – physical, mental, emotional or practical – can vary from person to person. "We are never just dealing with addiction," says Dr Najem Al-Falahe, medical director and lead consultant of London and Surrey Care.

"We are always dealing with addiction plus something else. Always."

It's for this reason that the addiction programmes available in the Harley Street Medical Area (HSMA) tend to adopt a holistic approach to the disease – treating the addiction's root causes as well as its symptoms – that is highly tailored to the individual. Each programme begins with a comprehensive assessment of the medical history and personal and professional life of the patient.

"Sometimes we can end up seeing the family, without the patient, for six months," Dr Al-Falahe explains.

"That's because patients who suffer from addiction are in denial and we need to work with the family to create the right setting for the patient to accept starting the treatment. Patients need to feel like we are here for them non-judgmentally, and they need to understand the journey they are on."

This emphasis on understanding is all a far cry from a few decades ago, when Dixon himself was undergoing treatment and attitudes were "quite punitive". The once-dominant idea that if you are an addict "you are a bad person and you need to just stop what you are doing" is fading – slowly. Today, the prevailing understanding is that addiction has nothing to do with moral fibre, and everything to do with having a bona fide disease: a health problem that requires treatment, not admonishment.

Addictive behaviours are driven by changes to neurochemical and molecular activity in the brain. Dr Al-Falahe indicates there is a stark difference between the brain chemistry of an addict and a non-addict.

"Two areas of the brain are affected: the limbic system, which rewards the addictive behaviour, and the pre-frontal cortex, which is involved in decision-making. It becomes a bit of a vicious circle – they don't have control, so they go back to the substance, which rewards that behaviour, and so on. Addiction fulfils all the criteria of an illness," he continues. "It is an illness that affects eight per cent of this country."

This is the scale of the problem: four to five million people dragged down by drug or alcohol addiction and a dizzying array of related issues. Factor in the impact this has on friends and family, and the chances are that pretty much everyone in the country has been touched by this insidious, often ▶

Dr Najem Al-Falahe, medical director and lead consultant of London and Surrey Care

life-threatening disease.

"One of the biggest failures in public health has been not taking on alcohol addiction with the same rigour as we took on smoking – one of the most successful health campaigns ever seen in this country," says Dr Paul McLaren, adult psychiatrist at the Priory Wellbeing Centre Harley Street.

"Alcohol is the biggest substance abuse problem. Yet public investment in tackling alcohol addiction remains disappointingly thin.

"When you talk about addiction, you are in essence talking about loss of control over a substance or behaviour that is causing you harm," explains Dixon.

"For it to be technically classed as addiction, your misuse needs to be marked by withdrawal symptoms and increased tolerance. So, where once you'd have been high on a line of coke, it now can take several lines."

So-called 'addictions' to gambling, sex, food and shopping are not technically addictions, though they resemble them in their impact on the brain's reward systems.

"They are classified as impulse control disorders," he continues. "That said, the consequences and drive of these behaviours are exactly the same."

Impulse control disorders evolve with the times.

"One that's been rearing its head a lot recently comes under the umbrella of technology 'addiction': mobiles, social media, gaming and so on. The key in this case is really, if they're young, to spark their personal motivation: being realistic about the fact that while that might seem okay at 16, you'll cut a pretty sad figure when you're 27, jobless and alone."

It is early days. The compulsive potential of technology is not yet fully understood, and while Dixon's persuasive approach, in tandem with other tactics like cognitive behavioural therapy, has proved fairly successful, he is all too conscious of a major challenge: that abstinence is not an option when it comes to something we depend upon every day.

"When you talk about technology or eating, these are things we cannot avoid on a daily basis – so dealing with the problem is all about controlling your relationship with the Internet or food, for example, rather than abstaining altogether."

