JAN - FEB 22

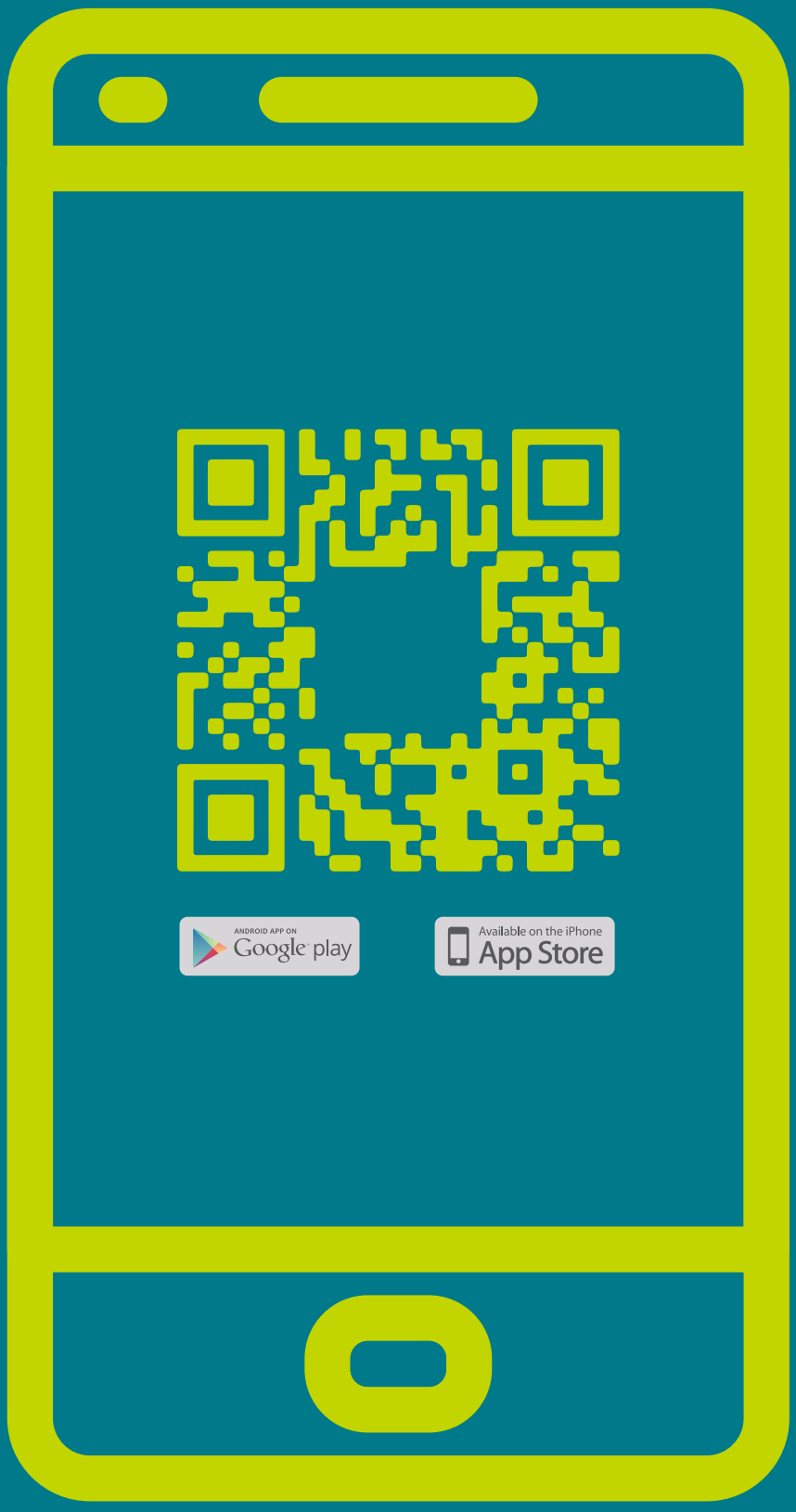
Omnia Health

By Informa Markets

Together for a healthier world

حكومة دبي
GOVERNMENT OF DUBAI

هيئة الصحة بدبي
DUBAI HEALTH AUTHORITY



Doctor For Every Citizen

طبيب لكل مواطن

Download Dubai Health Authority's mobile application and register your details to benefit from the Doctor For Every Citizen telemedicine service

---

dha.gov.ae | 800 342 (DHA)

#طبيب_لكل_مواطن

#DrForEveryCitizen

WORLD-CLASS CARE THAT HELPS PATIENTS ACROSS THE GLOBE

Northwestern Medicine is proud to be Chicago's premier destination for academic medicine. According to *U.S. News & World Report*, 2021–2022, our integrated healthcare system includes five* of America's "Best Hospitals," including Northwestern Memorial Hospital, one of the top 10 in the U.S. with 10 nationally ranked specialties. Together with Northwestern University Feinberg School of Medicine, our nationally ranked medical school, we provide exceptional care to patients across Chicagoland—and the world.

Find out what makes us better.
Visit **northwesterninternationalhealth.com**.

BETTER

Northwestern Medicine®

* Northwestern Memorial Hospital; Northwestern Medicine Central DuPage Hospital; Northwestern Medicine Lake Forest Hospital; Northwestern Medicine Delnor Hospital; Northwestern Medicine McHenry Hospital, Northwestern Medicine Huntley Hospital and Northwestern Medicine Woodstock Hospital (ranked together)

RANDOX

VISIT US AT **BOOTH Z4.B10**

DEDICATED TO IMPROVING HEALTH WORLDWIDE

QUALITY CONTROL

Leading provider of complete quality control solutions including; daily quality control, calibration verification and proficiency testing for results you can trust.

MOLECULAR DIAGNOSTICS

Molecular diagnostic solutions for clinical laboratory and POC settings. Our comprehensive test menu comprises infectious diseases including COVID-19, inherited diseases, mutation analysis and SNP genotyping.

CLINICAL CHEMISTRY ANALYZERS

Versatile range of biochemistry analyzers to suit all laboratory throughputs. Our world leading test menu delivers unrivalled consolidation and cost savings.

OPEN CHANNEL REAGENTS

The most extensive range of open channel biochemistry reagents facilitating routine and niche diagnostic testing.

Visit store.randox.com
to buy directly from Randox today

randox.com
marketing@randox.com

Product availability may vary from country to country. Some products may be for Research use Only.
For more information on product application and availability, please contact your local Randox representative.

Omnia Health
By Informa Markets

President, Global Exhibitions EMEA Peter Hall
peter.hall@informa.com

Executive Vice President Wouter Molman
wouter.molman@informa.com

Head of Content Matthew Brady
matthew.brady@informa.com

Senior Editor Deepa Narwani
deepa.narwani@informa.com

Content Executive Fatima Abbas
fatima.abbas@informa.com

Creative Director Mark Walls
mark.walls@informa.com

Graphic Designer Nysam Shahul
nysam.shahul@informa.com

Graphic Designer Mohamed Nazeem
mohamed.nazeem@informa.com

Senior Marketing Manager Chelsey Lang
chelsey.lang@informa.com

Advertising Sales Manager Roshal Solomon
roshal.solomon@informa.com

For subscription information visit
www.insights.omnia-health.com

Follow us on
@omnia_health /Omnia Health Omnia Health

Part of:
informa markets Healthcare

Onwards and upwards

Welcome to the Arab Health and Medlab Middle East show edition. In this issue, we take a look at how the pandemic has created a whole range of new challenges for businesses including how to deal with cloud provider networking inefficiency, changing, and increasing infrastructure costs, and lost business and revenue opportunities (pg 40).

Furthermore, speakers from both the shows give us a sneak peek at their upcoming talks. For instance, Gavin Evans discusses how many blood centres operating in low-income settings face multiple challenges, from the lack of a coherent national policy framework to shortages of appropriately skilled staff (pg 106). While Dr. Emily Volk, President, College of American Pathologists, highlights how two years into the COVID-19 pandemic, those in the laboratory medicine industry have not let the crisis go to waste (pg 82).

This is the last issue of Omnia Health Magazine in which my name will appear on the masthead as Senior Editor. And, as with so many goodbyes, this one is bittersweet. The bitter part is in how much I will miss putting together the pages of this magazine — pages that you, our highly regarded industry leaders, have shaped and lauded over the years; pages that you share with your staff; pages in which I hope we have helped to make a positive difference in the industry, and in your day-to-day professional lives. Without a doubt, serving as the Senior Editor of Omnia Health has been the pinnacle of my journalistic career, and I thank you all for your support and encouragement throughout the years.

That's the bitter. Now for what's sweet in this changing of hands. Omnia Health as a brand is at a stage where huge changes are on the way. I am excited about the ideas and energy the new team will be bringing to the publication. Watch for those to start taking shape in the coming months.

We look forward to welcoming you to Arab Health and Medlab Middle East 2022 and hope you enjoy reading this issue. For all the latest news visit insights.omnia-health.com.

Deepa Narwani

Experts dedicated to **heart and lung care.**

RB&HH
SPECIALIST CARE

Every day, private patients around the globe are referred to RoyalBrompton & Harefield Hospitals Specialist Care to be seen by the world's leading experts in heart and lung care.

Whether it's an expert opinion for a heart concern or to check how your patient's breathing, we provide the knowledge and experience that others won't be able to. As we have been for over 100 years.

Advanced treatments, diagnostic tests and short-notice appointments with many of our specialists are available so that your patients can access the care they need quickly and easily.

We are proud to share that our hospitals have been recognised in the top ten list of the 2022 best centres in the world for cardiology by Newsweek, American weekly news magazine.

Part of Guy's and St Thomas' NHS Foundation Trust

For more information visit
rbhh-specialistcare.co.uk

Contents

HEALTHCARE MANAGEMENT

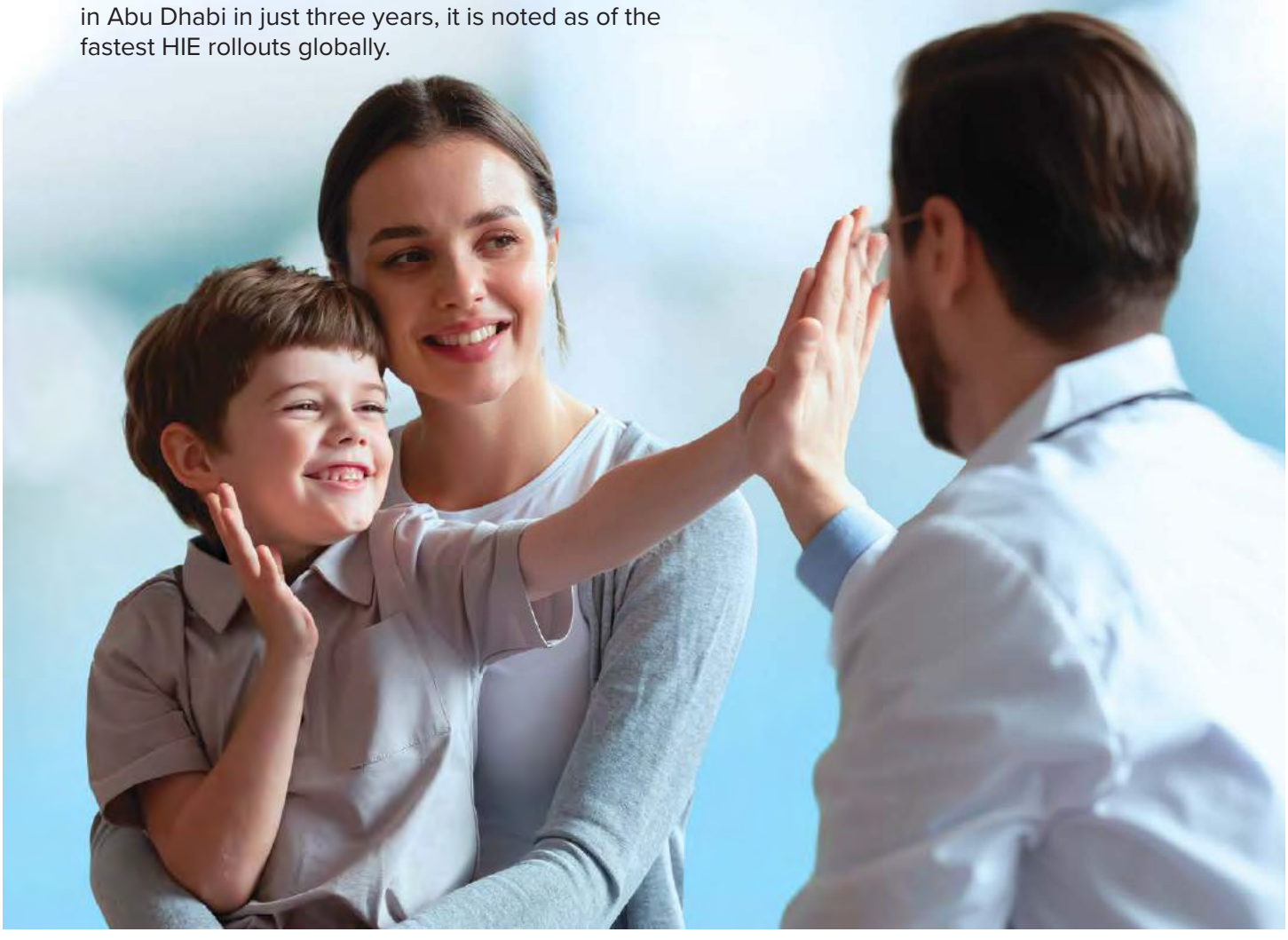
TECHNOLOGY

ملفي
MALAFFI
3 سنوات years

دائـــرة الـصـحـــة
DEPARTMENT OF HEALTH

Connecting healthcare. Towards the next 50!

Malaffi is the first Health Information Exchange (HIE) in the Middle East and North Africa. By connecting 100% of hospitals and 99% of all patient episodes in Abu Dhabi in just three years, it is noted as of the fastest HIE rollouts globally.



SCAN
Find out more about what we have achieved

/malaffi

VISIT US
at the Department of Health - Abu Dhabi stand
Hall 5, H5.C10.

www.malaffi.ae

Arab Health
By Informa Markets

Contents

TURN YOUR OUTSTANDING MEDICAL CLAIMS INTO CASH IN LESS THAN 7 DAYS

UNLOCK YOUR CASH IN 4 SIMPLE STEPS WITH KLAIM

01

Create an account

Creating your account is a simple process that takes a few minutes

02

Receive a proposal within 48 hours

Our team will evaluate the financial performance of your healthcare facility with a free RCM assessment

03

Sign agreements

Signing the KLAIM agreement means that we're officially in business

04

Receive the cash immediately

Now get paid for your medical claims in just 7 day sand use the funds for what you need it the most!

RUN SEAMLESS OPERATIONS

Stay on top of your operations: payroll, appointment scheduling, ADT, billing, procurement management.

HIRE TOP PROFESSIONALS

Deliver the highest quality care by attracting top medical talent in the industry.

BUY NEW EQUIPMENT

Use modern technology to optimize your services and improve business efficiency.

EXPAND YOUR PRACTICE

Focus on opening new facilities, supporting your community, and becoming the market leader

> "Solving this issue of delay in insurance payments helped us concentrate more on our medical service, pay staff on time, improve service quality and performance of the customer care."

Dr. Ahmed, DCDC

SCAN NOW TO GET STARTED

Clients That Trust Us

Contact us to learn more about how we are transforming the healthcare industry:

TELEPHONE: +971 (0)4 876 40 96 **EMAIL:** hello@klaim.ai **HEADQUARTERS:** Indigo Icon Tower 3404, JLT Cluster F, Dubai, UAE **WEBSITE:** www.klaim.ai

On The Mission To Help Healthcare Providers Get Paid What They Are Owed, On Time!

KARIM DAKKI, Co-founder & CEO at KLAIM **GHAFOOR AHMAD,** Co-founder & CRO at KLAIM

The financial stability of healthcare providers is threatened by rejected medical claims and delayed payments – and KLAIM, a Dubai-based fintech, is aiming to fix it.

KLAIM is the region's first fintech dedicated to helping healthcare providers solve cash flow problems by turning delayed medical claims into available working capital within seven days once paperwork is done.

We combine decades of expertise in the healthcare industry

Our mission is to optimise the RCM of healthcare providers left out by traditional banking, as well as to help small-scale providers access the funds they critically need for their operations and expansion.

We do this all through an advanced financing solution and a data-driven, artificially intelligent RCM system and access to capital.

ADVANCED FINANCING SOLUTION

With health insurers taking between 112 and 270 days to pay due 90% of medical claims, smallscale healthcare providers who don't have access to credit facilities from banks struggle to meet their operational needs.

The result of this delay in receiving cash for medical claims and the inability to access credit from banks is that many small-scale providers have to delay salary, retrench staff, or close down the hospital for 'good'.

To solve this problem, KLAIM offers to take up the medical claims of these healthcare providers and pay them cash within 24 hours once documentation is signed so they can continue to meet their operational needs.

We aim to deploy between $100 and $150 million of working capital in the UAE alone, and another $200 to $300 million in KSA to become the ATM of healthcare providers in the MENA region, allowing providers to easily access the cash they need and avoid disrupting their operations because of delayed medical claims payments.

Over the past 12 months, our platform has gathered over 12 million claims corresponding to 36 million medical activities from 300+ providers, including healthcare businesses who have greatly depended on us to provide them with the cash they need. While doing this, we won the KPMG UAE Innovation Award, were shortlisted as one of the top B2B Technology Start-ups of the year by Gulf Capital SME and secured a partnership with Etisalat.

DATA DRIVEN, ARTIFICIALLY INTELLIGENT RCM SOLUTION

The use of legacy technology to prepare medical claims means a lot of errors occur and health insurers reject many medical claims submitted by healthcare providers, resulting in revenue loss.

According to Azad Moopen, managing director of Aster DM Healthcare, a private healthcare conglomerate in the Middle East, 30% of new claims and 15% of resubmitted claims are rejected.

Fortunately, 86% of medical claims rejection are avoidable and are administrative in nature. This is why KLAIM has set in motion an automated RCM that will clean up human errors by automating medical billing, medical coding, preauthorization, eligibility check, claims submission, and claims resubmission, among other tasks.

However, we are going beyond automation to make our RCM solution data-driven and artificially intelligent so it can identify patterns and predict which claims will be accepted or rejected so the latter can be reworked before they are submitted. We have just finished R&D phase on our AI claim rejection prediction for OP that predicts at 98.9% claim denials and the company plans to patent this new algorithm.

Health is wealth, but we will not see the better healthcare outcomes we all desire if our healthcare providers are not financially healthy and sustainable.

TELEPHONE: +971 (0)4 876 40 96 **EMAIL:** hello@klaim.ai **WEBSITE:** www.klaim.ai

HEADQUARTERS: Indigo Icon Tower 3404, JLT Cluster F, Dubai, UAE

PBC Medicals
A Global Medical Supplychain

PBC Medicals is one-stop solution for all your healthcare supplies and equipment needs.

Introducing Global Healthcare Innovations to the UAE

WHY CHOOSE US?

- Strong presence in the UAE & Middle East market
- Experienced sales team
- Transparent business process
- PBC believes in growing with partners
- Group's vast experience in hospital operations

203, Nassima Tower, Sheikh Zayed Road, Dubai, UAE

info@pbcmedicals.com

+971 4547 5528

FOR EVERY CARE IN THE WORLD

It started with four physicians who wanted to create an institution unlike any other. One devoted to shared clinical expertise, innovative research and the education of future caregivers.

It started with four physicians in Cleveland, Ohio. We are now over 70,000 Caregivers across the globe, dedicated to providing world-class care. For every patient. Around the world.

100 YEARS
EST. 1921

Cleveland Clinic

ClevelandClinic.org/International

A destination for *life-changing care*

Atrium Health

Atrium Health is a trusted destination for patients and partners from around the world. Home to some of U.S. News & World Report's Best Hospitals and MedCenter Air, we provide renowned care across specialties, with remote second opinions and groundbreaking clinical trials. From treating patients to training the next generation of doctors, we believe excellent care knows no borders. And that everyone, everywhere deserves life-changing care.

Learn more at **AtriumHealth.org/GlobalHealth** or call **+1-704-446-7028.**

COLLEGE of AMERICAN PATHOLOGISTS

The Global Leader for Laboratory Excellence

Keep pace with the rapid changes in laboratory medicine. Everything we do is designed and developed by pathology and laboratory medicine experts in a variety of disciplines.

- Proficiency Testing/External Quality Assessment (PT/EQA) programs across a comprehensive range instill diagnostic confidence
- CAP accreditation provides operational excellence and confidence in laboratory practices
- CAP's Performance Analytics Dashboard brings monitoring and insight for one or multiple locations

Partner with us on your journey for continuous quality improvement and to reach higher standards of care for patients.

Visit the CAP stand Z6. C29 at Medlab MIddle East.

ANAB ACCREDITED ISO/IEC 17043 PROFICIENCY TESTING PROVIDER

cap.org/international

Arab Health and Medlab Middle East to inaugurate Future Health Summit

By Omnia Health Magazine Staff

The Future Health Summit will highlight the most necessary, tangible and consequential health advancements of our time

Two of the MENA region's leading exhibitions for the healthcare industry, Arab Health and Medlab Middle East, will launch their latest initiative, the Future Health Summit, in January 2022. The high-level event will be attended by over 150 senior government healthcare officials, CEOs, and visionaries, from across the globe who are building a future-proof healthcare strategy.

The invitation-only, in-person summit takes place on 25 January. The first session aims to address sustainability, innovation, and the future of healthcare, by examining innovative concepts in securing sustainable healthcare for all. Eminent speakers will offer solutions that can create healthcare reform while gaining efficiencies in healthcare spending by harnessing the digital era's transformative power.

Moderated by **Marwan Abdulaziz Janahi**, Managing Director of Dubai Science Park, panellists include **Dr Alaa Murabit**, Medical Doctor, Global Security Strategist, Women's Rights Advocate and United Nations High-Level Commissioner on Health, Employment & Economic Growth; **Päivi Sillanaukee**, Ambassador for Health and Wellbeing, Ministry for Foreign Affairs of Finland; **Dr Sameh El-Saharty**, Program Leader for Human Development, GCC Country Department, The World Bank; and **Veronica Beneitez Piñero**, Deputy Head of Unit, Transition and Business Acceleration Services Unit, **European Innovation Council and SMEs Executive Agency, European Commission.**

Dr Murabit said: "If the last two years have highlighted anything to us, it is the incredible importance of sustainable health systems that are fit for purpose and forward-thinking. I am excited to be participating in the Future Health Summit, where the most necessary, tangible and consequential health advancements of our time will be discussed and presented. If we are to prevent future pandemics from impacting our entire lives, livelihoods, and communities, we need to start investing in ideas and solutions that bridge the gap from where we are to where we need to be."

Arab Health
By Informa Markets

Solenne Singer, Group Director for Informa Markets, said: "Sustainability and innovative technology are at the heart of future healthcare delivery. As such, we decided to invite visionary experts and those with influence over government policy to an exclusive gathering to discuss the way forward and how existing healthcare models need to be disrupted to provide a healthcare service fit for future generations.

"As we move forward, the importance of technology will gain pace; however, ensuring we fully utilise the opportunities it affords will be a result of partnership working and embracing these technologies by all in the healthcare industry."

Arab Health, which returns to the Dubai World Trade Centre from 24 -27 January under the theme of 'United by business, forging ahead', will see technology take centre stage with advancements being showcased through a series of panel discussions and the latest products on the show floor.

Medlab Middle East 2022, co-located with Arab Health, is the MENA region's largest medical laboratory exhibition and congress. The event will also focus on products and trending technologies that are shaping the world of diagnostics.

For more information please visit www.arabhealthonline.com/future-health-summit

World-class care is within reach.

We are consistently one of the top-ranked hospitals in America, and in 2021–2022, we are #1 in California for Cardiology & Heart Surgery, Gastroenterology & GI Surgery, Pulmonology & Lung Surgery, Orthopaedics, and Urology. In addition, we are honored to be among the top 10 in the nation in multiple specialties.*

No matter where you're from, our team of elite specialists is here to help, with compassion and transparency. We'll be there every step of the way, from scheduling telehealth consults to connecting with our global partners or providing travel assistance to see us in sunny Los Angeles.

Contact us at:
cedars-sinai.org/international
+1-310-423-7890

BEST HOSPITALS U.S.News & WORLD REPORT HONOR ROLL 2021-22

Cedars Sinai | LOS ANGELES

*Ranked by *U.S. News & World Report*, Best Hospitals Edition.

Mobile laboratories rolling out PCR tests across the MENA region

By Omnia Health Magazine Staff

Mobile molecular testing and diagnosis stations, or 'laboratories on wheels', will take centre stage

The latest technology and innovation in the global fight against COVID-19 and beyond, will be on show at the next edition of Medlab Middle East when it returns to the Dubai World Trade Centre from 24-27 January 2022 with mobile molecular testing and diagnosis stations, or 'laboratories on wheels', taking centre stage.

Mobile laboratories offer testing and diagnosis on the go, with many having the capacity to conduct upwards of 7,500 tests per day and a turnaround time of just 3.5 hours. The tests cover a variety of pathogens and offer a streamlined, automated workflow, from pre-extraction to data analysis.

Tom Coleman, Exhibition Director for Informa Markets, said: "Mobile labs offers the most innovative mobile molecule diagnostic, testing and laboratory services and have had a major impact on the support they have been able to provide the healthcare community in combatting COVID-19 infections."

Typically, a mobile lab features an equipment room and an extraction room and laboratory. Technology within the station allows for automated testing with little supervision while incorporating other equipment such as RT-PCR reagents, consumables, and technical support for diagnostic testing.

The other benefit mobile laboratories offer is they can be transported via ship or lorry to almost any place in the world and are fully operational within days of arrival. They can then conduct mass testing in schools, airports, or communities impacted by the pandemic.

Medlab Middle East

By Informa Markets

Amartya Bose, Industry Analyst, Healthcare and Lifesciences Practice, Frost & Sullivan, said: "The state-of-the-art boxed field laboratories, trained scientists and technicians deployed for epidemic infectious disease, clinical chemistry and haematology services incorporates a network of regional mobile laboratories that allows de-centralised response. Mobile labs set a new horizon of PCR lab-setting.

"Leveraging automated workflows, multiplex real-time PCR platforms demonstrates to augment community-based testing. As alternate care sites gain importance, the modular concepts of mobile lab inventory, equipment and operations powered by smart lab solutions will create sustainable laboratories of the future."

One company showcasing their latest innovative products concerning COVID-19 testing during the event is South Korean biotechnology company, Seegene. The company recently partnered with Abu Dhabi's G42 Healthcare to offer mobile laboratory stations across the Middle East and North Africa (MENA) region.

"As a result of COVID-19, we have seen the laboratory industry fast track a range of new cutting-edge technologies that have had a remarkable impact in the fight against the pandemic. Seegene's Mobile Station is a prime example of accelerating transformation within the laboratory market, something we will be showcasing during Medlab Middle East in January," added Coleman.

In addition to highlighting the latest technology in the fight against COVID-19, the event will also see the return of the Medlab Middle East Congress COVID-19 Updates track. A number of global experts from U.S., Europe and GCC will highlight further developments on COVID-19 vaccines and updates on the management of COVID-19 variants.

For more information, please visit www.medlabme.com

MEDICLINIC PRECISE

MANAGE YOUR HEALTH THROUGH YOUR GENETIC PROFILE

Precision Medicine is a personalised approach to healthcare in which an individual's genetic profile is used to customise their health management plan, and which combines genetic information with family history, lifestyle and environmental factors, to ensure that the right treatment is delivered to the right person at the right time.

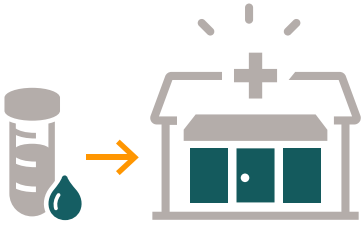
Our comprehensive range of genetic tests includes:

- Non-Invasive Prenatal Testing (NIPT)
- Solid Tumour Profiling
- Whole Exome Sequencing
- Whole Genome Sequencing
- Reproductive Genetics
- Targeted (Disease-Specific) Panels

01 PATIENT CONSULTATION

Physician and patient discuss and agree upon suitable genetic tests

02 SAMPLE DELIVERY

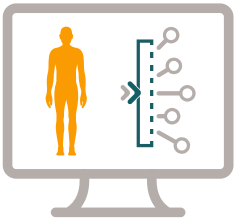


Patient samples along with signed documents sent to the precision medicine laboratory at a Mediclinic facility in the UAE

03 SAMPLE SEQUENCING

Patient samples are processed using state-of-the-art sequencing technology at our laboratory

04 AI-DRIVEN GENOMIC INTERPRETATION

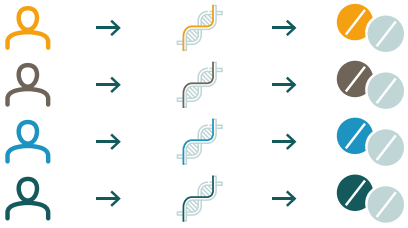


Analyse the sequencing results and interpret complex genomic data using advanced AI technology

05 FINAL PATIENT REPORT

Mediclinic Precise sends physician-ready clinical reports

06 PERSONALISED TREATMENT STRATEGY



The physician decides on the right treatment which best suits the patient

Mediclinic.Precise@mediclinic.ae
Mediclinic City Hospital - 5th Floor, North Wing
Dubai Healthcare City, Building 35

800 1999

Solving the COVID-19 conundrum

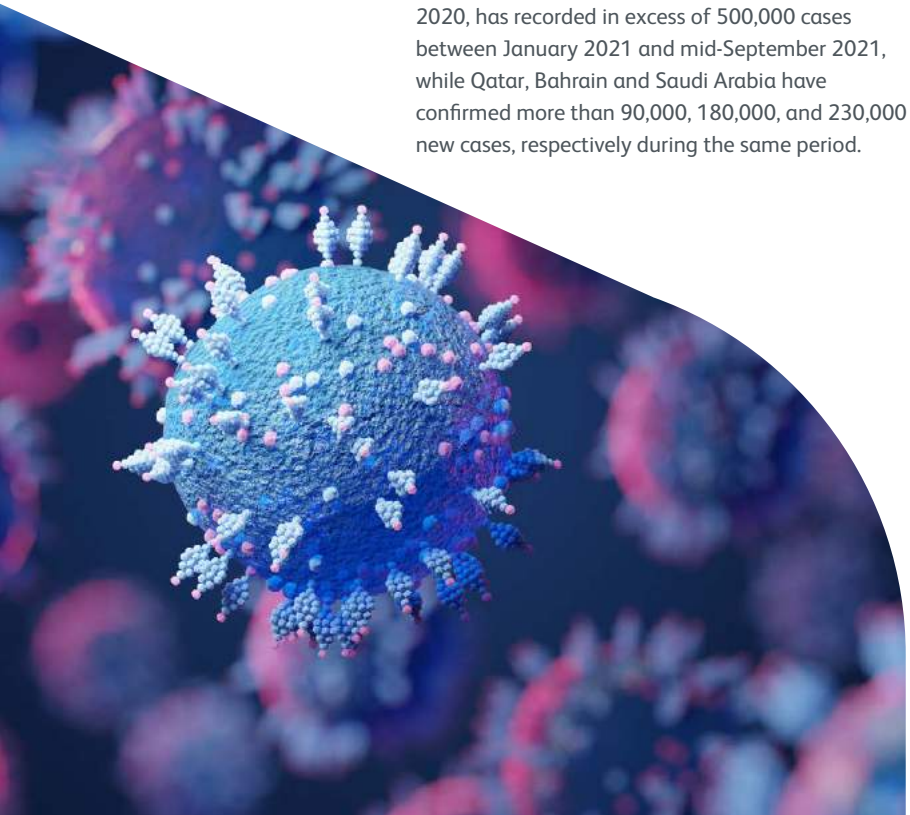
Leaders must oversee successful vaccination drives to navigate the Delta variant and slow down future mutations.

By Emile Salhab, Managing Director and Partner, Boston Consulting Group & Jaykumar Patel, Managing Director and Partner, Boston Consulting Group

Emile Salhab

Despite unprecedented adversity and disruption, the global community has recently rallied in a period certain to rank among the most concerning in human history. Although the world initially struggled to mitigate COVID-19 repercussions, national vaccination programmes have offered hope that societal re-emergence will happen sooner rather than later. However, while countries are beginning to make breakthroughs in their bid to overcome persisting troubles, the virus has also evolved, leading to the latest pandemic-related challenge – the Delta variant.

Due to higher transmissibility and a shorter incubation timeframe, the Delta variant has become the primary concern in every region. The strain is now present in over 130 countries and accounts for 90 per cent of new cases in many geographies, including the Middle East. The UAE, which launched its vaccination drive in December 2020, has recorded in excess of 500,000 cases between January 2021 and mid-September 2021, while Qatar, Bahrain and Saudi Arabia have confirmed more than 90,000, 180,000, and 230,000 new cases, respectively during the same period.



Moreover, the World Health Organization (WHO) has reaffirmed that the Delta variant is behind this year's surges in cases, effectively triggering a "fourth wave" in the region that comes with new predicaments to consider.

Immediate implications for leaders

While vaccines do provide considerable Delta variant protection, it is feasible that this becomes less so over time. Protection stemming from a high count of neutralising antibodies may not apply to asymptomatic and symptomatic disease in due course, preventing solely against severe disease. At the same time, efficacy concerns could transpire if certain vaccine types demonstrate lower antibody counts, while the elderly and individuals with autoimmune conditions may experience considerable antibody losses and thus require booster injections to prevent likely infections. As such, overseeing more vaccinations in the immediate future is imperative.

As vaccination rates increase, hospitalisation numbers are sure to fall considerably, even as the proportion of breakthrough cases increases. Furthermore, high vaccination rates at the community level are also proven to lower Delta variant transmission risks, and this applies to all age groups. After all, vaccines decrease transmissibility by shortening contagious periods in breakthrough cases. The Delta variant does appear to carry a similar viral load in vaccinated and unvaccinated patients at the time of diagnosis, yet vaccinated case viral loads decrease much faster – by approximately 10-14 days – and subsequently reduce possible windows for infection in breakthrough cases. Therefore, nationwide vaccination drives remain an essential measure for managing Delta variant impacts, something that implicates both public health and the private sector.

From a public health standpoint, regional leaders in this field should broaden the scope of vaccinations

to combat the Delta variant. Several measures can be implemented to increase these efforts, including expanding eligibility as safely and quickly as possible, providing updated education on the importance of vaccines, gaining authorisation through sufficient resources to review applications, and encouraging vaccine discussions between friends, families, and doctors. Additionally, there are use cases leaders can take inspiration from when introducing vaccination protocols and emphasising their importance. A prominent example relates to the UAE, where the Abu Dhabi Emergency, Crisis, and Disasters Committee recently confirmed that entry to public places would be limited to vaccinated residents and tourists, a measure now in effect .

For the private sector, employee vaccinations should be administered as much as possible, and leaders can explore the possibility of implementing stronger mandates, ranging from honour codes to strict regulations. For instance, Saudi Arabia's Ministry of Human Resources and Social Development (MHRSD) announced in May that both private and public sector workers would require vaccines to enter the workplace, with this mandate becoming official in August. Institutions could also enact wearing of masks for all unvaccinated people who enter the premises, introduce mandatory vaccinations or weekly testing, or demand proof of vaccination as a condition of employment. Private sector employers should also conduct regular safety assessments and ensure personnel are given the required time to receive vaccines during working hours.

Actioning such measures will be essential, especially as countries prioritise building on recent momentum and 'vaccinating the last mile.' For instance, the UAE Ministry of Health and Prevention (MOHAP) recently announced that over 80 per cent of national population is fully vaccinated and more than 90 per cent has had at least one jab. Meanwhile, Saudi Arabia has also made notable immunisation progress. The country's Ministry of Health recently announced that over 30 million vaccination doses had been administered. Moreover, with approximately 311,774 people being vaccinated daily, the Kingdom is on track for a national vaccination rate of 70 per cent in October 2021.

And as both the public health and private sectors look ahead, vaccinations are critical not only for reaching 100 per cent population rates and entering the next 'booster' phase of the ongoing vaccination drive, but also longer-term disease management. Should segments of regional populations remain unvaccinated, dangerous variants may surface and spread.

Longer-term scenarios to consider

Considering evolutionary selection pressures, it is likely that future variants are more transmissible and resistant to antibodies should communities of people remain unvaccinated. However, it is important to note that only mutations with increased antibody resistance can survive and the virus – while it will most probably mutate – will spread significantly slower than in unvaccinated populations. The pandemic's long-term trajectory is dependent on actions taken in the immediate future, and three scenarios could transpire:

- *On track to "normal":* In this scenario, a high vaccination uptake between 70-80 per cent of populations will drive higher immunity levels, with vaccines staying ahead of diseases and booster shots remaining highly effective. Existing problematic variants will be contained, and emerging threats managed.
- *2-speed recovery:* Here, a greater risk of virus resurgence will remain as vaccination rates stagnate between 50-70 per cent, with particular emerging variants demonstrating high levels of escape immunity. The situation will be manageable in higher-income nations and more severe in those with lower incomes.
- *Ongoing challenges:* Should this situation transpire, there will be a high risk of dangerous variants emerging and severe vaccine coverage issues in lower-income populations. Existing vaccines will be ineffective against new virus strains, next-generation vaccine development will entail substantial costs, and profound health impacts will become apparent. As such, remaining vigilant is imperative. The emergence of new strains is due course is more than feasible, and the public health and private sectors based in low-income countries require sustained support in light of ongoing issues and in the event new strains do indeed present themselves.

For the Middle East, proactive action is required by public health and private sector leaders in the present not only to mitigate Delta variant impacts, but also prevent future virus strains from emerging and causing detrimental repercussions. By promoting the importance of vaccination and overseeing widespread vaccinations within their remit, leaders in these fields can collectively make meaningful contributions at the national level, simultaneously helping to drive the pandemic re-emergence charge.

References available on request

The pandemic's long-term trajectory is dependent on actions taken in the immediate future

Jaykumar Patel

Ushering in the new era of preventative healthcare

Global healthcare influencer, Dr. Sangita Reddy stresses that the future of healthcare revolves around three Ps – proactive, predictive, and preventive.

By Deepa Narwani, Senior Editor

AI has made interesting inroads, such as in risk prediction during COVID-19

According to Dr. Sangita Reddy, Joint Managing Director of Apollo Hospitals Group and Former President of Federation of Indian Chambers of Commerce & Industry (FICCI), the future of healthcare revolves around three Ps – proactive, predictive, and preventive. A global healthcare influencer, she is passionately committed to transforming the healthcare system through technological advancements and is accelerating positive transformation for effective healthcare service delivery.

Dr. Reddy was in Dubai recently and visited the India Pavilion at Expo 2020 Dubai, where she highlighted the collaboration between the UAE and India. In an interview with *Omnia Health Magazine*, she discussed game-changing technologies and strategies to make the industry more patient-centric. She said: "The future of healthcare is being proactive and using predictive risk profiling to prevent a disease from happening." Excerpts:

Do you think digital health has had an impact on improving patient outcomes? Are there any specific technologies that have helped in the fight against COVID-19?

There is no doubt that technology has assisted in the fight against COVID-19. For example, at Apollo, within 15 days of the pandemic coming into force, we had over 4,500 doctors on a telemedicine platform. We have had the platform for 20 years, but COVID-19 accelerated the use and adoption of this platform in a tremendous manner. I think it has been an eye-opener for doctors who understood that they could care for patients, even when they are at home; they don't have to be physically in front of you. I believe that many of these models will continue to play out as the healthcare system transforms itself.

Furthermore, Artificial Intelligence (AI) has made interesting inroads, such as in risk prediction during COVID-19. Assisted software is another area that is set to explode in the healthcare arena and will bring efficiency into repetitive work. AI will be used to manage large pools of data and obtain information on relevant medical conditions and care protocols. All this will enable doctors to stay current and use the cumulative knowledge of the entire community validated scientifically and presented appropriately so that the patient who is right in front of them gets the best possible care pathway. While the use of AI in the business end of things across various sectors is very well known, I am most excited about the use of AI on the clinical side of things.

What can be done to prepare doctors for this AI-empowered future?

Making doctors a part of the transformation is the most powerful way to prepare them. We are having extensive conversations with doctors and asking them to share their care pathways. Ultimately, AI is only a culmination of the

intelligence you put in, then you study the outcome. If more data is available with doctors, it would improve the result for the patient. Therefore, assisted intelligence assists the doctor to treat better.

What can be done to make the healthcare system more patient-centric?

There are several ways this can be achieved. For example, drones can deliver medicines at home; healthcare apps can be enhanced; wearables can be linked to the healthcare system, etc. While patients are what a hospital focuses on, they should also concentrate on populations and communities. They should be looking at individuals and proactively planning and directing their efforts towards preventative care. The concept of proactive study awareness and treatment prevention should happen for all ages. For example, Apollo Hospital's cardiovascular risk score profiles the community for modifiable and non-modifiable factors, which cause heart disease. So, instead of having to chase 100 patients, 15 patients are selected and informed that they are high-risk. The hospital can then work with them to reduce their cholesterol and keep their blood pressure under control, thereby decreasing the heart attack rate.

At Apollo Hospitals, we are clear that we belong to the health "care" sector and not the "sick care" sector. Currently, we carry out around 10 per cent of the country's high-end cardiac surgeries and have patients coming to us from over 120 countries. Yet, at the same time, our chairman is committed that it is essential for us to keep populations healthy. Therefore, we are looking forward to a partnership model to introduce a proactive and preventive health initiative in Dubai. The partnership will see us work with the individual patients, but it will be based on a personalised testing protocol that we create. We will then use this technology to connect the patients with our specialists whenever they need it. We are looking forward to doing more in the region.

Is India on the path to becoming a medical tourism hub?

The market size for medical value travel in India, which was about 2 billion pre-pandemic, will grow this year by about 15 to 17 per cent. I think India has been ranked about 10th on the medical tourism index, but by improving a few aspects, we should be able to move up to the top five globally.

What is your vision for the next five years?

We will look at aspirations at multiple strategic levels. Number one is that we should double the number of patients we treat in the advanced care category, both from India and abroad. We are also aiming to grow the number of patients we serve by five times, from remote care clinics to the outpatient partnership model. Our goal is that everyone we serve should receive the best and the most personalised care. Also, technology and digitally assisted experiences should match up to customer expectations. We are also looking to partner with technology and scientific companies and use the data that we collect and the knowledge of our doctors to make new breakthrough cures. The last aspiration is on the education front. There is a global shortage, and we must continue to train staff digitally and in contact programmes and are open to sharing some of our technologies.

Apollo will continue to stay ahead because of the vision of our chairman and leader. It's important for us to continue to innovate. For example, Apollo has its own unique healthcare ID and personal health record. We also launched our 3D printing initiative in our hospital in Hyderabad because we believe there is a significant future in that. Moreover, we are committed to robotic surgery. In fact, in Bangalore last month, we celebrated over 100 robotic heart surgeries. This is why Indian healthcare is renowned and patients seek out Indian surgeons to gain the expertise of their skill and capability.

Dr. Sangita Reddy

Is digital medicine affecting costs in healthcare?

A global leader in medical technology, a top ranking academic medical centre and a multinational healthcare insurance organistion tackle the topic of the cost of health tech.

By Fatima Abbas, Content Executive

Digital health is being touted as a progressive solution for some of healthcare's most intractable issues. Although at its infancy in healthcare, advocates claim that the digital future will bring more precise interventions, higher health outcomes, more efficiency, and eventually lower healthcare costs.

But how realistic is the promise of lower expenditures and enhanced health? We asked experts to share perspectives from a clinical, technological, and financial point of view.

Majid Kaddoumi

Dr. Steve Ommen is the Medical Director of Consumer Product and Platform Strategy at Mayo Clinic Center for Digital Health. When asked if digital medicine is facilitating efficiency through innovation and its impact on healthcare for physicians, here is what he had to say: "Digital healthcare solutions are improving efficiency in many health care systems. From a patient's perspective, the ability to get care without having to travel to a facility is much more efficient for their daily life. Provider teams are also finding that many of the video visits actually take less time than in-person visits and asynchronous activities such as secure messaging or online algorithmic care options improve efficiencies for those teams. Remote patient monitoring, the use of devices that the patient wears or has in their home to monitor physiologic parameters such as heart rate and blood pressure, allows a small team of nurses to monitor a large number of patients and look for deviations from the expected physiologic data that might indicate a patient is getting sicker. This allows an earlier less costly intervention in many cases. While tools like video visits have become commonplace and are quite familiar to most physicians, the newer solutions such as artificial intelligence or in-home remote monitoring do

require teams to get more familiar and adopt some of their care pathways to fully take advantage of these solutions."

Meanwhile, Majid Kaddoumi, President of Central & Eastern Europe, Middle East & Africa at Medtronic, shares the viewpoint of a leading global healthcare technology company.

"We believe that through developments in artificial intelligence (AI) and data analytics, medical devices are advancing disease management by empowering clinicians to personalise medicine like never before. These technologies provide revelatory insights into individual patients, in real time.

"AI is becoming an integral part of healthcare because of advances in computing and sensing technologies, the expansion of available data, and the creation of better algorithms. As we continue to unlock the continuous data our devices and therapies generate, AI and machine learning are increasingly important tools at Medtronic. That's why we're actively adding innovative AI technologies to our research and design capabilities. Already, AI plays a pivotal role in the company's robotic-assisted surgery platforms, colonoscopy and endoscopy systems, and insulin pumps.

"Recently, we launched the only FDA cleared "smart" insulin pen that integrates glucose sensor data, putting the power of AI to work for patients with Type 1 diabetes who rely on multiple daily injections. The future of healthcare has arrived."

Is there a possibility of innovation prompting cost reductions in the healthcare industry or will it increase costs?

Dr. Steve reminds us that in the short term there are always start-up costs. However, when looked across a longer time frame, these new digital solutions can add value, improve this efficiency and save money. "We have shown that the use of video telemedicine solutions to provide specialty services – like stroke neurologists or neonatal intensive care specialists to rural hospital settings – results in improved outcomes for the patients in health care expenditure savings. We have also seen with remote patient monitoring that hospital admissions or readmissions can be dramatically reduced. During the COVID public health emergency, sicker patients who were monitored had dramatically lower need for hospitalisation, dramatically lower intensive-care unit stays, and dramatically lower death rates because they were being monitored in their homes by skilled professionals. We have also shown that patients who were offered remote care options express high levels of satisfaction with these services and that we save patients money by offering these services to them. We have also shown in community care practices that allowing providers to have time on their calendar to address remote care in communications that the overall utilisation of the community care services and the cost per patient can be reduced," he explains.

Majid adds, "We can call it technology or innovation that delivers value: Better patient outcomes result in better economic value. Advances in technology can deliver profound benefits for global health systems. We see first hand how medical technology is helping patients live healthier lives, creating value across the entire healthcare

Steve Ommen

Jerome Droesch

It's time for a new model of healthcare, one that uses the power of technology and data insights to deliver better outcomes

continuum. And when patients who have chronic, costly conditions like diabetes or hypertension successfully manage their illness, it can help reduce hospital stays and readmissions, allowing health systems to operate more efficiently. Medical devices with the power to analyse continuous streams of healthcare data — such as insulin pumps and certain cardiac devices — can help clinicians devise better treatment plans while helping patients live a healthier life.

"Global healthcare costs are skyrocketing. Fragmented health systems focused on volume are buckling under the financial pressure of treating widespread chronic diseases such as diabetes, hypertension, and cancer. Patients don't always receive the care they need when they need it. And these issues have only been exacerbated by the COVID-19 pandemic's impact on people, health systems, and communities around the globe.