This contrasts starkly with the abstinence model favoured by all three of the HSMA clinics when it comes to alcohol or drug addiction. One of the biggest concerns of Dr McLaren, as well as Dixon and Dr Al-Falahe, is the strand of thought that says an alcoholic can be restored to being a social drinker.

"It's what they call 'harm reduction'. While it has its place for those using at harmful levels, I personally don't think it helps with tackling addiction," Dr McLaren insists. As Dixon points out, the whole basis of addiction is a fundamental loss of control. "It's a contradiction in terms to try to teach control as treatment. You don't say to the diabetic, 'Just have one jam doughnut and you'll be fine.'"

For Dixon, the three pillars that have underpinned Alcoholic Anonymous in the UK since 1947 remain at the heart of effective treatment. The first is that addiction is a disease; the second, that abstinence (as far as alcohol and drugs are concerned) is the only option; and the third, that the power of one addict talking to another is among the most effective cures. To these principles, those clinics at the forefront of addiction treatment have added the hallmarks of a more rounded approach: psychiatry, pharmaceuticals and practical support, such as debt management or relationship counselling.

"If you have a gambling problem, and a debt of thousands, you aren't going to be able to concentrate on treatment until that's been cleared," Dixon points out. Likewise, a marriage failing, legal problems, or issues in the workplace. Stress feeds addiction. "If we don't address it, there is a high likelihood the patient will relapse."

Programmes can take a long time –up to 14 months – and will likely involve multiple professionals, from GPs and psychiatrists to occupational therapists and marriage counsellors. HSMA clinics are also anxious wherever possible to involve and support the patient's family. Some patients are treated effectively outside of the hospital environment, attending therapy sessions while maintaining their home and even their working life. Some are too dependent, or too physically ill, to be treated purely on an out-patient basis and require a period of hospitalisation.

Dixon, like many of the specialists in the Harley Street Medical Area, places great store by the power of abstinence and talking therapies to help restore equilibrium to the brains of addicts. Yet that doesn't preclude looking to the developing areas of neuroscientific and genetic research. "On the contrary, all the clinics I speak to have a watchful eye trained on new findings emerging from centres in the UK and the U.S., and there is an expectation that new pharmaceuticals and diagnostic aids will soon emerge," he says.

"Currently, pharmaceuticals are not magic bullets, but they can certainly help," says Dixon. Medicines in use today generally fall into two categories: those that reduce an addict's cravings and those that block the pleasure receptors in the brain. "Their effectiveness is only temporary – you need to find other permanent coping mechanisms while taking them," Dixon continues. "The use of pharmaceuticals for us is really to help a patient during that treatment period, to

readjust and change."

"One of the most exciting areas of research is vaccination," says Dr Al-Falahe. "These would render immunity to the substance in question – morphine, for example." Another source of hope is an enhanced understanding of the conditions that may predispose someone towards addiction. "Why do some people try smoking once and are able to leave it, and others go on to be addicted?" he continues.

As Dr McLaren points out, while there are always environmental factors at play, the existence of a genetic component to addiction has become increasingly plausible. One theory centres around there being an 'addictive gene', which can be activated by certain substances or circumstances, and can lie dormant until later in life: "There are a lot of people whose addictive use of alcohol doesn't begin until their forties, fifties or sixties," says Dixon. "There was a foot-break on this gene – their career, perhaps, or their children – but then they retire or their kids go off to university." Gradually, what was one glass of wine a night becomes a bottle, then two, then three during the course of the day.

There are three basic stages along the path to addiction. "There is the social use of alcohol and drugs, where we have control. Most of us stay in this zone all our lives," explains Dixon.

"There is the abuse stage, which might be triggered through a crisis or through prolonged use, but it escalates and there is a partial loss of control. The third stage, into which a percentage of abusers will move, is dependency. That's where control is lost. It is no longer a social activity, it is a coping mechanism – and there's no going back to the abuse or social use stage after that."