"It's time for a new model of healthcare, one that uses the power of technology and data insights to deliver better outcomes.

We know the move to a value-based model of healthcare isn't easy. But through technology and innovation, we can address outcomes, costs, and access. There is no better time than now," he emphasises.

What are the factors which cause constraints on resources to be integrated?

According to Dr. Steve, there are several constraints on the implementation of digital healthcare solutions. "In the United States, healthcare providers are licensed individually in a state, and some of the states do not allow cross-state delivery of care using these tools. Reimbursement for digital health care solutions cross states, while facilitated during the public health emergency, is uncertain once the public health emergency is declared to be completed. These issues will, conceptually, apply globally, vary in the impact or complexity in each country. From a technology standpoint, many of these options are integrated into electronic health records. When this is the case, it can be part of the care team's standard workflows. However, some of these solutions are not integrated within the EHR and therefore creates some logistical or workflow inefficiencies as new teams are trying to integrate these solutions," he says.

Majid highlights that emerging markets face unique obstacles in their quest to stand up and establish sustainable, high-quality, and cost-effective health systems. "Access is typically impacted by location and proximity to quality health institutions, a few quality trained specialists and healthcare practitioners, and insufficient infrastructure or facilities. These restraints are specific to emerging markets. Developed markets have a set of different restraints that are more related to system connectivity and integration."

Technology has facilitated integration of big data, telemedicine and blockchain. However, is the adoption challenging and are we still in a transition period, where training, and purchase of products have significant costs?

"We are still in a transition. Not only are the big data engines, and AI machines just now starting to be trained on healthcare issues, but the health care teams are just beginning to get comfortable at utilising these tools as part of the management of their patients. There are also some potential socio-economic disparities if these tools are not thoughtfully made available ubiquitously. As the question itself suggests, these new approaches do come with start-up costs which may be difficult in some systems or geographies," says Dr. Steve.

"The technological and cultural revolutions are allowing technology and people to be better connected to one another, a network of connected, smart devices and objects that can communicate with each other and automate key tasks. Most patient interactions with the healthcare system involve the use of medical equipment and devices. The integration of technology and data brings together the digital and physical worlds to improve the speed and accuracy of diagnosis and treatments, and monitor and modify patient behaviour and health status in real time. It also improves healthcare organisations' operational productivity and effectiveness by streamlining clinical processes, information and education, operations and workflows. During adaptation phase we expect better efficiencies and will provide better value for the technology and services provided," mentions Majid.

What do insurance providers say?

"The pandemic has driven the conversation around utilising technology and affordability in a fruitful direction. We are already seeing innovative solutions and integration of reducing costs in the healthcare sector. It is also making overall procedures efficient and empowering people to manage their health effectively. One such example is Cigna's innovative solution, SmartCare, we developed this solution to make healthcare services more accessible to employees and alleviate the pressure on employers. The service offers access to a tiered network strategy encouraging access to lower cost facilities and driving affordability.

"In fact, Digital Doctor's, a study by Cigna Insurance Middle East, revealed that majority of doctors (85 per cent) agree that connected health devices and tools will provide patients with real-time data and knowledge about their health that will enable them to pro-actively manage their well-being and prevent diseases. Whether you're a relatively healthy individual who wants to track your fitness goals, an older adult who wants to maintain independence, or someone living with a chronic health condition, you can benefit from using connected health devices," concludes Jeorme Droesch, CEO of Cigna MEA and SEA.

A healthy investment

Innovation in MedTech as a driver of new investment opportunities.

By Edward Rudd, co-founder, Juno Capital

Medical innovation has become a focus for venture capital investment in the last 10 years. A growing, ageing population combined with the opportunity to develop global solutions is driving innovation that helps people better manage their wellbeing or enables them to get well sooner.

Traditional pharmaceutical innovation is now being supplemented with developments in medical technology. The medical device industry is predicted to be worth more than US$8.5 billion by 2025 but ensuring the industry's success will be underpinned by investment from venture capital firms and other investment vehicles.

A company well established within the world of technology private equity investment is Juno Capital. Below I outline my experience of investing in medical technology (MedTech) companies, the advantages of platform technologies for an investor and the importance of data analytics in driving positive outcomes in healthcare.

Established in 2011, Juno Capital is an innovative asset management company that provides wealthy individuals and families with attractive and engaging investment opportunities offering a variety of risk profiles. One of the company's primary objectives is to introduce private investors to early-stage technology companies, helping them decide whether to participate in investment rounds in these companies and offering the opportunity to build diverse and engaging portfolio of investments.

Investment criteria

One of Juno's most important criteria for investment is that companies have already established themselves within a specific market through their technology, product, or service, but need additional capital to accelerate growth and build on their achievements. One such company was Sky Medical Technology, which has taken a technology called "On Pulse" and turned it into a wearable medical device that addresses medical issues.

I was first introduced to Sky Medical Technology when I was a partner at Longbow Capital LLP, a specialist healthcare investment firm. I led the deal for Longbow to invest in Sky Medical Technology during 2009. When my fellow founding partner Julian Hickman left to set up Juno Capital, I decided to remain with Sky Medical Technology.

One of the first challenges for Sky was to take an established and proven technology and make it into a product. The result – the geko™ device – is a wearable medical gadget that helps address multiple medical disorders. The device, applied at the knee, works by sending electrical pulses to the lower leg that increase blood circulation. It is an easily understood, yet proprietary, mechanism of action, well protected by a family of patents, that can be applied to separate therapy areas – meaning each therapy area simply needs study data and positive economic data to be embedded into clinical practice.

A platform technology

From the outset I believed the geko device had the potential to be "a platform technology, rather than just a simple single-application technology". The device could be applied to complications related to swelling after surgery, the closure of hard-to-heal wounds and the prevention of life-threatening blood clots. The range of applications was a significant driver for Juno to invest. The evidence and the data wasn't ambiguous. And it seemed a straightforward path to regulation and from there to get the product to market. This provided potential new avenues for use and resulted in an increased investment from Juno.

Applications for the geko device were relevant to a hospital environment where patients were immobile – such as those in intensive care or recovering from an operation – and were therefore at higher risk of blood clots, or in need of post-operative or trauma-based oedema management. The device could also be applied to wound healing in the community for patients either supported by medical staff or administering their own healthcare.

For Juno, the benefits of platform technologies are significant. It offers a portfolio approach. If you find it difficult to get traction with one application, you've got a lot of other opportunities to grow the potential uses for the device. For an investor that means there are multiple potential future investor or acquirers of the technology or the company.

Edward Rudd

Juno Capital has also invested in Destiny Pharma, a company with similar opportunities. It is a drug-development business that has developed a portfolio of anti-infectives. These drugs work against MRSA but offer multiple other uses.

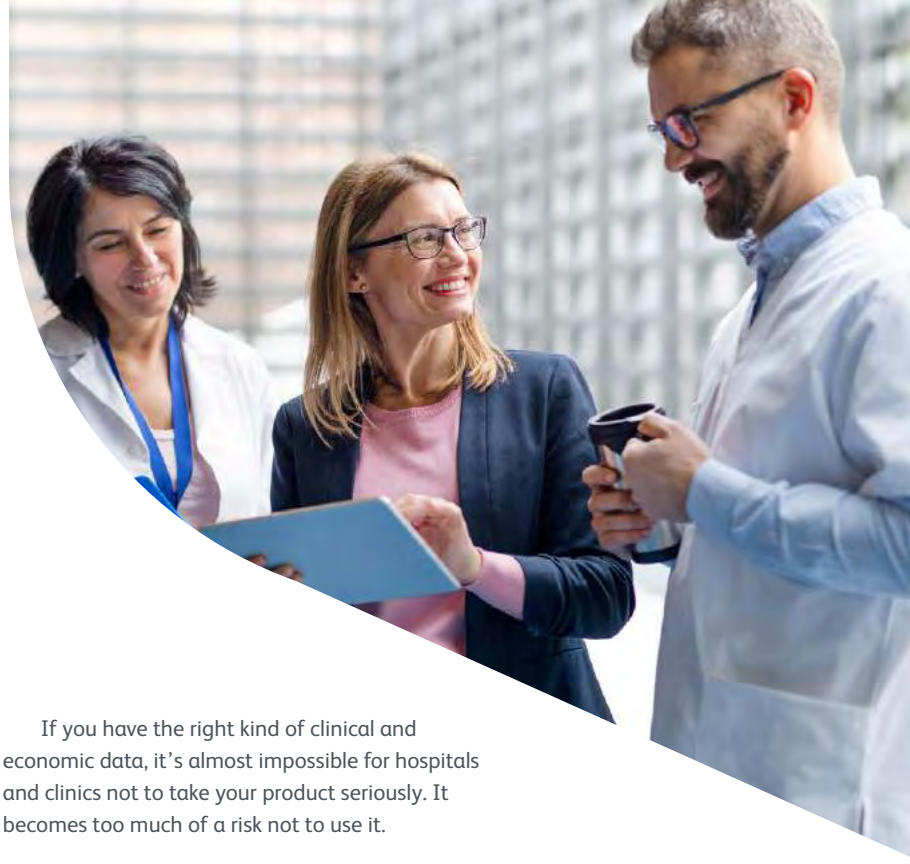
Our lead product is for "nasal decolonisation". If you go to hospital for an operation and catch a bacterial infection, there's a high probability you've caught the infection from yourself as many people carry staphylococcus aureus in their nostrils and the trauma of an operation and its impact on the body's immune system can lead to an infection. If you can remove the bacteria before people go into theatre, it's less likely patients will get an infection. Fewer infections mean shorter stays and quicker recovery, which all reduce costs and improve efficiency.

The challenge associated with platform technology is that of keeping sharp focus when faced with opportunities. You need to focus on gathering evidence to ensure regulatory approval in one area before moving onto the next, rather than focussing on all clinical applications at once. Sky Medical had done a good job of prioritising the different applications methodically and with evidence and this helped prioritise the opportunities. Ultimately, offering companies the opportunity to licence the technology for one of the applications. Critical is establishing credibility and building a solid evidence base – both from a clinical and economic perspective.

An investment for rewarding returns

A typical technology investor might view success over a five-year period. Investment in MedTech can take longer. If you can navigate the regulatory and clinical hurdles required, assuming you have the right type of products and a solid market, commercialisation, and licensing in MedTech can actually be less risky. You can choose to find a clinical partner or commercialise yourself. With traditional technology, commercialising is easily overlooked as a risk. Executing on a good commercialisation strategy in a very competitive market can be hard. Platform-based medical devices offer an investor a fairly unique opportunity.

The founder and CEO of Sky Medical Technology, Bernard Ross, and his team, have taken a perceptive approach to shifting the risk-reward profile. The team recognised that the company needed to spend money proving the device delivers positive medical outcomes – the geko device has received regulatory approval in the UK and U.S. This means the opportunity is less risky for licensees. Licensees only have to address commercial risk not regulatory risk.



If you have the right kind of clinical and economic data, it's almost impossible for hospitals and clinics not to take your product seriously. It becomes too much of a risk not to use it.

Data driving better medical outcomes

MedTech devices have an important role to play in the future of healthcare. There's a new revolution in healthcare technology and it's being driven by data. MedTech devices can incorporate data collection to help ensure a continuous improvement in outcomes. Imagine a connected version of the geko device. It could provide feedback on whether the device is switched on, positioned correctly and the impact it is having on blood flow. This could help provide a community nurse, for example, with data on which patients were using the device correctly, enabling them to focus on those that need help. This could mean time can be spent where it's most needed, rather than seeing patients that do not need support. This data could also provide insight to patients, helping them to a speedier road to recovery, as well as offering an overview to health systems as to the most efficient and effective MedTech devices for specific ailments.

As innovation provides more ingenious solutions to medical issues, so the demands on healthcare systems grow. MedTech innovation can help bridge the gap between the growing healthcare demands of an ageing population and the limited budgets available for medical treatments. MedTech innovation – particularly platform technology that addresses multiple medical issues – has the potential to provide highly cost-effective ways to deliver improved clinical outcomes. This is great news for patients and investors and one of the reasons why we are excited by the opportunities offered by this industry.

MedTech devices can incorporate data collection to help ensure a continuous improvement in outcomes

“We want to make high-quality, cost-effective healthcare accessible”

Bidhan Chowdhury, Founder and Group CEO of Medi Q Healthcare Group, discusses strategies that have worked in efficiently managing healthcare costs.

By Omnia Health Magazine Staff

Bidhan Chowdhury

Early last year, Bidhan Chowdhury, 40, the founder and group CEO of Medi Q Healthcare Group, was recognised as one of the most influential healthcare leaders in the UAE at the Indo-Middle East Healthcare Leadership Awards.

He is known for his passion to make quality healthcare affordable for the masses. In a candid conversation with *Omnia Health Magazine*, Chowdhury, a serial entrepreneur, talks about his various ventures.

What are the two biggest challenges before the healthcare industry in the post- COVID world and how do you think they can be addressed?

The unprecedented COVID-19 pandemic has disrupted healthcare services across the world. The biggest challenge right now is how to deal with the contagion, which is highly infectious, spreads rapidly, and has the potential to cause severe disease that can overwhelm the best of healthcare infrastructures. The current surge in cases across the world tells us

that we need to be prepared to deal with various variants of this virus that may keep coming for the next few years. The second challenge is to provide affordable and timely care to those suffering from chronic illnesses who need continuous medical support while we tackle the pandemic.

Coming to COVID-19, what we need today is to build or develop alternative, flexible healthcare infrastructure which can deal with various COVID-related complications and handle a large number of patients. These facilities should be equipped with high-end infection control system, and have specialists to deal with acute respiratory illness. In some cases, we need specialists, who can also tackle comorbidities that may worsen the condition of a COVID patient. Besides, the facility should have good diagnostic services and there should be adequate oxygen support.

Medi Q partnered with the UAE government in its fight against the pandemic by setting up field hospitals, screening and testing centres, establishing quarantine facilities as well as mobilising the healthcare workforce in record time. These field hospitals helped regular healthcare facilities to continue their normal services. Our field hospitals helped reduce the cost of COVID care by 30 per cent.

What was the idea behind Medi Q?

I strongly feel that quality, affordability, and accessibility should be the three main pillars of healthcare. Medi Q aims to make high-quality, cost-effective healthcare accessible.

Let me explain you by giving Dubai's example. Here, diagnosis-related group (DRG) pricing is in place, which means that the insurance company decides the packages and the hospitals have to adhere to it, which is not so easy. We need cost strategists who can analyse various cost components and come up with effective cost management solutions. In the U.S., cost management has been a common practice for all hospitals for many years

When hospitals understand the principals of costing, the system becomes transparent, giving investors the confidence to invest in it.

In the post –COVID world, where there have been significant cost escalations, hospitals need to take an extensive view of cost behaviour for all the activities and services and come up with an effective, scientific strategy that leads to targeted cost reduction and support value-based healthcare.

The pandemic has also caused disruption in supply chains. How has it affected the healthcare industry?

The pandemic has brought to the fore the gaps in medical supply chain and the role it plays in escalating the healthcare cost. Almost 35 to 40 per cent of a patient's bill is towards medicines and consumables. Any cost due to inefficiency in medical supply chain of a healthcare facility is transferred to the patient. A well-managed supply chain, I believe, can bring down the cost of care by 5 -10 per cent.

Medi Q has a supply chain vertical with the name PBC Medicals. The objective behind setting up PBC was to provide undisrupted supplies to hospitals and other healthcare institutes so that they can focus on healthcare services without worrying about their inventories.

Besides, I want to bring the best of medical technology to the UAE. We have recently tied up with a reputed Australian brand for syringes. These smart syringes will go a long way in reducing needle stick injuries among our healthcare workers. It will also eliminate reuse of syringes, a major cause of bloodborne diseases.

A serial entrepreneur that you are, what are the ventures you are planning in the year 2022?

My priority is to set up a mental health support platform. The disruption COVID-19 has caused in people's lives—be it their finances, their health, livelihoods, or education—has led to a mental health crisis. The cases of depression, anxiety, suicides have gone up drastically across the world. So, there is an urgent need to provide easily accessible, reliable, and affordable support to the needy. The good thing is that during the pandemic people have accepted that their mental health is as important as physical health. We are currently building a unique tech-based support platform, which we hope to launch in the next few months.

Besides, there is a need for trained medical manpower, especially nurses in the UAE. We need well-trained, and multi-skilled paramedics who can deal with any emergency and provide critical care to the patients. Medi Q will soon be launching an upgradation course for nurses. The course will have mentors from top U.S. healthcare institutes and universities.

He added: "I see a huge gap in the healthcare service available in the smaller cities and rural parts of India. Though the government is bringing many new schemes such as Ayushman Bharat that have potential to revolutionise the healthcare delivery, most private hospitals are finding it difficult to accept the prices offered for the services to be provided under the scheme. We are working to develop a model of care that can provide quality healthcare services to patients within the cost limit set by the government and yet making it profitable for the healthcare providers. If we are able to achieve this, the year 2022 will be the most satisfying year for me."

Breathing cleaner air

By Omnia Health Magazine Staff

The new normal post-Covid has resulted in a huge lifestyle change with more and more households looking for solutions that enable healthy living. With most people still spending lots of time at home, clean air quality is becoming increasingly important. However, while air pollution is commonly associated with the outdoors, the indoor air can be equally polluted if not more toxic. For instance, microscopic particles, allergens, pet dander, and harmful gases emitted from common household products directly affect the health and comfort of every family member, especially children.

Every day, on average, a human being breathes in about 18 kg of air, which is much more than what we eat, to be exact. One eats only 1.3 kg of food and drinks only 1.2 kg of water in a day. That means a person consumes approximately 15 times more air by weight than either food or water, and 15,000 times more by volume. Thus, to live in good health every day, the quality of air is even more important, and with infectious diseases and allergies becoming more and more prevalent having clean air indoors is vital for health.

Studies have suggested that dust and pollens aggravate allergy symptoms in about 51 per cent of people in the UAE. Using an air purifier can help you keep the air clean and free from pollutants and dust, thus reducing the cause of common health problems like sore throat, common cold, nagging cough, cumbersome allergic reactions, and more importantly, asthma.

Living in harsh climates with central air conditioning and ventilation makes it all the more important for homes in the region. “That’s why we are committed to improving air quality for everyone around the world with our technological expertise, and our ‘Quality Air for Life Concept’ solutions ensure you breathe clean and healthy air whether you are in your car, home or at hospitals and schools. Our Portable nanoe X Generator and nanoe X powered air conditioners and purifiers feature technology to inhibit 99.99 per cent of bacteria and viruses,” says Eiji Ito, MD, Panasonic Life Solutions Middle East & Africa.

He adds, “The innovative nanoe technology neutralises micro-organisms – removing 99 per cent of airborne bacteria, viruses and mould using the fine particle ions generated from moisture in the air, which are electrically charged water molecules. Filled with OH radicals, these water molecules suppress the activity of pollen, bacteria, viruses, and help to eliminate odours. The nanoe also restores moisture to the skin, it attaches to the sebum and form membranes on the skin to hydrate and keeps it fresh and healthy.”

Indoor air quality is extremely important for the region due to the arid climate and because it is one of the geographic locations requiring 24 hours of air conditioning. Most of the facilities in the region are closed, so air purification and ventilation are key for keeping environments safe.

References available on request

A person consumes approx 15 times more air by weight than either food or water, and 15,000 times more by volume

CONSIS
robotic systems

The right prescription for every pharmacy.

The new CONSIS.H: maximum speed for dispensing and automated loading

CONSIS Robotic Systems offer a tailor-made and highly efficient automation concept for pharmacies, hospitals and medical care centres.

Whether you want to save time, gain space or increase patient safety: CONSIS has the right solution for your situation.

Willach is one of the world's leading companies for medicine storage and dispensing equipment. With our FAMA drawer and shelving systems and CONSIS robotic dispensers we can provide a uniquely tailored solution for any type and any size of hospital and community pharmacy.

WillachGroup
since 1889

info.me@willach.com
www.willach-pharmacy-solutions.com/ME/

Willach | Pharmacy Solutions

Wearing your heart on your wrist

By Deepa Narwani, Senior Editor

The pandemic has put the spotlight on chronic diseases as those most at risk from COVID-19 have some other underlying health conditions such as hypertension, diabetes, or coronary artery disease.

Today, thanks to advances in wearable health-tracking devices, people can monitor heart rhythms easily. But did you know that these wearables could potentially help uncover a hidden heart disease? For instance, the Apple Watch 7 uses the infrared sensor on the back of the device to regularly measure heart rate and records its findings in the Health app on the iPhone.

Users of the device can also take manual Electrocardiograms (ECG) using the Digital Crown and heart rate sensor. The measurement helps determine if a person is facing high or low heart rates and irregular heart rhythms, which could be signs of a serious condition.

The irregular rhythm notification feature on the Apple Watch 7 looks at the heartbeat to check for atrial fibrillation (AFib), a type of irregular heart rhythm. People with this condition can experience heart palpitations, tight chest pains, dizziness, and chronic fatigue. If left untreated, they are most likely to suffer a stroke. Thus, being able to catch it early on can reduce the chances of suffering the worst outcome. It is important to note that Apple Watch cannot detect heart attacks. However, it allows users to take an ECG at any time or when they are experiencing rapid or skipped heartbeat or when there are general concerns about heart health.

Moreover, the built-in blood oxygen sensor can warn users if it gets too low and can help bring to light sickness. The blood oxygen level represents the percentage of oxygen the red blood cells carry from the lungs to the rest of the body. Knowing this can provide a better insight into overall wellness.

Thanks to advances in wearable health-tracking devices, people can monitor heart rhythms easily

However, it is essential to note that these devices should be used in consultation with a doctor.

When it comes to health and well-being, the Apple Watch 7 has several more advantages. For instance, the accelerometers in the device can detect if its wearer has fallen or been involved in a collision. In addition, the Apple Watch will ask if the user has fallen and needs help when enabled.

If one is regularly exposed to loud noises, it can damage the ears and even lead to hearing loss. The Noise app monitors surrounding noise and warns you if sounds are above a safe level to protect your hearing. Moreover, to encourage healthy washing habits, a twenty-second timer will start when the watch detects the user is washing their hands. It also tracks sleeping habits, and measures sleep quality based on metrics gained from the health sensors. As a result, the app can help you prepare for sleep, tell you how much actual sleep you got during the night, and reveal your sleeping pattern over a period of time.

In terms of tracking fitness levels, Apple's 'Move Rings' let you know how active you have been and the Watch 7 tracks activities such as running, cycling, and swimming. In addition, the watch can automatically detect a workout thanks to a combination of sensors detecting the activity. It also comes with Apple Fitness+, which offers trainer-based exercises such as Pilates and yoga and are available across the iPhone, iPad, and Apple TV. The app also asks permission to connect the Apple Watch to the chosen device to sync the heart rate and other health metrics and display it on the screen.

Furthermore, Apple Watch 7's Mindfulness app offers two different modes to help focus on something when one needs to relax. The Reflect mode, for instance, asks the user to think about something in their life—a memory, an idea, an emotion—and to ponder over it for over a minute. In contrast, the Breathe mode prompts one to breathe in and out for a minute to try to ease the mind and body.

I found the Apple Watch 7 to be a reliable fitness companion that gave me insight into my heart rate, tracked my exercise, and saved me the hassle of taking my phone out for things such as payments, replying to messages, etc. I have also set the device up to remind me to get up and move if I have been sitting in one place for too long. By just getting up and doing a few laps around the house or office, the Move Rings start updating, which, somehow, motivated me to move more.

By wearing it for over a period of six weeks, the device gathered plenty of my health and activity data and has shown that by committing to wearing it, I was able to reap the benefits of its different features. It's a great fitness partner that measures how you move and provides meaningful health insights right on your wrist to support you on your fitness and wellness journey.

The Breathe mode prompts one to breathe in and out for a minute to try to ease the mind and body

Navigating the future of Femtech

By Fatima Abbas, Content Executive

The personalisation of healthcare and its delivery mechanisms is critical to address the systemic gender and racial biases that exist in healthcare today. As it stands, consumers from emerging markets – the Middle East, Africa, and South Asia – continue to be under-represented in clinical research and trials, 92 per cent of which occur in the U.S. and Europe. As a result, these consumers endure significantly worse health outcomes than their white Caucasian counterparts. For example, women of African origin in the UK are four times more likely to die during pregnancy and childbirth than white British women, highlighted Sophie Smith, Founder and CEO, Nabta Health.

Sophie Smith

In an interview with *Omnia Health*, she discussed the necessity of growing women's health technology. She said: "Only by building healthcare solutions that are tailored for women from emerging markets will we address some of these inherent biases and facilitate more equitable health outcomes." Excerpts:

How is Nabta Health fulfilling the demands of the market and users by leveraging personalised care pathways?

Nabta Health's broad target market is women between the ages of 18 and 58 who have specific health goals or aspects of their health they are struggling with, for example, "I'm unable to lose weight", "I'm struggling to fall pregnant", "I recently suffered a miscarriage and I need support" etc. For our initial clinical pathways, which focus on Polycystic Ovary Syndrome (PCOS) and related metabolic disorders, our users fall into two buckets, either women who have recently been diagnosed with PCOS and want to learn more about the condition, or women who are struggling to conceive naturally. Our personalised clinical pathways, which integrate smart medical devices and tests and are supported by value-based local healthcare providers, allow women to detect, diagnose and

manage conditions such as PCOS wherever and whenever is most convenient for them.

Can you tell us about certain app features and AI integrations that make Nabta successful?

The central feature of the Nabta app is Aya, an artificially intelligent health assistant whose job it is to act as a personal health coach for women, from defining health goals, to understanding which activities should be tracked, to navigating personalised clinical pathways, from symptoms to diagnosis and beyond. While most of Aya's decision making abilities were developed in-house, her symptom triaging, which supports Nabta app users with pre-consultation support for over 660 conditions, is powered by Infermedica, a leading AI-powered symptom checker.

How are machine learning and augmented intelligence integrated?

Hybrid healthcare is defined as combining the best of digital and traditional healthcare along clinical pathways to improve health outcomes. At Nabta Health, this means using our artificially intelligent health assistant, Aya, to move women swiftly along clinical pathways from symptom detection to diagnosis, and then working with trusted local healthcare providers to provide a formal diagnosis along with onward medical advice and treatment. Aya is the machine learning or "artificially intelligent" component; the clinicians and providers that we interface with are the "humanly intelligent" component.

How was the gap recognised for Nabta?

After we founded Nabta Health in 2017 with the intention of empowering women in emerging markets to effectively manage their health, we spent 15 months in R&D, analysing the existing women's health technology (or FemTech) ecosystem to understand where the gaps and opportunities were. We quickly realised that while many FemTech companies provided useful insights to women in isolation – cycle length, ovulation status, etc. – very few interfaced with the established healthcare ecosystem, meaning women were unable to move beyond detection to diagnosis and treatment.

Then, in the summer of 2018, I was diagnosed with insulin-resistant Polycystic Ovary Syndrome. I had always suffered with irregular cycles and had been using the OvuSense realtime fertility monitor (which detects ovulation with 99 per cent accuracy in cycle and is now integrated with the Nabta app) to help me fall pregnant a second time. When I failed to ovulate during a long, 60-day cycle, I went and saw a local OB/GYN, who ran a bunch of tests and gave me my diagnosis - PCOS. One trigger shot and 17 days later and I was confirmed pregnant. The experience was a eureka moment for me. Globally, it takes an average of 2.5 years and three doctors for women to be diagnosed with PCOS and even longer to fall pregnant. By incorporating digital technologies into the clinical pathway for PCOS, it took me just 90 days to get from the start of my first anovulatory cycle to a positive pregnancy test.

It was off the back of this – my own, personal encounter with infertility (mercifully brief) – that we crystallised our hybrid healthcare model, coined the term "Hybrid Healthcare", and raised a Seed round to build our first clinical pathway for PCOS.

Aya, an AI-health assistant, acts as a personal health coach for women

What has been the digital journey of Nabta's development?

We launched our digital presence (website and social media) in the summer of 2017, while still in R&D. Our evidence-based, bilingual (Arabic and English) content and health awareness campaigns allowed us to engage women on different aspects of their health from very early on. We used the insights from these engagements to inform our product development. To date, we have reached over 25 million women across the Middle East, Africa, and South Asia. A BETA version of the Nabta app was released in June 2020, with a very embryonic Aya, to get some initial feedback from users. Now that we have completed the device and test integrations required to support our first clinical pathway(s), we are starting to actively market the Nabta app to women in the UAE for the first time.

How does Nabta use data to offer services/products for non-app users?

We identify women as potential users of Nabta Health's products and services based on publicly available data, for example, the forums and groups they join, the questions they ask, and the interests they list. We believe that women should be the owners of their data, with the freedom to choose how, when and with whom it is shared – this applies not only to users of the Nabta app, but to women in general, all of whom could at some point be our customers, and whose data rights it is, therefore, our duty to protect.

How does Nabta offer telehealth services to users? Can you discuss the diversity of the app and how it caters to the user in many ways such as chat messenger and appointment booking?

As much as possible, we try to work with local healthcare providers to provide telehealth services to users of the Nabta app, and to do this using their existing technology stacks. Since the COVID-19 pandemic, healthcare providers around the world have invested billions in their own consultation and appointment-booking platforms. As long as we can interface with those platforms, allowing women to share their health and medical data in a systematic way with their provider(s) of choice, we don't believe it is necessary for us to add to the byte bank. For countries where providers do not offer virtual consultations as standard, we will from 2022 be able to offer Nabta-hosted chat, video, and audio consultations as well as appointment booking for in-person consultations. We have some interesting projects in the pipeline to facilitate the move from provider-led to patient-led, patient-centric care – one involving a decentralised, ledger-based system for the "stamping" of data transactions and sharing requests, but more on that another time.

What does the future hold for Nabta as a product for women in the world of hybrid healthcare?

Nabta Health is one of only a handful of FemTech companies focused on improving health outcomes for women in emerging markets. Indeed, we are on track to become the leader in the detection, diagnosis, and management of non-communicable diseases in women from the Middle East, Africa, and South Asia by 2025. In terms of hybrid healthcare, we are excited to witness the continued adoption of our model – in emerging markets and beyond – and to work on building new, hybrid clinical pathways, with better, more equitable health outcomes for women and a healthier population overall.

ESSENTIALLY **BETTER**

Evario one

The economical hospital bed

The Evario one from Stiegelmeyer combines high economic efficiency with a noticeable relief for the nursing staff. Intuitive operation, good mobility and reliable hygiene are decisive strengths in everyday work. Discover the advantages of this bed for all wards:

Your advantages:

- 2 selectable safety sides for protection and mobilisation
- Customised operating concepts depending on the place of use
- Hygienic design with few niches
- Bed surrounds and optional brackets offer space all around for equipment and accessories

stiegelmeyer.com

STIEGELMEYER

Cloud networking in healthcare: unlocking the future of innovation

By Mark Daley, Director, Digital Strategy & Business Development at Epsilon

Mark Daley

Digital transformation across the globe was hugely accelerated by the COVID-19 pandemic. For healthcare organisations, the sharp rise in healthcare demand has not just created a drive towards transformation, but there is now an urgency to focus on innovation.

McKinsey found that out of the 100 plus healthcare leaders surveyed, 90 per cent agreed that the pandemic fundamentally changed the way they do business, requiring new products, services, processes, and business models. Almost overnight, it forced many healthcare operations online and into the cloud.

As a result, healthcare organisations need a way to improve cloud and networking functions with higher operational efficiency. In order to innovate and expand the use of cloud-based applications and services, compliance and data management cannot be left behind. It is vital for healthcare organisations to future-proof their cloud strategy with a tailored solution and keep up in a market that can change very quickly.

Keeping up with the cloud

The pandemic created a whole range of new challenges for businesses including how to deal with cloud provider networking inefficiency, changing, and increasing infrastructure costs, and lost business and revenue opportunities.

Healthcare organisations facing continually repeating processes such as migrations, inter-networking challenges and a lack of function consistency across clouds, need to look at innovative cloud solutions to regenerate how they handle data. Continual cycles of differing delivery needs for client services in each cloud environment creates a lack of consistency, with simple networking tasks using different approaches and set up steps.

The cloud itself is fundamental to innovation, enabling businesses to increase efficiencies and improved productivity of engineering and operations teams – 14x build/deployment (32 hours without, 2 hours with) and 7x tactical ops (8 hours without, 1 hour with). It also provides simplified networking and security, hassle-free configuration and network onboarding, and the ability to overcome the skillset gap in public cloud.

And new technologies are becoming increasingly accessible and are constantly evolving to meet changing needs and demands, sometimes caused by cloud technologies. Examples include the simplification of networking and security, with hassle-free configuration and network onboarding, and functions to overcome the skillset gap in public cloud.

And the ability to meet regulatory and compliance obligations, particularly across diverse or distributed sites including both cloud and business sites is critical.

Ultimately, these new functions are becoming available for all healthcare organisations who face the same challenges as any other business – and these functions combined with the benefits of working with the cloud aim to reduce CAPEX and OPEX whilst increasing overall performance.

A key function now available to healthcare organisations is a robust networking solution that can set up networking across multiple cloud platforms in a more familiar and consistent way. Enterprises can gain networking tools for cloud environments that are available as their own, with the following key features:

- Network Transport – Dedicated path networking over a private MPLS network that you control: Fully configurable via SDN. Visible performance metrics. Clouds, data centres and Internet Exchanges.
- Network Control – Configurable end to end set up, control and routing and policy functions for directing and protecting your traffic. Fully configurable portal(s). Across public and private networks. Visible and configurable performance metrics and policies.

New opportunities with cloud networking

According to MarketsandMarkets, the market for healthcare cloud computing is expected to grow from US$28.1 billion in 2020 to US$64.7 billion by 2025. The industry's strong growth has been triggered by the need for healthcare providers to access patient data on-demand and furthered by COVID-19 and stay-at-home orders.

Cloud networking provides connectivity between applications and network resources on-demand, with added security, scalability, and flexibility.

A comprehensive cloud networking solution can provide a whole range of benefits for all kinds of enterprises, including reduced time and effort, increased performance, improved uptime, higher efficiency, reduced skills gap issues and tighter security.

For healthcare professionals in particular, it enables them to increase the protection of patient data as it moves in transit, as well as strengthening access policy to key IT software and infrastructure. They can also ensure more efficient management of the IT component, provide a common visibility capability for management and control, and troubleshoot problems faster.

On top of this, the potential for mistakes and errors to create security and compliancy holes is reduced, and it is simple to ensure the auditability of key network elements. Security can be sychronised across all elements, including cloud, with a common view and domain for an optimised user experience.

Accelerating digital transformation

Complexity in healthcare will only increase as new innovations and developments require new regulations and security guidelines. It is vital for healthcare organisations to not only adopt cloud technology, but also understand how to leverage it to accelerate transformation into the future.

Healthcare data is sensitive, and a secure cloud networking solution strengthens the protection of patient data as it moves in transit, as well as strengthening access policy to key IT software and infrastructure.

With an innovative and comprehensive cloud networking solution, healthcare enterprises can seize the digital opportunity of today and protect their customers data and information whilst meeting the needs of patients of both today and tomorrow.

The market for healthcare cloud computing is expected to grow from US$28.1 billion in 2020 to US$64.7 billion by 2025

TCI Anaesthesia: New universal models

By Natalie Samuda, RM, BSc, Senior Clinical Resource Consultant, Medication Management Solutions, MENAT, and James Waterson, RN, M.Med.Ed, MHE, Medical Affairs Manager, Middle East & Africa, Becton Dickinson

A TCI pump automatically calculates how much drug is needed

It is important to define clearly between TIVA and Target-Controlled Infusion (TCI). TIVA means nothing more than anaesthesia being provided to the patient solely via the IV route, whereas TCI refers to maintaining the desired plasma or effect site concentration of a drug using an infusion pump managed by a computer, and pharmacokinetic (PK) and pharmacodynamic (PD) models.

In simple terms TCI means that instead of setting a dose-rate on the pump, the pump is programmed to target a required plasma concentration or effect-site concentration. A TCI pump automatically calculates how much drug is needed during induction and maintenance to maintain the desired effect-site or plasma concentration.

A TCI algorithm (the 'target' and plan on which the pump relies to deliver appropriate induction and maintenance rates to maintain anaesthesia without overdosing the patient) is based on four processes that occur following injection of any intravenous drug into the body: Absorption, Distribution, Metabolism, Excretion.

The above are commonly, but not always, affected by weight, and renal and hepatic health. Examples of common PK effect site concentrations for Propofol and Remifentanil are:

The effect-site concentration of Propofol required to produce loss of consciousness is about 3 to 6 mcg/ml, depending on the patients' demographics. Patients waking from anaesthesia generally have a blood concentration of around 1- 2 mcg/ml, although this is dependent on other drugs given during anaesthesia. Adequate analgesia with Remifentanil is generally achieved with 3-6 ng/ml. A Remifentanil infusion of 0.25-0.5 mcg/kg/min in an 'average' man- 70kg, 170cm, 40 years old- produces a blood concentration of around 6ng/ml after 25 minutes.

The 'classic' models: Marsh for Propofol and Minto for Remifentanil are PK models based on body compartments. 'Compartments' relates to theoretical body 'spaces' in which a drug is distributed following injection. Conventionally the body compartment that the drug is injected into is V1 (plasma/blood), the next compartment is the 'vessel-rich' or 'fast re-distribution' compartment and is characterized as V2 (heart, liver etc.). The final compartment, which is anatomically 'vessel-poor' and 'slow' in terms of re-distribution, is V3 (fatty tissue).

Once a steady state of drug distribution has occurred V1+V2+V3=Vdss where Vdss is the steady-state volume of distribution of the drug.

Of course, drug distribution and the metabolism/elimination of each drug in each compartment also need to be modelled. By convention the rate of elimination of a drug is K10, whilst the movement/distribution between compartments is denoted by K12 (V1 to V2), K21 (V2 to V1), K13 (V1 to V3) and K31 (V3 to V1). If one wants to describe the hysteresis between the time course of plasma concentration and clinical effect, the pharmacokinetic model must be enlarged with a pharmacodynamic part. The link

between the plasma and the effect-site is done by using the time constant ke0.

Computer simulations and mathematical modelling of infusion schemes based on the above theories of compartments and clearances give us our models for both Target Plasma Concentration (Cpt) and Target Effect Concentration (Cet) and these can be incorporated into specialist computerised infusion pumps.

The Marsh model for Propofol requires only age and weight to be programmed in the pump. The Schnider model is an alternative model for Propofol and has advantages in elderly patients as it is based on a lean body mass (LBM) calculation for each patient derived from patient height, and total body weight. Elderly patients receive a lower induction and maintenance dose to maintain a constant plasma concentration, which can assist with hemodynamic stability.

The Remifentanil Minto model uses age, height, gender, and weight, and determines LBM for its calculations. Remifentanil is an ultra-short acting opioid (Half-life of 3 minutes) and this allows prolonged infusions without drug accumulation.

TCI pumps deliver the infusion at a constantly altering rate (they alter the rate slightly every 8 seconds). But it can be useful to think of this one infusion as being a mean-average comprised of three continually calculated infusion rates: a constant rate to replace drug elimination and two exponentially decreasing infusions to match drug removed from central compartment to other peripheral compartments of distribution.

Key features of an ideal TCI infusion system or pump are:

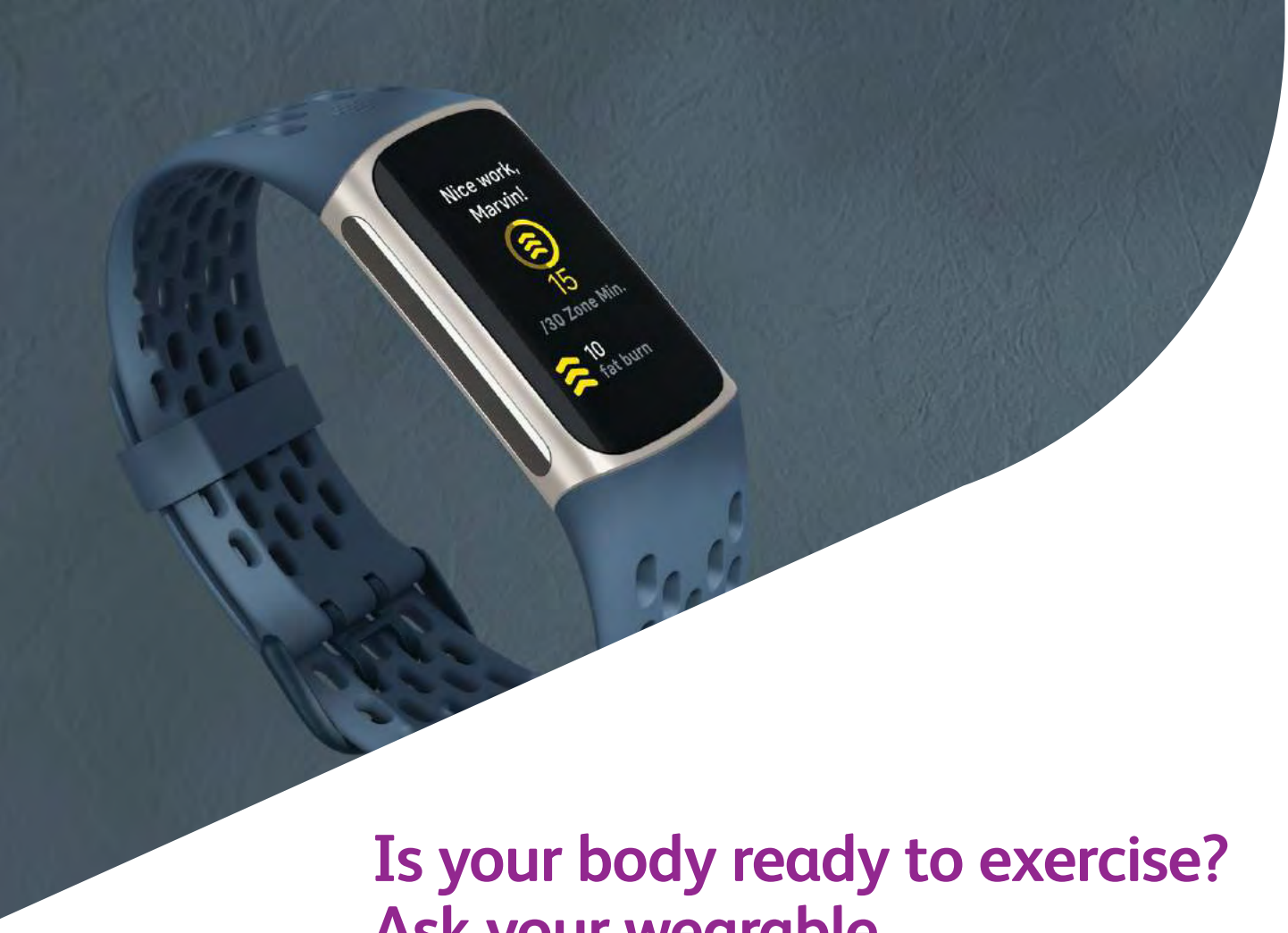
- A large, clear display that is easy to navigate during the many critical phases of anaesthesia and easily viewed from a distance when multiple devices surround the patient during surgery.
- Critical information such as decrement time, current Cet or Cpt and respective targets, current dose rate and concentration and type of agent being infused can be displayed at the same time on one screen.
- Patient parameters used during the setting-up of infusions appear on one screen to avoid the need for shuttling through multiple screens to check vital information.
- An Induction Time adjustable from seconds to minutes to allow for a gentle induction for patients with cardiovascular conditions or established hypotension.
- An ability to automatically pause after induction to allow for assessment of the patient.
- A capacity for setting default dose rates, patient weight, height, and age to match the common patient population that the individual anaesthetist works with.

Obese patients present a problem for 'classic' TCI. For example, the Marsh model can significantly overdose these patients, and the physiological differences between paediatrics and adults had previously required separate models for children with a far higher induction and maintenance doses per kg body weight.

Now, however, we have the Eleveld model for both Propofol and Remifentanil, and the Kim-Obara-Egan Remifentanil model which are much more universal and can potentially allow TCI in age ranges from 6 months old to 99 years of age, and from 2.5 to 215 kg.

TCI, with its emphasis on evidence-based anaesthesia, and a new near-universal patient model seems primed to change our approach to the management of all patients receiving sedatives and analgesic agents.

The Marsh model for Propofol requires only age and weight to be programmed in the pump



Is your body ready to exercise? Ask your wearable

By Deepa Narwani, Senior Editor

The pandemic has wreaked havoc with our bodies and disrupted schedules. At some point, most of us have endured sickness or taken care of a loved one who was unwell, which has caused increased stress, leading to sleep, diet and exercise cycles, all going for a toss.

So, recently, when I got my hands on the Fitbit Charge 5, a health and fitness tracker that helps to keep a closer eye on overall fitness, stress, heart health, sleep, and well-being, I was intrigued to see how it would could help me get some of my schedules back on track.

The device's latest feature, the Daily Readiness Score, uses insights such as activity, heart rate variability (HRV) and recent sleep patterns to help understand if you should work out or take a break from hitting the gym. As somebody who goes to the gym in extremes (five times a week or never), the device really helped me get in tune with my body. For example, once when on the previous day, I would have worked out a lot or not gotten enough sleep, the app gave me a low readiness score of 19, saying that since I went above and beyond with activity, my body would need rest. It also offers tips on how to achieve recovery. For instance, it suggested light walks, stretches, or restorative yoga for me. While on days my body was ready for a workout, I have received a score of 90, signalling that I was prepared to sweat it out and received a recommended target Active Zone Minutes goal.

Getting these personalised scores each morning has greatly helped me make the best decisions for my body. I find myself with improved energy levels throughout the day, and it has helped me achieve my health, fitness, and wellness goals over time. The battery life, which can last up to seven days, was another big hit for me. Plus, the coloured touchscreen and always-on display feature make this lightweight device user-friendly.

Moreover, a premium membership offers a health metrics dashboard, stress management and sleep scores, along with the daily readiness score that works together to provide an analysis of one's bodily data that can help work out smarter as well as manage stress and sleep better.

Getting personalised scores helps make the best decisions for the body

The score starts appearing on the device after wearing it for 14 hours each day for the duration of the testing period and while sleeping at night. A more personalised score will appear after wearing the device for two weeks.

Moreover, according to Fitbit, during 2020, a record-high 40 per cent of adults said they experienced a lot of stress. To help manage stress, Charge 5 includes an EDA sensor, which measures the body's response to stress through tiny changes in the sweat glands on the fingers. It works by holding the sensors on both sides of the watch for a two-minute scan. A study found that 70 per cent of users reduced their heart rate during an EDA Scan session, showing these tools can help reduce stress.

Furthermore, Fitbit also offers the Stress Management Score on the app that calculates how the body responds to stress based on heart rate, sleep, and activity level data. Ranging from 1-100, with a higher score indicating the body is showing fewer physical signs of stress, the score is coupled with recommendations to better manage stress, like breathing exercises and other mindfulness tools.