What determines whether you end up there appears to be a cocktail of environment, experience and genetics. What determines whether you seek help or not is whether the reasons to quit become so overwhelming, you'd rather seek treatment than continue to drink or take drugs.

"By the time people reach us they've often lost their jobs, their marriage, their homes," says Dr McLaren. "Their motivation is enormous – but that motivation fades as they get better." That's why post-treatment support groups are so important, be that Alcoholics or Narcotics Anonymous, or one of the many alternative support programmes.

"Some people last a week and then relapse. Some people last a year and then relapse. Some people last 20 years and then relapse." The key is the follow-up and the involvement of friends and family. "If you only open the door, the probability of relapse is much higher. We have a group here, which is free for patients who have had treatment with us, and it tremendously increases their chances of success continuing."

However effective the treatment, relapse is often part of the process. But a horse that has been thirsty before can, particularly within the comfort of a whole herd of horses, quickly become thirsty again. AH

IN THE KNOW

Endoscopic Technique Allows Removal of Thyroid and Parathyroid With No Visible Scar

A new procedure that allows surgeons to access and remove the thyroid and parathyroid glands through small incisions on the inside of the mouth provides successful results with no visible scarring on the neck. Dr. Raymon Grogan, associate professor in the Michael E. DeBakey Department of Surgery at Baylor College of Medicine, describes how the procedure works and outlines its benefits.

The thyroid gland releases hormones to control metabolism. Parathyroid glands are found next to or behind the thyroid glands and control calcium levels in the blood and bones. If cancer or benign nodules are found, or if these glands become overactive, the affected gland needs to be removed.

Traditionally, surgeons remove the thyroid and parathyroid glands using a small horizontal incision in the centre of the neck. The scar size depends on the size of the gland, with the average size being four to six centimetres long.

The procedure that Grogan performs, transoral endocrine surgery, applies the same laparoscopic or endoscopic techniques that are used to remove the gall bladder, appendix or colon. Cancers less than two centimetres and benign nodules under six centimetres can be removed using this procedure. He conducts these surgeries at Baylor St. Luke's Medical Center, where he is section chief of endocrine surgery.

In this procedure, three small incisions are made on the inside of the lower lip. Through these incisions, the surgeon is able to place endoscopic instruments between the jaw and the skin to open up the working space needed to remove the gland, which is a short distance from the incision site. The procedure is performed under general anaesthesia and

Dr Raymon Grogan

patients are required to stay in the hospital overnight.

Numerous other procedures have been developed to reduce the size of the incision on the neck or to get rid of it entirely.

"This approach is the culmination of work that has been done over the last 20 to 30 years internationally as well as in the United States," Grogan said.

However, the other 'scarless' procedures that have been tried involve going through the armpit, the hairline in the back of the neck, or even the nipples, meaning that the patient would still have a scar, just not on the neck. The transoral endocrine procedure is the only procedure where there are no visible incisions. In addition, with the transoral procedure the lower lip incisions are very close to the target anatomy, so there is minimal increase in dissection relative to the traditional approach. This is in contrast to the other 'scarless' techniques where the incisions are made much further from the target anatomy. This is important since larger dissections can lead to increased pain, complications and recovery time.

The incisions on the inside of the lip are minimally painful, and patients usually take pain medication for a day or two after the surgery before switching to anti-inflammatory medication. Grogan recommends staying on a liquid diet for the first day after the surgery and then switching to soft foods for the following couple of days.

Patients are encouraged not to drive while they are on pain medication or if they have a stiff neck. They can experience bruising, swelling, tingling and temporary numbness of the lower lip, chin and upper neck, which should only last one to two weeks. Grogan usually recommends one week off from work after the procedure. The recovery time is similar to the traditional open approach.