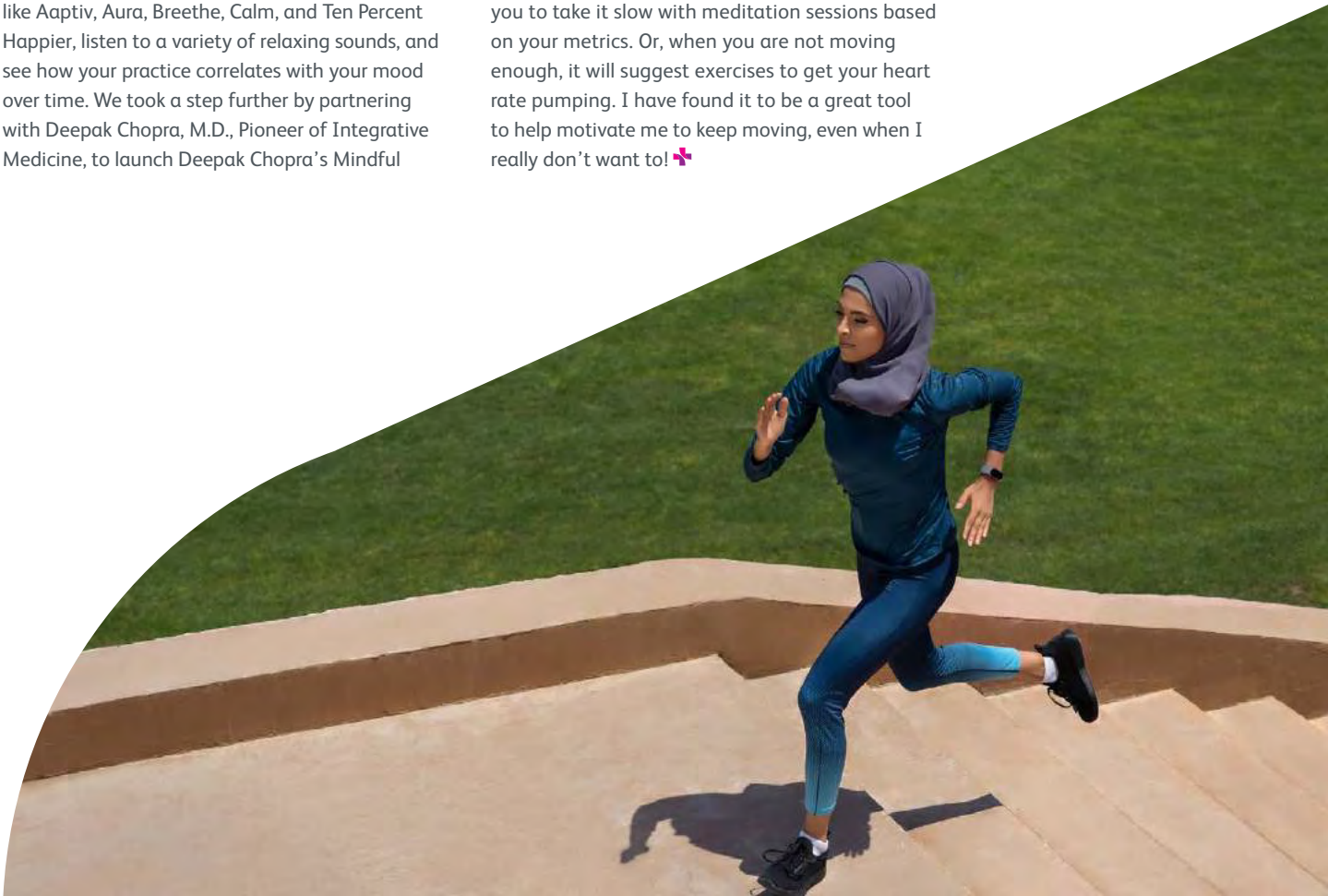
Prateek Kewalramani, Head of Marketing, Fitbit – MEA, Google, highlighted: "Our goal at Fitbit is to give users more data to empower them to see changes in their fitness and well-being. Premium members can choose from more than 100 meditation sessions from popular brands like Aaptiv, Aura, Breethe, Calm, and Ten Percent Happier, listen to a variety of relaxing sounds, and see how your practice correlates with your mood over time. We took a step further by partnering with Deepak Chopra, M.D., Pioneer of Integrative Medicine, to launch Deepak Chopra's Mindful Method, a wellness collection created and curated for members to make a mindfulness practice more accessible to people worldwide."

Additionally, the device tracks heart rate 24/7 and provides notifications when one is above or below personal ranges. The device also provides insights on breathing rate, skin temperature variation and SpO2.

Over the years, fitness trackers and smartwatches have offered a wealth of data, but most people are not able to interpret it and act on it. The Charge 5 takes on this challenge effortlessly and gives insights that were not available before.

Kewalramani added: "Wearables can help bridge the gap between visits to the doctor and facilitate conversations between patients and their providers. Users can take a more proactive approach to their health and have informed conversations with their care teams, thanks to the information that is now available on their wrists. In turn, providers and caregivers can deliver better, more personalised care, armed with actionable information about the health of their patients, further supporting them outside of the doctor's office. We see wearables as being a complement to the healthcare system, not a replacement."

So, if you are trying to push yourself to work out after a bad night's sleep, the device will tell you to take it slow with meditation sessions based on your metrics. Or, when you are not moving enough, it will suggest exercises to get your heart rate pumping. I have found it to be a great tool to help motivate me to keep moving, even when I really don't want to!



New Zealand: a country of innovative ideas and fresh solutions

Article provided by New Zealand Trade and Enterprise

This January, three New Zealand companies will be exhibiting at Arab Health and another dozen will be visiting the United Arab Emirates to showcase their innovations and network for regional partners during Arab Health week. Many of these companies are at the cutting-edge of their medical fields.

A quick history of New Zealand healthcare

People are often surprised when they hear about the life-changing healthcare innovations that have come out of New Zealand. And yet this country has been at the forefront of fresh thinking since 1873, when Joseph Nathan established a healthcare company called Glaxo, which later became Glaxo Smith Kline. Since then, Kiwis have invented the disposable hypodermic syringe, been part of the team that discovered the DNA molecule and developed the first big data cloud platform for precision medicine.

More recently, New Zealand has become a hotbed of innovation in everything from orthopaedics, tissue engineering and remote healthcare delivery through to different applications of AI in healthcare.

New Zealand has become a hotbed of innovation in everything from orthopaedics to different applications of AI in healthcare

Putting patients first is the driver of innovation

Caring for people is a core Kiwi value, and healthcare in New Zealand is patient-centric. The pathways to achieving patient outcomes need to be commercially viable, but the patient remains the priority. For example, Exsurgo, one of the companies visiting the UAE in January 2022, has developed an EEG headset to help patients with chronic pain. Richard Little, the founder, speaks about being on "a mission to transform the way the world treats neurological problems with effective, accessible and non-pharmaceutical solutions that harness the latest in engineering and big data." For him, it's personal: he got the idea after his mother suffered a stroke and he wanted to find a solution that allowed her to reduce her pain and suffering.

Another company, Howard Wright, worked with nurses, patients and maintenance technicians to understand their needs and as a result developed their innovative electric stretchers, which decrease the risk of patient falls, pressure injuries and cross infection. This reduces the average length of hospital stays for patients – a win for healthcare systems and patients alike.

Being small is an advantage for New Zealand

New Zealand is home to just 5 million people, which means that different parts of the healthcare ecosystem are closely connected – communication and partnerships between universities, start-ups, hospitals and government regulators allow new innovations to hit the market fast. An example of this collaboration is Orion Health, one of New Zealand's largest healthcare providers, which worked with the government to build much of the country's healthcare system.

The University of Auckland's Auckland Bioengineering Institute is the genesis of many of today's new companies. For example, Toku Eyes, a start-up that uses AI to improve early detection of eye diseases, and Alimetry, which uses AI to inform diagnostics of gastric disorders, were both spun out of the institute.

From a new product idea to exporting around the world: thinking globally from day one

Another unique feature of New Zealand's healthcare sector is that its companies develop solutions not just for the domestic market, but for the world. Companies know that to scale they need to export, so they tend to think globally from day one. ESP Medical is a brilliant example of this. They have developed an emergency ventilator – the RESPO2NSE – that can be used anywhere in the world thanks to its use of non-proprietary consumables, external swappable batteries and remote patient monitoring. Many Kiwi healthcare and health-tech companies' products are also designed to meet international standards by immediately obtaining FDA and CE marks.

The future in a COVID-19 world

Despite not seeing the worst of the COVID-19 crisis until much later than other countries, Kiwi companies were quick to get to work on solutions. Two particularly interesting companies that have come out of New Zealand recently are Ubiquitome, whose handheld, battery powered Liberty16 device conducts real-time PCR tests and relays data through its iPhone app, and Zoono, which offers innovative sanitising technology that is backed by extensive scientific research. A third great example of pandemic-driven innovation is Orbis Diagnostics: its Orbis Arca platform can quantify a person's antibodies against COVID-19 within 15 minutes and determine their levels of immune protection to the virus.

Why the Middle East should look to New Zealand

New Zealand is a natural partner for the Middle East when it comes to healthcare solutions. Governments in the region, especially in the UAE and Saudi Arabia, are concerned about the rise in lifestyle diseases like obesity and diabetes and are pushing through a rapid transformation of their healthcare systems, with ambitious goals to develop some of the best healthcare systems and medical tourism destinations in the world. These ambitions are creating a wealth of opportunity in the health-tech, medical devices and wellness fields that New Zealand exporters are well placed to fulfill thanks to their fresh thinking, their commitment to putting the patient first and their ability to think globally from the moment they start innovating.

Many Kiwi healthcare and health-tech companies' products are designed to meet international standards

For more information about the New Zealand healthcare and health-tech companies showcasing their innovations during Arab Health week, please visit https://bit.ly/NZ_HealthcareUAE or contact Naoual Haddouch, Trade and Commercial Advisor at New Zealand Trade and Enterprise: *naoual.haddouch@nzte.govt.nz*

The heart of safety

Ensuring healthcare team member safety in a post-COVID era

By M. Bridget Duffy M.D., Chief Medical Officer, Vocera

When I donned my white coat and took the Hippocratic Oath to "First Do No Harm," I would leave for work every day and pray that I didn't hurt anyone that day. My biggest fear was that some decision or action on my part would cause harm to my patients. Never did I have to worry that my own safety or the safety of my family would be at risk because of my career choice. Never did I have to be concerned that I might not have the equipment or technology to keep me safe as I provided care for my patients.

Unfortunately, with the COVID-19 crisis, today's care team members have had to face that very reality. The consequential mental and physical toll on them will profoundly impact our nation's healthcare system and the workforce of the future. My colleagues on the frontlines today have had to deal with a novel virus for which we were little prepared, leaving professionals whose whole sense of purpose comes from healing and "helping" feeling unable to help. Many have had to become 'doulas for dying,' providing a loving presence at the bedside and connecting with patient's loved ones who couldn't be by their side due to safety restrictions.

COVID-19 exposed flaws in our health system and national health care infrastructure. Not only did we experience shortages of PPE and expose supply chain inadequacies, but we also discovered that our definitions of PPE (gowns, gloves, masks) failed to ensure that frontline care team members could communicate effectively with their teammates and with patients and families without the risk of infection. That meant more contamination risk in donning and doffing PPE that hands-free communication tools could have prevented.

Colleagues on the frontlines have had to deal with a novel virus for which they were little prepared

We also saw broad systemic inequities exposed as COVID-19 disproportionately impacted Black and brown community members, both from a mortality and economic perspective. We learned that racial injustices were also being experienced within our healthcare systems by many of our colleagues. Remarkably, our essential but too often "invisible" workers in housekeeping and food services – disproportionately people of color – still put their lives on the line every day to care for patients and team members.

A movement to redefine safety for healthcare team members

As a physician whose career has been centered on making sure every human being has access to humane, compassionate, and competent care, and working for a company whose mission is to simplify and improve the lives of healthcare professionals and patients, I saw the need for a new movement in healthcare – one that broadens the definition of workplace safety and elevates team member safety and well-being to a top strategic priority for the nation.

With the support of the senior leadership at Vocera, my team and I quickly assembled a coalition of CEOs from leading health systems, diverse in background, geography, gender, and system type. It didn't take any convincing. These leaders were seeing the same challenges we were and knew that the future of the nation's healthcare systems depended on making physical and psychological safety and health justice our nation's top priority.

Together, we drafted a Declaration of Principles that expands the definition of safety to include safeguarding psychological and emotional well-being of team members, promoting health justice by declaring equity and anti-racism as core components of safety, and ensuring physical safety, which includes a zero-harm program to eliminate workplace violence, both physical and verbal. This Declaration extends to all team members, from frontline clinicians to environmental services workers and back-office employees.

Since launching the Declaration in May, we have collaborated with the Institute for Health Improvement to ensure that we can identify and spread evidence- and experience-based practices that advance the six Principles, as well as the metrics that allow us to gauge progress.

I am profoundly grateful to our 10 founding CEOs who are making team member safety one of their top priorities as we rebuild from COVID-19. And I invite others to join the movement to ensure that no healthcare team member will have to sacrifice their personal safety, health, identity, or well-being to do their jobs and care for patients.

The Declaration of Principles expands the definition of safety to include safeguarding psychological and emotional well-being

What you need to know about long haul COVID

In conversation with Dr. Greg Vanichkachorn, medical director of Mayo Clinic's COVID Activity Rehabilitation Program

By Omnia Health Magazine Staff

At a recent virtual event, Mayo Clinic's Dr. Greg Vanichkachorn highlighted that since early in the pandemic, his colleagues and he working in occupational medicine have been striving to help individuals who are trying to recover from acute COVID-19 infection. He said: "From the very beginning it was very clear that these individuals were having a hard time with recovery. They were experiencing prolonged symptoms such as extreme fatigue and shortness of breath.

"In order to help them recover, I reached out to my colleagues in different specialties, such as pulmonary medicine, cardiology, infectious diseases and we put together a treatment plan for these patients. As more and more patients presented to the clinic needing assistance, we formalised the programme in June of 2020 as the COVID activity rehabilitation programme. And since then, we've seen hundreds of patients from across the U.S. with these conditions." Excerpts of the discussion:

Long haul COVID is a condition that is typically associated with extreme fatigue

Long haul COVID

Long haul COVID is a condition that is typically associated with extreme fatigue, and it's not just any normal fatigue, but quite profound. Patients will often say that they need to take a nap or three to four hours or even a fatigue lasting for days after performing simple activities like doing some light household chores or going around the block for a walk. In addition, patients also complained of significant shortness of breath and neurological problems like headaches and troubles thinking.

But these symptoms, which are often focused on by the media, are only the tip of the iceberg. Every day we are learning more from our patients and we're hearing more about symptoms that are and can possibly be related to long haul COVID things such as troubles with sweating, GI (gastrointestinal) issues like severe constipation, headaches and even hearing loss.

Unfortunately, this is a condition that does not seem to be going away despite all of our best efforts with the pandemic such as controlling contacts and introducing vaccines. People are still suffering. We are now more than a year out from the start of the pandemic, and we do have patients who are experiencing symptoms still.

Patients are getting better, but there are some also for who these symptoms will be their new baseline in life, unfortunately.

EUROIMMUN
a PerkinElmer company

Medizinische
Labordiagnostika
AG

A powerful portfolio of SARS-CoV-2 tests

Direct virus detection and analysis of immune responses

SARS-CoV-2 assays

- **EURORealTime SARS-CoV-2**
  PCR-based detection of SARS-CoV-2 as single parameter or in combination with influenza virus A/B
- **Anti-SARS-CoV-2 QuantiVac ELISA (IgG)**
  ELISA for quantification of the anti-S1/RBD IgG concentration in standardised units (BAU/ml)
- **SARS-CoV-2 NeutraLISA**
  Surrogate virus neutralisation test in ELISA format for detection of neutralising antibodies targeting S1/RBD
- **Quan-T-Cell System**
  ELISA-based interferon-gamma release assay (IGRA) for determination of the activity of SARS-CoV-2-reactive T cells via stimulation based on S1/RBD
- **Comprehensive automation options available!**

Visit www.coronavirus-diagnostics.com

For further information contact infection-pm@euroimmun.de

EUROIMMUN Medizinische Labordiagnostika AG · Seekamp 31 · 23560 Lübeck (Germany) · Phone: +49 451 2032-0 · info@euroimmun.de · www.euroimmun.com

Greg Vanichkachorn

What factors make a person more likely to develop long COVID?

When we originally started to encounter this condition, we assumed that the risk factors that would make someone more likely to have an acute severe infection, like advanced age or uncontrolled high blood pressure or diabetes, would be the factors that lead to long haul COVID.

But this is not actually what we have seen in our research. In fact, 75 per cent of the patients that we have seen here at Mayo in our programme had very mild infections and did not need to be hospitalised. Some did not inquire any medical care at all.

In addition, only about a quarter of our patients had any form of pre-existing cardiovascular, respiratory, or mental health condition. Only about 5 per cent of our patients had any pre-existing chronic fatigue or fibromyalgia, which is something that's been related to this condition. So, the takeaway point that I often leave with people is that really long haul COVID is a condition that can affect anyone.

Have the biochemical changes that cause a person to develop persistent COVID been identified?

Somewhat; so it's important to remember that this is still a very new condition, even though we are more than a year out from when we first started hearing about this. But most of the research out in the world has focused on just trying to identify how this condition of presents across different social economic groups and ethnicities.

However, that being said, there are some initial findings now in the research that indicate there may be a problem or indicate what the problem is on a biochemical level. For example, out of the University of Arkansas this past year, there is research that found auto-antibodies against certain proteins in patients who are experiencing a long haul COVID and those antibodies were against something called Angiotensin-converting enzyme, which is involved with how the coronavirus infects people. There's also been other research showing that the immune system is altered and not functioning normally in patients with long haul COVID. There's also been a lot of research indicating that there can be neurological issues like neuropathy in patients who have long haul COVID.

The most common theory right now is that long haul COVID is caused by a hyper immune or autoimmune problem that's affecting the body in many ways, including the neurological system.

Which therapies are used to treat patients with prolonged symptoms? How much progress has been made in this regard?

So, the primary problem that we find in long haul COVID is that patients are extremely deconditioned. Any medical condition can cause someone to be deconditioned after just a few days, but this especially it seems to be true with COVID-19 infections.

One of the things that we focus on primarily is helping patients re-strengthen their bodies and get back to their normal daily function but in a safe manner.

Patients with this condition often report something called post exertional malaise or fatigue that can last for hours to even days after a simple activity. Because of this, many patients have a hard time trying to do normal activities during the day or even exercise, because it causes a flare of their symptoms.

So very early on in our treatment programme we will have our patients work with both physical and occupational therapists that can help them recover appropriately without causing too much stress on their body. We don't like to think of this as exercise, but rather consistent low level activity that allows the patient to slowly recover.

About half of our patients report having some difficulties also with their thinking. This has been something referred to as brain fog and it appears very similar to concussions and so we will often have our patients visit with our concussion specialists to help their brains also recover.

And of course, there are many symptoms, as we have heard that are associated with this condition such as shortness of breath or headaches or nausea and dizziness. So we also use medications and other treatments to help with these symptoms so that patients can participate in the physical and mental rehabilitation better.

I've spent a lot of time trying to find the secret, like a medicine or supplement that we can use to quickly fix patients who are suffering from this condition. But unfortunately, we haven't found that yet.

If I am vaccinated and sick with COVID-19, am I less likely to have persistent infection?

So, I have had the opportunity to visit with patients who have been vaccinated and then had COVID-19 and then developed long haul COVID. But fortunately those cases are very rare, and it does seem that individuals who are having prolonged symptoms, the ones that are vaccinated, they tend to get better much faster.

BEST CHILDREN'S HOSPITALS
U.S. News & WORLD REPORT
RANKED IN 10 SPECIALTIES 2021-22

Ann & Robert H. Lurie Children's Hospital of Chicago is among the very best children's hospitals in the United States.

Our International Patient Services Department is committed to providing family-centered care through every interaction, from referrals through treatment to the journey back home.

In the 2021–22 *U.S. News & World Report* rankings of the Best Children's Hospitals, Ann & Robert H. Lurie Children's Hospital of Chicago continues to be the top-ranked pediatric hospital in all 10 specialties for nearly 10 years.

Ann & Robert H. Lurie Children's Hospital of Chicago®

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

Visit luriechildrens.org/international or call +13122274550 to learn more or refer a patient .

Advancement in telemedicine devices and software to create new opportunities for healthcare providers

By Paroma Bhattacharya, Reports and Data

The global telemedicine market size is predicted to register a CAGR of 14.9 per cent to US$ 121.17 billion by 2027

Telemedicine is defined as the diagnosis and treatment of patients via telecommunications technology. As time goes on, this definition will be expanded, and the means, i.e., the exact technology involved, will evolve, and transform. Many areas of medicine are affected, and telemedicine categories such as telemedicine psychiatry and paediatric telemedicine are gaining popularity as a result of their utility and benefits. These telemedicine specialties are gaining in popularity as the benefits of telemedicine become more widely recognised. Telemedicine reimbursement is now recognised even by Medicare, a national health insurance programme in the U.S.

The term telemedicine refers to the practice of a healthcare administering or prescribing treatment or medicine to a patient across a great distance. Telemedicine software is a software platform that enables telemedicine utilising computers and mobile devices.

In the aftermath of the COVID-19 epidemic, telemedicine has remained one of the fastest-growing trends. According to a CivicScience report from 2020, more patients have started using online technology owing to stay at home orders that started due to the pandemic. Only 8 per cent of people in the U.S. reported having had a telemedicine appointment in December 2019. By comparison, in May 2020, the percentage had risen to 29 per cent. The global telemedicine market size was US$ 39.97 billion in 2019 and is predicted to register a CAGR of 14.9 per cent to US$ 121.17 billion by 2027.

The global telemedicine devices and software market reported a large market size in 2019, and it is predicted to grow significantly in 2027 at a rapid revenue growth rate over the forecast period, as telemedicine continues to gain popularity. Patient visits to clinics or healthcare centres are often time-consuming, particularly for the elderly and disabled, as well as chronic patients who must return on a frequent basis. This annoyance is alleviated by eliminating the need for travel, reducing waiting time, and lowering the expense of travel and pay loss. Similarly, it is advantageous to healthcare practitioners as well. According to industry analysis, due to changing market trends and consumption patterns, demand for telemedicine devices and software has been rising significantly, adoption has been increasing at the same time, and these factors are expected to continue to support telemedicine devices and software market growth over the forecast period.

Telemedicine advantages

Telemedicine as a substitute for in-person appointments provides a number of advantages for both patients and clinicians.

- Less time away from the office
- There are no travel costs or time constraints
- There will be less disruption to child or elder care responsibilities
- Privacy
- No contact with other patients who may be contagious

Providers benefit from:

- A rise in revenue
- Increased office productivity
- A response to the challenge posed by retail health clinics and online-only providers
- Increased patient compliance and improved health outcomes
- Fewer cancellations and missed appointments

Reimbursement by private payer Telemedicine challenges

In many cases, a patient's case necessitates a more complete examination that cannot be performed

online. Broken bones, detecting chronic disorders, and taking blood samples for further tests are just a few examples. There are also concerns that cyber security breaches could expose private patient information, and not all insurance companies cover telehealth services. Patients should study their policies carefully and consult with an insurance company representative if they have any issues.

The cost of installing telemedicine

The more functionality a provider requires from a software or to construct a more complicated telemedicine software, the provider will have to invest more money. If a highly complex and feature-rich system is required, the cost of telemedicine software can easily approach US$300,000. On the other hand, basic telemedicine devices and software are available for US$ 50,000. The final price is very dependent on requirements, size, and capabilities of the solution. The development process can take anything from three to six months.

Companies often require two sorts of applications – web and mobile. As a result, they were divided into multiple packages:

- Web-based application
- Application for mobile devices
- App for doctors and patients
- Only patient's app
- Online app for doctors, as well as web and mobile apps for patients

Cost savings from virtual care

According to some estimations, expanding virtual care solutions might save US$ 4.28 billion per year in healthcare costs. According to projections, the global market for mobile health apps would reach US$ 312 billion by 2027. As a result, many people have pounced at the opportunity to participate in this fast-expanding business.

What does the future have in store?

Despite the remaining roadblocks, the financial benefits of telemedicine cannot be overlooked. Patients save money since they don't have to pay for transportation to and from the hospital, which in rural areas can be miles away. It also allows patients who might otherwise put off a doctor's visit, to easily access a healthcare practitioner for preventive treatment or to establish a primary care physician (PCP). Providers benefit by being able to provide high-quality care to a wider group of patients and by being able to electronically check in with patients on a more regular basis. Treatment professionals can protect the provider-patient relationship while providing inexpensive healthcare by developing strategic, industry-wide best practices and regulations.

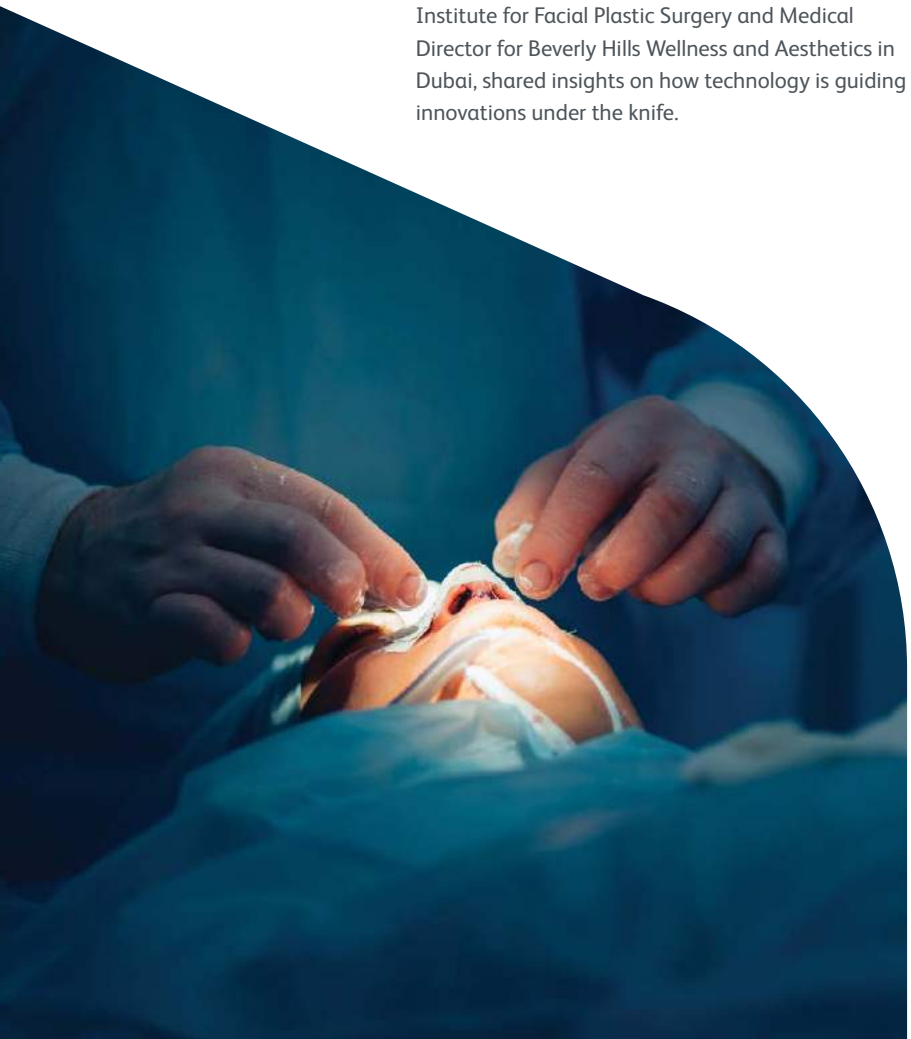
Digital transformation supports advancements in plastic surgery

As we witness the dawn of digital health, specialists weigh in on the influence of technology in plastic surgery.

By Fatima Abbas, Content Executive

Dr Jamil Al Jamali

Over the last two decades, advanced technology such as artificial intelligence (AI), augmented reality, telemedicine, and robotics have emerged and gained prominence in medical learning and practice, according to an article published in *The Journal of the American Society of Plastic Surgeons*. Through increased precision and improved communication between plastic surgeons and patients, these advancements can improve patient outcomes. In an interview, Dr Jamil Al Jamali, Consultant Plastic Surgeon at Medcare Hospital Al Safa and Dr David Alessi, Founder and Medical Director of the Alessi Institute for Facial Plastic Surgery and Medical Director for Beverly Hills Wellness and Aesthetics in Dubai, shared insights on how technology is guiding innovations under the knife.

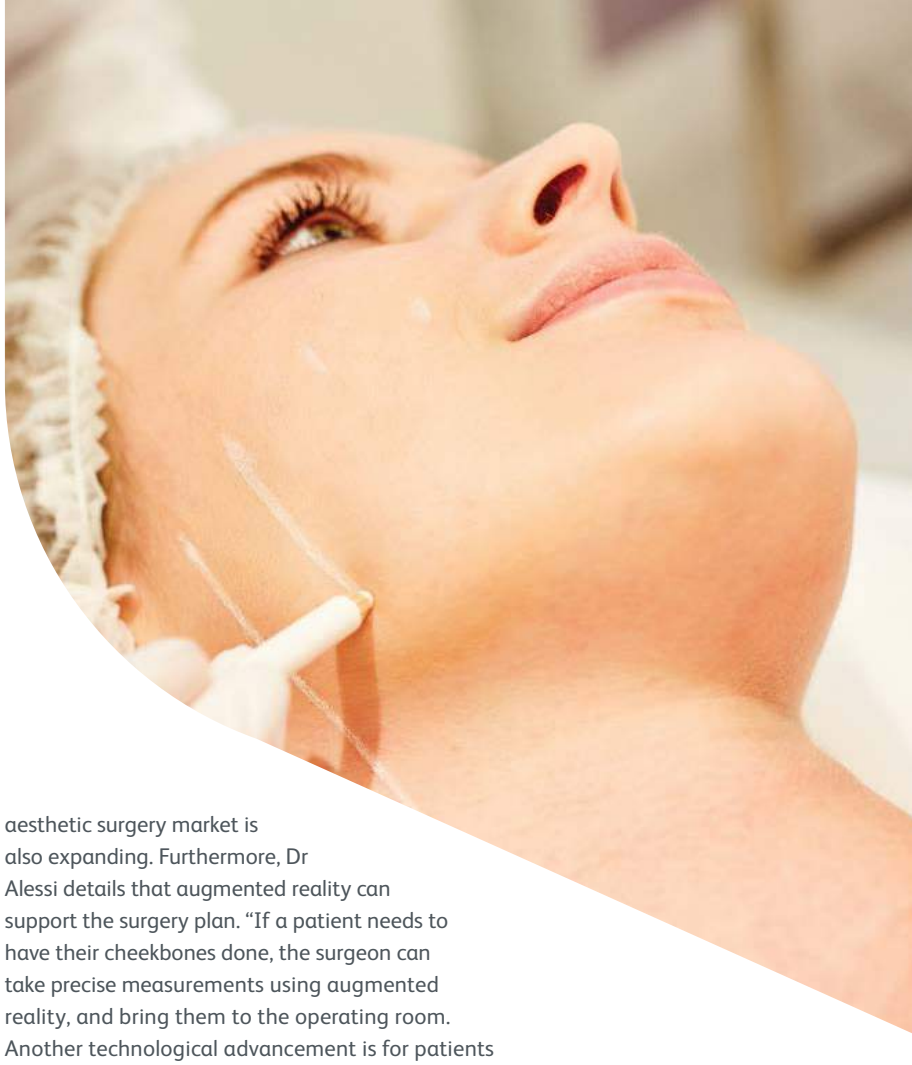


Information technology has become an important element of medical procedures, including the plastic surgery industry, according to Dr Jamali. He shares an example of the digitisation of manufacturing physical operation instruments to various information systems such as surgical information systems, telemedicine, or systems for scheduling operation teams. "This applies to surgical activities but also to the associated patient data-processing and accounting, which have been important issues for the last 20 years at least. With regards to plastic surgery, technology has allowed doctors and patients to create a visual idea of what the outcome of a surgery will be while digital advancements have in themselves, helped to advance the technologies and equipment used in both pre- and post-surgical procedures as well as obviously during the procedures themselves," he says.

Shaped by technology

Moreover, Dr Alessi comments on how the morphing technology can be key in not only helping patients preview the outcome of their surgeries, but also understand why the plastic surgeon is making certain recommendations. "Through the morphing feature, surgeons can make revisions even during a telemedicine consultation. There are common instances in which patients complain about their nose being too big, however, usually in such cases the nose appears larger due to their chin being small. Therefore, in a preview an augmentation can be made on the chin, creating facial harmony, which the patient is satisfied with. The goal is to ensure patients view the effects of any facial changes before proceeding with the surgery."

Facial morphing technologies have been integrated in popular and mainstream apps, Dr Jamali explains that they play a key role in encouraging people to embark on various levels of plastic surgery.



"Instagram filters create the illusion of perfect skin or petite noses, which pushes them to explore botox or rhinoplasty. While apps that create the illusion of slimmer thighs or larger breasts encourages them to explore liposuction or breast augmentation. These augmented reality apps are making people more open to considering and accepting various levels of plastic surgery."

However, Dr Allesi cautions that one of the biggest challenges with plastic surgery is identifying body dysmorphic syndrome. "The way that media has had an influence on what our definition of beauty is quite dramatic, and in the age of social media many young patients bring edited images as references. A classic example is a patient who has a different facial profiling to a celebrity reference. As plastic surgeons, we give options closer to what is possible. Our focus is to look at the patient and work on realistic enhancements. There is an old saying in plastic surgery that a good plastic surgeon knows when to operate, and a great plastic surgeon knows when not to operate. Most plastic surgeons are very well trained in terms of identifying patients who are not good candidates for plastic surgery or may require psychological support before proceeding."

AI guiding personalised medicine

AI in healthcare delivery has become vital due to its rapid progression, it also lends to plastic surgery in a variety of settings. AI's ability to predict prognoses and diagnoses can support plastic surgeons in decision-making. "AI is useful in identifying risks such as scarring and intensive intervention for patients suffering from burns. Laser is essentially a form of AI, once you enter the skin type of the patient and area to be treated and the laser will suggest the best setting to be used. AI can also be used to identify patients who have body dysmorphic syndrome ahead of time," says Dr Alessi.

"As far back as the early 2000s, researchers developed a machine learning (ML) model that assesses burn depth and healing time based on data from a portable reflective spectrophotometer with some 86 per cent accuracy. The model could further tell which burns would heal before 14 days with an accuracy of 96 per cent and those healing later with an accuracy of 75 per cent. In practice, such insights could help guide physicians regarding which patients need closer follow-ups; as well as which ones can be discharged earlier," adds Dr Jamali.

AR in the operating room

Augmented reality (AR) and face recognition technology are expanding into healthcare, as plastic surgery develops rapidly. The global aesthetic surgery market is also expanding. Furthermore, Dr Alessi details that augmented reality can support the surgery plan. "If a patient needs to have their cheekbones done, the surgeon can take precise measurements using augmented reality, and bring them to the operating room. Another technological advancement is for patients who need to have significant plastic surgery reconstruction. Candidates for this are patients who have had serious accidents, which altered their face. While in surgery digital tracking can be used simultaneously to ensure measurements are precise in complex reconstruction."

To add, Dr Jamali tells us about ILLUSIO, an augmented reality app with a real-time simulation feature, that helps plastic surgery patients to choose the breast implants of the right shape and size. "Women are invited to wear a special bra compatible with this AR technology that helps the app create a highly-realistic impression of how their new body will look like after the surgery. All the changes can be seen in real time on the screen of an iPad."

Enhanced future

Dr Alessi concludes that although AI in medicine has advanced, there is still a long way to go "Nonetheless, there have been many progressions, the use of stem cells in plastic surgery was unheard before. Surgeons now can also look at a CAT scan while in surgery to have real time identification for landmarks and be able to rebuild faces, this was not around 30 years ago. The use of telemedicine is more prevalent now as well, which has enabled greater accessibility."

Dr David Alessi

AI is useful in identifying risks such as scarring and intensive intervention for patients suffering from burns

Telemedicine is the interconnected future of healthcare

By Dr. Azad Moopen, Founder Chairman and Managing Director, Aster DM Healthcare

Dr. Azad Moopen

The pandemic has brought many changes this year impacting all industries across the board. But within healthcare, the changes have been significant especially in telehealth. Telemedicine has been around for several decades but with the speed with which it has been pushed forward during the pandemic, probably makes it a universal and extremely positive change to happen in a long time.

We can safely say that telemedicine is the future of healthcare for years to come. During the past two years, we witnessed it being one of the greatest solutions to access to care issues during this global pandemic by reducing the spread of the virus through decreased person to person interactions.

Amidst the pandemic, telemedicine has also become a means of 'forward triage,' which is when patients are triaged before they visit an emergency department.

According to the Centers for Disease Control and Prevention (CDC), telehealth utilisation spiked by more than 154 per cent in late March of 2020 compared to the same period in 2019. Additionally, the market is expected to rise to over US$397 billion by 2027 following current predictions made by Fortune Business Insight. To illustrate the impact the pandemic has had on the industry, in 2019 the market was only worth US$42 billion. While usage over time has subsided since the peak of the pandemic, it has become clear that telehealth is now an instrumental part of the future of healthcare delivery.

Telehealth has also enabled the transition to consumer-centric care paradigms because there was a need to create social distancing in a safe environment. It re-invented virtual visits and became an important communication and treatment tool during the pandemic.

So how does it work?

Telehealth involves the use of communication systems and networks to enable sessions between the patient and the provider with a broader scope of clinical and work-flow processes, remote monitoring, and several providers over time. However, there remains a difference between telehealth and telemedicine even though both complement each other. Telemedicine generally refers to the remote delivery of medical or clinical services, while telehealth is a larger platform that includes telemedicine along with other remote non-clinical services.

Connecting patients and providers

In the future, telemedicine's range will continue to expand, connecting patients and providers internationally as providers look to expand globally. This will not only help improve the physician shortage and mitigate the uneven distribution of physicians, but may also provide patients with rare diseases alternative avenues to seek highly specialised care.

The advantages of telemedicine moving forward include its cost-effectiveness, ability to extend access to specialty services and its potential to help mitigate the looming physician shortage. Disadvantages include lack of available technological resources in certain countries, issues with security of patient data and challenges in performing the traditional patient examination.

However, if we talk about the UAE alone, approximately 90 per cent of doctors use smartphones and medical apps to provide healthcare and the UAE government too, supports establishment of an infrastructure and telemedicine applications with the aim of providing healthcare services through various initiatives.

Since the UAE boasts of a population which is younger, 85 per cent of the total population is below the age of 45 years, the use of mobile

technology, laptops and tablets have a huge penetration in the region which makes it very easy for the UAE to implement telehealth.

Key trends

If we take a look at the key trends, we can see that there has been an increase in chronic care management recently which shows that telehealth has the potential to not only reduce the cost of a care plan, but also improve patient engagement and adherence to it.

There has also been a greater focus on mental health. In order to continue to treat patients many therapists, counsellors and doctors quickly turned to video conferencing to continue to support their patients. Hence, the development of tele-therapy and tele-psychiatry began and moving forward, this will likely become a widely accepted form of treatment.

Patient demand has been the greatest driving force when it comes to the growth in telehealth, therefore there has been considerable improvement in user experience.

Wearable technology and remote patient monitoring, integrated data sharing, convenient remote paediatric care as well as investments in technology are some other trends that have been seen recently. The use of digital health tools is ever-evolving which means that technology is here to stay.

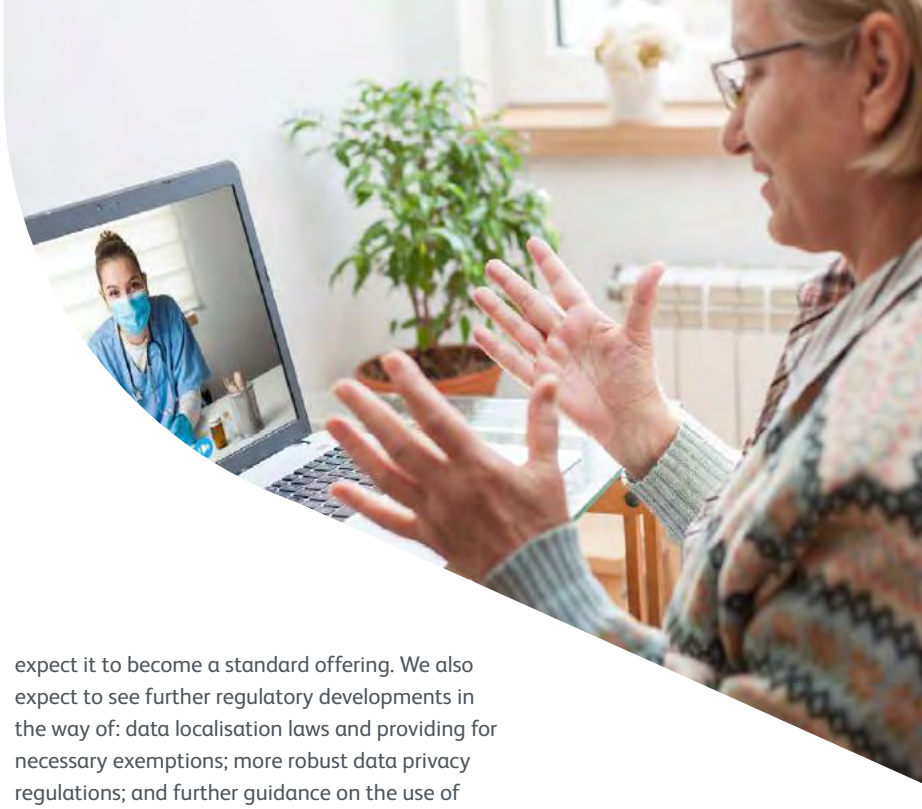
Market size and revenues

The telehealth market in UAE is forecast to reach over US$536.5 million by 2025. According to statistics, the total UAE mHealth market is forecast to grow from $86.8 million in 2020 to $222.4 million by 2025.

On the other hand, virtual clinics and hospitals will have to strengthen telehealth system for efficient remote care but they have to keep in mind that digital replacement is not digital transformation because patient experience and engagement remains critical across different care settings.

However, adoption of telehealth regulations and insurance reimbursement for telemedicine have been slow, at best worldwide. Access to telehealth has broken a major barrier of adoption with an increase in reimbursement due to COVID-19 outbreak. Mandatory health insurance and rise in penetration of private health insurance players covering telemedicine services are driving the adoption.

Whether the quick and widespread adoption of telehealth and associated regulations is here to stay or will be scaled back post-pandemic is being debated, the indicators appear to be positive. As the current environment has pushed both regulators, and patients alike to become more comfortable with remote care delivery models, we expect it to become a standard offering. We also expect to see further regulatory developments in the way of: data localisation laws and providing for necessary exemptions; more robust data privacy regulations; and further guidance on the use of artificial intelligence and cloud storage in the healthcare industry.



The connected future

Over the past several decades, we have been hit with numerous pandemics, including H1N1, Ebola, SARS-CoV, MERS-CoV, and currently, COVID-19. In the future, it is probable that more novel pandemics will arise. Prior to the current pandemic, issues with regulation and reimbursement have prevented telemedicine from being fully immersed into the healthcare landscape. The development and utilisation of telemedicine services is important as these services allow us to continue to provide high-quality healthcare while maintaining the practice of physical distancing to prevent the spread of these viruses.

The benefits of telemedicine include convenience, increased access to care from a distance, especially for patients living in rural areas, and decreased healthcare costs. Studies have shown that telemedicine appointments can be equal to in-patient visits in a variety of specialties. Continued research should be done to improve aspects of the physical examination for telemedicine visits, especially for specialties in which intimate patient contact is an important aspect of the physical exam. Now is the time for us to implement these services and make the usage of telemedicine mainstream. If we do this, we will be prepared for the next pandemic and the future of healthcare.

Last but not the least, telehealth provides the healthcare industry with so many advantages that although we are starting to see the end of this pandemic, the utilisation of this revolutionary technology will continue far into the future.

The telehealth market in UAE is forecast to reach over US$536.5 million by 2025

Rising robotics investment in healthcare drives tremendous growth

Article provided by All The Research

The driving factors for the global healthcare service robots market include a rise in assessment in surgeries

Healthcare service robots have huge applications in managing patient logistics, drug development, supply chain management, and help in operating the services behind scenes in the hospitals. Moreover, healthcare service robots are expected to provide an assistive application to doctors & nurses, caregivers, and patients in the hospitals & clinics. Service robots help in performing tasks such as disinfecting floors, preventing the transfer of infection, and providing protection to the health care professionals and staff from outspread of infection.

Increasing government funding for medical robotic research and growing adaption of service robots in healthcare is expected to fuel the growth of healthcare service robots market.

Coronavirus has sped up the interest of administration robots in medical services by limiting or wiping out the contact of patients with the medical services labour force. This is relied upon to support the development of medical care administration robots request during the gauge time frame. In addition, development of administration robots assisted with limiting the shortage that was seen in PPE unit. Additionally, humanoid administration robots acquired colossal significance during pandemic. Humanoid administration robots gave patients and their families spirit support during difficult time when medical clinic visits were impractical.

The medical care administration area is additionally presently investigating the capability of advancements like computerized reasoning, AI calculations, and sensors among others into mechanical frameworks. Thus, it is expected that these patterns will altogether affect the medical care administration robots market in the following five years, and the market will develop multi crease.

The driving factors for the global healthcare service robots market include rise in assessment in surgeries, increase in providing direct patient care attention, and growing importance in supply deliveries. Moreover, advantages offered by service robots such as identification and assistance towards surgeries drives the growth of healthcare service robots' demand.

Competitive Landscape:

Major players are: Intuitive Surgical, Stryker Corporation, Accuray, Omnicell, Inc., BD Rowa, Hocoma AG, Medtronic, Smith & Nephew, ARxIUM, Double Robotics, InTouch Health, and Nevoa Inc.

Key Takeaways:

- Increasing social-technological acceptance among robots
- Emergence of decision and policy making for service robots that would ease human anxiety and would promote greater acceptance of service robots in healthcare

Regional Analysis:

North America ruled the market in 2020 because of essence of ale volume of medications tech organisations and expanded reception of administration robots in the emergency clinics. Besides, rising criticality level in medical procedures, developing interest for precise illnesses ID, and simplicity of complete patient activities with the assistance of robots assists with elevating the development of medical care administration robots request around here.

Developments and Investments:

In August 2021, Memic marked a consolidation with MedTech with a value worth of more than US$ 1 Billion. This consolidation is relied upon to give aggregate involvement with careful advanced mechanics utilising cutting-edge innovation for medical care offices and offering support to patients across the U.S. as well as different parts of the world.

stryker

Did you know?

Non-aerosolization is an important feature of temperature management devices used during cardiac surgery.

Preventing bioaerosols from escaping the water system of the device contributes to a **safer operating environment.***

*Chand, M., Lamagni, T., Kranzer, K., Hedge, J., Moore, G., Parks, S., ... & Phin, N. (2017). Insidious risk of severe Mycobacterium chimaera infection in cardiac surgery patients. Clinical Infectious Diseases, 64(3), 335-342. doi: 10.1093/cid/ciw754.

Public Health England. (2017). Infections Associated with Heater Cooler Units Used in Cardiopulmonary Bypass and ECMO Information for healthcare providers in the UK. https://www.gov.uk/government/publications/infections-associated-with-heater-cooler-units-used-in-cardiopulmonary-bypass-and-ecmo.

Stryker ESCS BV- Dubai Branch, Baniyas Road, Twin Towers 1101-1102, 41446, Dubai, UAE. **www.stryker.com**

2021-29726

Mediclinic Middle East: defining success in healthcare

Interview with David Hadley, Chief Executive Officer, Mediclinic Middle East

By Deepa Narwani, Senior Editor

Mediclinic Precise allows to map an individual's genome and integrate it into electronic health records.

Mediclinic Middle East is one of the UAE's leading private hospital groups, with seven hospitals and more than 20 outpatient clinics across Dubai, Abu Dhabi, and Al Ain. At its helm is David Hadley, who has been the Chief Executive Officer since 2009. Hadley has been with the Mediclinic Group since 1993 and worked in various administrative roles in human resources, finance, operations, and hospital management before moving to Dubai in 2007 to oversee the opening of Mediclinic City Hospital, and, as he says, he has been quite fortunate that as the company's grown, he has been able to advance his career. In an interview with Omnia Health Magazine, he discusses Mediclinic Middle East's various new ventures and the role of digital health in improving patient outcomes. Excerpts:

What is Mediclinic Precise, and how does it work?

Mediclinic Precise is our precision medicine programme that is integrated within our broader healthcare system. The programme will allow us to map an individual's genome and integrate it into our electronic health records, which will give clinicians better information and data to treat an individual more effectively. It is not limited to genomes only and will eventually include microbiome, proteomics, and metabolomics. The reason behind setting up this dedicated programme is because we understand where the future of healthcare is. It is no longer about treating a population generally. We want to be at the forefront of establishing a proper healthcare continuum, where we integrate a patient's unique data into the system and provide a more precise treatment plan.

How is digital health improving patient outcomes today?

To use technology, you need data and data points. At Mediclinic Middle East, we have rolled out electronic health records across all of our facilities. This is where all a patients unique data and basically everything that the doctor does is integrated into one system. Once we have that data, we can use technologies such as machine learning, and Artificial Intelligence (AI), among others, to offer even better treatment plans, which will change the way we treat patients in the future.

There are also several other ways in which technology will benefit patients' access to care. For example, we have already rolled out our MyMaediclinic 24/7 app, where patients can book their appointments online. Also, telemedicine has made a tremendous impact during the pandemic along with remote patient monitoring and

wearables, through which we can integrate the data of the patient at home within the bigger healthcare system. Furthermore, today AI is prevalent in many areas, including radiology as a n example - a radiologist doesn't have to look at hundreds of different images and can narrow down the search thank to AI.

Was it easy to transition into telemedicine during the pandemic?

We were always going to introduce telemedicine, but it was quite tricky to get people to utilise it until the pandemic hit, and it became necessary. At the moment, it has tapered down a bit because, at the end of the day, healthcare is very much a personal service and people want face to face interactions on their health. There is definitely a role for telemedicine, but people still want to physically come and see the doctor who still wants to examine a patient physically. But telemedicine is helpful for follow-ups or clearing quick queries. Currently, we are piloting a virtual staff clinic, where our staff go through a triage system through telemedicine before they go and see the doctor. Telemedicine is also evolving continuously as the technology gets better, so I think it's here to stay.

What are some of the other healthcare market segments that will take off in the next few years?

I think preventative care is something that is on everybody's agenda. There is also considerable interest in sports medicine in this region specifically as it has become a hub for sports. Major sporting events have been held here in recent months, right from tennis tournaments, Rugby Sevens, the Cricket World Cup, and Grand Prix, DP World tour among others. Therefore, there is significant interest in this region from big sporting organisations, and that is spilling over into the population. We have recently opened our dedicated sports medicine centre, Mediclinic Perform, at Mediclinic Parkview Hospital to meet this need. The centre is not just for sportspersons but for all those who want to perform better, in terms of mobility and recovery.

Invitro fertilisation (IVF) is another big area, and Mediclinic Middle East recently acquired the Bourn Hall Fertility Centre for the region. They are known as the founders of IVF and the first baby delivered through IVF treatment was 41 years ago at Bourn Hall. So, we are very proud to be associated with the brand and their clinical pathways.

Eventually, we want to offer a holistic approach when it comes to preventative care. But, first, we want to analyse patient needs and then plan their journey for them to lead a healthier lifestyle.

Are there any future plans that you would like to shed light on?

We are currently developing our first hospital in Jeddah, Saudi Arabia, which should open early in 2023. Moreover, Egypt is an interesting market for us, and we are actively investigating opportunities there. Furthermore, locally, we have recently taken over the operations of the Al Barsha and the Al Tawar Dialysis Centres' and are excited to be partnering with the Dubai Health Authority (DHA) on such initiatives. We also recently acquired Ayadi Home Healthcare, which provides home healthcare services to patients in Abu Dhabi and Al Ain and plan to open our first cosmetics facility in April 2022 in The Dubai Mall, which will be called Mediclinic Enhance.

In conclusion, I want to add that never before has the UAE been better positioned to attract medical tourists. Everyone has admired the way that the leadership managed the pandemic and in terms of the vaccination programme and the general management of the economy. As a result, it has become a destination that people want to live in and has become a place where people trust the healthcare system.

David Hadley

Why sustainability is more important to pharmaceutical companies now more than ever

Looking at the importance of sustainability and how it's critical for pharmaceutical companies to deliver for the community – providing better outcomes for both patients and the environment in which they operate.

By Henrik Wulff, Managing Director, Senior Bayer Representative and Head of Pharmaceuticals at Bayer Middle East FZ

Access to enhanced healthcare has significant implications for local communities

Now more than ever, sustainability is critical to our operating business landscapes. 78 per cent of consumers have expressed that they want pharmaceutical companies to deliver further CSR activities.

A strong purpose is at the heart of all our ongoing efforts in healthcare as businesses. It holds us accountable to our commitments towards our communities. At Bayer, we are guided by our purpose "Science for a better life," to deliver breakthrough innovations in the field of health and nutrition. Our vision "Health for all, Hunger for none" articulates what we constantly strive to achieve. Our purpose and vision are key to what we do at Bayer, but they are meaningless if they are not followed by tangible actions to create long-term change and societal progress.

This vital approach to our industry is a major step toward breaking the cycle of poverty and conserving our environments – both for individuals and for the countries where they live. To achieve this, we must stay committed to innovation in healthcare.

Creating a long-lasting impact for our environment and why it matters

Access to enhanced healthcare has significant implications for local communities. Better healthcare is proven to improve attendance and performance in schools, enhance economic conditions and productivity, and reduce overall healthcare and living costs.

At least half the world's population currently has no access to basic health services. By investing in health and well-being services, we are making an important contribution to even improving the health, rights and economic status of our people, no matter where they are in the world. This is a fundamental basis for greater equality, education, and prosperity for all. Contributing to sustainable development is a core element of Bayer's corporate strategy and of our core values. In this context, we have defined clear targets for our businesses that we are aiming to achieve by 2030, in line with the UN SDGs.

The global commitment to carbon reduction

Climate change also affects us all and is one of the greatest challenges that humankind will face in the future. Bayer considers climate protection and the related reduction of greenhouse gas emissions to be a top priority. We anticipate that our business areas of healthcare and agriculture will be impacted by climate change but will also be part of the solution. Globally, the company is aiming to become carbon-neutral in its own operations by 2030.

To accomplish this, Bayer is committed to mitigate climate change and limit global warming to 1.5 degrees Celsius in line with the Paris Agreement. We have set ourselves a Science Based Target to decarbonize and a net zero target including our supply chain for 2050. We are looking to achieve this with an absolute reduction of 42 per cent in our emissions (scope 1 and 2) by 2030. We included making our own sites climate-neutral in our Group targets to be met by 2030. To achieve this, we are about to implement a number of measures focusing

on energy efficiency, energy sources, offsetting and the value chain. Between 2020 and 2030, we will be investing EUR 500 million to improve energy efficiency in our own plants.

By 2030, the remaining emissions will be fully offset by purchasing certificates from verified climate protection projects, especially in the areas of forest conservation and agriculture. When selecting projects, we pay particular attention to ensuring they enable long-term CO2 capture (permanence) and would not take place without the sale of certificates (additionality). Furthermore, we have introduced additional in-house quality requirements, such as certifying projects according to internationally recognized standards.

The world we live in and the current social sustainability landscape in the Middle East

The COVID-19 pandemic has been one of the unprecedented challenges of our time, challenging livelihoods, and the health of millions globally. In the Middle East, we have seen in Lebanon an increased problem of escalation of infection rates amid the crippling economic crisis. The Lebanese community is already facing several socio-economic challenges following the 2020 Beirut blast and civil unrest.

We are working with partners to revolutionise the standard of healthcare. We have engaged with Sonaa El Kheir and the German Red Cross – non-profit charitable organizations – to realise the goal of transforming lives. Through these various initiatives in 2020-2021, we were able to reach out to vulnerable communities across Egypt and Lebanon with various public health services, Personal Protective Equipment (PPE) and immediate response COVID-19 protection packs, in time of dire need with the onset of the pandemic. The programme targeted around 850,000 people, encompassing some of the most vulnerable Lebanese and Syrian communities.

We are grateful to have had the opportunity to support an organisation such as the Red Cross. Through them, we are able to leverage regional cooperation, which has been integral during this pandemic to provide necessary public health services in Lebanon. Together we have been able to respond to the current critical health needs to achieve a shared vision of improving public health.

How healthcare is supporting communities and mitigating exponential population growth

Societal structure in the Middle East is changing, citizens are moving to cities from more rural areas and the population is growing in size. This is causing immense pressure on local economies and the healthcare systems as new generations emerge, which we need to provide support for.

Another notable example of this is Egypt, where the population has reached 102,170,000 people, with one birth happening every 14 seconds – the eighth highest birth rate in the world. For this reason, we have recently embarked on a strategic partnership with the United Nations Population Fund (UNFPA) in Egypt for a Corporate Giving & Sustainability Initiative in the focus area of family planning and reproductive health. In total, the supported programme will target in the period of 2021-2025 to provide 200,000 women to receive family planning methods and 300,000 women to be reached with awareness messages and services during the campaign.

Improving sustainable health for future generations

A fundamental part of materialising our vision is about enabling and strengthening healthcare in our region involves working to make tangible and sustainable impacts in our communities. Bayer Middle East is honoured to play a role in supporting these public health initiatives to help our communities – no matter of their location.

Today, maybe more than ever before, progress and growth cannot be achieved without sustainable efforts. Our active collaboration with key partners helps us extend our reach and impact while empowering advancement in creating a holistic aid approach, focused on awareness and tangible actions. We strive to continue our commitment towards playing a vital role in helping our communities improve health states, by embracing opportunities and crafting initiatives that support broader public health efforts.

Through our targeted initiatives, we are grateful to have the opportunity to assist communities in need across the region, responding to the critical public health needs.

References available on request

Henrik Wulff

Progress and growth cannot be achieved without sustainable efforts

Eye on the ball: maintaining compliance to patient safety standards in hospitals post COVID-19

It is easier, cheaper and results in better patient outcomes to monitor compliance and prevent disease before it occurs within our healthcare facilities than to deal with illness later.

By Irene Ogongo, CEO, Nurses in Africa

The world needed to focus on patient safety as a building block for compliance

As the world—and the healthcare ecosystem—starts to think about and plan for recovery, the only certainties are uncertainties. Lessons learnt over the last almost two years continue to be absorbed every day and should encourage greater understanding of how best to manage health in the years ahead. Our focus as healthcare leaders should be on a cleaner and safer spaces within our healthcare facilities even as we stress that people have to be play their part in being healthier. In broad terms, the key is to take a more proactive stance in monitoring and preventing disease before it occurs. Although this may feel expensive, it is far cheaper and ultimately better in terms of patient outcomes than dealing with illness later.

Just like all major disease outbreaks in the world, one of the major aspects of managing the COVID-19 pandemic was an effective infection prevention and control programme. The lack of an infection prevention and control programme means the absence of the very basic unit of patient safety in any healthcare setting. This gives an opportunity for Hospital Acquired Infections that are costing both the patients and the healthcare systems. The European Centre for Disease Prevention and Control reports an average prevalence of 7.1 per cent in European countries. The Centre estimates that 4,131,000 patients are affected by approximately 4,544,100 episodes of health care-associated infection every year in Europe. The estimated incidence rate in the U.S. was 4.5 per cent in 2002, corresponding to 9.3 infections per 1 000 patient-days and 1.7 million affected patients. Health care-associated infections in low- and middle-income countries are more frequent in resource-limited settings than in developed countries. At any given time, the prevalence of health care-associated

infection varies between 5.7 per cent and 19.1 per cent in low- and middle-income countries. This is almost three times higher than in high-income countries.

When you take a closer look at the protocols that were introduced during the COVID-19 pandemic, you will notice that nothing new was introduced. All the infection prevention and control precautions emphasised were already the standard recommended precautions that should be in place in our facilities as a measure of patient safety. The only difference is due to the nature of the outbreak, the precautions became the centre of focus with emphasis being made all the way from the top (globally) down to the point of care (frontliners). This led to compliance to IPC becoming everybody's business unlike the other days when it is seen as purely a nurse's duty with very little support from other departments let alone the whole world.

In the quality improvement world, the assumption is that to improve it means that a minimum requirement in terms of standards of care have been met and so the aim is to achieve even better standards. During the pandemic, the world woke up to the realisation that even the basic standards of patient safety with focus on infection prevention and control was missing. This meant that the world needed to focus on patient safety as a building block for compliance and therefore quality improvement had to take the back seat for the world to reduce the apparent risk of infection in our healthcare facilities.

Some of the strategies that became the highlight in managing the spread of COVID-19 within the healthcare facilities with focus on infection prevention and control include:

1. **Ensuring triage, early recognition, and source control.**
   Globally, facilities developed a more robust process of screening and triaging all patients appropriately for early recognition as well as effective management. To facilitate the early identification of cases of suspected COVID-19, healthcare facilities established stand-alone triage centres, checklists for detailed history taking and patient education material in public areas reminding symptomatic patients to alert HCWs.
2. **Applying standard precautions for all patients consistently.**
   Standard precautions include hand and respiratory hygiene, the use of appropriate personal protective equipment (PPE) according to a risk assessment, injection safety practices, safe waste management, proper linens, environmental cleaning, and sterilisation of patient-care equipment. Unlike before the pandemic, healthcare facilities spent resources in terms of supplies, time and human resources to ensure all protocols are adhered to consistently. One major transformation is in the area of hospital cleaning and disinfection. In most facilities, standards of cleaning and disinfection improved markedly as protocols led to frequent and appropriate cleaning processes for both

Standards of cleaning and disinfection improved as protocols led to frequent cleaning processes

effective, easy to use disinfectants. This is a huge step forward in healthcare globally as this process was previously assumed to be a very basic sub-ordinate task with very little support from the stakeholders at large. Nurses In Africa specialises in providing infection prevention and control solutions in Africa and is very excited to be part of the transformation taking place in multiple locations through patient safety improvement initiatives in partnership with medical supplies companies and other partners in the same field.

3. **Development and review of administrative controls and policies for the prevention and control of transmission of COVID-19** within the healthcare setting which led to creating a platform for compliance to the infection prevention and control programme that was dormant before.
4. **Activated surveillance systems** which led to active data management and data driven decision making, improvement plans and monitoring systems.
5. **Using environmental and engineering controls.** These controls address the basic infrastructure of the healthcare facility and aim to ensure adequate ventilation in all areas in the health care facility. Overcrowding of patients due to unnecessary admissions and overstaying in hospitals reduced markedly and appointment systems ensured outpatient areas were well managed.

Sharing updates, knowledge and best practice ensured that teams remained motivated

As the world recovers from the pandemic and healthcare systems are re-strategising and re-opening to more services and more patients, it is necessary that some lessons learnt within the pandemic period are maintained and used to manage the risk of hospital acquired infections and general patient safety.

Just like in improvement cycles, we now know what works and therefore it is a good time to borrow the bundle of change and use it to tackle similar challenges within our healthcare systems. It is also important that we keep our eye on the ball in maintaining the standards that we have set around compliance to infection prevention and control as a strategy to mitigate the risk of hospital acquired infections which lead to loss of millions of lives and cost millions of dollars.

How do we maintain the patient safety standards set during COVID-19 pandemic?

1. **Healthcare data systems.**
   All healthcare facilities had to set up active data management processes to keep up with both internal and external protocols. This is a good platform for health facilities to expand their indicators and track more areas of care that are important. In areas like Africa, the opportunity to use to technology to support healthcare workers in this kind of ventures is huge. Digital innovations that address ease of use, offline options and data visualization will carry the day. Data systems have provided and will continue to provide teams with progress reports and a platform for evidence-based improvement plans.

2. **Collaboration and knowledge sharing.**
   A recurrent feature during the pandemic was the levels of collaboration both within facilities and externally. Sharing updates, knowledge and best practice ensured that teams remained motivated and complied to updates as they occurred. Healthcare facilities need to intentionally join networks and ventures that will allow their team members to constantly be updated in the healthcare fielding to ensure high quality of care for their patients. Internally, a robust education programme that ensures that learning never ends is required. Evidence based learning connected to the use of the data systems will ensure that compliance is maintained consistently.
3. **Use the wins to maintain momentum**
   We now know what works, think about all the inputs and processes the healthcare facility has used in the last two years to manage spread of infection and use the platform to maintain momentum. Conduct regular huddles to monitor both inputs and processes introduced, along with creating visual management boards with simple metrics for easier tracking. From our experience while working with teams across Africa to improve compliance to infection prevention and control programmes, this helps to consistently keep the eye on the ball and keep staff engaged on what matters.
4. **Motivate frontline workers by tackling "the rocks in their shoes"**
   The key to maintaining compliance to areas like IPC for frontline workers is to motivate the frontliners themselves. No matter how well you define roles and tasks, if team members don't understand the ''why'', the system won't work. Connect compliance and standardised work to performance targets to earn good performance reviews and promotions. Beyond extrinsic motivators, team members really do want clinical improvements to stick, especially those that benefit their patients. What does it take to help them commit to the work of sustaining quality through the introduction of formalised management systems? Focus on helping them solve problems that they care about – the daily challenges that make their role in compliance difficult. Ensure that the resources required to maintain momentum are available before asking for compliance.

At the end of the day, our healthcare systems are still vulnerable and dropping the ball with regard to compliance in basic patient safety principles is not a good move. In days, weeks or months to come, we shall see published papers around the effects of compliance to infection prevention and control during COVID-19 as well as the number of patients we lost due to hospital acquired infections related to COVID-19 which will no doubt drive the point home.

The lesson we have learnt in all this is that it is easier and cheaper to prevent than to actively manage and treat diseases. We therefore have a role to ensure that our rates of patient safety increase and consistently remain high because that is the difference between life and death when a patient chooses our services.

This will not be easy. But history suggests that we can once again rise to achieve such a worthy goal.

It is easier and cheaper to prevent than to actively manage and treat diseases

MAYO CLINIC
Healthcare

Mayo Clinic's world-class care is now in London.

At Mayo Clinic Healthcare, located near Harley Street in London, our specialists listen to your concerns, and work together with more than 4,000 specialists in the USA to find you treatments for your condition. Now with both in person and virtual appointments, you can get easier access to our world-class expertise.

To learn more, scan the QR code or visit **mayoclinichealthcare.co.uk**

Request an appointment call +44 (0) 207 871 2575 or email at info-ukmch@mayo.edu.

Klaim

TURN YOUR OUTSTANDING MEDICAL CLAIMS INTO CASH IN LESS THAN 7 DAYS

UNLOCK YOUR CASH IN 4 SIMPLE STEPS WITH KLAIM

01

Create an account

Creating your account is a simple process that takes a few minutes

02

Receive a proposal within 48 hours

Our team will evaluate the financial performance of your healthcare facility with a free RCM assessment

03

Sign agreements

Signing the KLAIM agreement means that we're officially in business

04

Receive the cash immediately

Now get paid for your medical claims in just 7 day sand use the funds for what you need it the most!

RUN SEAMLESS OPERATIONS

Stay on top of your operations: payroll, appointment scheduling, ADT, billing, procurement management.

HIRE TOP PROFESSIONALS

Deliver the highest quality care by attracting top medical talent in the industry.

BUY NEW EQUIPMENT

Use modern technology to optimize your services and improve business efficiency.

EXPAND YOUR PRACTICE

Focus on opening new facilities, supporting your community, and becoming the market leader

> "Solving this issue of delay in insurance payments helped us concentrate more on our medical service, pay staff on time, improve service quality and performance of the customer care."

Dr. Ahmed, DCDC

SCAN NOW TO GET STARTED

Clients That Trust Us

alain pharmacy صيدلية العين · AL AFDAL Medical Center · DCDC · مستشفى دار الشفاء Dar Al Shifaa Hospital · Life Works Counselling & Mental Health · ثقة thiqa · TRANSFORM Specialist & Medical Centre Fitness Centre · iSmile · OrthoSports · Emirates Healthcare · مبكي THUMBAY · ALTAIE CENTER

Contact us to learn more about how we are transforming the healthcare industry:

TELEPHONE: +971 (0)4 876 40 96 **EMAIL:** hello@klaim.ai **HEADQUARTERS:** Indigo Icon Tower 3404, JLT Cluster F, Dubai, UAE **WEBSITE:** www.klaim.ai

Insight into oligometastatic and gastrointestinal cancers

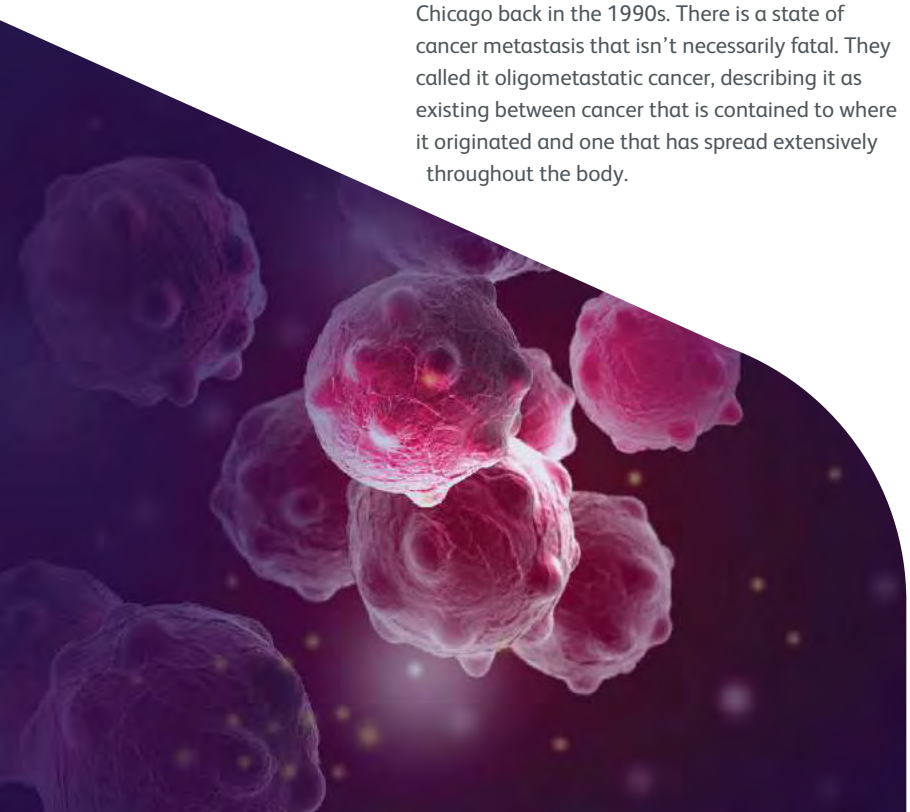
By Deepa Narwani, Senior Editor

Gastrointestinal cancers are now happening a lot more in younger adults

At Arab Health 2022, Dr. Kiran Turaga, Professor of Surgery, Vice Chief, Section of General Surgery and Surgical Oncology, Director, Surgical Gastrointestinal Cancer Program, Director, Regional Therapeutics Program, UChicago Medicine, Chicago, Illinois, U.S., will discuss curing stage four 4 cancer and understanding oligometastatic cancer. Dr. Turaga is a surgical oncologist who has been with UChicago Medicine for over five years. In an interview with Omnia Health Magazine, he discusses metastatic cancers, heated chemotherapy, gastrointestinal cancers and more. Excerpts:

What will you be discussing at Arab Health 2022?

When you think about stage 4 cancers, you typically don't think about the role of surgery., This concept has evolved over the years, and that's what my research and clinical practice are around. The focus of my talk will be on curing stage 4 cancer. Metastatic cancer has a terrible prognosis and is often treated with chemotherapy. I am going to discuss a phenotype of patients first described by some of the scientists at the University of Chicago back in the 1990s. There is a state of cancer metastasis that isn't necessarily fatal. They called it oligometastatic cancer, describing it as existing between cancer that is contained to where it originated and one that has spread extensively throughout the body.



In oligometastatic cancer, the patient has only a few, usually small metastases, but most people with metastatic cancer are treated only with therapies meant to kill cancer cells anywhere they may be in the body. By providing them with localized treatment, patients can be protected from unnecessary treatment. The focus of my talk will be on how we can cure those types of cancers. We have a clinical trial that where we are working on using novel ways of predicting how to cure patients. We have the technology today with which we can predict outcomes. So, I hope attending surgeons, medical oncologists, and radiation oncologists will find this session useful and think about these patients differently than we've thought about in the past.

What are some of the symptoms people should be on the lookout for in gastrointestinal cancers?

Gastrointestinal cancers are among the most common cancers that happen in adults. Moreover, they include a broad spectrum of cancers, right from gastric to liver, small intestine, and colon cancer. So, the symptoms can vary depending on the type of cancer. However, some general symptoms would be related to the digestive tract, which would involve patients not eating well, losing weight, or feeling weaker. If there is any change from normal patterns, it is essential to bring it up to physicians for investigation. Furthermore, I want to emphasize the fact that these cancers are now happening a lot more in younger adults.

It could already be quite late by the time the symptoms start appearing. Therefore, with increased awareness, it should be possible to head off some of these issues ahead of time and diagnose them at a much earlier stage than we used to before.

Is there a reason why so many young adults are diagnosed with gastrointestinal cancers today? What tests can help diagnose it earlier?

I think it's a critical area of investigation. We don't know precisely one reason why that is the case. But, for instance, colon cancer takes about 10 years to

develop from polyps through cancer. So, it's strange to see young adults between the ages of 15 to 18 diagnosed with colon cancer. The question is, are they getting cancer at the ages of four or five? What are we doing differently now? I think it's easy to blame processed foods or refined sugars. However, the science is not strong enough to say that it is definitively the problem. Based on many animal studies, there is interesting research happening in this area on the microbiome and the bacteria in our intestines. I don't think there is one factor contributing to the increased incidence of cancer, but I would say that diet and microbiome will be the things that we're going to have to watch out for.

Today, there are screening programs for the pancreas, colon, etc. However, patients who have a family history of cancers should regularly conduct tests and see a specialist.

At Arab Health, I will also be discussing cell-free DNA. In this, DNA can be detected at very minute levels using modern technology and can predict who has cancer or precancerous lesions. It's also called liquid biopsy. This will be up-and-coming in the next four to five years. So, by then, we will have data and ways of screening populations, especially high-risk populations for cancer, based on blood tests.

What role is technology playing in improving surgery outcomes?

The anatomy of the human body has stayed the same for the last millions of years, but today, we can do better surgeries and get patients home faster. I think the use of robotics and lasers has significantly augmented minimally invasive surgery. It allows more freedom of movement and reduces bleeding. Furthermore, radiation oncology has advanced tremendously to the point where now these devices can pinpoint cancers and treat them appropriately. Also, the advances in immunotherapy and unlocking our own immune system against cancers is a remarkable technology.

What is hyperthermic intraperitoneal chemotherapy (HIPEC)? What are its benefits for patients?

When you think about giving chemotherapy in the IV, it causes the whole body to receive it. So, by the time the dose reaches a particular organ, it has more side effects. HIPEC allows giving chemotherapy right at the location where the cancer is. It's done in a heated fashion because by heating it, you can activate the chemotherapy better, kill cancer cells faster, and penetrate the chemotherapy inside better. The application of HIPEC for gastrointestinal cancers is being studied extensively in gastric cancer, colon and appendix cancer. It is used routinely for mesothelioma and ovarian cancer in addition

Are there any patient success stories you would like to share?

Recently, we had two young women who wanted to have children and were undergoing fertility treatment when they found out they had metastatic cancer. Because of that, we ended up doing surgery with heated chemotherapy, and the success stories are when they've had kids afterwards. So now the kids are growing up, and these patients have the chance of being moms, which is incredible.

Also, when it comes to older adults, we have developed techniques that allow us with which we have been able us to operate on patients in their 90s and late 80s. For example, I had operated on an 87-year-old gentleman who then went on a road trip across the United States. Unfortunately, he passed away recently, but not because of cancer but due to complications from knee surgery.

How common is appendix cancer? Can patients you know recover from it successfully?

Appendix cancer is an incredibly rare cancer. The appendix, even though it's connected to the colon, it's is not the same organ. We are doing a lot of research to understand why the appendix is what it is and why it does what it does. Within the appendix, there are different types of cancer. Generally speaking, appendix cancers have a better prognosis than colon cancers. Understanding the disease matters, so if any patient has appendix cancer, they need to be seen by a specialist to get the proper treatment.

Dr. Kiran Turaga

Dr. Turaga will discuss 'Curing Stage IV cancer: Towards understanding oligometastatic cancer' at the Surgery conference at Arab Health on Wednesday, Jan 26.

How to build value-based healthcare in the GCC

By Dr. Mark Khayat, Jan Schmitz-Hubsch, and Dr. Walid Tohme, partners with Strategy& Middle East, part of the PwC network

Dr. Mark Khayat

Jan Schmitz-Hubsch

Dr. Walid Tohme

By aligning objectives around patient outcomes, healthcare stakeholders can continue the momentum toward value-based healthcare. The result will help healthcare systems to achieve improved health outcomes for their populations and better use of scarce resources.

The COVID-19 pandemic is creating significant changes to healthcare systems. Under considerable pressure, GCC healthcare systems organised care differently while protecting their populations. In doing so, these systems moved toward value-based healthcare, which is cantered around patients and driven by data. Value-based healthcare aims to deliver the best patient outcomes, while being cost-efficient. Healthcare system stakeholders can absorb the lessons from how they reacted and move deliberately to build on the foundations of value-based healthcare that were laid during the pandemic. All stakeholders need to contribute actively to enable this transformation.

The pandemic enabled unprecedented collaboration that brought together key elements of value-based healthcare in a way that had not happened before. Healthcare systems rapidly set aligned goals centred on patient outcomes. The focus on these common goals allowed for previously unseen cooperation among policymakers, providers, payors, and life science companies. Many elements of value-based healthcare that required collaboration, that was deemed too difficult before the pandemic, became urgent and achievable. Consequently, GCC healthcare systems managed to cut hospitalisation and death rates from COVID-19 substantially.

Stakeholders took five critical steps during the pandemic. First, they segmented populations, allowing them to tailor healthcare interventions for target groups. Second, they defined a unified set of outcomes and standardised ways of measuring them, in line with global standards. Third, they exploited innovation to collect the outcomes, including exploiting automation such as through test-and-trace tech. Fourth, they disseminated the data and created benchmarks that provided insights that in turn enabled continuous improvement. Fifth, they were nimble in centring care around their citizens' priorities to improve outcomes.

All of these steps yield lessons for the future. First, stakeholders must segment the population to identify priority groups, create the necessary healthcare interventions and services, and that are centred around the specific needs of the prioritised segments.

Second, stakeholders need to define concrete objectives for each population they are targeting. These objectives should be centred around the outcomes that matter most to patients, such as by using patient-reported outcome measures, or PROMs. Policymakers can define and introduce standard outcomes that enable stakeholders in the healthcare system to cooperate and pave the way to compare the results of interventions.

Third, providers need to measure and collect the information. The public sector needs to support the development of tools that can do this at scale.

Fourth, the data need to be made available and shared among stakeholders. The point is to pool, and use, this information to improve services. For example, the data can be used to benchmark outcomes across providers. This enables use cases that enhance outcomes and reduce costs.

Fifth, value-based healthcare is a continuous cycle of improvement. This involves identifying variations, deriving leading practices, and deploying them. Stakeholders must learn about leading practices to introduce improvements that create better value for patients and the healthcare system.

Stakeholders across GCC health systems can now build on the foundations of value-based healthcare laid during the pandemic.

Policymakers can define standards, provide the incentives to measure and report, support data transparency, and invest in infrastructure.

Providers can segment their populations, focus on specific groups by reorganising care around their needs and to deliver best outcomes. Payors can encourage patients to use providers that deliver high value care to priority segments of the population. They can help providers innovate services for costly patients through information sharing.

Life science companies can leverage outcomes to offer more personalised treatments and to help providers understand what outcomes can be achieved for specific patient segments. They should cooperate with regulators to introduce pricing changes according to the results for different kinds of patients.

informa markets
Healthcare

Where the world of healthcare meets - 365 days a year

At Informa Markets – Healthcare, we're championing the healthcare specialist and enhancing the power of live experience through year-round, digital connections that bring the industry together.

Reach
And grow your audience with year-round brand awareness

Access
New regions or markets through targeted digital activity

Convert
Leads into new business by connecting with the right person, at the right time

Partner with us for your digital and content marketing. Through our editorial platform, Omnia Health Insights, you'll get in front of:

44,300
Monthly page views

30,000
Monthly unique visitors

548,000
Healthcare professionals in our network

80,000+
Newsletter subscribers

Scan to discover Media & Marketing Solutions tailored to your goals.

mms-healthcare@informa.com

Save the date

30 January - 2 February 2023, Dubai World Trade Centre

We cannot wait to welcome you back in January 2023!

Arab Health

By Informa Markets

Together for a healthier world

Save the date!

Block your 2023 Calendar
6-9 February 2023, UAE

Are you ready to watch the next chapter unfold?

Where all your medical laboratory needs are met

Medlab Middle East
By Informa Markets

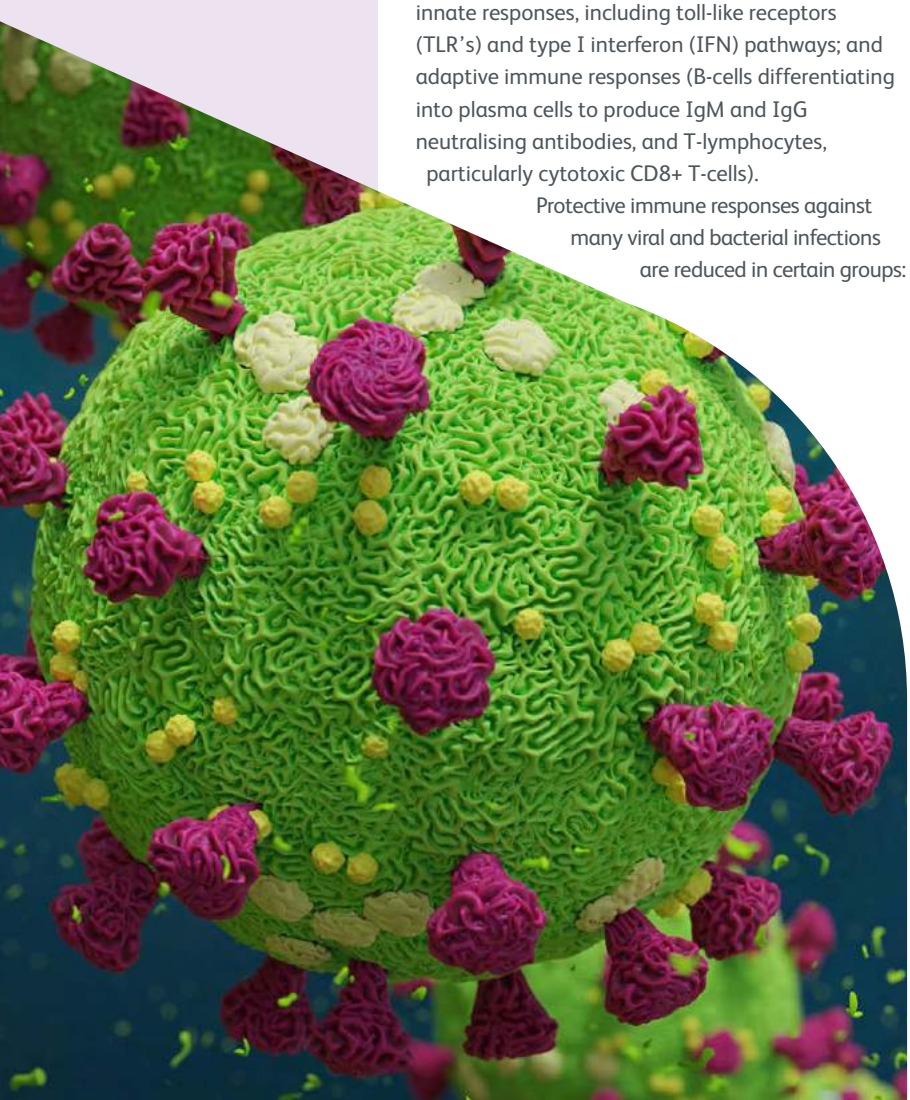
See you again next year!

Together for a healthier world

What can we learn about COVID-19 from studying its relationship with immunodeficiency?

By Dr Mohammed Yousuf Karim, MBBChir FRCP FRCPath
Division Chief, Hematopathology, and Dr Patrick Tang, MD, PhD, FRCPC
Division Chief, Microbiology & Pathology Sciences, Sidra Medicine

Dr Karim will discuss 'What can we learn about COVID-19 from studying its relationship with immunodeficiency?' on Tuesday, Jan 25 at the COVID-19 Updates conference at Medlab Middle East



The COVID-19 pandemic has provided many opportunities to learn more about the protective immune response to viral infection, and the immunopathogenesis of severe viral infections. The causative agent of COVID-19, SARS-CoV-2, is a novel zoonotic virus which means it is effectively a new virus for humans, and hence our baseline immunity to this virus is suboptimal. Immunity to other related coronaviruses provides only limited cross-protection. Protective immunity to SARS-CoV-2 involves both innate responses, including toll-like receptors (TLR's) and type I interferon (IFN) pathways; and adaptive immune responses (B-cells differentiating into plasma cells to produce IgM and IgG neutralising antibodies, and T-lymphocytes, particularly cytotoxic CD8+ T-cells).

Protective immune responses against many viral and bacterial infections are reduced in certain groups:

- the very young, and the elderly
- those with underlying comorbidities e.g., diabetes, chronic respiratory diseases
- immunosuppressed individuals – e.g., through medication, cancer

Death rates from COVID-19 are highest in the elderly, and in those with underlying medical conditions. However, severe COVID-19 appears not to be common in young children, which is different from other viral illnesses such as influenza.

The relationship of COVID-19 with immunodeficiency can be considered with two separate clinical questions:

- What is the clinical outcome of COVID-19 infection in patients with known immunodeficiency disorders?
- Do previously well individuals with no obvious underlying conditions who developed severe COVID-19 have evidence of an undiagnosed immunodeficiency disorder?

The immunopathogenesis of severe COVID-19 involves excessive T-cell activation and dysfunction, T-cell depletion and exhaustion (lymphopenia is an important clinical marker), and increased cytokine production potentially leading to a cytokine storm (e.g. IL-1β, IL-6, IL-10). As the pathogenesis of severe COVID-19 involves hyperactivity of the innate and adaptive immune responses, early speculation suggested that patients with known immunodeficiency disorders might paradoxically fare better, in that they might not be so capable of mounting such hyper-immune responses.

However, data collected in international studies has shown that this is not the case. For example, the UK-Primary Immunodeficiency Network published a series of 100 patients with primary (PID) and secondary immunodeficiency (SID). The outcome was much worse for both PID and SID than expected for age: patients with PID had a case fatality rate (CFR) of 31.6 per cent and inpatient mortality of 37.5 per cent. The SID patients fared even worse,

with a CFR of 39.2 per cent and inpatient mortality of 44 per cent (Shields et al, 2021). This may partly be due to SID patients being older and having other comorbidities; and 50 per cent of SID patients in this study had hematological malignancy. From a mechanistic viewpoint, it is likely that the inability to respond to the virus and to clear the virus tilted the balance against PID and SID patients.

An international study led by Isabelle Meyts and Stuart Tangye analysed outcomes in 94 PID patients with COVID-19 infection (Meyts et al, 2021). They noted better prognosis than the UK study, with a CFR of approximately 10 per cent. Younger male PID patients were more at risk of severe COVID-19 and required intensive care unit admission, but this could not be explained solely on the basis of inclusion of X-linked PID. They also noted that the risk might vary depending on the type of underlying PID disorder. Patients with chronic granulomatous disease, dominant negative STAT3 variants, or X-linked agammaglobulinemia, tended to have milder disease. However, in some antibody deficient patients, the course was characterized by prolonged COVID-19 infection with ongoing viral PCR positivity, but without the classic inflammatory complications. Hence, the immunopathogenesis of COVID-19 could reflect either hypo-responsiveness in certain PID/SID patients or the more typical hyper-responsiveness.

Jean-Laurent Casanova from New York City has spearheaded the COVID Human Genetic Effort, an international collaborative effort which has studied previously well individuals with no obvious underlying conditions who developed severe COVID-19. This team speculated that inborn errors of immunity could be an important factor in determining whether an individual developed asymptomatic/mild infection versus severe COVID-19 (Casanova et al, 2020).

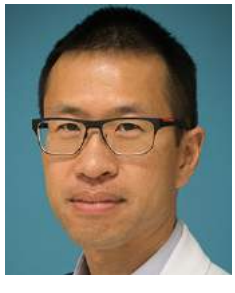
The results of this groundbreaking collaborative research showed that several patients had mutations in TLR genes previously reported to predispose to severe viral (influenza) infections. Loss of function variants underlying autosomal recessive or dominant deficiencies in TLR3, or in interferon regulatory factor (IRF7)-dependent IFN immunity were found in 3.5 per cent of severe COVID-19 pneumonia cases (Zhang et al, 2020). Subsequently, the Casanova group, as well as other independent groups, have shown X-linked recessive TLR7 deficiency in about 1.8 per cent of male patients <60 years with severe COVID-19 pneumonia (Asano et al, 2021). The global collaborative effort is now also aiming to dissect the human genetic basis of resistance to COVID-19 infection.

Another mechanism underlying predisposition to severe COVID-19 infection is the presence of neutralizing anti-IFN antibodies, which affect IFN-mediated immunity. Neutralizing antibodies directed against IFN-α2 and/or IFN-ω were found in 101/987 (10.2 per cent) of patients with severe life-threatening COVID-19 whereas 0/663 (0 per cent) of mild/asymptomatic patients had these antibodies (Bastard et al, 2020). This initial work has been confirmed in subsequent studies from France, and Spain. Furthermore the relationship with age has been shown to be more marked, such that anti-IFN antibodies accounted for about 20 per cent of deaths in the above 70 age group. The identification of these antibodies may have impact on the diagnosis and treatment of these patients, for example pioneering the use of plasma exchange or plasmapharesis as a therapeutic intervention in life-threatening COVID-19 associated with anti-IFN antibodies (de Prost et al, 2021).

To summarise, studying COVID-19 in PID/SID patients has enhanced our knowledge of mechanisms of protective immunity and immunopathogenesis. Conversely, in a significant proportion of hitherto well patients who developed life-threatening COVID-19, immunodeficiency disorders have been identified. This has translated into current clinical practice, e.g. with the diagnosis and treatment of patients with high titre anti-IFN antibodies.

References available on request

Dr Mohammed Yousuf



Dr Patrick Tang

Developing a rare donor program

By Lilian Castilho, PhD, Professor and researcher at University of Campinas, SP, Brazil

Lilian Castilho

Blood group antigens are antigenic determinants on the surface of red blood cells (RBCs). That is, they can elicit an immune response after a transfusion or pregnancy event. Currently, 379 RBC antigens are recognised by the International Society for Blood Transfusion (ISBT), with 345 antigens distributed in 43 blood group systems. This great diversity of red cell antigens is responsible for the high frequency of alloimmunization found in patients undergoing chronic transfusions.

One of the biggest problems in transfusion medicine is finding matched blood for patients who develop antibodies against high-prevalence antigens, or for patients who have multiple antibodies against common antigens. Obtaining matched blood in these situations requires access to an inventory of extensively phenotyped red cells and a database of rare donors who can be recruited for donation. The recognition that a patient requires rare blood is often the initiating factor for a series of events that may extend beyond the local blood bank and involve national and international searches.

To facilitate the supply of blood to these patients, national and international networks of rare donor panels and frozen blood unit banks have been established over the years.

The definition of what constitutes a rare blood type differs among countries; for blood donors lacking a high-prevalence antigen mostly it is a prevalence of 1 in 1000 or less but donors who are negative for a combination of relatively common antigens, or IgA deficient are also considered rare. A “rare” phenotype is when one type or combination of phenotypes is present in only 2 per cent or less of a population. The prevalence of some blood types greatly differs and depends on ethnicity of a population: e.g., D– Fy(a–) blood occurs in 1 in 20 donors with European ancestry whereas in China, Taiwan and South-East Asia in general, only 1 in 10,000 donors would be D– Fy(a–). Certain blood types, such as Rhnull are universally rare with as few as 10 registered worldwide. Other universally rare phenotypes include En(a–), Ge:–2,–3, K0, p, U– and Vel– but regardless of blood group-specific phenotypes, the best definition of “rare blood” is: “Rare blood is the blood that is not available when the patient needs it”.

Some rare blood types are also the result of founder effects such as consanguineous marriages and others are restricted to geographic areas of the world and its population by the impact of global movement and migration such as the slave trade from West Africa to the Americas and the colonization of Africa, the Indian subcontinent, and the Americas.

To fulfil the rare blood requirements of local populations, countries with the resources to do so have established national or regional rare donor program and registries. Facilities attempt to identify rare donors by performing mass antigen screening of donated RBC products. Antigen screening on a mass scale typically means that one or two specific antigens are tested in large batches. These batches sometimes test for high-prevalence antigens that, if absent from the RBC surface, qualify the donor as rare. Other times, the lack of a combination of common antigens qualifies the donor as rare.

In many countries, reference laboratories in Immunohematology are responsible for screening and studying rare blood groups. Once a rare blood type is detected, it is important to study family members who may also have the same phenotype

and become blood donors. Approximately one in four siblings have the same rare blood type. If transfusion is necessary and the patient has additional antibodies, siblings are generally more compatible than selected donors from a general population.

Currently, screening of rare donors can be performed using phenotyping and genotyping methods. There are several automated serological methods and large-scale genotyping platforms available for performing extended donor phenotyping. Some rare blood groups can be found through simple ABO/Rh/K phenotyping and services that perform routine extended phenotyping may find rare donors with an absence of common antigen combinations and an absence of high frequency antigens. However, the scarcity and high cost of rare antisera make the use of hemagglutination tests limited for determining many antigens and therefore DNA analysis through large-scale genotyping platforms has been the method of choice for increase inventories of rare RBC components. As the cost of genotyping is decreasing, this methodology has been widely used around the world for screening rare donors. The most important resource in the screening process is personnel; therefore, restrictions in antigen screening tend to be related to staffing. A testing facility needs an adequate number of staff to devote time to the performance of mass antigen screening.

Another way to find a rare blood type is through the presence of antibodies if the donor has been immunised in the past. Some very rare blood types can be found by the presence of naturally occurring antibodies, for example, the identification of an anti-PP1Pk antibody in a donor serum can characterize the rare phenotype p, the detection of anti-H can characterise the Bombay phenotype. Patients with antibodies to rare antigens can also become potential donors.