As for the risks, published data from a series of cases done internationally has found that the complication rates for this procedure are comparable to the traditional open approach. These known complication risks include injury to the recurrent laryngeal nerve and injury to the parathyroids. There has been one surgical site infection in over 1,500 cases to date. The additional possible risk for this procedure is numbness of the chin or lip, which has been found in one in 1,500 of the cases studied in the international population so far. Grogan said that it is possible that anatomic differences between an American population and the international population could alter that risk profile, therefore more data needs to be collected to see how these data in an international population compares to the U.S. population.

MORE INFO
Contact International Services at Baylor St Luke's Medical Center via email at international@stlukeshealth.org or call +1 832 355 3350 or visit StLukesInternational.org
Location: Texas Medical Center, Houston, Texas, U.S.

IN THE KNOW

Rak Hospital:
One-Stop Treatment Destination

The Emirate of Ras Al Khaimah (RAK) is located at the north end of the coast of the UAE. It is nestled between the Hajjar mountains on the east and the Arabian Gulf on the west and shares mountainous borders with the Sultanate of Oman. Away from the hub and hectic pace of big cities, this beautiful emirate, blessed with breathtaking natural beauty, offers you the peace, solitude, and privacy you seek while undergoing elective treatment, along with a bouquet of exciting attractions for your family to explore.

RAK Hospital is a private, tertiary care, multi-specialty hospital under the Arabian Healthcare Group, a joint venture with the Government of Ras Al Khaimah, under the aegis of His Highness Sheikh Saud bin Saqr Al Qasimi. We have received the Joint Commission International, a U.S. based hospital accreditation. The hospital is housed in a sprawling complex, specially designed as a premium healthcare and hospitality destination by U.S.-based Ellerbe Becket of Mayo clinic repute. The building boasts a built-up area of 140,000 sq ft, across three levels, and the rooms are of premium category, with a capacity of 65 beds.

In addition to superior and modern infrastructure, RAK Hospital also has state-of-the-art accident and emergency services, with a 24-hour pharmacy and a European café serving a diverse range of food and beverages.

At RAK Hospital we believe that our patients are our utmost priority, which is why our 'Premium Healthcare, Premium Hospitality' ethos shines bright through all our services. With us, you can be sure that you are receiving the best in quality in healthcare, treatment, and support.

The hospital is a centre of excellence in:

- Bone and Joint Centre
- Neurosciences
- Cardiology and Cardiac Surgery
- General, GI, Minimal Access and Laparoscopic Surgery
- Bariatric Surgeries and Aesthetic Treatments

Apart from the above mentioned, there are 20 other specialties available. Furthermore, RAK Hospital is the first to introduce Stem cell therapy of bone and joints problems in the UAE.

RAK Hospital is the UAE's healthcare provider of choice serving thousands of local, regional and international patients. Located just 45 minutes away from Dubai International Airport, it is one of the most trusted and is a one-stop treatment destination for international medical tourism patients. The hospital provides premium personalised and compassionate care.

At RAK Hospital, premium stands for the latest and most exclusive treatment offerings along with ultramodern diagnostic facility. The hospital offers the most comprehensive range of state-of-the-art diagnostic equipment and treatment tools including cardiac catheterization laboratory, 1.5 Tesla MRI, 64 slice CT scan, Modular Operation Theatres, Femto Lasik machines, Hydrotherapy machine, Gait Analyzer, and many more.

International Patient Experience

1. Get in touch

Contact RAK Hospital International Patient Desk on:
Email: mail@rakhospital.com
Phone: +971 7207 4444
Fax: +971 7207 4455

2. Send your medical history

To assess your treatment, we encourage you to send us the results of your tests, i.e. angiography, or echo- cardiogram, MRI, CT Scans or the other documents for the further review and evaluation.

3. Online consultation or tailor making your treatment

Our doctors start by assessing your medical history and existing condition and will discuss the following:

- The best treatment for you.
- New surgical, minimal invasive techniques, ensuring reduced hospital stay and recovery.
- Regional or general anaesthesia and the lowest infection rates at our hospital.
- Advanced medicines that ensure the relief of pain and maximise the ability of patients to enjoy an active life.
- Physical therapy programmes for your speedy recovery.
- Making your flight back home pain free and comfortable.