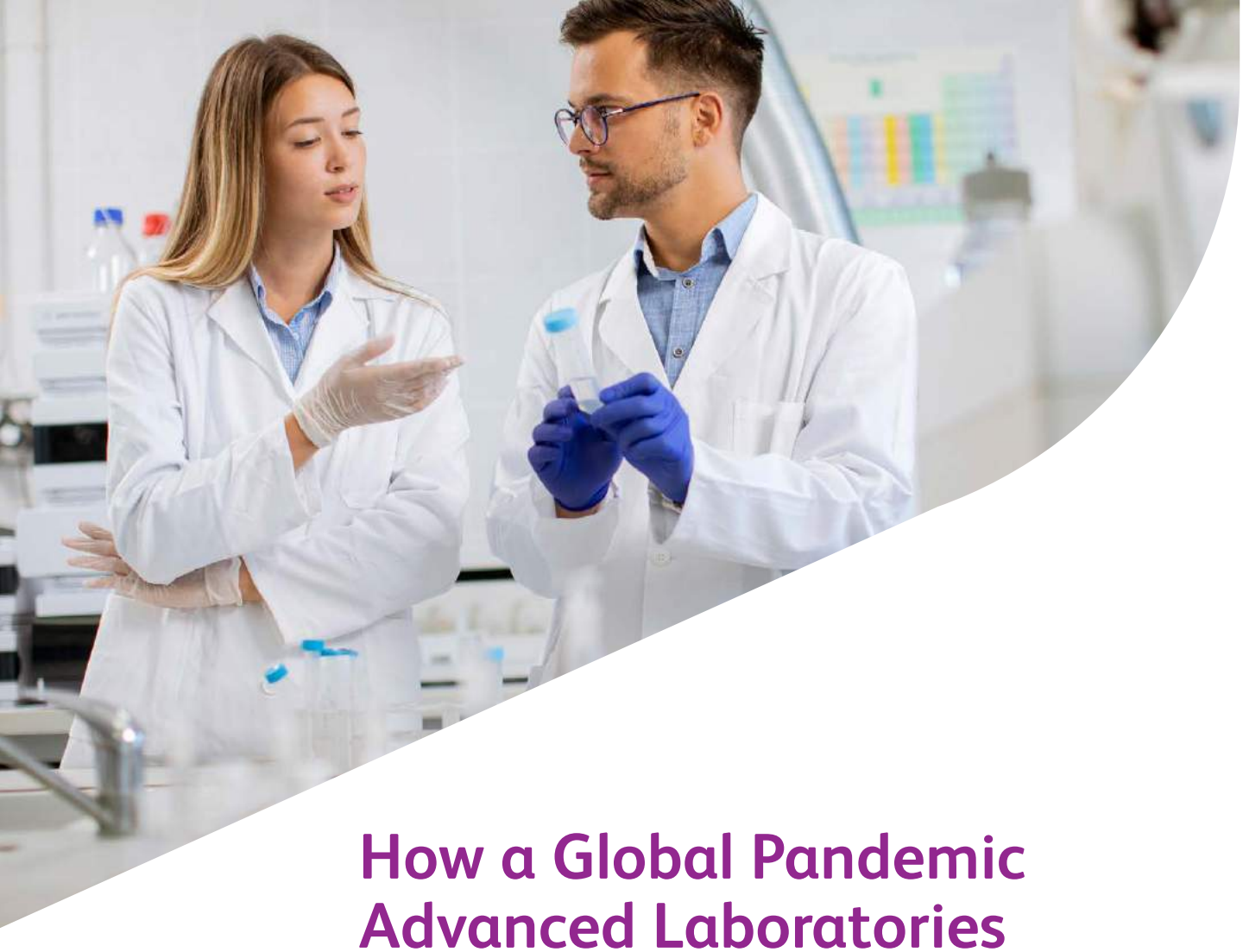
As some rare blood types are predominant in different ethnic populations, rare donors can also be found in specific geographic areas or in certain populations. The U– and Js(b–) phenotypes are predominant in African populations and therefore these phenotypes are easier to find through screening in Afro-descendant donors. Blood banks that can freeze red blood cells often recruit rare blood donors so that they can freeze these units and thus have the blood available in emergency situations. Frozen units can be stored for over 10 years.

A rare donor programme is usually an effort by multiple centres and/or hospitals to bring together their rare donors into a national registry accessible to all services to meet the needs of patients in need of rare blood. These centres work to carry out screening, phenotyping/genotyping and family studies. Implementing a rare donor programme is a difficult task that involves many challenges such as raising awareness in the services of the need for a national program; the identification of a responsible centre to coordinate the program and receive requests; the ability of centres to perform screening and/or freezing and have adequate physical space, awareness of rare donors, technical and financial resources, involvement of specialist professionals in the area, specialised training to identify rare phenotypes, and the development of a molecular strategy suitable for the country.

Despite all these challenges, the major motivating factors for the creation of these programmes, such as reducing the risk of alloimmunization and auto-immunization, reducing hemolytic reactions and hyperhemolysis syndromes, faster transfusion care and greater benefit from transfusions, overcome the difficulties encountered. Rare donor programmes work to ensure that blood is available for patients' needs at the correct time and place.

References available on request

Prof Castilho will give the keynote address on 'Developing rare blood donor program' on Thursday, Jan 27 at the Blood Transfusion Medicine conference at Medlab Middle East



How a Global Pandemic Advanced Laboratories and Patient Care

By Emily E. Volk, MD, FCAP President, College of American Pathologists

When Winston Churchill worked to form the United Nations after World War II, he famously stated "Never let a good crisis go to waste."

Now, two years into the COVID-19 pandemic, those of us in laboratory medicine mirror that same determination and leadership. We have NOT let the crisis go to waste. On a global scale, we developed novel assays and managed supply chain and staffing challenges, all while continuing to meet unprecedented demands for laboratory services. During this international crisis, governments, patients, and the media have gained a much deeper understanding of the critical role of laboratory medicine in public health.

Just as laboratories are leading clinical and patient communities through this crisis, we are also learning. Those key learnings, that commitment to continually improving protocols and processes, are the essence of a prepared, high-quality laboratory.

Dr Emily Volk

Gaining diagnostic confidence

As the pandemic made clear, laboratories must be able to deliver diagnostic data and results with confidence. Two key components of achieving that confidence are first, having high-quality, tightly managed processes in place and second, participating in proficiency testing/external quality assessment (PT/EQA) programmes.

Laboratories with proven quality processes are prepared when issues arise and can respond rapidly to the dynamic demands of a pandemic. Laboratory accreditation fosters that quality culture, particularly when programmes like the one developed by the College of American Pathologists (CAP) use a checklist-driven approach to ground the requirements, which provides the structure, specificity, and flexibility required for a confident laboratory response. Throughout the CAP's accreditation checklists, developed with input from pathologists and laboratory professionals, staff are

guided on "what" to do as well as "how" to do it. Additionally with peer inspectors, laboratory staff have access to the knowledge and support of the CAP's worldwide pool of experts. These unique features combine to educate laboratory staff with new perspectives that are then reflected in improved reports, confident advice to clinical teams, and better preparedness to respond rapidly to change.

The pandemic also demonstrated that an accreditation programme built with the expertise of practicing pathologists can quickly address changes in clinical practices and needs, again providing guidance and education. For example, in response to changes brought on by COVID-19, the pathologists who lead CAP accreditation checklist development added 27 new requirements and revised approximately 139, with the most significant changes in quality management, infection prevention and control, and transfusion medicine. For accredited laboratories, that meant they received clear, timely guidance on verification and validation of tests and up-to-date checklists—reinforcing diagnostic confidence. Pandemic or not, the CAP rigorously reviews and updates checklist requirements annually.

That cultural commitment to quality through accreditation can also create a safer workplace for staff. This proved vital as the novel SARS-CoV-2 pathogen took hold. For example, CAP experts quickly added Biological Safety Cabinet guidance in our Microbiology checklist, providing the detailed direction that laboratories need to ensure appropriate safety for staff. Now, even as variants emerge, such updated guidance remains essential to protect laboratory staff.

Quality assurance, shared insights

Beyond accreditation programmes, laboratories gain diagnostic confidence through PT/EQA programmes that yield actionable data, insights, and knowledge that builds competence.

In the fight against COVID-19, the CAP committed substantial resources to support laboratories on a global scale, including the introduction of a portfolio of PT/EQA programmes specific to SARS-CoV-2.

Early in the pandemic, the U.S. clinical landscape was frantically evolving with all types of tests emerging from any number of sources under "emergency use authorization" (EUA) regulatory status. And yet global public health depended upon laboratory test results that were valid and reliable. Responding rapidly to these dynamics, the CAP brought up new programmes to verify and validate molecular, serologic, and antigen testing for SARS-CoV-2 almost as quickly as the tests themselves emerged.

As the pandemic proved, laboratories must be guided by an unwavering commitment to the patients we serve, and that is the fundamental rationale for participating in PT/EQA programmes.

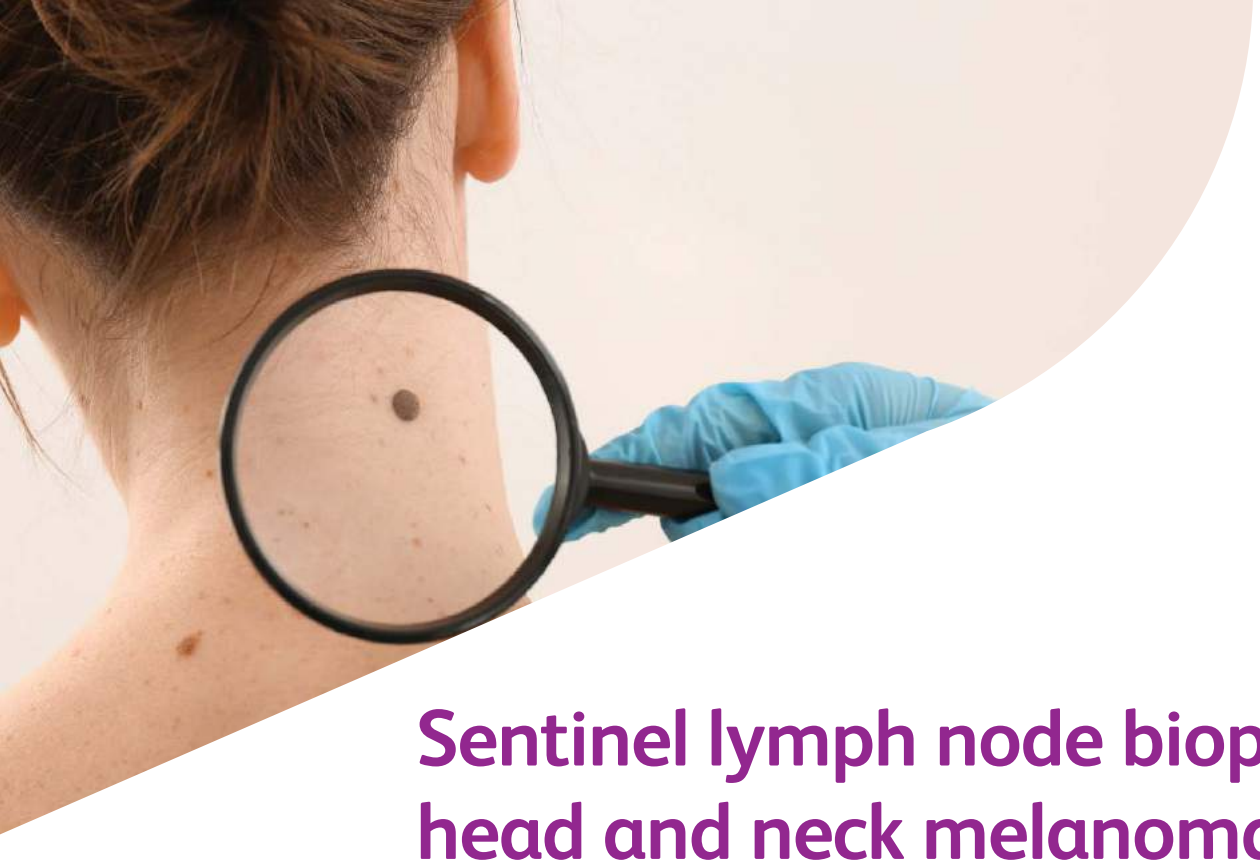
Rather than trying to invent internal processes to validate tests, PT/EQA programmes can address multiple testing processes and platforms, giving laboratories flexibility and adding confidence. With blinded specimens from a neutral source, CAP PT/EQA provides laboratories a community of 20,000 peers worldwide to compare test performance and gain actionable insights and data, forming a firm foundation of continuous quality improvement that helps achieve higher standards of patient care.

As the COVID-19 pandemic evolves, so too will we expand our efforts and innovation, because laboratory medicine has always met the challenge of change at a rapid pace.

Unfortunately, it took the COVID-19 crisis to underscore the value and importance of high-quality laboratories. But it helps to know we haven't let a crisis go to waste. We know now, as never before, that laboratories committed to a disciplined approach to quality processes, programmes, and protocols, will not only succeed through this pandemic, they will be well-prepared for the next one.

Emily E. Volk, MD, FCAP, is the President of the College of American Pathologists (CAP), the leading organisation of board-certified pathologists, which serves patients, pathologists, and the public by fostering and advocating excellence in the practice of pathology and laboratory medicine worldwide.

Dr Volk will discuss 'Genotype-phenotype correlations – subdivisions in special types of breast cancer' on Tuesday, Jan 25 at the Histopathology conference at Medlab Middle East



Sentinel lymph node biopsy in head and neck melanoma

Long-term outcomes, prognostic value, accuracy, and safety

By John E Hanks, Kevin J Kovatch, S Ahmed Ali, Emily Roberts, Alison B Durham, Joshua D Smith, Carol R Bradford, Kelly M Malloy, Philip S Boonstra, Christopher D Lao, Scott A McLean

Abstract

Objective: To evaluate the long-term outcomes of sentinel lymph node biopsy (SLNB) for head and neck cutaneous melanoma (HNCM).

Study design:

Retrospective cohort study.

Setting:

Tertiary academic medical center.

Subjects and methods:

Longitudinal review of a 356-patient cohort with HNCM undergoing SLNB from 1997 to 2007.

Results: Descriptive characteristics included the following: age, 53.5 ± 19 years (mean ± SD); sex, 26.8 % female; median follow-up, 4.9 years; and Breslow depth, 2.52 ± 1.87 mm. Overall, 75 (21.1 %) patients had a positive SLNB. Among patients undergoing completion lymph node dissection following positive SLNB, 20 (27.4 %) had at least 1 additional positive nonsentinel lymph node. Eighteen patients with local control and negative SLNB developed regional disease, indicating a false omission rate of 6.4 % , including 10 recurrences in previously unsampled basins.

Ten-year overall survival (OS) and melanoma-specific survival (MSS) were significantly greater in the negative sentinel lymph node (SLN) cohort (OS, 61 % [95 % CI, 0.549-0.677]; MSS, 81.9 % [95 % CI, 0.769-0.873]) than the positive SLN cohort (OS, 31 % [95 % CI, 0.162-0.677]; MSS, 60.3 % [95 % CI, 0.464-0.785]) and positive SLN/positive nonsentinel lymph node cohort (OS, 8.4 % [95 % CI, 0.015-0.474]; MSS, 9.6 % [95 % CI, 0.017-0.536]). OS was significantly associated with SLN positivity (hazard ratio [HR], 2.39; P < .01), immunosuppression (HR, 2.37; P < .01), angiolymphatic invasion (HR, 1.91; P < .01), and ulceration (HR, 1.86; P < .01). SLN positivity (HR, 3.13; P < .01), angiolymphatic invasion (HR, 3.19; P < .01), and number of mitoses (P = .0002) were significantly associated with MSS. Immunosuppression (HR, 3.01; P < .01) and SLN status (HR, 2.84; P < .01) were associated with recurrence-free survival, and immunosuppression was the only factor significantly associated with regional recurrence (HR, 6.59; P < .01).

Conclusions:

Long-term follow up indicates that SLNB showcases durable accuracy, safety, and prognostic importance for cutaneous HNCM.

Dr Bradford will give the keynote address on 'Multidisciplinary precision medicine tumour board for head and neck cancer' on Thursday, Feb 3 at the online ENT Conference, part of Arab Health

Harnessing innovation to transform patients' healthcare journeys

By Sameh El Fangary, Country President, GCC & Pakistan, AstraZeneca

As we continue to make strides in curbing the impact of the COVID-19 pandemic, it is important to reflect on some of the success factors that have helped us reach this point in time. Innovation and collaboration in showcasing what science can do, has been nothing short of remarkable, and redoubling efforts remains crucial for continued progress.

The breakthroughs achieved by science in developing highly effective vaccines against COVID-19 are nothing short of extraordinary. What once would have taken at least a decade has been fulfilled in 18 months. This is primarily a result of unprecedented international collaboration from developers, manufacturers, governments, logistics providers and more, shipping supply across borders in record time, as well as dedicated healthcare workers who are tirelessly administering vaccines.

We have witnessed the rapid response of healthcare communities coming together in an act of solidarity across the GCC and beyond to save the lives of thousands, demonstrating that the ability of vaccines to be effective in reducing hospitalisation, to help protect against severe disease and death, is of critical importance.

Since the start of the pandemic, AstraZeneca quickly mobilised efforts to respond to the constantly evolving situation. We provided nine million face masks to support healthcare workers in 49 countries, helping ensure uninterrupted supply to medicines whilst formulating innovative ways of ensuring continuity of patient treatment through home-based care solutions such as facilitating home injections of medicines. In parallel, we bolstered national COVID-19 testing efforts and initiated clinical trials to investigate our new and existing medicines to see how they could treat the infection.

Recognising the urgent need for a COVID-19 vaccine, the AstraZeneca vaccine journey began with joining forces with the University of Oxford in April 2020. This landmark partnership brought together the university's world-class expertise with AstraZeneca's global development and manufacturing capabilities. Together, we committed to providing the vaccine broadly and equitably across the globe, at no profit to

Sameh El Fangary

AstraZeneca. To date, there have been over 25 million AstraZeneca vaccine doses supplied in the GCC and Pakistan with the support of our partners.

As a company, we're dedicated to meeting the ambitious plans of governments who have made healthcare the foundation of both their national development strategies and their inward investment agendas. Working hand-in-hand with government officials, ministries and other healthcare bodies we're dedicated to tackling the challenges within the sector to provide uninterrupted access to innovative medicines for patients. With almost four decades of heritage in the GCC, we have continued to increase our footprint significantly in the region over the years by contributing to a robust healthcare ecosystem through local partnerships and investments, as well as emphasising our patient-centric approach in the form of local clinical trials and R&D.

The recent healthcare milestones in Bahrain, as it became the first country to authorise the emergency use of AstraZeneca's long-acting antibody combination, Evusheld, and the UAE a few hours after FDA granted the same, is a prime example of ground-breaking advancements in the GCC.

The new treatment, Evusheld, has been designed to prevent symptomatic COVID-19 in those who are unable to take the vaccine as they are unable to mount a sufficient immune response following vaccination.

The United Arab Emirates was the first country after the U.S. and the first in the region to sign a procurement agreement making sure the UAE population have early access to this new medication. We welcome this news and the opportunity it provides to support the unmet needs of vulnerable patients. Recent data from the Phase III PROVENT trial showed a robust efficacy profile and Evusheld has so far demonstrated protection of up to six months against COVID-19 in high risk and immune-compromised patients.

In addition to providing advanced medicines to prevent COVID-19, there have been other areas that have rapidly accelerated in becoming priority areas for the GCC, such as digitalisation. The GCC is a key region for the healthcare sector where we've a seen a remarkable expansion over the past decade. For instance, and according to Omnia Health by Informa Markets, investment in digital infrastructure is expected to account for 30 per cent of regional hospital investment between 2023 and 2030.

Looking ahead, AstraZeneca is embracing digital technology faster than ever by developing innovative treatments that ensure healthcare professionals are provided with the latest developments, whether through digital tools, events and learning materials via our digital app, EduGate.

Our direction hasn't changed as a result of COVID-19; what has changed is the pace. Our ultimate ambition is to reimagine healthcare – harnessing innovation to transform patients' healthcare journeys to improve earlier diagnosis, more precision treatments, and proactive digital monitoring for better outcomes, powered by digital, data and technology.

Our priorities remain to ensure the continued supply of our medicines to patients, and to safeguard the health and well-being of all, leaving no one behind. Ultimately, unity and collaboration play a pivotal role in ensuring all of humanity is protected. COVID-19 has reminded us that if we unite together and believe in what science can do, we can achieve greater heights.

Evusheld has been designed to prevent symptomatic COVID-19 in those who are unable to take the vaccine

Niger poised to be first country in Africa to eliminate river blindness

Significant milestone reached in the worldwide effort to end neglected tropical diseases

By Omnia Health Magazine Staff

Niger completed the necessary evaluations in line with guidelines from WHO to certify the elimination of river blindness

Recently, it was announced at Expo 2020 Dubai that Niger completed the necessary evaluations in line with guidelines from the World Health Organization (WHO) to certify the elimination of onchocerciasis (commonly known as river blindness), unlocking billions for the country's economy over the last several decades.

Niger is preparing the requisite paperwork for WHO verification and pending certification, and the country is now poised to be the first in Africa to declare it has eliminated the NTD – a feat once considered impossible. After over 40 years of work to control or eliminate river blindness in West Africa, the achievement in Niger provides a proof of concept that elimination is possible, not just in West Africa but across the entire continent.

An event was held on December 8 2021 in the Niger Pavilion at Expo 2020 Dubai to celebrate this progress. The event was hosted by Reaching the Last Mile, a portfolio of global health programmes driven by a commitment of His Highness Sheikh Mohamed bin Zayed, Crown Prince of Abu Dhabi, the Bill & Melinda Gates Foundation, and The END Fund.

The hosts share a history of working together to combat NTDs through the Reaching the Last Mile Fund (RLMF). Administered by the END Fund, RLMF is a 10-year, global partnership launched by His Highness Sheikh Mohamed bin Zayed, Crown Prince of Abu Dhabi, together with support from philanthropists, governments and organisations such as the Bill & Melinda Gates Foundation.

Attendees included Her Excellency Reem Ebrahim Al Hashimy, UAE Minister of State for International Cooperation; Director General, Expo 2020 Dubai Bureau; Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation; and His Excellency Ambassador Agada Garba, Ambassador of the Republic of Niger to the United Arab Emirates.

Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation, commented: "Niger's leadership in the fight against a disease that once seemed impossible to defeat has been exemplary. I have deep gratitude to all who contributed to this achievement, including the Nigeriens whose efforts made it an attainable dream. In particular, I want to thank His Highness for his vision in initiating the Reaching the Last Mile Fund, which has brought new tech to the NTD sector and supported Niger in reaching the finish line."

For the elimination of river blindness in Niger to be officially certified by WHO, the next step will be for Niger to submit an elimination dossier. If accepted a formal declaration of the elimination of transmission will be made by WHO. The END Fund is currently supporting the Niger national programme in its efforts to compile a comprehensive dossier.

Ellen Agler, CEO of the END Fund, commented: "Niger's achievement is truly inspirational. The country has shown incredible leadership and perseverance through a long and uncharted journey towards river blindness elimination. It has been the END Fund's privilege to support Niger in arriving at a destination many thought couldn't be reached.

"These efforts have created billions in economic gains for Niger, and the energy this will generate

across the global NTD sector is immeasurable. On behalf of the entire ecosystem of partners the END Fund represents, we honour Niger's leadership, and are excited to support the next wave of countries across Africa following in Niger's footsteps."

The urgent need to end NTDs

NTDs affect more than 1.7 billion people – often those living in under-resourced areas, in remote communities, and without basic services like access to clean water and sanitation.

Significant progress has been made since the landmark 2012 London Declaration on NTDs, which unified partners across sectors, countries and disease communities to push for greater investment and action on NTDs. Today, hundreds of millions of people no longer require treatment for NTDs and with the elimination of river blindness in Niger, 35 countries will have eliminated at least one NTD since 2012.

Niger's achievement with river blindness demonstrates what is possible with long-term, sustained investments, country ownership of the goal, and effective public-private partnerships. Innovation and new technologies also play a critical part – from applying real-time and highly granular satellite and other geospatial data to better identify vector breeding locations at the village-level, to the pending introduction of new drugs like moxidectin, which in combination with existing drugs could accelerate the elimination of both river blindness and lymphatic filariasis in Africa.

Link between NTDs and prosperity

Niger's new economic trajectory is profiled in a new report from Dalberg entitled, "Eliminating onchocerciasis and lymphatic filariasis (LF): Reaching the last mile."

According to the report, countries that eliminate onchocerciasis and LF create significant economic benefits that catalyze economic growth. For example, by eliminating onchocerciasis and controlling LF, Niger added an estimated US$ 2.8 billion to its economy over the last 45 years.

Once the burden of disease was lifted, individuals were able to lead productive lives and save on health expenditures; families were released from care taking and enabled to pursue education and work; and rural communities resettled in productive lands around rivers, improving agricultural outputs and boosting local incomes.

Health workforces are also revitalised as caretakers are freed to pursue work outside the home. This is particularly impactful regarding women caretakers who are freed to reinvest in their communities, as women-led investments are proven to have a multiplier effect on local economies.

The report also found that failing to eliminate disease transmission creates risks that can hamper economic development.

RLMF: partnering for a healthy future

RLMF focuses on ways to accelerate progress – from investing in mapping exercises, to supporting advanced lab facilities and cross-border collaborations. Mapping exercises enable countries to make informed decisions about whether they can safely stop treatment or need to start treatment for previously unreached populations. Prior to these surveys, many countries had a limited understanding of their transmission status.

And while eliminating a disease is the bulk of the fight, RLMF goes even further to prove elimination is possible and thus end needless expenditure of resources on a public threat that no longer exists. Verifying the elimination of river blindness is an incredible challenge in and of itself and RLMF catalysed several technological advancements to support Niger.

LEADER LIFE SCIENCES

PAVING THE WAY TO A HEALTHIER TOMORROW

Leader Life Sciences®
Partners in Discovery

Empowering the scientific community

Facilitating groundbreaking research

Introducing the gateway to biofabrication

Enabling full laboratory automation

Redefining laboratory workflows

Leader Life Sciences, a spin-off of Leader Healthcare Group, was established in 2020 with the sole focus of facilitating advancements in the region's life sciences sector and driving innovative research by providing the latest solutions and technology solutions serving every life sciences discipline

To schedule a visit to Leader Life Sciences' Innovation Experience Center, please email us on helpdesk@leaderlifesciences.com

DSP Lab Complex - Dubai Science Park (DSP) - 2nd Floor - Office #219 P.O. Box 341123 Dubai UAE
+971 4 575 4647 / +971 50 248 7382

@Leaderlifesciences @Leaderlifesciences @Leaderlifesciences @Leaderlifesciences www.leaderlifesciences.com

How Do I Know If I Need a COVID-19 Booster Vaccine Shot?

Do your COVID-19 Neutralizing Antibody levels matter?

COVID-19 VACCINATION ELICITS ROBUST NEUTRALIZING ANTIBODIES (NAb) PRODUCTION IN MOST PEOPLE, BUT THE LEVELS OF THESE ANTIBODIES WANE OVER TIME.
IF YOUR NAb TITER IS LOW,
A COVID BOOSTER DOSE IS RECOMMENDED FOR BETTER PROTECTION AGAINST DIFFERENT VARIANTS.

KNOW YOUR PROTECTIVE IMMUNITY BY MEASURING NEUTRALIZING ANTIBODY (NAb) TITER IN 15 MINUTES FOR A BOOSTER SHOT

CE

TestNOW®

COVID-19 NAb

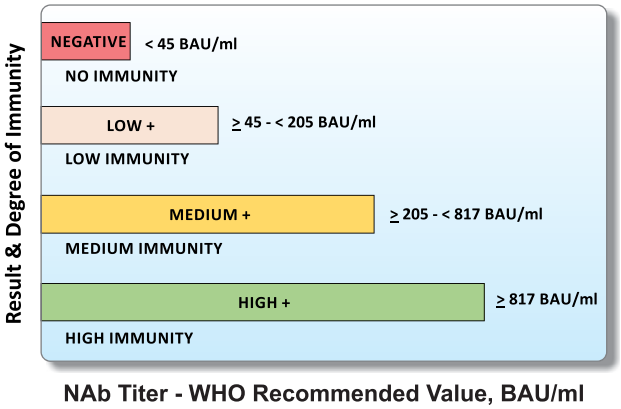
Rapid COVID-19 Neutralizing Antibody (NAb)
"Quantitative" Whole Blood Test

DIGITAL RESULT

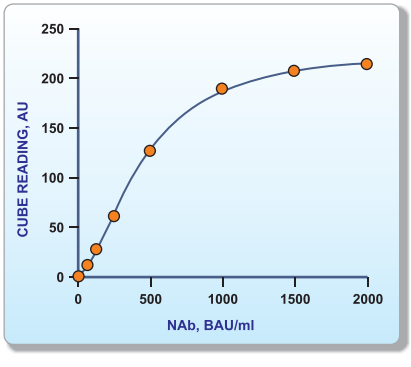
TestNOW® - COVID-19 NAb detects Neutralizing Antibodies (NAb) that BLOCK the binding of RBD on Spike protein to ACE2 Cellular Receptors. RBD is the major neutralizing determinant for SARS-CoV-2. Clinical study has shown that serum IgG against RBD best correlates with virus-neutralizing activity and disease severity*.

Interpretation of Results based on WHO International Reference Panel

(NIBSC Code: 20/268)



NAb Titer - WHO Recommended Value, BAU/ml



WHO Standardized

TestNOW®- COVID-19 NAb has been standardized against "First WHO International Standard for anti-SARS-CoV-2 Immunoglobulins" (NIBSC Code: 20/136)

Perfect Point-Of-Care Advantages – Test NOW Your NAb Titer

- Detects NAb Titer that blocks RBD-ACE2 interaction.
- Quick 15 minutes Test with 10µl of finger-prick blood.
- Digital Quantitative results in 3 seconds.
- Results in WHO recommended Binding Antibody Unit (BAU)/ml.
- Sensitivity: 99.17% (vs. RT-PCR and Reference NAb ELISA Test).
- Specificity: 98.67%
- Limit of Detection (LOD): 15 – 45 BAU/ml (Test Lot dependent).
- Upper Limit of Quantification (ULOQ): 2,500 – 3,000 BAU/ml (Test Lot dependent).
- Accurate and reliable with consistent results.
- Batch Testing with *RapiRead*™ CUBE Reader.
- Cost-efficient and timesaver.

TRACK the VAX...Immunity Monitoring made Simple!

Affimedix

Affimedix, Inc.
3556 Investment Boulevard
Hayward, California 94545, USA
Tel: +1-510-398-8111
Fax: +1-510-398-8132
Email: info@affimedix.com
www.affimedix.com

Discovering Health Diagnostics for Life©

* Kuniaki Saito et al. Comparative Analysis of Antigen-Specific Anti–SARS-CoV-2 Antibody Isotypes in COVID-19 Patients; J Immunol May 15, 2021, 206 (10) 2393-2401

Treating sarcomas with technology and a multidisciplinary approach

By Deepa Narwani, Senior Editor

Dr. Joel Mayerson

Physicians on the tumor board:
Joel Mayerson, MD, Professor and Director, Division of Musculoskeletal Oncology; Medical Director of Perioperative Services and the Sarcoma Service Line, OSUCCC – James

Prof Raphael E. Pollock, MD, PhD, Professor and Director of OSUCCC - James. Klotz Chair in Cancer Research, Director of The Ohio State University Sarcoma Research Laboratory

Surgical oncology – Valerie Grignol, MD

Radiation oncology – David Konieczkowski, MD, PhD, Meng Welliver MD, PhD

Pathology – Hans Iwenof, MBBS

Medical oncology – Gabriel Tinoco, MD, FACP

Diagnostic radiology – Scott Lenobel, MD

At the online Orthopaedics conference as part of Arab Health 2022, Dr. Joel Mayerson, Director, Division of Orthopaedic Oncology, The James, The Ohio State University Comprehensive Cancer Center, Columbus, Ohio, U.S., will be presenting a live tumor board, where a group of sarcoma physicians that meet every week from all the specialities involved in the care of sarcoma, will come together to talk about patient cases and optimizing their care.

He said: "We will get patients who have a complicated problem for multidisciplinary input and try to make sure that there is a cutting-edge treatment involved for their care."

Dr. Mayerson explained that there are two types of sarcomas – bone sarcoma and soft tissue sarcoma. Bone sarcomas cause immense pain in the limb, either when you're walking or at night. For instance, when you're walking, it destroys the bone and makes it weaker. He stressed that bone tumor pain doesn't get better when you rest it. So, if you have a constant dull, toothache type pain that increases when you walk, you need to seek medical attention quickly to make sure you don't have a bigger problem. Soft tissue sarcomas, on the other hand, do not hurt. They usually are a painless growing mass. So, if you have a bump in your arm or leg that you notice in the shower or when you are putting socks on that wasn't there before, you need to keep an eye on it. If it's growing, a physician needs to be consulted.

Dr. Mayerson is one of the physicians who takes care of bone tumors in children as well. While The James is an adult cancer hospital, children under 18 are cared for at Nationwide Children's Hospital. "Bone sarcomas are more common in teenagers and young children. Many of the bone sarcomas in our region are treated at Nationwide Children's. In contrast, soft tissue sarcomas are much more common in adults and are treated at The James. I have two partners, and the three of us take care of children with tumors at Nationwide Children's," he highlighted.

Advancements in orthopedic oncology

From a reconstructive standpoint, Dr. Mayerson shared that customized 3D printed implants are coming into the market. "We are also using 3D printing to devise cost custom cutting guides. When we know where the core is at, we can cut closer and accurately to the tumor and use the 3D printed implants that are made to fill the void accurately and decisively where we've removed the bone or the tumor to be put in."

Another advancement is the use of osseointegration for patients who have had trouble after an amputation. Osseointegration involves

the bone to try to decrease the risk of infection. They can then snap on the prosthetic to the end of that piece of metal that allows them not to have the problems they had while using a socket, and they can walk better.

Research is also being done on targeted muscle reinnervation. It is a process whereby the ends of a cut nerve are sewed to an intact motor nerve. They then grow into that nerve. It decreases the amount of pain that the patient has after they have the procedure. Moreover, it reduces the risk of having phantom pain, which is when the leg is not there anymore.

He explained: "We are also now working on trying to connect integration and targeted muscle reinnervation together. You can put an electrode on the patient's skin, map it to where that nerve that was firing goes, hook it up to the prosthesis at the end and make the prosthesis move by using the patient's thoughts. For example, if a patient is meant to bring their ankle toward their face or push their ankle towards the floor, their brain normally does that. If you take that electrode, it knows that nerve wise where it should have been, and the brain can sense what it wants to do and fires the electrode connected to the prosthesis that can move the prosthesis the way it would naturally. This is not standard of care yet, but we are working on it from a research standpoint. I hope that it will become the standard of care for amputees within the next decade and help them walk more naturally. One of the challenges is bringing the cost of that technology down. Right now, it costs about a million dollars, but the technology is there, and if we can make progress and get it cheaper, we can integrate it into normal society and healthcare."

Also, shoulder prosthesis has come into the limelight in the past four to five years. It's called reverse total shoulder arthroplasty and is done for people that have rotator cuff tears that have progressed and where it's not normally reconstructable. Dr. Mayerson said that people are moving much better with reverse oncology shoulders, their shoulders are not dislocating, and their quality of life has improved quite a bit. In fact, he believes that it's going to replace most of the shoulder oncology surgery that's done for bone tumors over the next few years.

He concluded: "The biggest thing to know about sarcomas is that they are complex and require multidisciplinary care. One of the things that we will be doing in the presentation at Arab Health is showing how multidisciplinary care affects patients. If someone does have a sarcoma, they should be treated at a regional center that specializes in sarcomas."

Dr. Mayerson will be presenting the 'Multidisciplinary Orthosarcoma tumor board' on Wednesday, February 2, at the online Orthopaedics conference as part of Arab Health.

Health of digital health

By Madhukar Bose, Deputy Head of Healthcare: Digital Health, The Department for International Trade, UK

Madhukar Bose

Undoubtedly, global challenges faced by the pandemic have been at the core of innovation, at a rate previously unimaginable. It has also posed important questions to health systems globally.

The role of digital technology in realising the dream of accessible, affordable, and sustainable care has grown across the entire range of health economies globally. The pandemic has enabled the NHS to achieve a level of digital transformation that might have otherwise taken several years. This has brought to the forefront the necessity of building digital healthcare systems that are personalised and truly patient centric.

As we move into the recovery period, it has been critical for the NHS to build on the progress made. The NHS reset campaign, launched in May 2020, identifies and adapts the best of COVID-19 related innovations into everyday practice, preserving the brilliant momentum the sector has seen these past few years, to inspire what the future of health and care should look like.

This year NHS England announced the launch of the 'What Good Looks Like programme' (WGLL) to drive the digitally enabled healthcare transformation agenda forward. The pandemic has accelerated digital transformation by seven years, and it is vastly important that we build on this exceptional progress.

The 7 success measures of the NHS 'What Good Looks Like' Programme

The pandemic has accelerated digital transformation by seven years

The NHS WGLL programme builds on established good practice to provide clear guidance for health and care leaders to digitise, connect and transform services, safely and securely. This will improve the outcomes, experience, and safety of our citizens.

The WGLL framework highlights seven success measures, which aim to provide a strong foundation for digital practice, providing the tools and support healthcare organisations with their digital transformation journey. Three of the seven areas within the WGLL framework are particularly impressive from an international perspective and need a closer look, these are: Ensure Smart Foundations; Improve Care; and Healthy Populations.

Ensure smart foundations

Firstly, true digital transformation can only be enabled by ensuring the right infrastructure for data flows. This is hugely important to create an ecosystem that puts responsible innovation front and centre. This means putting in place digital data and infrastructure operating environments which are reliable, modern, secure, sustainable, and resilient. The goal is to ensure that projects, programmes, and services are:

- delivered through a multidisciplinary approach
- build towards net zero goals
- meet the Technology Code of Practice
- are cyber secure by design

Our UK innovative digital health companies are delivering on this vision, when they introduce their technologies into the UK's NHS and private hospital environments.

BJSS, is one of the largest technology providers to the NHS. The company built the national system, Spine 2, which sits at the heart of all the patient identification, centralised health records and the secondary uses of data in the NHS in England.

With 50.2 million Electronic Patient Records (EHRs), TPP's technology enables shared care across 7000+ Hospital and Outpatient services and 230,000+ users. It is a fantastic example of an integrated EHR solution and Personalised Health Record System. It is a centralised, cloud-based clinical system hosted on a single platform infrastructure.

Meanwhile, digital service delivery specialists Difrent are working to design, build and run user-centric digital services across Healthcare and

Government. The company's vision is to effect real, positive change and ensure public services truly meet the needs of the people they are intended to serve.

Lastly, in a move to accelerate digital transformation in healthcare in the UK, the two bodies responsible for NHS IT strategy and delivery, NHS Digital and NHSX, have been merged into NHS England & NHS Improvement. The aim here is to double down on efforts to create a more unified approach to achieving the goals of the WGLL programme.

Improve care

Digital solutions are designed to enhance services for patients, ensuring they get the right care when they need it and in the right place. But to unlock the power of digital at scale firstly requires pathway transformation. This can help bring reductions in outpatient appointments, helping organisations to plug the demand-supply gap. It also means providing the tools to eliminate unwarranted variation across the care pathway and implementing virtual services that are fit-for-purpose.

With hospitals striving to catch up with a backlog, digital solutions can accelerate elective recovery and support new care pathways for patients, helping to improve the provision of care.

One important contribution is AI and machine learning. DemDX, is a pioneering diagnostics company who is working to provide a transparent, step-by-step machine-learning triage and diagnostic support tool aimed at improving the diagnostic accuracy and confidence of healthcare staff.

Babylon Health, one of the UK's best known digital health companies, runs the country's largest GP practice (by patient population) and having recently been publicly listed on the NYSE is set to grow its global footprint through the addition of integrated care-based solutions.

To help address the current radiology workforce crisis and give women better outcomes in their cancer treatments, Kheiron Medical Technologies has developed an AI breast screening solution. Their AI breast screening solution 'Mia' supports radiologists to read breast mammograms. This applied science company is committed to transforming cancer diagnostics through deep learning.

Methods Analytics' vision, meanwhile, is to improve society by helping people make better decisions with data. The company provides an end-to-end data service, putting collaboration and user centricity at the heart of their unique offering.

Healthy populations

Empowering population-based, digitally-driven models of care is another important success measure. This requires leveraging data to design and deliver improvements to population health and well-being, making the best use of collective resources. It also means deriving insights from data intelligence platforms including primary, secondary, mental health and community care to improve and address health inequalities.

One of the companies at the forefront of this crucial work is MyWay Digital Health, who are dedicated to delivering transformative care through affordable, evidence based, data-driven, scalable award-winning solutions. With a key focus on diabetes and long term conditions, their aim is to provide knowledge, advice and data predictions to patients and health care professionals.

In terms of other health areas, Cera Care is a technology-enabled home care provider using digital and AI to improve elderly care services. The company has built machine learning algorithms, allowing it to predict health deteriorations before they occur with 83 per cent accuracy. They are creating 15 digital healthcare hubs across the UK to deliver telehealth and medication services – matching the capacity of 1,000 care homes every day.

From Patients Know Best and Healthbit who offer patient-controlled health records to Elemental who offer a social prescribing platform and Congenica who offer end-to-end genomics capabilities, these organisations represent key areas where the UK's best innovations have something to offer globally, as the challenges they address are universal. Representing this innovation in a form that can be accessed by an international healthcare audience, poses a different problem altogether.

The UK's Department for International Trade 'Refreshed and Expanded 100 Playbook'

Healthcare UK, part of DIT, has created an insightful collection of leading UK innovators and companies dedicated to exporting, ready to work in partnership with healthcare providers and organisations overseas, via UK Embassy's. In February 2021, DIT launched the #First100 Digital Health companies for international projects, and now, nine months later, there are successful projects that have been delivered as part of this. We are now going beyond and expanding this to 165 UK Digital Health companies. The latest campaign and #Beyond 100 Expanded Playbook, will be launched at Arab Health 2022.

Digital Health is rightly seen as the answer to many challenges facing global healthcare, and ' The UK's Beyond 100 Expanded Playbook', provides an accessible showcase of some of the top digital health solutions.

Cera Care is a tech-enabled home care provider using digital and AI to improve elderly care services

At Arab Health 2022, the Department for International Trade, UK, will be hosting the 'Next Steps for Digital Health' seminar. The keynote will start with a debate with the Department's panel of UK and regional experts. The seminar will take place on Tuesday 25 January.

What are the core strengths of the UK genomics industry?

How is it changing patient care, education, and health outcomes around the globe?

By Dr. Aphrodite Spanou, Director for Healthcare, Life Sciences & Chemicals, The UK's Department for International Trade

The UK remains at the forefront of genomics research, with its contribution to the Human Genome Project

Genomic medicine – though a relatively young branch of science – has already had great impact and amazing power to continue improving health outcomes globally. It provides an incredible opportunity to achieve faster, accurate diagnosis, and has driven a revolutionary shift toward precision and personalised medicine, meaning better, more targeted treatments for patients with diseases such as cancer, obesity, and cardiovascular disease.

The UK has long been a world leader in this area, starting with the discovery of the DNA structure in the UK by Watson, Crick and Franklin in 1953. It was a major breakthrough and pivotal moment, as it allowed scientists to understand the molecular structure and therefore a deeper analysis of genes. The UK remains at the forefront of genomics research, with our contribution to the Human Genome Project and the delivery of the 100,000 Genomes Project in 2018.

Today, major technological advances are helping to accelerate the time it takes to read, analyse, and understand genes, allowing us to discover new personalised medicines and therapies even faster. Combined with an exponential decline in sequencing costs, more clinically relevant sequencing timescales and large-scale public and pharmaceutical investment, genomics is dramatically altering the future of medicine, and at a level not previously possible.

The UK's leadership in genomic medicine is detailed in the Government's new Genome UK implementation plan published in May 2021. This sets out 27 commitments to deliver over the next year including 5 high-priority actions, such as identifying technologies that could be used to enable faster genomic testing for cancer; and delivering whole genome sequencing for patients with rare diseases and cancer as part of the NHS Genomic Medicine Service, making the NHS the only healthcare system worldwide to routinely offer this life-changing test for earlier diagnosis and improving patients self-care.

The Genomic Medicine Service is being delivered by public-private partnerships including the NHS and Genomics England, Illumina and a company arisen from the Wellcome Trust Sanger Institute, namely Congenica.

Congenica leverages its deep capability in genomic analysis and AI to provide high quality data and software systems used by clinicians to rapidly diagnose and characterise rare disease. The Congenica clinical analytics platform has been chosen as partner to the NHS Genomic Medicine Service, in addition to supporting customers and partners in over 20 countries.

At the forefront of COVID-19 genomics research

Building on the success of the 100,000 Genomes Project – led by Genomics England in partnership with NHS England – the UK's continued investment and leadership in genomic medicine has helped establish its position as the most advanced genomic healthcare system in the world today.

The UK, cornerstoned by the world-leading Wellcome Sanger Institute, has led the world in sequencing the SARS-CoV-2 virus. The strength of its genomics science base and diagnostics sequencing industry has allowed the UK to rapidly identify COVID-19 variants and capture critical data, enabling us to track and stay ahead of mutations in the genome of the virus. It is estimated that the UK contributes around 23 per cent of all COVID-19 sequencing across the world uploaded to GISAID.

Illumina is a UK partner for Genomics England and provided genomic sequencing for the 100,000 Genomes Project. Illumina is a world's leading genome sequencing company, serving nearly 2,400 institutions, across 78 countries.

The UK company Oxford Nanopore products represent a new generation of technology; to interpret sequencing data in as little as five minutes and thus guide treatment decisions. Their sequencing technology provides traditional properties such as low cost, high throughput data, but with new features in the market, such as the ability to do sequencing in a portable, handheld sequencer, in real time, and to provide richer biological data. Based on electronics rather than optics, nanopore sensing represents not only a new technology, but the potential to broaden access to important biological insights, due to unprecedented accessibility.

The collaborative ecosystem

The COVID-19 pandemic has indeed shone a spotlight on the UK's rapidly growing genomics industry, today worth over £5 billion and raising 34 per cent of the wider UK life sciences sector's total investment, according to the Genomics Nation report. One of the key strengths of the UK is the vibrant and collaborative innovation ecosystem it has nurtured.

The partnership between Genomics England, GenOMICC consortium, Illumina, and the NHS, for instance, is the driving force behind a major new human whole genome sequencing study taking place across the NHS to help scientists understand whether a person's genetics may influence their susceptibility to COVID-19. The project is backed by £28 million from Genomics England, UK Research and Innovation, the Department of Health and Social Care (DHSC) and the National Institute for Health Research (NIHR). And Lifebit's technology makes this data securely analyzable by external researchers.

Another exciting project being supported by the DHSC is the COVID-19 Genomics UK (COG-UK) consortium, an innovative partnership of NHS organisations, the four Public Health Agencies of the UK, the Wellcome Sanger Institute and more than 12 academic institutions, working together to provide sequencing and analysis capacity. By the end of April 2021, COG-UK had sequenced more than 450,000 SARS-CoV-2 genomes, enabling the tracking and analysis of viral variants.

Thanks to the unique partnership between Amgen, AstraZeneca, GlaxoSmithKline (GSK) and Johnson & Johnson, alongside Wellcome and UK Research and Innovation (UKRI) the first 200,000 whole genome sequencing has been completed. Sequencing has been carried out by deCODEGenetics and the Wellcome Sanger Institute and is available to global researchers through the recently launched Research Analysis Platform.

The success of these endeavours is underpinned by the partnership between government, public health, innovative UK companies, academia, and the NHS, which together constitute the tremendous appeal of the UK genomics ecosystem.

Sharing innovation for the global good

A UK company harnessing the power of connected biomedical data is Lifebit. The company's patented, federated technology is enabling better data connectivity by bringing researcher's analysis and computation to where sensitive data resides, instead of moving it around. This innovative and highly secure approach has seen Lifebit work with high-profile clients globally in both the public and private sectors.

This includes powering the secure Trusted Research Environment for the UK Government agency Genomics England, with its 135,000-strong whole genome cohort of cancer and rare disease patients, as well as implementing an end-to-end research and clinical platform for Asia's leading population-scale Precision Medicine Initiative, the Hong Kong Genome Project, which is set to sequence and analyse 50,000 whole genomes to achieve population-level genomic medicine. This global approach is driven by Lifebit's mission to increase both ethnic and disease diversity in available and connected biomedical datasets. Lifebit are particularly focused on supporting the national population genomic programs of the Gulf states to help representation and patient benefits be achieved.

Eagle Genomics is harnessing the power of the microbiome to transform knowledge of disease and wellness, while improving the health of the planet, including the onset and progression of debilitating chronic and metabolic diseases. Gut microbiome can modulate the effects of immunotherapy and chemotherapy and the treatment of gastrointestinal disorders, as well as neurological disorders such as Alzheimer's and Parkinson's diseases.

The Eagle Genomics AI-knowledge Discovery Platform supports the entire innovation workflow - from hypothesis through insight to evidence-based product claims, in minutes rather than months – reducing 'trial and error' and helping to bring novel, safer and more sustainable products to market. Eagle Genomics has played an important role supporting an EU-funded translational medicine bench-to-bedside program, to identify novel gene targets in vascular disease using a systems biology approach.

UK's genomics offer to the Middle East

At Arab Health 2022, we will be showcasing the unique capabilities of the UK genomics sector, featuring our most forward-thinking organisations with an impressive array of genomics technologies, health data solutions, research and innovation and diagnostics tests. The UK Government is working with a number of countries that are interested in how personalised medicine and genomics can drive down the rise in diseases. In the Middle East, about 2.8 million patients are estimated to be suffering from a rare disease. Meanwhile, the Gulf States and the Eastern Mediterranean Region (EMR) countries show a rise in the number of cancer patients. The UK's Department for International Trade ambition is to continue to partner with healthcare providers across the Middle East, to explore how together we can support improved patient outcomes, across key areas such as cancer care, cardiovascular disease, and inherited diseases. Beyond COVID-19, the UK Genomics Sector is fast developing innovations, that promises to transform healthcare for patients globally.

References available on request

The healthcare industry in 2022

Top priorities for forward-thinking marketers

By Chelsey Lang, Senior Marketing Manager, Informa Markets - Healthcare

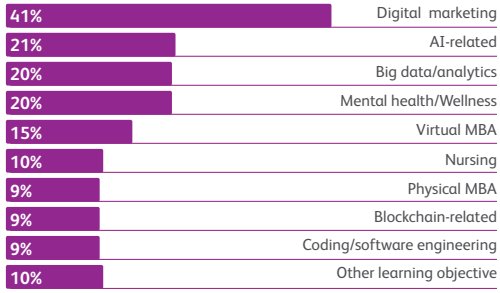
67 per cent of a buyer's journey is now entirely digital

Omnia Health recently surveyed over 1,600 senior healthcare professionals for its annual 'Voice of the Healthcare Industry' market outlook. The full report can be read online at Omnia Health Insights; the survey delivered a broad range of insights into the state of the industry as we head into 2022.

As well as shining a spotlight on the importance of the likes of value-based healthcare, technological advances and telemedicine, the survey also revealed that the majority of the respondents, who hail from 116 countries, rate digital marketing as their top learning objective for the next 12 months.

Survey respondents came from all sides of the industry, including healthcare providers, manufacturers, distributors, and clinicians – proving that skilling up in the digital arena is a priority that reaches beyond the traditional marketing function.

What are your learning objectives for the next 12 months?



Why digital marketing?

The pandemic has obviously played a major role. With trade shows and exhibitions – a traditional favourite for the healthcare industry – put on pause for much of 2020-21, digital became the "new normal", from advertising campaigns to virtual events.

And even as many parts of the world return to business as usual, digital will continue to play a major role in all aspects of our life. From contactless payment to telemedicine appointments, we are used to the convenience and flexibility an accelerated adoption of technology has brought to our personal and professional lives alike.

THE NEW ACCUTRON® CT-D VISION. SIMPLY MORE.

Accutron® CT-D Vision. The diagnostics specialist that can do more. More comfort, more mobility, more operating safety. More integration through Injection Data Sharing with RIS/PACS connection. View now at **medtron.com**

MEDTRON® AG

Hauptstrasse 255 · 66128 Saarbruecken · www.medtron.com

90 per cent of B2B buyers say online content has a mild to major effect on purchasing decisions

Adapting to customer behaviour

This is why embracing digital marketing is essential when it comes to building connections, whether you're looking for new business or to strengthen existing relationships.

Research on B2B decision makers shows that:

- 67 % of a buyer's journey is now entirely digital
- B2B customers progress over 70 % of the way through their decision-making process before engaging a sales representative
- 90 % of B2B buyers say online content has a mild to major effect on purchasing decisions
- 78 % of B2B buyers consume three or more pieces of relevant content before talking to a sales person
- 71 % of decision makers consume blog content during their research process

Sources: Forbes, LinkedIn, Marketing Charts, The Marketing Blender

Your digital presence is what gets you in front of your customers at the right time, with the right message. It's where decision makers begin their journey. And when it comes to healthcare, this is even more important, as the pandemic has led to an increased desire for authentic online information among consumers and professionals alike.

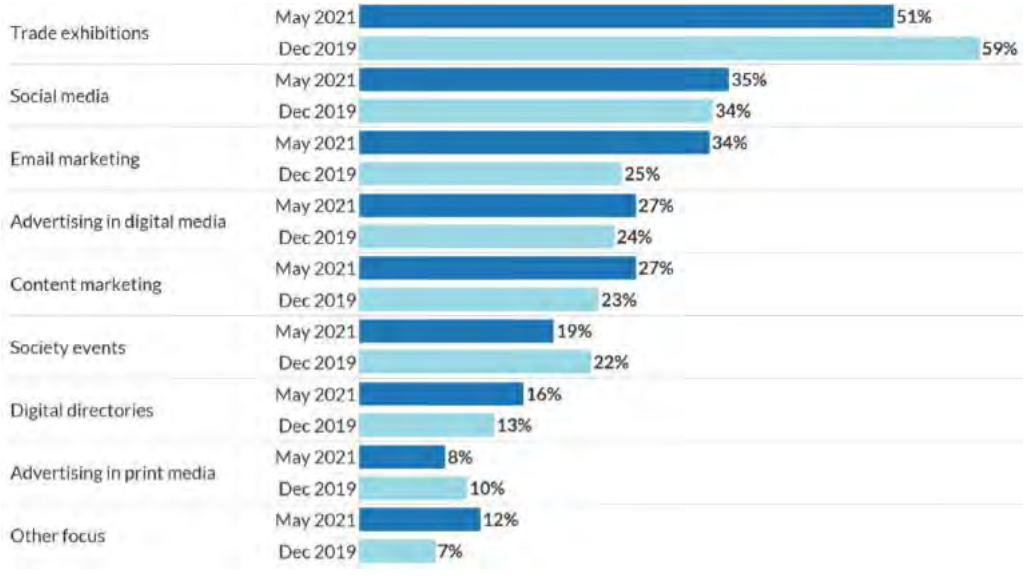
Getting ahead with a hybrid approach

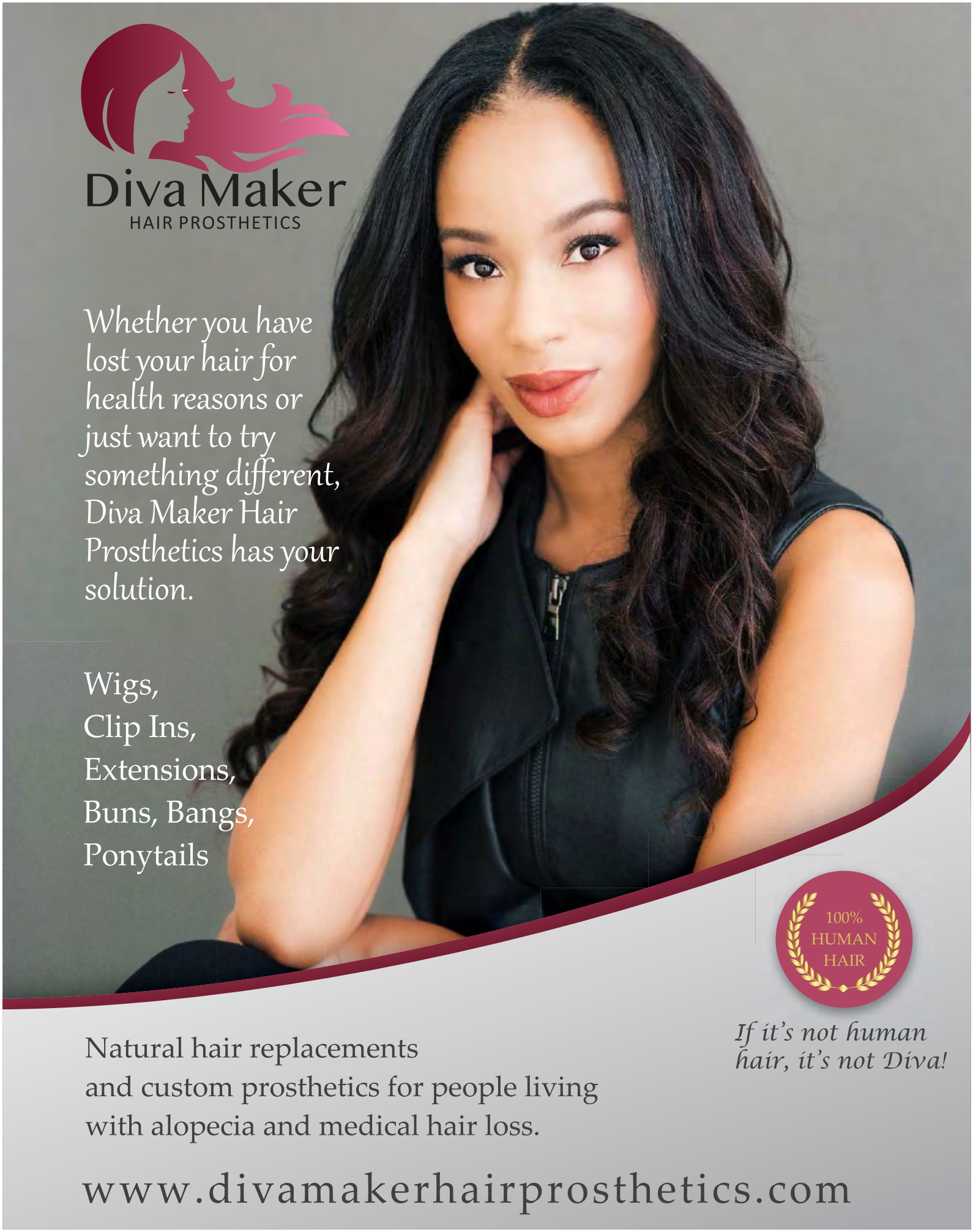
Of course, the pandemic has also taught us that there is no true replacement for the face-to-face meeting. Going into 2022, trade exhibitions remain the top driver for healthcare companies looking to generate new leads:

This is why embracing digital marketing alongside physical events is key. You allow your customers to discover and connect with you online, which means they are ready to have more meaningful and action-driven conversations when you meet in person, whether that's at an exhibition or your office.

While the digital marketing landscape for the healthcare industry has accelerated, in 2022 it is the companies who are making the most of combining their in-person and online opportunities who will come out ahead.

What is your main focus for driving new leads?




Diva Maker
HAIR PROSTHETICS
Whether you have lost your hair for health reasons or just want to try something different, Diva Maker Hair Prosthetics has your solution.
Wigs,
Clip Ins,
Extensions,
Buns, Bangs,
Ponytails
100% HUMAN HAIR
If it's not human hair, it's not Diva!
Natural hair replacements
and custom prosthetics for people living
with alopecia and medical hair loss.
www.divamakerhairprosthetics.com

Medical Printing Solutions

Learn the way to automation in your laboratory

DTM medical

Signature® Cassette Printer

For direct-to-cassette printing

- full-colour and black printing of texts, graphics, 2D bar codes
- reduces risk of specimen misidentification
- two models available: manual and robotic feed

Signature® Slide Printer

For direct-to-slide printing

- on-demand full-colour or black printing
- designed for efficient hands-free operation
- cost reduction by inventorying only white-frosted slides

LX500ec Colour Label Printer

For on-demand full-colour labels

- perfect to print specimen labels, ID badges, wristbands etc.
- built-in guillotine cutter
- user-friendly and easily combined with Signature printers for complete lab solution

Medlab Middle East
By Informa Markets

Meet DTM Medical with its full range of medical printers at stand Z6.F32 between 24 and 27 January 2022.

medlab.dtm-medical.eu

New hemophilia treatments

Implications for the coagulation laboratory

By. Leonard A. Valentino, M.D., National Hemophilia Foundation, United States

Blood coagulation is designed to maintain the integrity of the endothelium while preserving vascular patency. It is a physiological process that is the result of an orchestrated course of action that begins when there is disruption in the vascular endothelial lining and culminates in the formation and stabilisation of a fibrin clot. Deficiencies of platelet function or number (primary hemostatic defects) or the lack of activity of one of several coagulation proteins (secondary hemostatic defects) predispose to bleeding. Among individuals with secondary hemostatic defects, bleeding risk varies with the basil or residual amount of the coagulation factor such that, people with severe coagulation factor deficiencies (less than 1 IU/dL or <1 per cent of normal plasma level) have a propensity for spontaneous bleeding whereas those with moderate (1-5 IU/dL) or mild (>5-40 IU/dL) deficiencies may bleed only after surgery or trauma. Since the 1940s, attempts to correct the deficiency has been the goal of therapeutic interventions. Earlier transfusions, first of blood then with aplasma and cryoprecipitates made from plasma, were used followed by concentrates of the deficient clotting factor in the case of hemophilia A (HA, coagulation factor (F) VIII deficiency) or hemophilia B (HB, coagulation FIX deficiency). Other rare clotting factor deficiencies and most platelet function disorders continue to be treated by replacement with plasma or cryoprecipitate and platelets, respectively. Over the past four decades, recombinant concentrates of FVIII and FIX have been used almost exclusively for those with HA and HB with a goal of achieving a trough FVIII or FIX level sufficient to reduce the risk of spontaneous bleeding which is considered by most experts to be greater than 1per cent of normal factor levels. Recently, a novel bi-specific monoclonal antibody, emicizumab (Hemlibra, Roche Genentech) was licensed in the United States and other counties for the treatment of people with HA. Irrespective of the product used to treat people with hemophilia, accurate, consistent, and reproducible measurement of coagulation factor activity is key to maximising the efficacy of the treatment and minimising both the risks and costs of therapy. The heterogeneity of reagents and instruments across laboratories, molecular modifications of the coagulation factor molecules along with the introduction of a novel monoclonal antibody have all have all accentuated the complexities of monitoring therapeutics for those with HA and HB. The table below illustrate the complexities of replacement products for HA (table 1).

Coagulation factor assays are essential for: 1) establishing the diagnosis of HA or HB; 2) determining the severity of the bleeding phenotype; 3) identifying the post-infusion bioavailability and pharmacokinetics (PK) of FVIII or FIX concentrates; 4) monitoring FVIII or FIX replacement therapy (including perioperative) and prophylaxis; and 5) assigning potency to concentrates of FVIII or FIX, which defines the quantity of active ingredient in a vial of drug product, guides dosing, determines pricing, and is required by regulatory authorities for product release.

Three assays are currently available for measuring FVIII in biologic samples: the one-stage (OSA) and two-stage (TSA) clotting assays and the chromogenic substrate assay (CSA). All measure FVIII:C in generating FXa in the presence of calcium ions and phospholipids. Because the TSA is more difficult to automate than the OSA, and since the principle and results for the TSA are similar to the CSA, the OSA and CSA are preferentially used in most laboratories across the world.

The OSA is based on correction of the prolonged aPTT by dilution of the patient's plasma into substrate plasma from a FVIII-deficient individual or normal plasma made FVIII deficient via immunochemical absorption, both of which are phenotypically variable. The CSA is based upon quantitation of FXa as a measure of FVIIIa cofactor activity on FIXa. Two sequential reactions initially form FXa, after which a chromogenic substrate specific for FXa is enzymatically cleaved and photometrically quantified.

Pre-analytical, analytical, and post-analytical variables affect the results of coagulation factor assays. A major challenge to the use of the FVIII OSA is marked variability among laboratories, which is related to differences in methodology including the source of aPTT reagents (such as the activators- silica, ellagic acid, kaolin or polyphenolic acid and phospholipid composition- plant or animal or synthetic), instrumentation, calibration

Dr Valentino will be discussing 'New hemophilia treatments – implications for the coagulation laboratory' on Monday, Jan 24 at the Haematology conference at Medlab Middle East

standards, and selected factor-deficient substrate plasma. Additionally, aPTT-based assays are inherently subject to interference from lipids and small amounts of heparin contained in samples and are sensitive to the extent of FVIII pre-activation. The CSA shows no interference by heparins, direct thrombin inhibitors, or lupus anticoagulants and is thought to be more precise than the OSA. Nonetheless, according to a recently published report, inter-laboratory variation is also a problem with the CSA and may be comparable to that observed with the OSA.

Because the CSA is more expensive and labour intensive to perform than the OSA, the availability of the CSA in clinical laboratories is limited. Batch testing and aliquoting of chromogenic kit reagents may improve CSA cost efficiency, thereby facilitating wider adoption of this method for assaying FVIII.

Given the significant increase in the number and diversity of available coagulation factor replacement product options it is important for clinicians treating people with hemophilia be aware of the challenges and limitations of interpreting the results from coagulation laboratories and maintain a strong collaborative relationship with coagulation laboratory specialists. Sharing of information such as what the purpose of the testing is and how the results will be used is important for the coagulation laboratory specialist to have to provide the optimal testing procedure and interpretation of the results. Ultimately, no matter what option is chosen (OSA or CSA), it is critical for providers to communicate with the coagulation laboratory and for manufacturers and regulatory agencies to make available and coagulation laboratories to participate in proficiency testing to ensure accuracy of results used by the clinicians to manage their patients.

Leonard A. Valentino

Product	FVIII molecule	Molecular modification	Trade name	Company
Plasma-derived FVIII products				
AHF	Full length	None		
	Hemofil M	Takeda		
AHF/VWF complex	Full length/VWF	None	Alphanate	Grifols
AHF/VWF complex	Full length	None	Humate-P	CSL Behring
AHF	Full length	None	Koate-DVI	Grifols
VWFr/coagulation FVIII complex	Full length	None	Wilate	Octapharma
Recombinant FVIII products				
AHF (Recombinant)	Full length	None	Recombinate	Takeda (formerly Baxter)
AHF (Recombinant)	Full length	None	Kogenate FS	Bayer
AHF (Recombinant), Plasma/Albumin Free Method (octocog alfa)	Full length	None	Advate	Takeda (formerly Baxter)
Moroctocog alfa (antihemophilia factor recombinant)	B-domain deleted	None	Refacto/Xyntha	Pfizer
Turoctocog alfa	Truncated B-domain	None	Novoeight	Novo Nordisk
Lonoctocog alfa	Truncated B-domain, single chain	None	Afstyla®	CSL Behring
Simoctocog alfa				
(human-cl rhFVIII)	B-domain deleted	None	Nuwiq®	Octapharma
Octocog alfa				
(BAY 81-8973)	Full-length	Heat shock protein 70 improves proper folding of protein	Kovaltry®	Bayer
Recombinant modified FVIII products designed to extended half life				
Rurioctocog alfa pegol (BAX 855)	Full-length	20 kDa PEGylated to targeted lysine residues mainly in B domain	Adynovate®	Takeda
Efraloctocog alfa (rFVIII-Fc	B-domain deleted	Fc-fusion	Eloctate®	Biogen
Damoctocog alfa pegol (BAY94-9027)	B-domain deleted	60kDa PEG site specific PEGyation to mutationally introduced surface cysteine residues	JIVI®	Bayer
Turoctocog alfa pegol (N8-GP)	Truncated B domain	40 kDa PEG conjugated to remaining 21 amino acid sequence of B- domain	Esperoct®	Novo Nordisk

Re-homing surplus blood banking equipment?

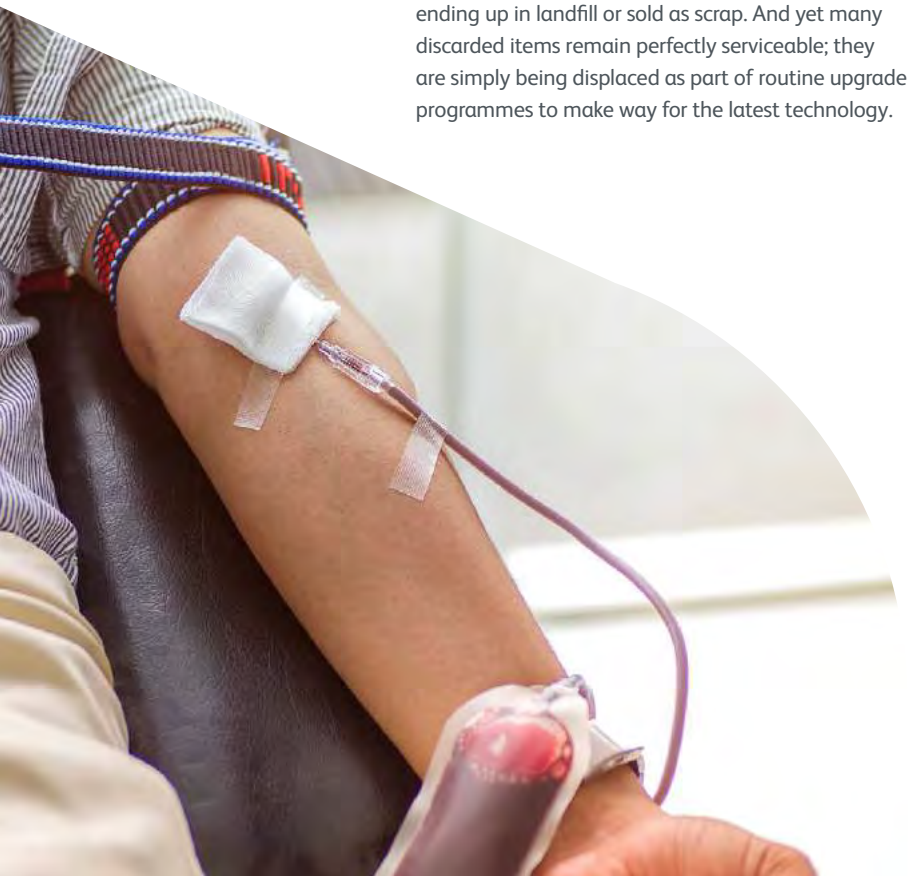
By Gavin Evans, Executive Director, Global Blood Fund, London, England, UK

Gavin Evans

It can justifiably be called a crisis. Each year in the poorer countries of the world, hundreds of thousands of unnecessary deaths occur which could be prevented if only blood were on hand for transfusion. The most vulnerable in society – women in childbirth and children with anaemia – suffer disproportionately.

There is no single causal factor and many blood centres operating in low-income settings face multiple challenges, from the lack of a coherent national policy framework to shortages of appropriately skilled staff and, of course, money. But visit any blood bank in Africa, Asia and other less affluent parts of the world – especially outside of the major cities – and one aspect of inequality is immediately apparent: the basic equipment necessary to collect, test and process blood safely and efficiently is too often lacking.

This might, of course, be expected given the general global disparities in healthcare provision. But this particular aspect of inequality is particularly regrettable given that blood banks in wealthier nations routinely dispose of multiple-million dollars-worth of equipment each year, with much ending up in landfill or sold as scrap. And yet many discarded items remain perfectly serviceable; they are simply being displaced as part of routine upgrade programmes to make way for the latest technology.



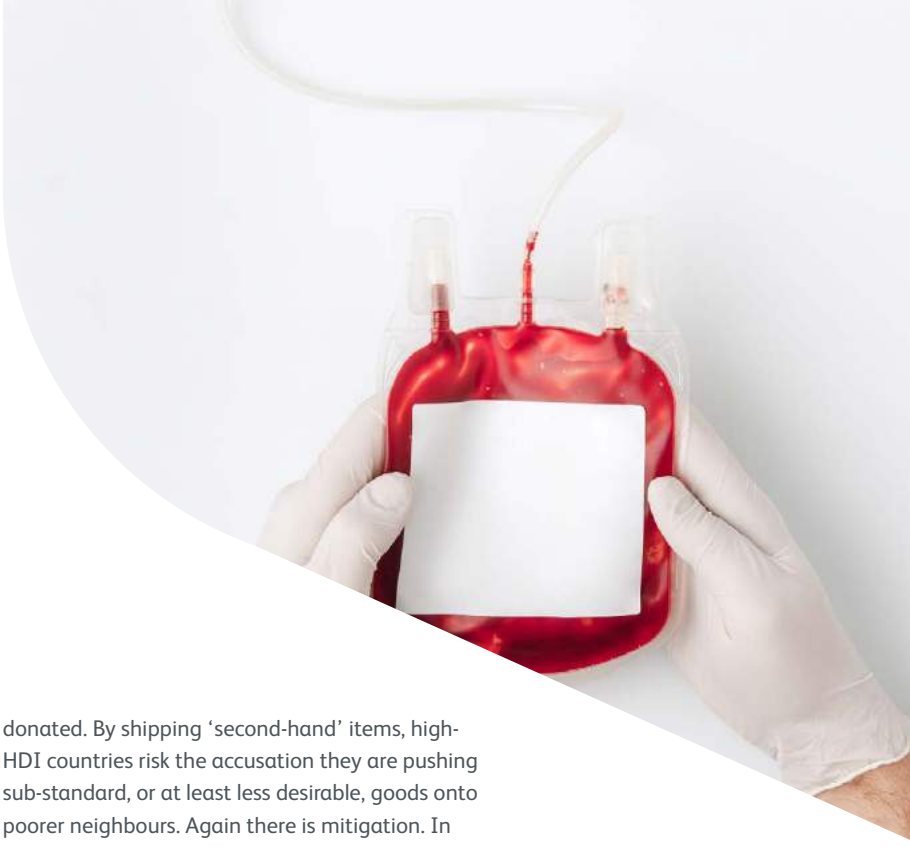
Although relatively little earmarked-for-disposal items currently find their way to struggling overseas blood banks, fortunately there are now relatively easy ways to re-home used equipment and surplus supplies. While barriers do exist, it is relatively easy to overcome such challenges.

Overcoming barriers to successful re-homing

One fundamental obstacle is lack of awareness about existing inequalities. Many blood bankers assume that transfusion medicine around the planet is experienced by practitioners in much the same (effective) ways. So it is not surprising that in the course of day-to-day business little thought or discussion is devoted to matters of inequality. The blood banking community needs to reflect more on the gulf between rich world and poor; this article is a small part of igniting this debate.

There is also an information gap that impedes successful matching of equipment to potential recipients. The principle there is a blood centre with something another might need is easily established. Identifying that blood centre A in, say, California has something that is required by blood centre B in Lagos is much harder. The exclusive assistance relationships that a few wealthy blood collectors have established with poorer-resourced overseas equivalents can work well in terms of training and some other forms of support. But when it comes to equipment, the small pool means that what is available might not be needed and what is needed might not be available. Better is an international equipment exchange network where detailed information profiling can match those who have with those who need. Such a tool exists in www.gbfeqxchange.org/exchange/ Global Blood Fund's (GBF's) cloud-based portal that connects potential donors and recipients.

Challenges also exist in resolving the many technical considerations when contemplating equipment donation and ensuring that equipment is a good fit across many parameters. For example, is the voltage of electrical equipment compatible? Does the recipient have the skills required to install, operate, repair, service and maintain the donation? Are there the resources to purchase consumables



and meet the other longer-term costs of ownership? Some equipment, such as donation beds, can be readily received by most blood services. Others – component collection systems, say – place significant demands on recipients and are difficult to execute successfully without collaboration with the relevant manufacturers and distributors.

Additional barriers present to those on the front-line of any donation decision. Re-homing equipment will be several steps removed from any core business objective and individuals and teams who might otherwise consider donating generally operate with little slack in terms of time and budget. But to successfully donate equipment overseas a recipient needs to be identified, shipping costs need to be met and logistics need to be managed; any and all of which can be daunting and adopted as reasons for inaction. Fortunately, partnering with experienced non-profits keen to get valuable equipment into the hands of new owners in developing countries – such as GBF – can relieve many of these logistical headaches and costs.

The ethics of donating 'pre-loved' equipment

As well as these practical issues that act as impediments, there are several ethical dimensions that are sometimes presented as a reason not to consider donation, so these are worth discussing here.

The first of these is that charitable donation may undermine efforts to establish indigenous capabilities. If, for instance, there is a local manufacturer of blood mixers and donation of no-cost equipment of this type will undermine the sales that foster self-sustainability, then donation might be considered unethical. But the reality for most low-income countries is that blood banking equipment is imported, so donation is unlikely to impact negatively in this way.

Also for reflection is whether a donation might change operating practice in a manner that cannot be sustained over the longer term. For example at the end of the useful life of donated equipment will it be necessary to revert to former practice? While losing previously enjoyed benefits is always more keenly felt than the absence of something not yet experienced, we all have in common a universally uncertain future. Wherever equipment is expected to provide at least several years of service then this worry should not be used as an excuse for inaction.

Whilst it is true that older, less-sophisticated technology is sometimes more appropriate for resource-challenged settings, a final ethical contention concerns the quality of equipment being donated. By shipping 'second-hand' items, high-HDI countries risk the accusation they are pushing sub-standard, or at least less desirable, goods onto poorer neighbours. Again there is mitigation. In most cases equipment will have been operationally deployed up to the point of availability for donation and very rarely do items go from serviceable one day to unfit-for-purpose the next. That said, care must be taken and it is incumbent upon the donor to assess the quality of their gift and not to off-load equipment that offers only marginal benefit.

Impact of successful re-homing

Encouragingly, there are many success stories. Over the past few years millions of dollars-worth of equipment has been re-homed, with many dozens of organisations collaborating with GBF to expand the reach and quality of transfusion care.

Bloodmobiles have found a second lease of life in Africa, Asia and Latin America where they add greater operational flexibility. Portable beds are providing a more comfortable donation experience in Nigeria and Mexico, Cambodia and Lesotho. Blood mixers are helping prevent needless loss of units in places as far apart as DRC and Peru.

Not only is this equipment providing huge benefit, it does so incredibly cost-effectively. If not donated, bloodmobiles are often sold at auction to be stripped and repurposed. Beds are sold for small change for their scrap metal parts. On the other hand, for a relatively small investment – often just 5-10 per cent of the depreciated book value – such equipment can be given to under-resourced blood centres that would otherwise be unable to afford it. And it continues to do there what it was designed for: improving the lives of donors and patients.

To discuss donation of your equipment, contact *info@globalbloodfund.org*

Evans will discuss 'Donors' education & recruitment modules' on Thursday, Jan 27 at the Blood Transfusion Medicine conference at Medlab Middle East

2022 trends: digital healthcare and innovation

Whether it is telemedicine or digital therapeutics, digital healthcare is here to stay as patients and providers look for means of communications during COVID-19.

By Omnia Al Desoukie, Contributing Writer

The future is based on automation of data collection, documentation and coding

Practitioners predict that digital healthcare is here to stay and will grow exponentially within the next few years. The transition in adopting new methods has been challenging, however innovation has followed suit, "we have witnessed in the past years, technological innovations, particularly AI will continue to influence procedures and solutions. The sector has made advancements in robotic surgery, and this will remain one of the trends to look forward to in the coming year," said Dr. Zbiggy Brodzinsky, Consultant Orthopedic Spine Surgeon at Valiant Clinic Hospital.

"There are other trends to look forward to in medicine and diagnostics, but one thing is sure, robots will continue to assist us in delivering improved and efficient services," explains Dr. Brodzinsky.

Bold plays in digital can help health systems solve a range of clinical and operational challenges and unwrap opportunities to move them along the path to the Future of Health, according to Deloitte's global healthcare outlook report for 2022.

The report further comments that for healthcare to improve digitally, existing resources should be used, additional resources bought, or partnerships made to source what is needed. Practitioners have also recommended automating routine processes as it provides cost-efficient scalability for the future. "For instance, health systems can move non-core functions— training databases, testing environments, and disaster recovery backups—to the cloud; this helps in learning how to work with the capability, and, over time, migrate mission critical systems."

Digital healthcare can provide essential data to clinicians and patients, maximising the quality of care and efficiency of care delivery. In the UAE, for example, the Dubai Health Authority launched Doctor for Every Citizen telemedicine service which has provided 83,000 telemedicine consultations during the period from January 2020 to January 2021.

During the ongoing pandemic, several healthcare providers have integrated telemedicine to continue to safely care for their patients remotely. "Video consultation is a small fragment of digital transformation. The future is based on automation of data collection, documentation and coding; remote patient monitoring to better understand patient status, adherence, and crisis prevention," said Michele Tarnow. President and CEO at the Alliance Care Technologies International.

Another example of creating databases, in the UAE is Riayati, a digital healthcare platform for the National Unified Medical Record (NUMR) programme. Riayati aims to transform the current UAE healthcare landscape through the centralisation of medical records and the delivery of an innovative, fully integrated, digitised clinical information system.

Before COVID-19, the KPMG project predicted that by the year 2030 the world would be short of 80 million physicians and nurses which means the healthcare system must innovate to work effectively.

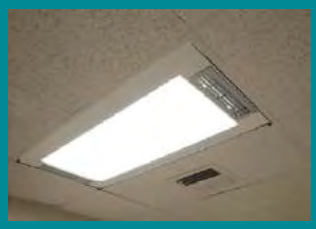
"In the areas of diagnostics, leveraging AI and machine learning to provide decision support tools can be key in speeding up and improving the accuracy of diagnosis," said Tarnow. She added, "Leveraging data from wearables, implanted devices, and bidirectional communication between patients and providers will empower patients to take control of their health engagement while being monitored by their providers."

Tarnow explains that all the tech required to accelerate digital transform in healthcare is in place. The key to success lies in building solutions that integrate into hospital systems, improving provider workflow efficiency and increase capacity.

VIDASHIELD™

UV24

Distributor Opportunities Available!



UV-C Air Purification Safe For Occupied Spaces

During the SARS-CoV-2 pandemic, more significant consideration has been placed on indoor air. Airborne pathogens can quickly spread through the air, settling on surfaces and causing infections. The Vidashield UV24 utilizes the power of UV-C within a shielded UV chamber allowing for 24/7 operation within occupied spaces. Vidashield UV24 is proven to neutralize viruses, bacteria, fungi, and other airborne pathogens circulating in the air. Unlike portable units, the Vidashield UV24 focuses on pulling air up and away from occupants' faces. By drawing air up, the Vidashield UV24 has been proven to reduce the settling of bioburden on surfaces as well. To learn more about the Vidashield UV24, visit vidashield.com.

For distribution opportunities contact sales@nuvosurgical.com.

nuvo

www.nuvosurgical.com
Email. sales@nuvosurgical.com
Tel. +1 (814) 899-4220

www.vidashield.com
Email. info@vidashield.com
Tel. +1 (818) 838-3025

Transforming emergency medicine education

By Deepa Narwani, Senior Editor

Experiential learning includes immersing into complex thought and actions as well as evaluation and reflection

At the upcoming Arab Health 2022 Emergency Medicine and Critical Care conference, Prof Ahed Al Najjar, the Clinical Education & EMS Research Manager at National Ambulance, Abu Dhabi, will be moderating a panel titled 'Innovation in Emergency Medicine'. *Omnia Health Magazine* sat down with him to learn more about the session as well as the important learnings for Emergency Medicine while dealing with the pandemic. He is an active contributor to the local and international community, particularly helping people of determination, mentoring young researchers / Emirati EMT/ paramedic professionals through their early careers. Excerpts:

Can you tell us about yourself? How did you come to work in the healthcare industry?

I am a highly experienced Emergency Medical Service Educator and Researcher with a comprehensive track record of providing solutions to organisations for complex lifesaving education products and services across multiple industries. My experience extends to academic and product development of education solutions.

Could you shed light on Emirati EMS Education during COVID-19?

The COVID-19 pandemic has created immediate challenges for Emirati EMS education programmes. Almost all programmes halted and many quickly began adapting in real time to continue delivering quality EMT education at varying levels of capability. The National Ambulance Clinical Education department, therefore, began to transform through and beyond this pandemic. Clinical educators and instructors were presented with an opportunity to identify best practices, consider incremental adjustments, and revolutionary steps for Emirati EMT education to adapt and improve future resiliency.

Delivering the programme has required collaboration and experienced a variety of interruptions and assistance from a variety of partners and communities of interest, which include academic institutions, advisory boards, state officials, certifying and credentialing bodies, national and national organizations, and accreditors.

The programme adapts educational delivery methods to suit the circumstances of the environment while meeting requirements. This includes continuing to meet educational curriculum and content set by international and national requirements, National Ambulance requirements, and accreditation standards if applicable.

National Ambulance adopted synchronous distance learning like teleconference and virtual education. These platforms allow for the students to see the instructor live and for the instructor to see the students (up to 100 of them) live. Students can ask questions with the embedded microphone on their device or in a chat room. The instructor can show their screen to show PowerPoint presentations and video. There is a white board available on most platforms as well.

The lab experience is difficult to simply replace online. Therefore, National Ambulance moved some classes to a remote format to prevent gathering of people in one location and adopted remote skill verification module.

The faculty can come and go from training centre as needed and some have allowed students to come to training centre to take part in lab experiences with the ratio 1:1 (one instructor to one students) in given hours. Experiential learning reminds us that learning begins with an experience and experience is the catalyst for learning.

Experiential learning includes immersing into complex thought and actions as well as evaluation and reflection, all of which help to develop recognition, increased knowledge, and capability to assess and treat future patients.

Some of the challenges were the availability of the needed technology to connect to both a synchronous and asynchronous format. Proper implementation requires planning ahead for student equity.

You will be moderating sessions at the upcoming Arab Health Emergency Medicine conference. What will those discuss?

The sessions will highlight how emergency

Prof Ahed Al Najjar

medical services calls are rising worldwide and many countries are experimenting with novel methods for addressing the demand. Additionally, all healthcare systems are anticipating greater demand on services with the current population. The first session will be on improving the pre-hospital management of STEMI patients in North Emirates, which will be delivered by National Ambulance CEO Ahmed Al Hajeri to review National Ambulance's Emergency Cardiac System, cardiac protocol guidelines and to discuss cardiac quality improvement opportunities. The second topic named innovation in pre-hospital management of COVID patients will be delivered by the National Ambulance Chief Administration and medical officer Dr Ayman Ahmad, which will address how the National Ambulance operated during COVID and the innovative adaptation of emergency cardiac and stroke system that was implemented including the management of suspect cases of COVID-19.

What have been some of the important learnings for Emergency Medicine while dealing with the pandemic?

In the wake of this pandemic, all pre hospital care setup, with collective responsibility should follow a specified protocol so that our EMS is not converted to the hotspot. COVID-19 has imposed a new challenge where not only patients have to be managed but our EMS care personnel also need to be protected. Telemedicine and our primary care EMT/Paramedics will play a crucial role. Here at clinical education, EMS teaching, and learning atmosphere has to be created amidst the pandemic apprehension for our promising EMTs/Paramedics.

What role is technology playing in improving patient care today?

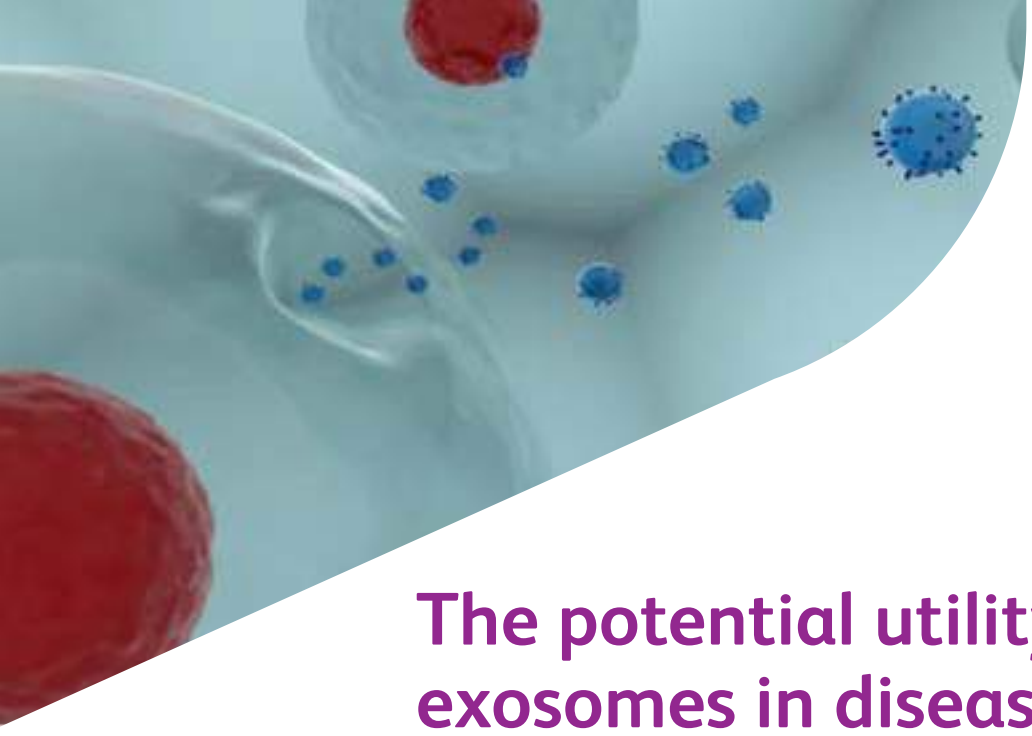
COVID-19 has led to a long-overdue reappraisal of the role of technology in improving patient care and helping to manage risk. EMS professionals need to start embracing artificial intelligence. The use of technology in the EMS sector has been proven to significantly improve the quality of care that patients receive. Also, some other benefits of technology were the ability to acquire more accurate information, improved communication between EMS providers and patients and reduced costs.

Considering the new changes on EMS education delivery, it is important that countries do not rely on any single remote learning channel to reach all students. Expanding access to internet and other digital solutions for all students and learners would be one key long-term priority to reduce learning vulnerabilities.

LEGACY MEETS FUTURE.

Hettich has been shaping the future of medical technology for over 115 years. With durable centrifuges that not only accelerate results in modern research and diagnostics, but also medical progress and discovery… while meeting the highest global safety standards. For our vision for a healthier world.

www.hettichlab.com



The potential utility of exosomes in diseases as early biomarkers and treatment

By Dr Anwar Borai, Clinical Scientist, Section Head, Clinical Biochemistry, Associate Professor, King Saudi bin Abdulaziz University for Health Sciences, King Abdulaziz Medical City, Jeddah, Saudi Arabia

Dr Borai will discuss 'The potential utility of exosomes in diabetes as early biomarkers and treatment' on Wednesday, Jan 26 at the Clinical Chemistry conference at Medlab Middle East

What is the definition of exosomes?

Exosomes are considered as membranous extracellular vesicles organelles (~30-150 nm) derived from the multivesicular body (MVB) sorting pathway. Previously they were considered to be cellular waste products but in the last 10 years were found to contribute to a spectrum of biological processes in health and disease status.

What are the exosomes characterisations?

Exosomes produced by all cell types e.g. reticulocytes, epithelial cells, neurons, and tumour cells. They can be isolated from all body fluids e.g. blood, urine, CSF. They provide information about the tissues or cells of their origin. One of their most important features is that they act as messengers in cell-cell communication and deliver bioactive molecules such as proteins and nucleic acids. Therefore, they can play important roles in non-invasive diagnosis and impaired tissue repair. Exosome membranes contain cellular markers capable of targeting specific cell types. Exosomes are not cells, so they are non-immunogenic. They are more stable than viable cells, and easier to handle and utilised in treatment delivery.

What are the components of exosomes?

They consist of phospholipid bilayer membrane-enclosed structures containing RNAs, DNA, lipids, metabolites, proteins (such as cytokines, growth factors, enzymes, heat shock proteins, cytoskeletal proteins, vital glycoproteins) and other biologically active substances.

Interaction of exosomes with recipient cells, what is next?

The contents of exosomes can be transferred from origin cells to target cells, resulting in an elaborate intercellular communication network. For example, integration of exosomal microRNAs (miRNAs) may result in transcriptomic changes in the recipient cells. mRNA can be translated, and proteins can start signalling cascades.

What are the multifunctional aspects of exosomes?

In addition to what have been known about exosomes function as cellular garbage bags, recent studies found that they have other roles and functions including cellular signalling, cell-cell communications, immune responses, cellular homeostasis, autophagy, infectious diseases, diagnostic markers, drug/gene delivery vehicle and regenerative medicine.

How exosomes can be measured in the laboratory?

Analysis of exosomes in the laboratory must pass through two different phases. The first phase

called exosomal extraction. It can be done by using different techniques such as ultracentrifugation with the extraction reagents. The second phase count on the measurement of physicochemical and characterisation of the measured components. For example, proteins and protein fragments the method of choice is immunoaffinity such as ELISA, western blotting or flowcytometry. For the measurement of molecular components polymerase chain reaction (PCR), next generation sequencing, or microarray can be the choice of techniques. For qualitative and quantitative profiling the method of liquid chromatography-mass spectrometry (LC-MS) can be utilised.

Do we have examples of exosomes used as potential diagnostic markers in diabetes?

Most of the current potential exosomes used as diagnostic markers are for tumorigenesis and diabetes. For example, in diabetes the increased level of exosomes released from endothelial cells can be used as a potential diagnostic marker for glucose intolerance while increased the level of miR–375 indicates β–cell injury. Increased exosomes levels from gingival crevicular fluid indicates gestational diabetes while increased Wilms tumour protein 1 in urinary exosomes indicates diabetes with proteinuria.

How exosomes can be used as a potential therapeutic target for DM and diabetic complications?

Recent studies show that exosomes released after physical exercise or training has a reversal effect on insulin resistance and β-cell destruction and may reverse diabetic cardiopathy. Another example shows that exosomes from umbilical cord mesenchymal stem cells (umMSC) have curative effects in the early stage of type 2 diabetic rat models while exosomes secreted from rat insulinoma cell line (INS-1 cells) increase insulin sensitivity in insulin resistant cell model. Placental exosomes from normoglycemic women increased insulin migration and glucose uptake in skeletal muscle of women with GDM and vice versa. In Diabetes type 1, exosomes released by T cells or pancreatic islets trigger apoptotic pathways in recipient β–cells (in-vitro). So, blocking the function of exosomal miRNAs could serve as an interesting therapeutic strategy for type I diabetes. In conclusion, the contents of exosomes derived from patients with DM or diabetic complications are dysfunctional and incapable of regulating cell-cell communications; however, the use of exogenous exosomes overcomes these limitations.

What are the advantages of using Mesenchymal Stem Cells Exosomes (MSCex) in diabetes therapy compared to MSC?

MSCex had low immunogenicity compared to MSC and this will ensure low immunoreactions in such pancreatic transplantation. Because MSCex are not cells, therefore they do not require special care in processing and much less hard work in collection for MSCex when compared to MSC. MSCex can be frozen and stored without cryo- preservatives with no loss in their biochemical activities while MSC are not. MSC have the potential to transform into other cells, including oncogenic cells but not with MSCex.

What are the future applications of exosomes in diabetes and its complications?

Exosome in diabetes are currently investigated to be novel biomarkers, and their application can be in regenerative medicine and the potential utility in therapeutic delivery. Research will continue to generate new, exciting data. Exosome utility for diagnostic applications will continue to increase and to be applied on human. The potential for exosomes as therapeutics in diabetes is very promising by delivering new genes and cure diabetes complications previously thought incurable.

What are the challenges of using exosomes in treatment and laboratory investigations?