4. Arrange your trip

You can start to arrange your flight tickets. Visa to the UAE will be provided by RAK Hospital on submission of your passport copy and recent size photograph.

5.Arrival

RAK Hospital Representative (English speaking) will meet you at Dubai/ Abu Dhabi/RAK/Sharjah Airport and transfer you to RAK Hospital.

6. Pre-Op/ Procedure check up

The first examination will take place the next morning (general examination, ECG, echocardiogram, laboratory test, exercise, test).

7. Procedure

You will undergo the required procedures/treatments performed by a team of specialist doctors.

8. Post OP

After the treatment you will stay the prescribed days of stay in hospital with one attendant (choice).

9. Leave to your country.

10. Medical Follow up.

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The future of care

At Ospedale San Raffaele, we bring together pioneering scientific research and first-class care for patients

Ospedale San Raffaele is a **clinical-research-university hospital part of Gruppo ospedaliero San Donato**, the leading hospital group in Italy. It has **more than 50 clinical specialties** and over 1,300 beds, and its emergency department counts 67,000 annual accesses. Research at Ospedale San Raffaele focuses on integrating basic, translational and clinical activities to provide the most advanced treatments to patients. The hospital counts on over 1,800 medical doctors, scientists and technicians and on state-of-the-art facilities and technology platforms. Ospedale San Raffaele is recognized as a **global authority in molecular medicine and gene therapy,** and is at the forefront of research in many other fields, standing out for the **deep interaction between clinical and scientific area** – this makes the transfer of scientific results from the laboratories to the patient's bed easier. Its mission is to improve knowledge of diseases, identify new therapies and encourage young scientists and doctors to grow professionally.

Ospedale San Raffaele is among the few centers in the world which **perform pancreatic islet transplantation** (i.e. the cells in the pancreas that produce insulin) to treat type 1 diabetes patients who do not respond to conventional therapies. The transplant aims at recreating the function of insulin-producing cells in a host organ (e.g. the liver). This technique has made huge progress along the years, but it still has some limits, involving immunosuppressive regimens and rejection risks like all transplants. Our researchers at **San Raffaele Diabetes Research Institute (DRI) are currently studying new treatment perspectives using stem cells**, differentiating insulin-producing from pluripotent stem cells. In the future, this may allow to rely on an endless source of cells that produce insulin and to modify such cells so that the immune system does not recognize and attack them.

Our research stands out to find **treatments for genetic blood diseases**, too. Our Hematology and bone marrow transplantation unit works side by side with the San Raffaele Telethon Institute for Gene Therapy (SR-Tiget) to **find a cure to thalassemia major**, the most serious form of the disease, causing chronic anemia and provoked by a defect in the production of hemoglobin. At the time being, conventional treatment consists in regular transfusions of red blood cells associated to iron chelation therapy. Patients who can rely on a bone marrow donor and are in good condition can undergo transplantation – that is currently the unique curative therapy. Our doctors and researchers are trying to **set up a treatment to correct the defective gene causing the disease** – first, stem cells are extracted from the blood of the patient, then they are provided with the corrected gene and infused back into the patient's bone marrow. The healthy gene is carried into the cells by a genetically engineered virus which is modified so it becomes harmless. Once corrected stem cells are in the bone marrow, they start producing healthy and functional red blood cells. The treatment is currently an experimental protocol involving ten patients which showed encouraging preliminary results.

IN THE KNOW

Why Teamwork Was Critical for Our First Total Face Transplantation

20 specialties collaborated to perform 31-hour surgical procedure

By Tom Mihaljevic, MD, Cleveland Clinic President and CEO

All transplants – whether heart, lung, kidney or cornea – are significant, life-changing procedures.