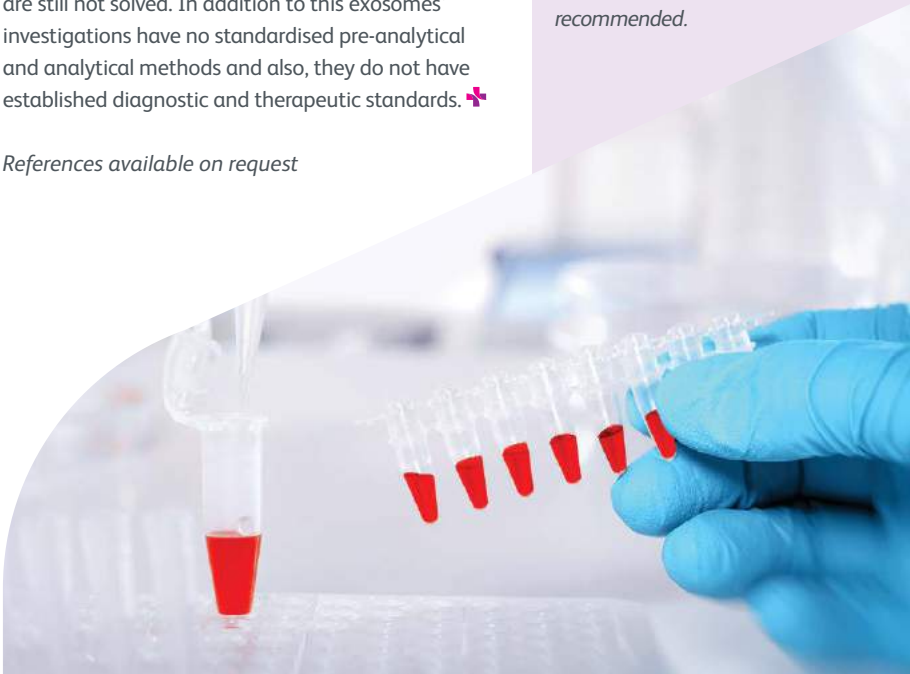
The first challenge is that the cost of exosome isolation for high-volume use still high. Another challenge is that most supporting studies were animal model based until now. In addition to this exosomes' complexity, biogenesis and vast heterogeneity in size, composition, and origin are still not solved. In addition to this exosomes' investigations have no standardised pre-analytical and analytical methods and also, they do not have established diagnostic and therapeutic standards.

References available on request

Dr Anwar Borai

Conclusion

Exosomes can not only function as biomarkers for early diagnosis of diabetes but also as potential therapeutic tools in DM and its complications. Still further studies are needed before extensive clinical use of exosomes can be recommended.



Our range of respiratory products offers a number of options which may be used to help reduce the risk of cross contamination between patients and health care workers in the clinical environment.

- i-view™ video laryngoscope
- TrachSeal™ closed suction systems
- High efficiency breathing filters and HMEFs
- FiltaMask™ oxygen mask
- StarMed respiratory hoods

Arab Health
By Informa Markets

24th – 27th January
Dubai World Trade Centre
Hall 2, Stand E19

View our full product range:
www.intersurgical.com
/info/InfectionControl

INTERSURGICAL®
COMPLETE RESPIRATORY SYSTEMS

Quality, innovation and choice

Interact with us

www.intersurgical.com

Infection Control – Helping to reduce the risk of cross contamination

Article provided by Intersurgical

Intersurgical will be exhibiting at Arab Health, Stand H2. E19, showing our full range of respiratory products and solutions for infection control including:

i-view™ video laryngoscope – a single-use VL with no reusable components ideal for use where there are concerns regarding infection control.

TrachSeal™ closed suction systems – the use of a closed suction system maintains a closed breathing system and reduces contamination when clearing the lungs of secretions.

High efficiency breathing filters and HMEFs – a wide and comprehensive choice in a variety of filtration efficiencies, sizes, volumes and shapes to ensure maximum customer choice. All of our filters are tested at independent microbiology laboratory facilities against clinically relevant bacterial and viral challenges.

StarMed Respiratory Hoods – the StarMed NIV hoods create a closed environment that prevents dispersion from leaks during treatment, improving infection control and the protection of the clinician.

FiltaMask™ medium concentration oxygen mask – face mask combining an oxygen delivery system with a filter media covering the exhalation ports, intended for use on patients with respiratory infections.

Silver Knight™ – anti-microbial breathing systems providing an additional weapon in the fight against potential cross contamination in the operating room.

Plus, some new products we will be showcasing on our stand. Visit our dedicated website page www.intersurgical.com/info/InfectionControl for further information.

MORE INFO
Location: Intersurgical, Crane House, Molly Millars Lane, Wokingham, Berkshire, RG41 2RZ, England
Tel: 0118 9656 300
Email: info@intersurgical.com
Website: www.intersurgical.com

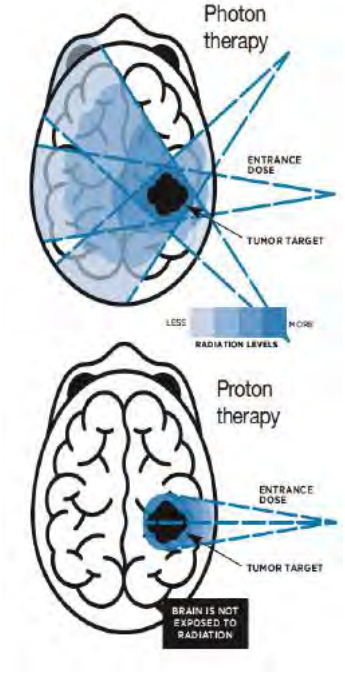
In the know

Accelerating Cancer Care: The Johns Hopkins Proton Therapy Center

Article provided by Johns Hopkins

Dr. Akila Viswanathan

Learn more at hopkinsproton.org



As protons travel through the body, most of the energy is reserved and released where the protons stop in the tumor. Photons, on the other hand, release energy along the entire path they travel. This fundamental difference is what makes proton therapy preferential for certain tumors in the spinal cord and the brain. If vital organs or structures are along the path the radiation travels, protons cause less damage to them. There is no exit dose.

Targeting Tumors

If you're being treated for cancer, you want your treatment to target the tumor, not the healthy cells nearby. Until recently, that was a challenge because of the powerful doses of radiation often needed to destroy tumor cells. Conventional therapy (using X-rays) can subject surrounding healthy tissue to the same high levels of radiation as the cancer cells. This is a big problem if the tumor is right up against the heart, eyes or other critical structures.

At the Johns Hopkins Proton Therapy Center, physicians use a type of pinpoint radiation treatment called proton therapy. The center's state-of-the-art proton therapy machine creates a "pencil beam" of radiation that destroys cancerous cells while deftly avoiding healthy tissue — a big leap ahead for patients and the medical community.

360-Degree Care for Cancer

One of the advantages of this type of radiation treatment is that minimal hospital stay is required. Patients can expect to spend about one hour at the center every weekday for two to eight weeks depending on the type of tumor, plus one check-in visit each week to manage any side effects. During this time, skilled specialists in areas including physics, molecular radiation sciences, radiation oncology, cancer biology and quantitative sciences collaborate to help ensure the best care.

Expanding Proton Therapy Research

Johns Hopkins is also embarking on an ambitious program to advance proton research. Standing out among other proton centers, Johns Hopkins experts are focused on leading the conversation about proton therapy research and defining future protocols. Researchers are merging proton therapy with clinical trials on immunotherapy and other approaches to provide unique treatments.

Training the Next Generation of Leaders

The Johns Hopkins Proton Therapy Center offers a dedicated proton therapy fellowship to help educate future physician leaders. Education goes beyond doctors to include specialized team members needed to staff a proton center. For example, a partnership with a local university allows medical physics students to learn and train here.

Patients are supported by a strong, multidisciplinary proton center team — physicists, dosimetrists, therapists and nurses — and all members are critical to the success of treatment. These clinicians undergo specialized training for proton therapy, and the Johns Hopkins Proton Therapy Center is taking a leading role in this training to set the standards and train the next generation of scientists.

Pediatric proton therapy program

Akila Viswanathan, M.D., M.P.H., director of the Department of Radiation Oncology and Molecular Radiation Sciences, explains how the center is a game-changer for patients.

Who benefits from proton therapy?

Firstly, children benefit because they can face lasting side effects from conventional treatment. Proton therapy minimizes those effects by limiting radiation exposure for healthy tissue. Children's National and Johns Hopkins have collaborated to create one of the few dedicated pediatric proton therapy programs in the country. A multidisciplinary team is devoted to helping children and families find the best treatments for a variety of pediatric cancers.

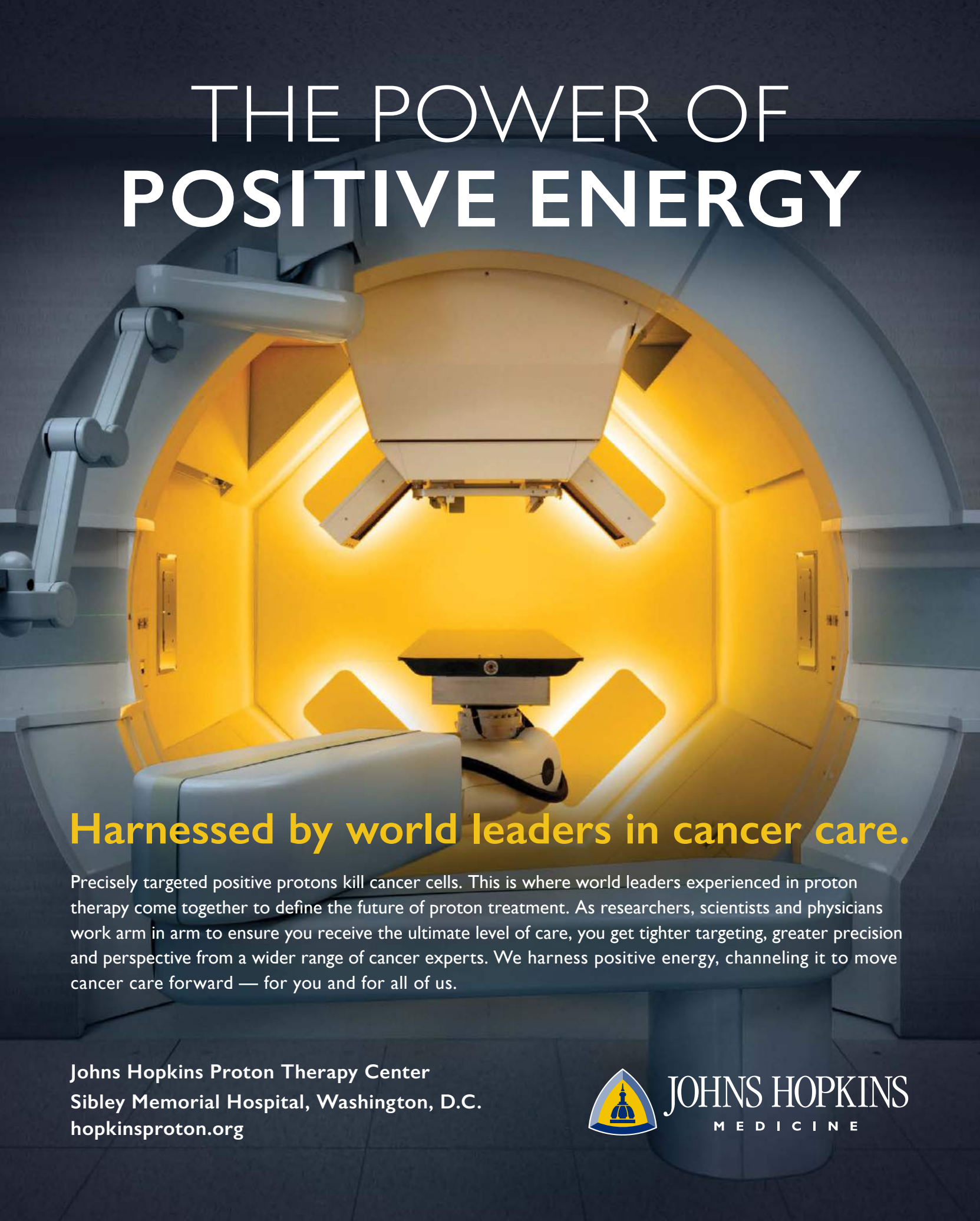
In adults, proton therapy allows us to treat tumors that are next to critical organs. For example, a breast cancer might be next to the heart, or an esophageal cancer next to the lungs. Precision helps us protect these delicate organs.

What makes this center special?

Our center allows us to treat people in ways that other proton centers are not yet able to do. The newest technology uses a precise beam — with fast 360-degree coverage — that targets tumors layer by layer. The older technology in use at many centers throughout the world scatters the beam and does not spare healthy tissue.

How will the center advance scientific knowledge on proton therapy?

Johns Hopkins' world-renowned doctors are experts in cancer care research and are applying their skills to people receiving proton therapy. With the ability to merge proton therapy with our clinical trials in immunotherapy and other treatments, we'll be able to provide unique treatments for our patients.


THE POWER OF
POSITIVE ENERGY
Harnessed by world leaders in cancer care.
Precisely targeted positive protons kill cancer cells. This is where world leaders experienced in proton therapy come together to define the future of proton treatment. As researchers, scientists and physicians work arm in arm to ensure you receive the ultimate level of care, you get tighter targeting, greater precision and perspective from a wider range of cancer experts. We harness positive energy, channeling it to move cancer care forward — for you and for all of us.
Johns Hopkins Proton Therapy Center
Sibley Memorial Hospital, Washington, D.C.
hopkinsproton.org
JOHNS HOPKINS
MEDICINE

Standardisation of biomarker measurements in Alzheimer's disease diagnostics

By Dr. Jacqueline Gosink, EUROIMMUN AG

Alzheimer's disease is the most common cause of dementia in old age, accounting for 60 to 70 per cent of cases

Overview

Analysis of biomarkers such as beta-amyloids and tau proteins in cerebrospinal fluid (CSF) for the diagnosis of Alzheimer's disease has undergone a quantum shift in recent years due to the increased standardisation of tests and procedures. In particular, the ratio Aβ 1-42 / Aβ1-40 is now preferred over the single parameter Aβ1-42 as a more reliable early diagnostic marker. Increased awareness of the impact of preanalytical factors has also led to the introduction of recommendations for sample collection and handling to improve the reliability of results.

Alzheimer's disease

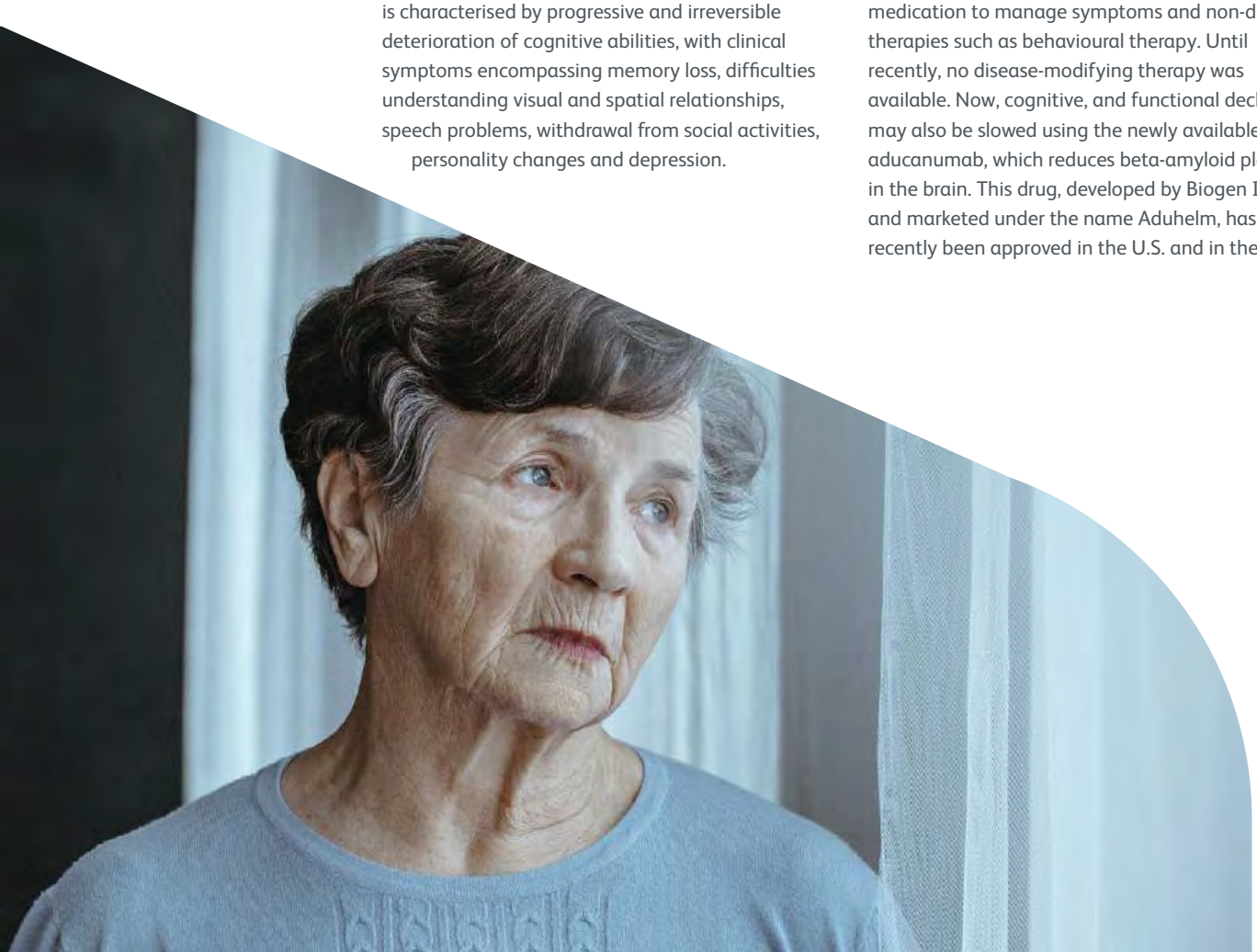
Alzheimer's disease is the most common cause of dementia in old age, accounting for 60 to 70 per cent of cases, and represents a substantial burden to patients, carers, and health systems. The disease is characterised by progressive and irreversible deterioration of cognitive abilities, with clinical symptoms encompassing memory loss, difficulties understanding visual and spatial relationships, speech problems, withdrawal from social activities, personality changes and depression.

Disease pathology

In patients with Alzheimer's disease, protein deposits form within and outside the nerve cells of the brain, cause destruction of these cells (Figure 1). Disruption in the breakdown of beta amyloid peptides leads to plaques of Aβ1-42 forming extracellularly next to the nerve cell ends. Aggregates of erroneously phosphorylated tau protein accumulate as neurofibrillary tangles inside the nerve cells, hindering axonal transport. The neuronal damage caused by the plaques and tangles results in loss of synaptic integrity or degeneration of the synapses and consequently cognitive decline.

Therapy

Alzheimer's disease cannot be cured. Traditional therapy options for Alzheimer's patients include medication to manage symptoms and non-drug therapies such as behavioural therapy. Until recently, no disease-modifying therapy was available. Now, cognitive, and functional decline may also be slowed using the newly available drug aducanumab, which reduces beta-amyloid plaques in the brain. This drug, developed by Biogen Inc. and marketed under the name Aduhelm, has recently been approved in the U.S. and in the UAE.



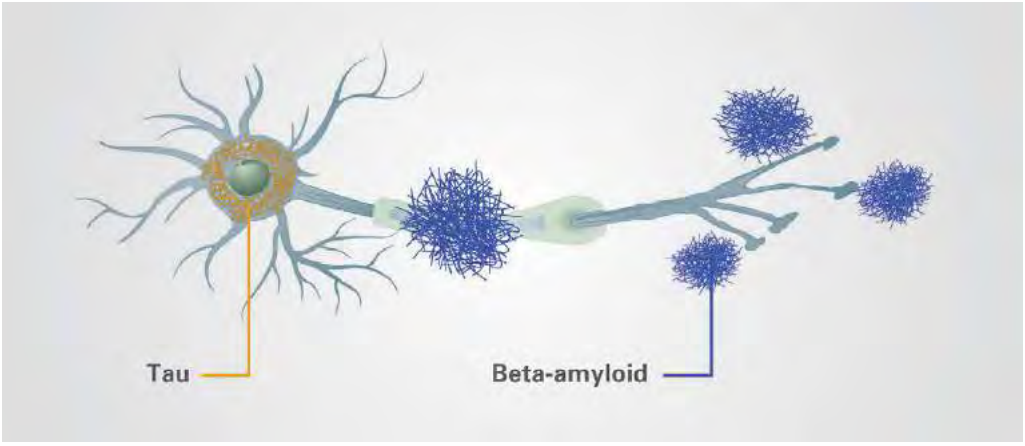


Figure 1. Representation of protein deposits in Alzheimer's disease

Diagnostics

Timely diagnosis of Alzheimer's disease is important for therapeutic decision-making and to enable families to plan appropriate care. In particular, the differentiation of Alzheimer's disease from other forms of dementia is crucial due to differing treatment regimes. It is, however, not possible to diagnose Alzheimer's disease by clinical symptoms alone. In the past, a definite diagnosis was only established post-mortem by autopsy.

Nowadays, imaging techniques, such as PET, and CSF analysis enable confirmation of diagnosis during the patient's lifetime. CSF biomarkers are now at the core of diagnostic criteria for Alzheimer's disease1. Lumbar puncture is considered a standardised and safe procedure for routine diagnostics, and guidelines are available to help minimise the risk of complications2. Biomarker determination may be preferred over PET due to the possibility of screening for several pathologies in parallel, lower costs, fewer side effects for patients, and easier establishment in regions of the world where highly specialised instrumentation and trained staff are not readily available.

CSF biomarkers

Beta-amyloids serve as a marker of amyloid burden (amyloid plaques). Establishment of amyloid pathology is important prior to treatment with aducanumab. The CSF of persons who are developing Alzheimer's disease exhibits significantly decreased concentrations of the Aβ1-42 isoform or a decreased ratio of Aβ1-42 to Aβ1-40 already five to 10 years before the onset of cognitive changes. This decrease is detectable even before amyloid-PET becomes conspicuous. Thus, CSF beta-amyloid is the earliest known marker of Alzheimer's pathology.

The concentrations of tau proteins in the CSF increase with progression of Alzheimer's disease. Phosphorylated tau (P-tau) is a specific marker of tauopathy (neurofibrillary tangles). The most thoroughly examined P-tau epitope for Alzheimer's diagnostics is threonine 181 (P-tau (181)). Total tau is a general indicator of neuronal injury and provides a measure of the level of neurodegeneration. It is not, however, specific for Alzheimer's and also rises in other neurological conditions such as traumatic brain injury, stroke and Creutzfeld-Jakob disease.

Standardisation of biomarker analysis

In the past, the determination of biomarkers in CSF was hampered by factors such as variable preanalytical sample handling, lack of standardisation of detection technologies, and an absence of reference materials. These aspects have been addressed to a great extent by extensive collaborative work between scientists, clinicians, and industry partners such as EUROIMMUN, for example as part of the Alzheimer's Association Global Biomarker Standardization Consortium (GBSC).

Importance of preanalytics

In laboratory practice, the measurement of dementia biomarkers in CSF is affected by different external factors, which have a considerable impact on the measured analyte concentration, especially when they accumulate. These factors encompass different aspects of sample collection, transport, and laboratory processing.

Since beta amyloids bind irreversibly to plastic and glass surfaces, contact of patient samples with consumables such as syringes, tubes and pipette tips must be minimised to limit adsorption of the peptides. It is recommended to collect CSF by

Imaging techniques, such as PET, and CSF analysis enable confirmation of diagnosis during the patient's lifetime

In the know

Assays for the determination of Alzheimer's biomarkers in routine diagnostics need to be specific, precise, and accurate

gravity drip directly into sample tubes with low binding capacity. Sample volumes constituting at least 50 per cent of the tube volume also ensure a lower ratio of contact surface to sample volume, helping to minimise adsorption of the analyte. Unnecessary movement of the liquid in the tubes can be avoided by freezing the samples prior to storage and transport. In the laboratory, transfers of samples into fresh tubes should be minimised to prevent further analyte loss. Repeated freeze-thaw cycles should also be avoided as they can lead to degradation of the analytes.

The GBSC has recently published the first official guidance for the collection and storage of CSF samples3. Laboratories are advised to follow these guidelines to achieve the most reliable results.

Beta-amyloid ratio

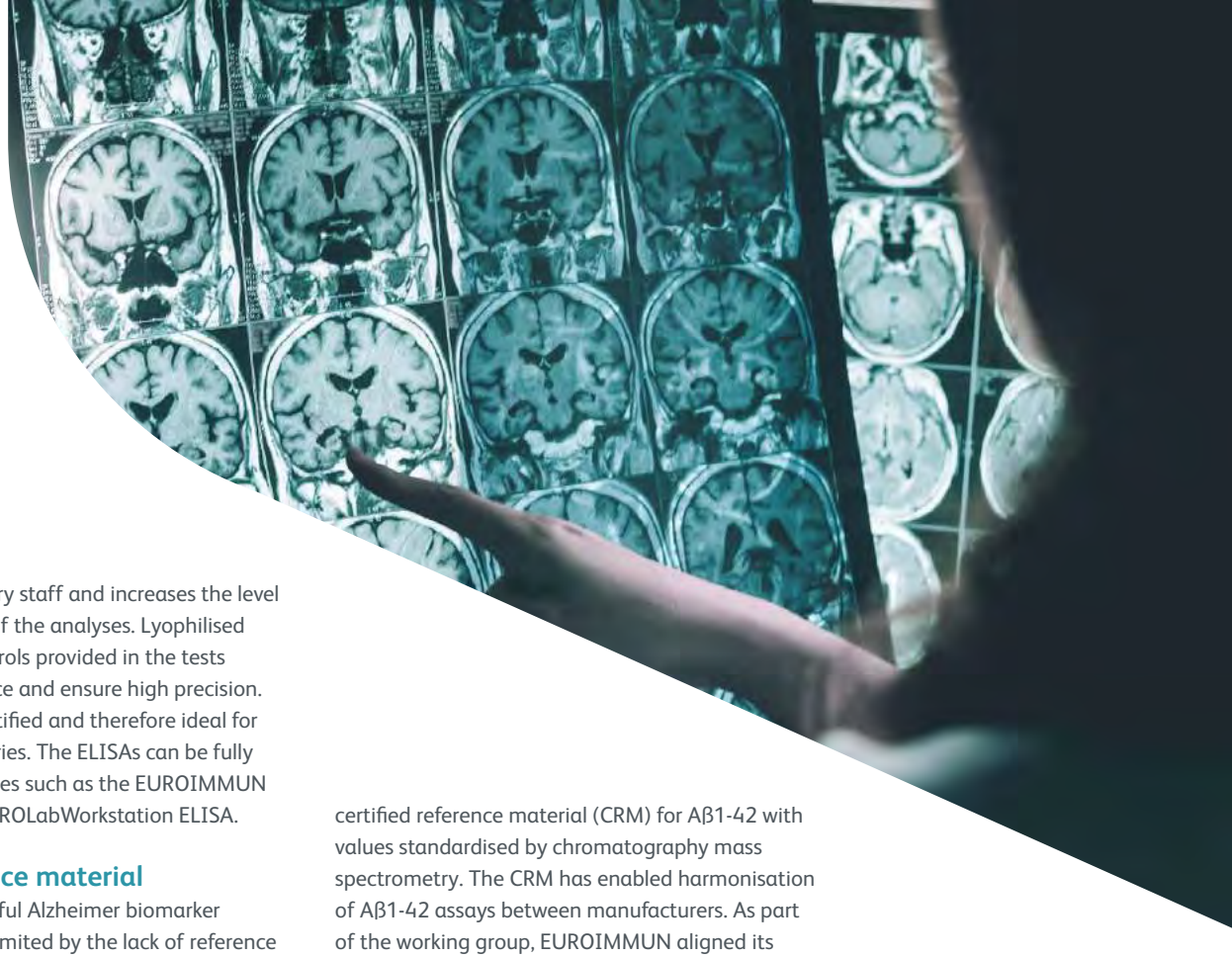
Over recent years the ratio of Aβ1-42 to Aβ1-40 ratio has become established as a more reliable marker for Alzheimer's disease than Aβ1-42 alone. Aββ1-40 is a measure of the individual amyloid expression and remains unchanged by Alzheimer's disease. While the individual beta amyloid level differs from person to person and the measurable concentration of beta amyloid can be greatly affected by external factors, the ratio of the two beta amyloid forms is very stable and also comparable between patients. It has been shown that diagnoses based on the Aβ1-42 / Aβ1-40 ratio correlate better with amyloid-PET results than diagnoses based only on Aβ1-42. The Aβ1-42 / Aβ1-40 ratio is now recommended in all notable guidelines. Determining the Aβ1-42 / Aβ1-40 ratio can improve the efficiency of early diagnosis and is particularly helpful in the clinically difficult differentiation between Alzheimer's disease and vascular dementia. Aβ1-42 / tau ratios should not be used in a routine setting due to the different physiochemical properties and distinct pathophysiologies of these species.

Since the isoforms Aβ1-42 and Aβ1-40 are subject to impact factors to a similar extent, measuring the amyloid ratio helps to normalise pre-analytical effects to a certain extent. The effects of vessel material, sample volume, sample storage and freeze-thaw cycles on the results are demonstrably less severe when determining the amyloid ratio than when measuring Aβ1-42 alone (Figure 2, adapted from ref 4.). For example, the use of polypropylene vessels instead of optimal low-bind vessels resulted in a reduction of 11 per cent in the yield of Aβ1-42, but a reduction of only 4 per cent in the ratio.

Robust biomarker assays

Assays for the determination of Alzheimer's biomarkers in routine diagnostics need to be specific, precise, and accurate. They must detect only the required analyte or specific isoform thereof without interference from other proteins in the CSF, and they should ideally follow a standardised protocol to minimise variability between laboratories and operators and allow for automation.

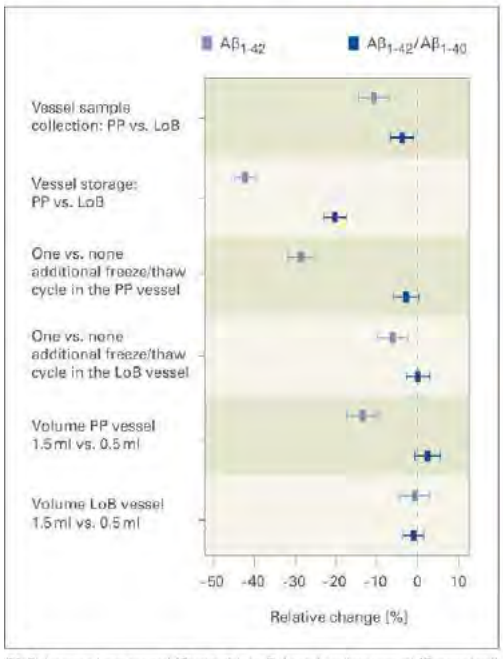
In collaboration with ADx Neurosciences, a leader in Alzheimer's diagnostics, EUROIMMUN has developed a range of quantitative ELISAs for Alzheimer's biomarkers that meet these high requirements. The assays for Aβ1-42, Aβ1-40, total tau and P-tau(181) are based on carefully selected monoclonal antibodies which provide robust and consistent measurements. Owing to identical incubation protocols, the different ELISAs can be processing efficiently in parallel, with results available in under 5 hours. This yields time



savings for laboratory staff and increases the level of standardisation of the analyses. Lyophilised calibrators and controls provided in the tests enhance convenience and ensure high precision. The tests are CE certified and therefore ideal for accredited laboratories. The ELISAs can be fully automated on devices such as the EUROIMMUN Analyser I or the EUROLabWorkstation ELISA.

Aβ1-42 reference material

Previously, meaningful Alzheimer biomarker measurement was limited by the lack of reference materials to compare measurements from different technologies and platforms. A working group comprising clinical laboratory organisations in collaboration with the GBSC has developed certified reference material (CRM) for Aβ1-42 with values standardised by chromatography mass spectrometry. The CRM has enabled harmonisation of Aβ1-42 assays between manufacturers. As part of the working group, EUROIMMUN aligned its Aβ1-42 ELISA to this international standard.



PP Polypropylene vessel (Sarstedt); LoB: Low-binding vessel (Eppendorf)

Figure 2. Effects of different preanalytical factors on the concentration of Aβ1-42 and the ratio Aβ1-42 / Aβ1-40

Conclusions

With the advent of aducanumab to treat Alzheimer's disease and the expectation of further disease-modifying drugs in the future, it is more important than ever to obtain a reliable diagnosis, especially when patients are in the early stages of the disease. Collaborative work over recent years to standardise biomarker measurement and establish the beta amyloid ratio as a reliable diagnostic tool have contributed significantly to improving diagnostics of Alzheimer's disease. Ongoing research is aimed at further optimising diagnostic tests and procedures to bolster early diagnosis of the disease. Reliable diagnostics also aid pharmaceutical companies in the selection of suitable participants for clinical studies into new drugs.

References

1. Jack Jr. et al. Alzheimer's Dement 14: 535-562 (2018)
2. Engelborghs et al. Alzheimer's Dement 8: 111-126 (2017)
3. Hansson et al. Alzheimer's Dement. doi: 10.1002/alz.12316 (2021)
4. Vanderstichele et al. J. Alzheimers Dis 31;53(3):1121-32 (2016)

Ongoing research is aimed at further optimising diagnostic tests and procedures to bolster early diagnosis of the disease

Randox – Dedicated to improving health worldwide

Article provided by Randox

The revolutionary biochip is capable of simultaneously detecting hundreds of targets from a single patient sample

For almost 40 years, Randox have been at the forefront of diagnostics, leading the way with our disruptive technology and versatile product offering.

In January 2020, Randox were one of the first diagnostic companies to respond to the coronavirus pandemic launching a molecular diagnostic test in just a few weeks. Our rapid COVID-19 test is available on the Vivalytic, a point-of-care analyser in partnership with Bosch Healthcare Solutions capable of producing results in as little as 39 minutes. To assist with winter testing strategies, a multiplex test capable of differentiating SARS-CoV-2 from other respiratory viruses including influenza and RSV is also available. Delivering a complete testing package for the diagnosis of COVID-19, a full range of quality control and external quality assessment solutions are also available.

With speed, accuracy, and reliability at its core our diverse product range comprises; third party quality control solutions, the world's largest EQA scheme, over 113 diagnostic reagents including many niche & superior performance assays, clinical chemistry analysers and patented biochip technology.

The revolutionary biochip is capable of simultaneously detecting hundreds of targets from a single patient sample. Complete patient profiling in this way facilitates faster patient testing, earlier diagnosis, and improved patient pathways. The unique technology has applications in molecular diagnostics, forensic toxicology and food testing.

Our commitment and significant re-investment in R&D means Randox have more new tests in development than any other manufacturer. Novel tests for stroke, Alzheimer's Disease and CKD are among just some of the niche tests available.

2021 has been another busy year for Randox with the launch of several new products design to improve the quality and speed of diagnosis.

Serum Indices Control – The Randox Acusera Serum Indices control is designed to be used to monitor an IVD instrument's response in the detection of HIL samples. This control can be utilised in laboratory interference testing to assist in improving error detection of pre-analytical errors affecting clinical chemistry testing.

VeraSTAT – The Randox VeraSTAT is a simple, accurate, fast, and small footprint point of care device delivering rapid results in as little as 6 minutes. The versatile test menu comprises CRP, MxA and SARS-CoV-2 IgG.

SARS-CoV-2 Surrogate Virus Neutralisation Assays – Available on the Evidence Investigator, the Randox SARS-CoV-2 Surrogate Virus Neutralisation assays utilises patented Biochip Array Technology (BAT) to detect neutralising antibodies which inhibit the interaction between SARS-CoV-2 Spike Receptor Binding Domain (RBD) and the cell surface Angiotensin-converting enzyme 2 (ACE2). The assay will uniquely determine if an effective antibody response has been generated to circulating SARS-CoV-2 variants following vaccination or natural infection. It will also help to identify individuals with a sub-optimal vaccine response to inform eligibility for booster vaccination.

For more information, visit
Website: www.randox.com
Email: Marketing@randox.com
Visit us at Medlab Middle East booth Z4.B10 to find out more.

In the know

Omnicell's solutions-based approach addresses Gulf region's key healthcare challenges

Article provided by Omnicell

Close partnerships between the healthcare and technology sectors are essential for driving long-term improvements. Omnicell is using its presence at this year's Arab Health to share its message about closer engagement, which is key to unlocking the specific challenges of each provider.

Globally, the key areas which are causing the greatest issues for healthcare providers are patient safety, pressure on costs and lack of resources – the latter issue has particularly risen in prominence as medical staff have become "burned out" during the pandemic.

Through its solutions-based strategy, Omnicell is helping its clients to understand how best to apply technology in order to eliminate errors, minimise waste and drive efficiencies.

Salim Hammoud, Director of Middle East Sales for Omnicell International, says: "Each healthcare provider is unique, so our partnering approach is based on carefully understanding their pain points, as well as their long-term strategies. This enables the formulation of appropriate solutions, which can be integrated seamlessly within the complex and constantly evolving health system infrastructure.

"Connected technology and intelligence rich solutions help our customers solve the most pressing challenges in medication and supplies management. Omnicell's hardware, software and service solutions connect to give clients the data they need to make informed decisions and significantly improve quality, efficiency, safety and reduce costs across the entire healthcare setting."

In the Gulf region, one of the biggest issues is the fact that around 25 % of the total cost of medication goes to waste. This represents a huge opportunity for improvement by swapping manual tasks, such as inventory keeping and re-ordering, for digital automation. Furthermore, digitalization frees up valuable staff time, which can be dedicated instead to patient care.

Solutions-based technologies offer benefits across all aspects of the healthcare environment, including:

For the Hospital

- Optimizing hospital labor productivity
- Freeing-up nursing time to spend more time with patients
- Supporting compliance with regulatory standards
- Creating streamlined operational efficiency
- Improving patient outcomes

For Central Pharmacy

- Lowering inventory costs – with documented inventory reductions of up to 38 %
- Streamlining the medication repackaging process
- One system that supports distribution for both cart-less and cart-fill models, while giving unprecedented inventory visibility, accuracy and insight

For Wards

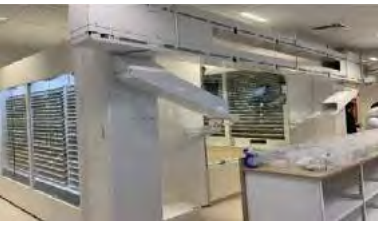
- Closed-loop inventory trail from dispense to restock when used with automated central pharmacy systems
- 54 % reduction in nurse retrieval time
- 100 % reduction in unaccounted floor Stock

Salim adds: "By fully automating their pharmacy and supplies operations, healthcare providers can fulfil a vision of zero errors, zero paper and zero waste across their whole care continuum. Our approach is based on supporting clients on every step of their journey, when and where they need it most, while offering a market leading level of interoperability."

Omnicell's portfolio of solutions include: Automated Dispensing Cabinets, MedX and SupplyX software, Robotic Dispensing Systems and VBM automated medication adherence pack filling machine – and will be available at Arab Health 2022, booth H4:C10. For more information, please visit Omnicell.com

The answer for the need for pharmacy automation CONSIS H solution for hospital outpatient pharmacies.

Article provided by Willach Pharmacy Solutions



Automatic dispensing with CONSIS robots at John Hopkins ARAMCO Hospital in Saudi Arabia and Jaber Al Ahmad Hospital in Kuwait.

With a population of more than 411 million people, the Middle East is one of the world's largest healthcare markets. The Middle East Pharmacy Automation Market is projected to grow at a CAGR of 6.7 % during the forecast period to reach a total market size of US$ 226.21 million by 2028 from US$ 143.38 million in 2021.

Increasing healthcare expenditure is driving the demand for pharmacy automation in the region in order to provide improved service to a large patient base. Pharmacy staff require modern technology tools to perform their jobs efficiently without losing on patient safety or care quality.

Hospital Outpatient Pharmacies busy with dispensing prescriptions find it challenging to focus on additional revenue streams and so Pharmacy Automation is attractive in order to improve the speed, space and accuracy of dispensing.

Medication dispensing and patient consultation take time and where efficiency is critical to maximize the potential of this revenue-generating department, rush mode can mean finding yourself with costly, even dangerous, errors on your hands.

Pharmacy Automation allows the pharmacy staff to improve customer service, reduce dispensing errors and workloads, add a higher level of security, tracking and accountability.

The key benefits of Pharmacy Automation are:

- Speeding up the dispensing process
- Cutting down on dispensing errors
- Saving space on product storage, creating more room for retail space or consultation facilities.

Willach Pharmacy Solutions can offer Pharmacy Automation advice and support within your own business.

All key benefits are covered by the CONSIS H robot, the fast and reliable principle capable of providing this over a long period of time with its parallel ejection from several storage channels.

Some of all existing reference projects in MENA are the solutions provided in Saudi Arabia at John Hopkins ARAMCO Hospitals (Al Khobar and Al Hasa) and in Kuwait in MoH Hospital Jaber Al Ahmad with automatic dispensing CONSIS robots and FAMA storage and dispensing systems.

The solutions with CONSIS robots and FAMA storage and dispensing systems cover reliably a dispensing volume of at least 10,000 packages / day for many years.

Willach Pharmacy Solutions provide with its network of reliable partners in the Middle East all solutions for the dispensing and storage area in the Hospital and Community Pharmacies.

Automatic dispensing with a CONSIS H robot with automated product loading from Willach Pharmacy Solutions

For more information, visit www.willach-pharmacy-solutions.com/ME/

Long term reliability

Article provided by Hettich

EBA 200 I 200 S: Top performance for small laboratories

The EBA 200 and EBA 200 S are practical, compact centrifuges for small sample sizes. The highspeed S model can deliver reliable results in 3 minutes or less. An 8-place fixed angle rotor is included to hold standard blood and urine tubes up to 15 ml capacity.

MIKRO 185: Small footprint with unmatched capacity

The MIKRO 185 accommodates 12, 18 or 24 samples and is suitable for a wide range of tasks, thanks to a maximum RCF of 18,845 and a choice of 4 rotors. Spin column kits (minipreps) can also be used thanks to the special design of the 1213-A rotor.

ROTOFIX 32 A: Rugged and indispensable

For decades, the ROTOFIX 32 A has set the standard in daily lab routine thanks to its versatility and solid construction. The benchtop centrifuge spins sample volumes up to 6 x 94 ml, 40 blood collection tubes or 8 x 50 ml conical tubes with a simple user interface. Hettich´s cytology rotors are compatible with most existing funnel/slide systems and have bio-containment lids.

German nora® EVA foams with closed-cell structure

For a hygienical use on sensitive skin

Article provided by nora systems

The German manufacturer nora systems offers EVA solutions for health and industry at a high-quality level. nora® EVA expanded foam sheets are used as resilient cushioning materials and lift sheets above all for foot beddings of orthopaedic shoes, especially for sensitive patients with diabetes or rheumatism. The functions of the materials are determined by their specific composition, density, and hardness. Functions are divided into cushioning, bedding, permanently resilient, and stabilising. In addition to thermoformable materials, such as the very soft material Lunairmed or Lunatec motion, which absorbs shearing forces, nora systems also offers CAD/CAM milling sheets.

The closed-cell surface structure of the EVA foam minimises the risk of harm to health in the form of germ and bacterial colonies and facilitates complete hygienic cleaning and disinfection. Safety and certified quality are most important for the European manufacturer: The materials are regularly and comprehensively tested for pollutants, skin compatibility and cytotoxicity and are free of phthalates and latex.

The product range offers also vegan materials like Lunatur Walnut which consist for a large part of finely ground walnut shells, a natural, renewable raw material without interfering with the food chain. The goal of this development was to make practical use of a natural waste product – ecological, sustainable, natural.

By visiting www.nora-material.com you can learn more about nora® materials and for example how to make a diabetes-adapted footbed or how the manufacturing process of an insole for rheumatics is simply executed in only a few steps.

Diabetes-adapted footbed made of nora® Lunatec combi 2 and Lunairmed

Insole for rheumatics made of nora® Lunatec combi motion

Evario one: The economical hospital bed for global use

Article provided by Stiegelmeyer

The head-side element of the split three-quarter safety side offers support during mobilisation.

The optimum working height can be set smoothly with the available control elements, e.g., the handset.

Modern hospital beds help to overcome many challenges. In times of staff shortage, they have to reduce workload and physical stress. In the fight against nosocomial infections, good hygiene properties are a strong asset. And in view of the many cost-cutting pressures, economical operation of the beds with little maintenance is a great relief. Stiegelmeyer, the leading German manufacturer of medical beds, has used its innovative strength and over 120 years of experience to design a new bed for all these requirements. Its name is Evario one.

The Evario one is characterised by a large selection of individual features, making it suitable for use on different wards and the demands of international markets.

Choice of two safety sides

An attractive feature of the bed is the choice between two new safety side systems. The split ¾-safety side supports early mobilisation of patients. Lowering its foot-side element creates sufficient space to leave the bed. The short head-side element is ideal as a stand-up aid. The nurse can easily operate this safety side with one hand.

The second system, the pivoting ¾-safety side, is a good choice for smaller rooms. It swings down quietly without taking up additional space along the bedside. Its slender bars offer an unobstructed view into the room and do not hide attached accessories when lowered. If a patient needs maximum protection, an optional infill piece closes the space at the foot end of both safety sides. It can be inserted without tools.

Even without the use of safety sides, the Evario one supports fall prevention. With its large height adjustment range from 36 to 82 cm, it reduces the risk of fall injuries in the lowest position. At the same time, nurses can work in the maximum position in an upright posture that is easy on the back. Back pain is one of the main causes of sick leave in hospitals. The Evario one helps to solve this problem.

Operation with handset or panel

The staff is also relieved by the bed's customised operating concepts. An intuitive handset is available for all equipment variants. With the help of an unlocking magnet, the nurse can also activate the CPR and Trendelenburg functions directly at the handset. If things need to go even faster, the Evario one can be brought instantly into the CPR position with a mechanical lever under the head section.

If the bed is equipped with the split ¾-safety side, integrated control panels can also be selected on both sides of the bed. The practical "control panel light" was developed especially for the Evario one. Facing inside, it offers comfortable adjustment options for the patient. The outside combines important functions for nurses and technicians. The control panels are always in an ideal position close to the head end, so that the nurse does not have to take their eyes off the patient even in hectic situations. If they have their hands full, they can also adjust the height of the mattress base with a foot switch.

The Evario one was developed in Germany and fully lives up to the good reputation of German engineering. All design features have been tested far beyond standards for high durability. The low maintenance requirements increase the economic efficiency of the bed. Likewise, its planar design with little niches reduces the effort required for manual reprocessing and still ensures optimal hygiene. In the fight against hospital germs, the Evario one is a strong ally.

Discover the Evario one – a bed for worldwide use that was also created for your very individual requirements.

Optional supply brackets and practical handle bars enable modern patient care from all sides.

MORE INFO
Website: www.stiegelmeyer.com
Email: info@stiegelmeyer.com
Tel: +49 (0) 5221 185 - 0
Address: Stiegelmeyer GmbH & Co. KG, Ackerstrasse 42, 32051 Herford, Germany

Top-ranked pediatric hospital in all 10 specialties for nearly 10 years

Article provided by Violet Gudino, Ann & Robert H. Lurie Children's Hospital of Chicago

Ann & Robert H. Lurie Children's Hospital of Chicago provides superior pediatric care in a setting that offers the latest benefits in medical tech, breakthroughs in research innovations and family focused services.