A face transplant, however, is unlike any other, integrating multiple functional components (nose, lips, nasal cavity, eyelids, palate and teeth) and various types of tissue (skin, muscles, bony structures, arteries, veins and nerves).

Very few places in the world have the assembled talent and expertise to successfully complete such a complex undertaking.

Truly Functioning as a Team

Last year, a team of 11 Cleveland Clinic surgeons performed the hospital's third face transplant – and its first total face transplant – on a 21-year-old woman who suffered severe facial trauma from a gunshot wound as a teenager.

At some point before, during or after the 31-hour surgical procedure, more than a dozen specialties were involved: plastic surgery, neurology, endocrinology, nursing, transplant surgery, anaesthesia, bioethics, dentistry, ophthalmology, infectious disease, pharmacy, psychiatry, nutrition, plastics research, internal medicine, physical medicine and rehabilitation (physical, occupational and speech therapies), vascular medicine, and vascular surgery.

Only an institution that truly functions as a team can pull together that many people for a shared sense of purpose. It requires not only expertise, planning and leadership, but also the humility to focus on the patient's outcome rather than who gets the credit. On a team comprised of about 20 specialties, it's clear we are better together than we are individually.

Taken in its totality, the face transplant illustrates what Cleveland Clinic is all about. Exceptional clinical and surgical care, combined with research and innovation, has the power to improve patient lives in dramatic ways.

A Story of Resilience

Today, our most recent face transplant patient is 22-year-old Katie Stubblefield. Her story is one of resilience, from the self-inflicted gunshot wound to the 31-hour surgery to how her life has changed after her face transplant.

She is thinking about college (with plans of becoming a counsellor or a teacher). She has talked about simply walking down the street "and blending in." As part of the pre-surgical screening process, Katie often was asked whether she was certain about going through with the surgery. She did not hesitate. "I can't go backward. I have to go forward," she told our ethics committee. She later reiterated that sentiment to a member of her care team: "I want to be able to go out in the world. And not be looked at like this."

Form and function are intertwined. We cannot view this in only a strictly medical sense. Yes, function – breathing, eating, talking, seeing – is crucial. But so is form. Our face is what defines us. It's how we socially and emotionally communicate with each other as human beings. And now – to paraphrase Dr. Maria Siemionow, who led Cleveland Clinic's first face transplant in 2008 – Katie has a face to face the world.

New Study Investigates Impact of General Ward Clinical Monitoring

Using Masimo Root®, Radius-7®, and Patient SafetyNet™ on Clinical Workflow and Patient Care

IN THE KNOW

Article provided by Masimo

Recently published study by researchers at Dartmouth-Hitchcock Medical Center investigated the impact of an integrated clinical monitoring system, using various Masimo technologies and devices, on clinical workflow and patient care in the general ward. The researchers sought to "demonstrate the application of systems-level design and analysis to measure the impact of clinical monitoring on key workflow and system characteristics that contribute to early detection of patient deterioration."[1]

To evaluate workflow impact through use of the enhanced monitoring system, Dr. McGrath and colleagues collected data in a study unit consisting of two general wards with 71 beds total for five months prior to and five months after implementation. They also collected the same data for the full 10 months in a control unit consisting of two general wards with 61 beds total, which did not have any system changes. In both the study and control units, prior to implementation, the baseline monitoring system consisted primarily of Masimo Rad-87® Pulse CO-Oximeters®, for continuous and spot-check (vital signs) measurements using Masimo SET® pulse oximetry, and Masimo Patient SafetyNet™, a supplemental remote monitoring and clinician notification system, used for data processing and archiving.

The enhanced monitoring system, implemented in the study unit, added Masimo Root® with Radius-7® wearable Pulse CO-Oximeters. Root is a patient monitoring and connectivity platform that includes features such as built-in blood pressure and temperature measurements, a barcode reader and integration with the hospital's admission-discharge-transfer (ADT) system, and integration with Patient SafetyNet and the hospital's electronic medical record (EMR) system for automated capture of patient monitoring and vital signs data, including from connected third-party devices. Radius-7 is a tetherless, wearable monitor that allows patients to be mobile while still being continuously monitored, with data sent wirelessly via Bluetooth® or WiFi to Root, eliminating the need for nurses to manually place bedside monitors in standby mode and disconnect sensors each time a patient leaves the bed.

Key points of comparison and results included:

Monitoring system utilisation: The researchers noted a significant increase in the number of hours patients were continuously monitored after implementation. Monitored hours per patient day increased from mean 17.26 hours to 19.57 hours ($p < 0.0001$) and monitored hours per month from mean 15,931.25 hours to 19,053.3 hours ($p < 0.0001$).

Vital signs documentation: With the implementation of Root and its ability to automatically upload patient data, including pulse oximetry and blood pressure and temperature measurements, to Patient SafetyNet and the EMR, researchers noted a significant decrease in the time required to obtain and record vital signs: mean assessment time dropped from 178.8 seconds to 128.9 seconds ($p < 0.0001$), representing an average time savings of 3 hours per day in a 36-bed unit.

Patient information: The researchers measured the rate at which certain patient data fields were filled out in the EMR for one month before and after implementation. Patient last name presence increased from 98.92 per cent to 100 per cent presence ($p = 0.0083$). Patient first name and room and bed presence increased from 33.75 per cent and 57.27 per cent, respectively, to 100 per cent ($p < 0.0001$).

Clinical staff satisfaction: Three months after implementation, hospital staff feedback was solicited in a 16-question survey which had a 65 per cent response rate and overall "very high" satisfaction with the enhanced monitoring system.

Alarms: The researchers found that there was a significant increase in the number of clinical alarms per patient day (rate ratio 1.46, $p = 0.0263$) but not per monitored hour (rate ratio 1.34, $p = 0.1090$), which they believe is "logical when considering [the] additional time each patient [was] monitored."

The researchers concluded, "The enhanced monitoring system received high staff satisfaction ratings and significantly improved key clinical elements related to early recognition of changes in patient state, including reducing average vital signs data collection time by 28 per cent, increasing patient monitoring time (rate ratio 1.22), and availability and accuracy of patient information. Impact on clinical alarms was mixed, with no significant increase in clinical alarms per monitored hour."

In previous studies conducted at Dartmouth-Hitchcock, researchers found that continuous monitoring of adult post-surgical patients using Masimo SET®, in conjunction with Masimo Patient SafetyNet, resulted in a 65 per cent reduction in rapid response team activations and a 48 per cent reduction in transfers back to the ICU.[2] Over five years, they achieved their goal of zero preventable deaths or brain damage due to opioids,[3] and over 10 years, they maintained a 50 per cent reduction in unplanned transfers and a 60 per cent reduction in rescue events, despite increase in patient acuity and occupancy.[4]

Joe Kiani, Founder and CEO of Masimo, said, "We are incredibly grateful to Dartmouth-Hitchcock for their continued long-term research into the utility of continuous patient monitoring on the general floor and the benefits that holistic, integrated monitoring systems can provide. Continuous monitoring of all patients on opioids is clearly the path forward, with the potential to make significant improvements in patient safety and quality of care. We look forward to continuing to learn from Dartmouth-Hitchcock's data and to improving our technologies and integrated solutions."

The use of the trademark Patient SafetyNet is under license from University HealthSystem Consortium.

Masimo Radius-7®

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i-gel® Supraglottic Airway from Intersurgical

Article provided by Intersurgical

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i-gel is currently available in seven sizes and is supplied sterile in an innovative, colour-coded protective cradle or cage pack.

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View the i-gel and the full respiratory care range on Intersurgical's stand (UK Pavillion, Hall 7) at Arab Health from January 28 to 31, 2019.

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For more information, visit **www.masimo.co.uk**

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