Our International Patient Services (IPS) Department works with families around the world seeking specialized pediatric healthcare services. We're committed to providing family-centered care through every interaction, from referrals through treatment and the journey home. As the largest pediatric provider in the region with a legacy of excellence reaching back more than 130 years, kids and their families are at the center of all we do. Lurie Children's served over 224,000 individual patients in fiscal year 2020, including nearly 400 patients from outside the U.S.

In the 2021–22 U.S. News & World Report rankings of the Best Children's Hospitals, Ann & Robert H. Lurie Children's Hospital of Chicago continues to be the top-ranked pediatric hospital in all 10 specialties for nearly 10 years. Lurie Children's is among the best children's hospitals in the United States.

Heart Center

The Heart Center at Lurie Children's, ranked 9th in the nation for child cardiology and heart surgery by U.S.News & World Report, brings the spectrum of cardiac specialists together to care for patients with the most complex and serious heart conditions.

As the region's largest children's heart center, our team of experts uses the most comprehensive heart tests and treatments to deliver the highest quality care from admission to follow-up. Our services range from fetal cardiology to cardiac disease prevention to heart transplantation. This year, our team performed the hospital's 400th pediatric heart transplant. Our heart transplant patients experience 1 month, 1 year and 3 year outcomes at or greater than the U.S. average for pediatric heart transplant. Our team has also successfully pioneered a total artificial heart transplantation in the world's smallest patient.

Our Heart Center offers programs, from fetal cardiology to adult congenital heart disease. We are renowned for the diagnosis and treatment of irregular heart rhythms (arrhythmia) and for helping pioneer the treatment of pediatric congenital heart disease through procedures like the Fontan conversion. Each year, our cardiologists see more than 17,000 pediatric patients in outpatient diagnostic visits and more than 700 inpatient admissions.

We also offer a Priority Second Opinion Program which provides parents and referring providers the second or third opinion they're looking for in one manageable visit.

Stem Cell Transplant & Cellular Therapy

The Stem Cell Transplant and Cellular Therapy program at Lurie Children's provides comprehensive care in pediatric malignancies, immunodeficiency disorders, thalassemia, sickle cell and other blood disorders.

Having performed over 1,600 stem cell transplants since the program's inception in 1992, we are the largest pediatric stem cell program in the Chicago area providing autologous, allogeneic stem transplant utilizing novel disease specific conditioning regimens and stem cell sources.

In addition, we provide treatment options, including CAR-T therapy, gene therapies, cytotoxic T lymphocyte cellular therapy and NK cell therapy.

The program's transplant protocols are guided by more than 25 institutional and national cooperative group clinical trials. Affiliations with the Robert H. Lurie Comprehensive Cancer Center of Northwestern University (a National Cancer Institute-designated Comprehensive Cancer Center), the Children's Oncology Group, the Pediatric Blood and Marrow Transplant Consortium, and Center for International Blood and Marrow Transplant Research demonstrate our commitment to delivering precision care.

Orthopaedic Surgery & Sports Medicine

Lurie Children's Division of Orthopaedic Surgery and Sports Medicine cares for more than 41,000 children each year. We provide services for children with bone, joint, muscle, ligament, tendon and nerve (musculoskeletal) disorders. The division is nationally ranked by U.S.News & World Report.

As one of the top pediatric orthopaedic programs in the country, our doctors have advanced training in pediatrics and orthopaedic surgery. They provide the specialized care that growing children and teenagers need. Our physicians are also experts in areas of the body such as the spine and foot/ankle. Our team works with specialists in the Division of Neurosurgery and the Division of Urology to care for patients in one of the largest spina bifida programs in the country.

COVID-19 Safety

Lurie Children's is an environment where your family's safety and care are our top priority. Our organization ensures we take the necessary precautions from universal masking to continued comprehensive cleaning of our facilities. The entire Lurie Children's organization is focused on ensuring your visit is a safe and healthy one.

Learn More

To contact IPS, call +1 312.227.4550 or e-mail IPS@luriechildrens.org. To learn more about Lurie Children's and the International Patient Services, visit luriechildrens.org/international

Atrium Health introduces world's first AI tool for predicting surgery outcomes

Article provided by Atrium Health

Atrium Health hernia specialists at Atrium Health Carolinas Medical Center

Specialty hernia centers produce better outcomes for complex cases, but there is no reliable way to predetermine which patients need specialty care. As a result, many hernia patients suffer postsurgical complications that might have been prevented, like wound infections, pulmonary failure or a recurrent hernia.

To address this, hernia specialists at Atrium Health Carolinas Medical Center have developed the world's first computer program that uses artificial intelligence (AI) to predict surgical complexity and future complications for hernia repair patients, based on preoperative CT scans. In testing, the program was 75% accurate at identifying patients who would need component separation, a complex operative procedure used in abdominal wall reconstruction, and almost 90% accurate at identifying patients who would develop a wound infection after surgery.

This is the first predictive tool to rely exclusively on objective data. Research behind the tool has won awards from the Americas Hernia Society and the American College of Surgeons.

"This tool could potentially help patients and surgeons make clear, educated decisions concerning if and where to have surgery and to what extent preoperative preparation is needed to prevent patients from needing additional hernia surgery or follow-up treatment," says B. Todd Heniford, MD, chief of the Division of Gastrointestinal and Minimally Invasive Surgery at Atrium Health Carolinas Medical Center's Department of Surgery. "It also helps prove the value of advanced analytics in preoperative planning."

Predicting surgical complexity

To make this tool, Dr. Heniford and a comprehensive team built a neural network – the layers of algorithmic calculation that form the AI's "brain." Then they trained the AI by feeding it CT scans from hundreds of past patients.

"Basically, the computer taught itself what to look for in a scan in order to tell whether someone can expect a complex surgery or complication," Dr. Heniford says.

The program reviewed each image more than 12,000 times, recording features that correspond with the need for component separation, the development of wound infection after surgery and the development of postsurgical pulmonary failure.

Finally, they tested the AI by feeding it another batch of images from past patients and asking it to identify which ones developed the 3 outcomes. The AI was 89% accurate at predicting infection, and its success in predicting pulmonary failure was 54.5%.

A panel of international hernia experts reviewed the same scans and made predictions about the need for component separation. The AI was 75% accurate at predicting surgical complexity, almost 15 points better than the experts.

"The computer beat us handily," says Dr. Heniford.

Altogether, Dr. Heniford says these predictions not only identify who needs specialty care but can also help patients decide whether to pursue surgery.

"If I tell you there's a 54% chance you'll develop pulmonary failure as a result of this operation, you may decide against it," adds Dr. Heniford.

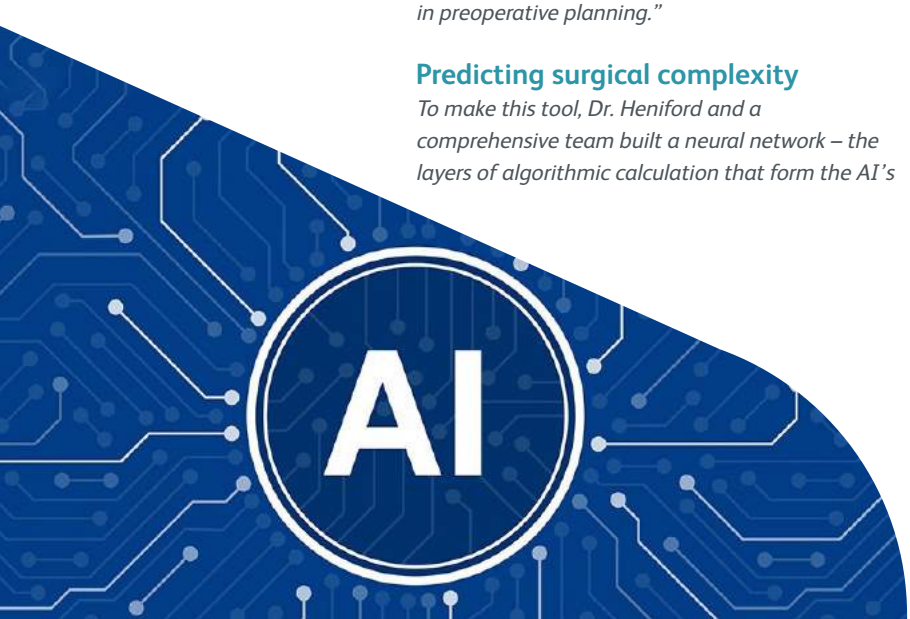
Building a brighter surgical future

The team will soon share the model with other institutions, to test it using images of another 100 patients. Subsequently, Dr. Heniford plans to turn it into another app.

"Imagine," he says, "dragging an image into this program and getting 3 clear answers: Yes, this patient needs component separation; yes, they'll have an infection; no, they won't have a lung problem. That is game-changing clarity."

The team hopes their work leads to similar models and apps in other areas with complex operations, such as liver and lung tumors.

"If we can do this for hernias, there's no reason you can't bring this kind of clarity to other surgeries as well," Dr. Heniford says.



ROSS-PEARS – A novel approach for aortic valve replacement in young adults

Article provided by Royal Brompton and Harefield Hospitals (RB&HH)

Aortic valve replacement is the most common form of heart valve surgery. It is used to correct aortic valve disease, the most common of which are aortic stenosis and aortic regurgitation. Although age is a risk factor for both these conditions, they can be congenital in nature and so affect younger patients.

At Royal Brompton and Harefield Hospitals (RB&HH), London, the experts are trialling a new type of combined surgical procedure for young and middle-aged adult patients called ROSS-PEARS which will ensure a long-lasting, excellent quality of life for these patients, without needing life-long anticoagulation medication.

Aortic valve replacement in younger patients

Congenital heart disease impacts up to 1 % of newborns worldwide, making it the most common birth defect. People with congenital heart disease often need monitoring and treatment throughout their lives, and some may need heart valve surgery in their 20s or 30s. The choice of aortic valve replacement procedure in young and middle-aged adult patients is challenging. It needs to provide long-term results to prevent the need for repeat surgeries in future as well as enabling a physically active lifestyle.

Mechanical valves are very durable and most frequently implanted in this age group but require lifelong anticoagulation that exposes patients to blood clot complications. A biological valve made of animal tissue is the most suitable for younger patients, particularly under 30, as they do not require anticoagulation. However, the biological valve can deteriorate at a high rate and require reoperation within a few years.

A better approach for replacing aortic valves in younger patients

The ROSS procedure is an alternative way of replacing the aortic valve in young and middle-aged patients with a biological valve made from a patient's own healthy heart valve and one from a human donor.

The procedure utilises the biological similarities between the two heart valves to replace the diseased aortic heart valve with the patient's own healthy pulmonary valve. The pulmonary valve is then replaced with a healthy valve from a donor which is cryopreserved (preserved through freezing) until it is needed.

Once implanted, the pulmonary valve goes through an adaptive remodelling process, so that it can closely mimic the function of the aortic valve it replaced. Also, as human valves are used, patients don't need anticoagulation medications.

As the ROSS procedure is complex, it is most safely performed at an experienced centre. Surgeons at RB&HH have been performing the ROSS procedure for over 30 years with favourable results.

Advancing the ROSS procedure

Although patients can expect excellent long-term results with the ROSS procedure, the pulmonary valve which is used to replace the diseased aortic valve can itself require replacing 15 years later in 10 % of patients.

This may be caused by aortic root dilation, putting strain on the pulmonary valve autograft causing it to become damaged over time. Surgery to reinforce the aorta at the root with a synthetic support following the ROSS procedure has been shown to reduce the need for reoperation on the pulmonary valve autograft.

Personalised external aortic root support (PEARS) is a relatively new aortic root reinforcement system. It was originally developed at RB&HH for patients with Marfan syndrome.

"The PEARS procedure has been successfully performed on over four hundred patients with Marfan syndrome worldwide. However, its use in the ROSS operation is fairly new," explains consultant cardiac surgeon, Professor John Pepper, who pioneered the PEARS procedure at Royal Brompton Hospital.

In the ROSS-PEARS procedure, it is the pulmonary valve autograft that is modelled and a personalised ExoVasc implant produced to support it when it is re-implanted to replace the aortic valve. By adding aortic root reinforcement with PEARS to the ROSS procedure, the experts hope to reduce the number of patients requiring reoperation on the pulmonary valve autograft.

The specialists at RB&HH are leading experts in both the ROSS and PEARS procedure, with over 40 combined ROSS-PEARS procedures performed at the hospitals to-date.

Professor John Pepper, Consultant cardiac surgeon, specialises in surgery to treat diseases of the aortic valve and thoracic aorta.

Get inspired by French innovation and expertise

Join the French Healthcare two-day conference at the France Pavilion at Expo 2020 Dubai on January 25-26, 2022

Article provided by Business France

French Healthcare, the innovative public-private initiative aimed at bringing together under a single banner all the players in the French healthcare ecosystem to jointly promote their expertise, technologies and innovations internationally, is organizing, in partnership with the French Healthcare Association and Business France, a high-profile phygital conference in English at the France Pavilion at Expo 2020 Dubai from January 25-26, 2022 during Arab Health.

Challenges of the health-themed fortnight

The Covid-19 pandemic has raised a number of questions regarding the resources allocated to health services and research in health sciences. Not every country can address the health crisis in the same way. Such an acknowledgement should drive a massive investment in essential public health services. Efforts must be at a national level, but above all collective, as the pandemic has proven to us that our world is deeply interconnected.

By 2030, the health sector will have to face numerous challenges, including access to health services in all areas, the promotion of health professions, the fight against health inequalities, the attractiveness of public hospitals, an ageing population, and the inclusion of disabled people.

A unique conference dedicated to innovation in healthcare

The French Healthcare Conference at the France Pavilion at Expo 2020 Dubai offers unique perspectives on and insights into French expertise, innovations and solutions in healthcare.

You are…

Hospital buyers and decision makers, biomedical engineers, information systems division managers, endocrinologists and medical specialists in the diabetes field, diabetes patient associations, oncologists and medical specialists in the cancer field, cancer patient associations, local economic operators, insurance companies, Emirati and Saudi private operators, investors in the healthcare field, healthcare device dealers, health advisors of local embassies, journalists or media… Please do not hesitate to attend the conference.

Tuesday, January 25, 2022

January 25 – 10:00am – 11:30am – Future perspectives in health and urban planning

The French Healthcare Association welcomes you to this session focusing on how health determinants are integrated into the creation of health facilities. We will also discuss how citizens can get involved and how we can connect cities with their inhabitants.

A conference led by Virginie Rault (Property and Legal Director, PariSanté Campus), with Emmanuel Masson (CEO Orpea), Simon Chassain (Deputy Director of International Sales, Enovacom, Orange Group), Emmanuelle Gaudemer (Development Manager, AIA), Elias Oussalah (International Business Director, Hoppen), Yannick Lucas (Director Public Affairs Division, Mutualité Française), Miquel Lozano (President of Tesalys).

January 25 – 12:00pm – 1:30pm – Getting medical treatment in France

The French Healthcare Association introduces the French healthcare system and treatment opportunities for international patients.

A conference led by Cécile David (Writer, analyst and editorial manager, Health & Tech Intelligence – Care Insight), with Guillaume Huart (CEO ORPEA Middle East), Jean Patrick Lajonchère (CEO Saint-Joseph Hospital, Paris), Lambert Montevecchi (CEO Boost Consulting, Expert for the Caen Cancer Center), Jérôme Soistier (CEO C3 Medical), Adrien Rebot (CEO Bealy) and Jean-François Gendron (President of the French Healthcare Association).

January 25 – 2:30pm – 4:00pm – French innovations for women at risk or affected with female cancer

Unicancer, the French Federation of Comprehensive Cancer Centers, welcomes you to its session on French innovation in the treatment of cancers in women. This session will cover both innovation in preventive and predictive medicine (i.e. personalized screenings) as well as therapeutic innovation, such as proton therapy and immunotherapy.

A conference led by Prof. Frédérique Penault-Llorca (nominated by Forbes France as one of the 40 most remarkable women of 2021), with Frédérique Penault-Llorca (Centre Jean Perrin), Eric Lambaudie (Institut Paoli-Calmettes), Alexandra Leary (Gustave Roussy), Jean-Louis Habrand (Centre François Baclesse), Christine Rousset-Jablonski (Centre Léon Bérard), Suzette Delaloge (Gustave Roussy), Dominique Stoppa-Lyonnet (Institut Curie) and Eric Leblanc (Oscar Lambret).

Wednesday, January 26, 2022

January 26 – 10:00am – 11:30am – Diabetes education and prevention: facing rising challenges in the Middle East

The French Healthcare Association welcomes you to this session introducing how French biotech companies can support regional government efforts, and prevent a diabetes epidemic, by orchestrating an efficient public health campaign.

A conference led by Cécile David (Writer, Analyst and Editorial Manager at Health & Tech Intelligence), with Dr. Fatheya Al Awadi (Head of Endocrine Department Dubai Hospital & President of EDEC), Niven Al-Khoury (General Manager of Sanofi's General Medicine within Gulf Countries & the Kingdom of Saudi Arabia), Anthony Mallet (General Manager of GCC, Saudi Arabia and Gulf Countries at Servier) and a pitching session of three French companies, with Eric Dessertaine (CEO Biocorp), Arnaud Lambert (CEO AiScreenings), Frédéric Dayan (CEO ExactCure).

January 26 – 12:00pm – 12:45pm – French excellence in pediatric congenital heart disease surgery – By Prof. Joy Zoghbi.

January 26 – 1:00pm – 1:45pm – Addressing the cardiometabolism diseases challenge: IHU ICAN Foundation model

Structuring translational research to address the cardiometabolism diseases challenge: the IHU ICAN Foundation model. Cardiovascular, metabolic and nutrition-related diseases are one of the major public health challenges and account for a significant part of the rise in non-communicable diseases related to death and morbidity. There is now a firm consensus on the need to better address these pathologies by favoring an interdisciplinary approach. As such, the growing field of personalized medicine represents a major opportunity to tackle these health issues in a new, effective and financially sustainable manner.

A conference with Stéphane Commans (Scientific Director, PhD, IHU-ICAN), Stéphane Hatem (CEO of IHU-ICAN) and Stéphane Barritault (MSc, MPH, General Secretary at IHU ICAN Foundation for Innovation in Cardiometabolism and Nutrition).

January 26 – 2:30pm – 4:00pm – Digital health for underserved areas: disruption from the French healthcare ecosystem

Introduction of a complete offer supported by the French Healthcare Association, to help public and private decision-makers in their approach of under-medicalized areas. The session will also focus on how French excellence in digital health can make a real impact on a healthcare system.

A conference led by Franck Droin (President of Kaissa & Diagonales Consulting, Specialist in digital health and public care systems), with Simon Chassain (Deputy Director of International Sales, Enovacom, Orange Group), Franck Baudino (CEO of H4D), Robin Ohannessian (CEO of TLM360), Alain Habra (CEO of Quantiq) and Prof. Antoine Tesniere (Full Professor of Intensive Care Medicine, Head of PariSanté Campus).

Please note that the conferences will be held in Gulf Standard Time (GST), in English, and can be attended either in person or online.

France: a cutting-edge world-class player in the medical industry

The swiftness and scale of the Covid-19 pandemic cast the light on the crucial importance of scientific and medical innovation. It also offered a reminder of the importance of global public health issues in prevention, diagnosis and therapeutic innovation. France is one of the key players in this dynamic and has many key strengths that form the architecture of an efficient and innovative health system.

If France is now recognized as having designed one of the most successful and equitable public health models in the OECD, it is because it has long built up a training system premised on excellence for healthcare professionals, hailed worldwide for their expertise.

Follow French Healthcare:
#FrenchHealthcare
Website: www.frenchhealthcare.fr/
Twitter: @FrHealthCare_EN
LinkedIn: French Healthcare
YouTube: French Healthcare x Business France

France's basic research is renowned for the importance of its work, while its pharmaceutical industry forms a major pillar of medical excellence, through the role played by its international players, combined with the innovation dynamics of the startup ecosystems and SMEs established across the country.
With more than 1,500 businesses, mostly (93 %) SMEs, and €30 billion in annual revenues, including €9 billion from exports – an increase of 10 % between 2017 and 2019 – France is the second biggest market in Europe. These firms of all sizes employ nearly 90,000 people working in fields such as e-health, surgical robotics, telemedicine, optical technologies, wound healing, medical imaging and many more. The key to French medtech successes is innovation and R&D. With 3,750 patents per year, France is ranked fifth in the world for the filing of international patents in the medical device sector.
(source: SNITEM, 2019)
In the UAE, France is the fourth largest supplier of pharmaceutical products and has developed economic and commercial activity, with many subsidiaries already established in the health sector, such as Sanofi, Ipsen, Servier, Air Liquide and Hygienair. France is one of the key players in this dynamic and has many key strengths that form the architecture of an efficient and innovative health system.

To register, please visit: frenchhealthcare-expo2020dubai.site.digitevent.com

Cleveland Clinic and IBM partner to accelerate discovery in healthcare and life sciences

Article provided by Cleveland Clinic

Discovery Accelerator will enable Cleveland Clinic and IBM to build a forward-looking digital infrastructure

With an eye on the future, Cleveland Clinic and IBM developed a 10-year partnership to create the Discovery Accelerator, a joint center to advance the pace of discovery in healthcare and life sciences through the use of high performance computing on the hybrid cloud, artificial intelligence and quantum computing technologies.

"Through this innovative collaboration, we have a unique opportunity to bring the future to life," said Tom Mihaljevic, M.D., CEO and President of Cleveland Clinic. "These new computing technologies can help revolutionize discovery in the life sciences. The Discovery Accelerator will enable our distinguished teams from Cleveland Clinic and IBM to build a forward-looking digital infrastructure and help transform medicine."

The collaboration will build a robust research and clinical infrastructure to empower big-data medical research in ethical, privacy-preserving ways, discoveries for patient care and novel approaches to public health threats, such as the COVID-19 pandemic.

"What the pandemic has taught us is that we have to work faster," said Serpil Erzurum, M.D., Cleveland Clinic's Chief Research and Academic Officer. "We have to be more agile as we face these healthcare threats in the future. With the power of science and technology, and our partnership with IBM, we will be better equipped to solve problems faster."

Through the Discovery Accelerator, researchers will use advanced computational technology to generate and analyze data more quickly to help enhance research in the areas of genomics, single-cell transcriptomics, population health, clinical applications, and chemical and drug discovery.

As part of the collaboration, IBM plans to install its first private sector, on-premises IBM Quantum System One in the United States, to be located on Cleveland Clinic's main campus in Cleveland, Ohio. In the coming years, IBM also plans to install the first of its next-generation 1,000+ qubit quantum systems at a client facility, also to be located in Cleveland.

This quantum program will be designed to actively engage with universities, government, industry, start-up companies and other organizations. It will leverage Cleveland Clinic's global enterprise to serve as the foundation of a new quantum ecosystem for life sciences, focused on advancing quantum skills and the mission of the center.

The Discovery Accelerator will serve as the technology foundation for Cleveland Clinic's Global Center for Pathogen and Human Health Research, which was announced in March 2021 as part of the Cleveland Innovation District.

The center brings together a research team focused on broadening understanding of viral pathogens, virus-induced cancers, genomics, immunology and immunotherapies. It will build upon Cleveland Clinic's existing programs and expertise, with newly recruited world leaders in immunology, cancer biology, immune-oncology and infectious disease research, as well as technology development and education.

Researchers will expand critical work on studying, preparing and protecting against emerging pathogens and virus-related diseases.

"Cleveland Clinic has a global reach with sites across the United States, in London and in Abu Dhabi," said Rakesh Suri, M.D., Cleveland Clinic's President of International Operations. "We can use our resources across our global network to touch the world with the work that will be done through the Discovery Accelerator. Our common purpose is to focus on things like emerging pathogens, and drug and vaccine discoveries for the betterment of humankind."

Committed to high quality

Article provided by ALCEON

Alceon was founded as a division of the Eupraxia Centre for Clinical Excellence, to fill the void of providing customised regulatory and quality assurance consulting services to medical device and in-vitro diagnostic manufacturers. The team at ALCEON is dedicated to assist their customers throughout all stages of the development life cycle through its own in-house experts of biomedical engineers, biostatisticians, data analysts and medical writers. In its nearly two years of existence, the company has handled projects of over two dozen customers.

The company provides services in areas ranging from full quality management system implementation to regulatory dossier preparation and registration in various countries. Some of our niche services include consulting on process validations, usability engineering, clinical trials, and post-market surveillance wherein our in-house experts assist customers in strategic planning, preparing test plans, protocols & reports and providing gaps on existing data.

Our key asset is our people who come from rich healthcare backgrounds with experiences in cardiac, orthopedic, ophthalmology, wound care, surgical disposable devices, and active devices. ALCEON truly believes in continual improvement of its people and processes. We arrange in-house weekly training sessions on variety of topics and also sponsor external trainings on specialty topics.

ALCEON is certified to ISO 13485:2016 by a globally recognized certification body – BSI – which shows organization's commitment to maintaining highest possible quality and customer satisfaction.

On top of RA & QA support, ALCEON also offers online and onsite trainings on a variety of subjects through its in-house trainers and external partners.

Leader Life Sciences Brings Automation, Biofabrication, and Scientific Revolution to the Region

With more than a decade of excellence in the field of healthcare, medical sciences and education, Leader Healthcare Group incepted Leader Life Sciences in 2020 to serve the scientific community and facilitate breakthroughs by introducing innovative solutions and automation technologies across analytical sciences, biofabrication, animal research, histopathology, precision medicine, and OMICS. The impact-driven leadership team, headed by visionary Mr. Sukhdeep Sachdev, ensured to establish a knowledge-oriented culture that drives the team to achieve greatness and targeted milestones.

Leader Life Sciences®
Partners in Discovery

The revolutionary findings uncovered globally in the life sciences industry calls for a combined force from researchers worldwide; hence, equipping the region's scientists and researchers with the finest and innovative technology has become Leader Life Sciences' primary focus and mission. Parallelly, Leader Life Sciences has the vision to facilitate a healthier tomorrow by providing the call for technologies and solutions to encourage today's researchers to innovate and seed excitement and motivation in tomorrow's scientists to unlock the impossible and unleash scientific breakthroughs in the region. For the said reason, we strive to support the national scientific agenda to boost scientific research productivity and quality. Therefore, leader Life Sciences is dedicated to paving the way to dissolve the challenges scientists face every day and create a genuine impact and a real difference in the life sciences industry in the GCC.

Leader Life Sciences has established strategic partnerships with industry leaders such as BICO Group, SLEE Medical, Fisher Scientific UK, Allentown, and Matachana, to name a few. Our principal partners share our vision of introducing groundbreaking scientific solutions and technologies that significantly enhance the efficiency and increase the productivity of research institutes, universities, diagnostic laboratories, and healthcare facilities across the GCC region

In the efforts of providing automation solutions to laboratory facilities, Leader Life Sciences has established a partnership with SLEE Medical, a global pioneer in precision technology for histopathology laboratories. SLEE Medical provides path-breaking pathology solutions that cover an extensive range of products that serve pathologists worldwide. Their product portfolio includes tissue processors, staining systems, embedding centers, microtomes, and cryostats that increase the efficiency and productivity of pathology laboratories by enabling the process of 600 slides simultaneously and remote observation through a mobile application. These solutions have landed SLEE Medical a spot amongst the leading pathology market players.

Healthcare and life sciences industry has evolved progressively over the last two decades in the UAE. Efforts on improving, expanding as well as reshaping services offered to the citizens and residents of UAE have been an ongoing focus point by bureaus that are responsible for future provision planning and balancing the resources given by private and public sectors. Thereon, Leader Life Sciences will continue working persistently towards the nation's interest in directing the life sciences industry in the region into a more efficient, advanced, and innovative sector as a one-stop scientific solution provider with exemplary services and products playing a crucial part in contributing to healthy urban life with cutting-edge care.

If you are interested in Leader Life Scienes total scientific solutions, we would love to hear from you.
Visit www.leaderlifesciences.com to explore your areas of interest or contact us at +971 4 575 4647 / +971 50 248 7382

Cedars-Sinai: Devoted to the global community

Cedars-Sinai is a $5 billion integrated health system, serving more than 1 million people each year in over 250 locations.

By Heitham Hassoun, MD, Vice President and Medical Director, Cedars-Sinai International

Globalization has affected nearly every aspect of modern life. From a healthcare perspective, patients have long traveled to the United States for complex clinical care and treatments unavailable in their home countries. For decades, Cedars-Sinai has collaborated with global referral entities to streamline clinical processes, enable value-added services, and continuously improve quality, safety, and patient experience. As a result, in 2020, Cedars-Sinai joined the ranks of top medical travel programs that have achieved full certification by the Global Healthcare Accreditation for Medical Travel Services. It all goes to show: Cedars-Sinai is at the forefront of global medicine and is a top-ranked hospital in the United States as well as a pioneer in international medical research, training, and exchange programs, with years of experience in serving visitors from around the world.

Every year, over 2,000 patients from over 100 countries travel to Cedars-Sinai for their medical care. Since its inception in 1902, Cedars-Sinai has evolved to become the largest nonprofit hospital in the western United States. Furthermore, while our research is invaluable to thousands of patients throughout Cedars-Sinai, it also benefits millions of people globally. Medical devices, new surgical techniques, new imaging and diagnostic tests, and new therapies developed at Cedars-Sinai are now routinely used worldwide.

Today, Cedars-Sinai is a $5 billion integrated health system serving more than one million people each year in over 250 locations, with more than 4,500 physicians and nurses and 1,500 research projects in motion. We have been ranked consistently in the top 10 on the Best Hospitals Honor Roll by *U.S. News & World Report*, including being ranked #1 in California in multiple specialties. Additionally, Cedars-Sinai has received its fifth consecutive Magnet® designation for nursing excellence from the American Nurses Credentialing Center (ANCC), becoming the hospital with one of the longest-running Magnet® designations in the United States.

One of the largest transplant centers in the U.S.

The Cedars-Sinai Comprehensive Transplant Center performs more than 600 solid organ transplants every year, making us one of the top 10 largest transplant programs in the United States. In addition, Cedars-Sinai has ranked first in the nation for the number of adult heart transplants since 2010.

A national leader in quality and patient safety

Cedars-Sinai is a national leader in quality, being one of only three hospitals in the United States that rank better than the national average in five medical conditions for 30-day mortality rates. Cedars-Sinai has set new benchmarks and created models of care through wide-ranging performance-improvement initiatives. We work closely with the Hospital Quality Institute (HQI), the Patient Safety Movement Foundation (PSMF), and the California Hospital Association (CHA) to increase transparency in our patient-safety data and empower patients to make the best decisions about their healthcare. Many of our programs have become models of care for hospitals nationwide—including strategies to reduce readmissions, improve care transitions, and increase medication safety.

A new global care paradigm

COVID-19 has placed healthcare systems center stage in the global conversation, creating heightened visibility for systemic strengths and vulnerabilities. This has presented the healthcare community with a rare opportunity to reimagine how care is delivered. It has also highlighted the interconnectivity of the global healthcare community and the importance of healthcare institutions working together.

World-class patient care with an international reach

Cedars-Sinai International is the global extension of Cedars-Sinai's mission, vision, and values, committed to the well-being of the global population. Our presence in Mexico City, Dubai, and Shanghai and flagship projects in Doha, Shenzhen, and Seoul are a few testaments to our efforts. Overall, we aim to develop providers for today and tomorrow and foster evidence-based and data-driven processes that will create value and sustainability.

Our future view of healthcare is focused on reducing unnecessary variations in medical practice, managing the necessary variations, and changing lifestyles at a population scale. What never changes, though, is our commitment to providing life-changing, world-class care to anyone from anywhere.

Learn more about our services at cedars-sinai.org/international

In the know

Signature Cassette Printer increases efficiency

Print directly onto tissue and biopsy cassettes to increase efficiency while enhancing patient safety.

Article provided by DTM Medical

DTM Medical provides an advanced and complete labelling solution – all from a single source

Signature Cassette Printer is designed for use in cytology, pathology and histology labs to print high-resolution text, graphics and bar codes directly onto tissue cassettes. That eliminates handwriting or expensive and difficult-to-apply labels and makes the lab workflow more efficient while increasing patient safety. As the cassette printer supports full-colour and black printing with UV- and chemical-resistant ink, only white cassettes need to be stored. That leads to significant cost reduction.

The Signature Cassette Printer is available in two versions: The SCP-M is the stand-alone, manual printer, loading one cassette at a time by the operator. Print speed is fast, at about six seconds per cassette.

The SCP-R is a completely automated system consisting of a printer and a new upgraded robotic picking system called Autoloader EVO, enabling in addition the use of Sakura Paraform Cassettes. Up to 160 cassettes are automatically loaded by the robotic system. Print speed is fast, at about eight seconds per cassette. Labs can first purchase a manual printer and later upgrade that printer with robotics to make it a completely automated system. The same SCP-M printer is simply placed on top of the robotics module and connected via a USB cable.

Unlike other similar printers, Signature Cassette Printer utilises thermal transfer ink ribbons instead of solvent inkjet or laser ablation. There are many advantages to thermal transfer inks, including:

- Virtually silent while printing
- No smell or smoke
- Unlike laser, does not require proprietary cassettes and no fume removal system is required
- No ink tanks or print heads that dry out, need maintenance and have short expiration dates
- Crisp, clear text, graphics and bar codes that won't smear or rub off during or after processing
- The ability to print colour on white cassettes, eliminating the need for coloured cassettes
- Significantly lower acquisition cost than competitive units

Primera's PTLab SE Software, a user-friendly and easy to learn program, is included with every printer. Templates can be designed that define the required information on slides or cassettes including fixed and variable fields. Information contained in 2D bar code on the vial or other containers is automatically printed on a number of cassettes that have been ordered for each study. For full integration into existing laboratory information systems, PTLab PE is available as an option.

Together with Signature Slide Printer, Signature Cassette Printer and PTLab Software, DTM Medical provides an advanced and complete labelling solution – all from a single source. Signature printers offer a new and better way for laboratories as well as medical, education and research organizations to process and manage slides and cassettes.

By placing a cassette printer at each grossing station and a slide printer at each microtome station the labs' efficiency is significantly increased while the risk of specimen misidentification is reduced or even eliminated. Labs can certainly afford and cost-justify to do so as the Signature printers cost less than all other monochrome-only slide and cassette printers currently available.

Signature Cassette Printer along with Signature Slide Printer will be showcased at Medlab 2022 by DTM Medical at stand Z6.F32 in Za'abeel Hall 6.

More info
Email:
info@dtm-medical.eu
Website: dtm-medical.eu
Tel: +49 611 92777-0
Location: DTM Medical,
Mainzer Str. 131, 65187
Wiesbaden, Germany

Omnia Health
By Informa Markets

Medical Travel Special

UAE expected to appeal to more medical tourists as country continues to attract visitors (pg 148)

Precision medicine, genetics and home health care services among Dubai Health Authority's investment priorities

Interview with **His Excellency Awadh Seghayer Al Ketbi**, Director General, Dubai Health Authority

How important is international collaboration and does it play a vital role in the sector's future growth plans?

Presently, in Dubai, almost 80 per cent of the health care services are provided by the private sector and 20 per cent are provided by the public sector. The Emirate has more than 4,000 health facilities including 52 hospitals and more than 47,000 healthcare professionals.

We work in close collaboration with the private sector, guiding them on need-based investments so that patients, healthcare professionals, investors, insurance companies and the overall health sector truly benefit from the growth and development of the sector. This helps create a sustainable public-private investment model and a dynamic health ecosystem.

His Excellency Awadh Seghayer Al Ketbi

All hospitals in Dubai are internationally accredited ensuring a high benchmark of care provision.

We are keen to continue driving investments in need-based areas with the best healthcare facilities and research centres.

High-quality accessible and specialised patient care is our priority. In order to achieve this and at the same time to ensure a robust and dynamic health sector, we guide investors so that the investments are need-based.

Our dedicated investment arm supports potential investors by providing them with information, support and guidance to fuel need-based investment.

We see tremendous potential in the growth of the health sector over the next few years. We have the factors that fuel the growth of demand and utilisation of health services. Demand for quality health services is increasing due to Dubai's rapid urban development, population growth and the continued influx of medical tourists even during the pandemic, which reflects the vast scale of opportunities for private sector providers and investors in the health sector.

Many of world's largest hospitals and specialised centres have invested in Dubai's healthcare sector after realising the city's unique investment climate.

In addition to health services, we are also keen to embrace and support the role of telehealth and technology in healthcare to enhance the health sector and improve patient experience and support individualised care.

How does the DHA support potential investors in their investment journey in Dubai?

Dubai is a vibrant city for professionals, investors and entrepreneurs who provide tremendous support to high quality healthcare investments.

Our dedicated investment arm supports investors with real-time data and provides information on need-based investments to ensure the right healthcare investment.

The Investment arm of the DHA provides a comprehensive Dubai Health Investment Guide to investors, which has real-time, reliable and robust information on demand for health services, supply, and capacity gaps to enable investments in strategic opportunities and specialised health services. This benefits Dubai's economy and the health sector because it helps optimise and balance the supply of health services, informing investors clearly about areas where investment is needed.

This also helps enhance the competitiveness of the overall healthcare sector in Dubai and increases awareness of the economic viability as well as helps attract foreign direct investment (FDI) and local investment.

We work in close collaboration with the private health sector and governmental entities with an aim to provide the highest quality of specialised and accessible healthcare.

What are the areas of focus for health investment over the next five years?

Areas of focus within the next three years include rehabilitation services, urgent care clinics, mental health, chronic disease and home-based care whereas the investment focus for the next five years includes precision medicine, genetics and nursing-home care.

Is telemedicine here to stay? What are your future plans for virtual consultations?

Dubai has always been at the forefront of implementing cutting-edge technologies across all sectors. In the health sector, we have over the last few years accelerated the use of technology and we saw how that helped us during the pandemic.

We already had the Doctor for Every Citizen telemedicine initiative in place, which we scaled up during the pandemic, and we added many new specialities. The success of this telemedicine initiative paves the way for further scaling this service in the health sector.

Additionally, we also have initiatives in place that use technologies such as Ai and 3D printing.

Dubai has the Dubai Accelerators Program where we have hosted firms with promising new healthcare technology to work with the DHA to develop cutting edge solutions. More than 16 firms from all over the world have worked with DHA on areas including prosthetics, telemedicine, AI and robotic surgeries.

Is there an opportunity for partnerships with educational institutions, medical training and research firms?

Yes, absolutely! DHA has a 15-year long term partnership with Royal College of General Practitioners in the UK, and we also have a partnership with the Royal College of Ireland for joint fellowship programs to promote globally accredited higher education programmes in the medical field.

We also have partnerships with esteemed universities in US, Canada, South Korea, UK, France and Australia for higher medical education.

In the field of healthcare, in particular, continuing medical education is of vital importance to keep up-to-date with the latest advances in the field so we strongly promote medical education as well as research.

Training, particularly in new technologies such as utilisation of AI, digital health and telemedicine will gain more momentum in the next few years.

حكومة دبي
GOVERNMENT OF DUBAI

هيئة الصحة بدبي
DUBAI HEALTH AUTHORITY

DUBAI HEALTH EXPERIENCE

WHAT MAKES A VISITOR'S EXPERIENCE UNFORGETTABLE?

Health & Wellness Experience

Excellent communication and access to information

World-class experts

World-class facilities

Excellent results and post-treatment support

Recreational Experience

Smooth travel and hospitality arrangements

Excellent recreation and retail therapy attractions

All-round getaway thrills for accompanying family members

Download App

DXH
تجربة دبي الصحية
Dubai Health Experience

GET IT ON Google Play

Download on the App Store

HUAWEI App Store

www.dxh.ae

DXHCONNECT

Northwestern Medicine impacts lives

Article provided by Northwestern Medicine

Northwestern Medicine is an integrated academic health system anchored by Northwestern Memorial Hospital, the No. 10 hospital in the U.S. and the No. 1 hospital in Chicago and Illinois, as ranked by the U.S. News & World Report 2021 – 2022 Honor Roll of America's Best Hospitals. Northwestern Medicine provides patients with access to world-class medical care, delivered in state-of-the-art facilities offering leading-edge treatment options.

Northwestern Medicine has 11 hospitals, more than 200 outpatient clinical sites, more than 33,000 employees, and more than 4,000 practicing physicians on the medical staff.

Oncology – Northwestern Medicine is proud that Robert H. Lurie Comprehensive Cancer Center of Northwestern University at Northwestern Memorial Hospital has received the highest rating of Exceptional from the National Cancer Institute (NCI). The Northwestern Memorial Hospital Oncology program is ranked No. 6 in the U.S. according to U.S. News & World Report, 2021 – 2022, and remains the highest-ranked cancer program in Chicago and Illinois. Treating more than 10,000 patients each year for both common and rare cancers, the Hospital gives patients access to technologies and advanced treatments.

Being an NCI Comprehensive Cancer Center means Northwestern Memorial Hospital provides innovative, research-based approaches to detecting and treating cancer. Through approximately 300 active clinical trials for nearly every type of cancer, Robert H. Lurie Comprehensive Cancer Center gives patients access to the most advanced treatments available, often before they are available anywhere else. In addition, Robert H. Lurie Comprehensive Cancer Center is a founding member of the National Comprehensive Cancer Network (NCCN), an alliance of 31 of the world's leading cancer centers devoted to defining and advancing high-quality, high-value cancer care. Robert H. Lurie Comprehensive Cancer Center is the only NCCN facility in Chicago and Illinois.

World-renowned physicians and scientists at Northwestern Medicine are not only at the forefront of how cancer is treated today, but also collaborate to develop new approaches to better prevent, detect, treat, and educate communities about cancer. They are actively translating breakthrough discoveries into the cancer treatments of tomorrow.

Neurology and Neurosurgery – Northwestern Medicine Neurology and Neurosurgery teams provide world-class, comprehensive care for a full range of injuries and diseases of the brain, spine, peripheral nerves, and arteries of the head and neck. They are at the forefront of treating neurological disorders, including epilepsy, movement disorders, ALS, multiple sclerosis, sleep disorders and Alzheimer's disease. Many Northwestern Medicine specialists are recognized worldwide as leaders in this field.

The program's goal is to provide the highest level of care through a multidisciplinary approach to diagnosis and treatment. Personalized treatment plans help ensure the best possible outcomes.

Northwestern Memorial Hospital has one of the highest-ranked Neurology and Neurosurgery programs in Chicago and Illinois and is ranked No. 9 in the U.S. according to U.S. News & World Report, 2021 – 2022. Specialized treatment centers include the Comprehensive Epilepsy Center, Parkinson's disease and Movement Disorders Center, Stroke Center, Peripheral Nerve Program, Spine Center and Brain Tumor Institute.

Transplant – Northwestern Medicine Organ Transplant Center has been providing transplantation services since 1964 and is an international leader in research, innovation, and patient care. More than 400 organs are transplanted each year, and the Northwestern Medicine program is among the top in the U.S. in patient outcomes and the number of transplants performed. Northwestern Medicine was one of

only nine centers in North America participating in a study sponsored by the National Institutes of Health from 2004 to 2010 to assess living donor liver transplantation.

Organ Transplant Center highlights:

- Twenty-six Northwestern Medicine patients who received a kidney transplant show no signs of immunosuppression. This is the largest known group in the world.
- Among the 213 transplant centers that perform living donor kidney transplants, Northwestern Medicine is No. 13 in the country for patient volume, performing 78 living donor kidney transplants in 2020.
- In 2020, Northwestern Medicine was the largest kidney transplant program in Illinois, with surgeons performing 243 kidney transplants.
- Over the last 10 years, Northwestern Medicine has been the largest pancreas transplant program in Illinois. In 2020, surgeons performed 26 pancreas transplants.
- In 2020, Northwestern Medicine was the largest liver transplant program in Illinois, with surgeons performing 111 liver transplants.

Interventional Radiology – Northwestern Medicine is a world leader in performing radioembolization (yttrium-90, or Y90) procedures for the treatment of liver cancer. Its physician leaders were pioneers in developing and perfecting clinical protocols. After a 15-year study involving 1,000 patients showed superior results, Northwestern Medicine now offers Y90 transarterial radioembolization (TARE) as its standard of care.

Orthopaedics – The Northwestern Memorial Hospital Orthopaedics program is ranked No. 19 in the U.S. according to U.S. News & World Report, 2021 – 2022. Northwestern Medicine Center for Comprehensive Orthopaedic and Spine Care at Northwestern Memorial Hospital is a premier destination for orthopaedic care. Featuring state-of-the-art imaging and operating room facilities, the center specializes in hip and knee replacement as well as spine surgeries, including correction of spine deformities and complex revision surgeries.

Cardiology – Northwestern Memorial Hospital has the highest-ranked Cardiology and Heart Surgery program in Chicago and Illinois and is ranked No. 12 in the U.S. according to U.S. News & World Report, 2021 – 2022. This reflects the leading-edge cardiac and vascular services offered by Northwestern Medicine Bluhm Cardiovascular Institute.

As an internationally recognized destination for patients requiring highly specialized cardiovascular care, Northwestern Medicine offers 10 specialized clinical programs and six niche centers: Center for Coronary Artery Disease, Center for Heart Failure, Center for Heart Rhythm Disorders, Center for Heart Valve Disease, Center for Preventive Cardiology and Center for Vascular Disease.

Urology – The Northwestern Memorial Hospital Urology program is ranked No. 11 in the U.S., and is the highest-ranking program in Chicago and Illinois, according to U.S. News & World Report, 2021 – 2022. With one of the nation's most experienced and well-respected urology programs, Northwestern Medicine offers comprehensive inpatient and outpatient care, including state-of-the-art diagnostic and treatment capabilities for men, women and adolescents. Compassionate, comprehensive urologic care for sensitive conditions is delivered through an integrated, multidisciplinary approach. Care team members are recognized leaders in their fields. All potential therapeutic options are considered and discussed with the patient. Together, the care team and patient create an individualized treatment plan to achieve the best possible outcomes. -Northwestern Medicine also has separate programs for women's and men's health and vitality restoration.

Fertility and Reproductive Medicine – The Fertility and Reproductive Medicine is widely recognized as one of the foremost infertility programs in the U.S. With vast clinical expertise, specialists deliver compassionate, supportive, individualized patient care. They are committed to leading-edge research and the use of advanced technologies and treatment approaches. The clinic's multidisciplinary team tailors evaluations and treatment plans to thoughtfully and fully address each person's needs and challenges.

Gastroenterology and Hepatology – Northwestern Medicine Digestive Health Center brings together leading academic and clinical minds in pursuit of medical excellence. The team's mission is to prevent, diagnose and treat disorders of the digestive tract and associated organs. At the heart of the center's success is a complementary approach with a multidisciplinary team of physicians working to bring top-quality care to patients from around the world. The team includes gastroenterologists, interventional endoscopists, surgeons, psychologists and dietitians who work with patients to control the symptoms that negatively affect their health and lives, while also treating their condition or disease.

The comprehensive digestive health program at Northwestern Medicine is one of the largest in the U.S., and Northwestern Memorial Hospital is ranked No. 9 in the country for Gastroenterology and GI Surgery by U.S. News & World Report, 2021 – 2022.

For more information about Northwestern Medicine, visit northwesterninternationalhealth.com or call +1.312.926.1089 (TTY for those who are deaf or hard of hearing, +1.312.926.6363).

NABIDH paves way for seamless health information sharing in Dubai

By Matthew Brady, Head of Content, Omnia Health

NABIDH integrates patient data from all Dubai facilities, resulting in improved patient safety

From Expo 2020 to the new working week Dubai has made significant strides over the past year catapulting the emirate into the future - including in healthcare.

A cutting-edge project introduced by Dubai Health Authority (DHA) is promising to solve a problem that will benefit doctors and patients across the emirate: Network & Analysis Backbone for Integrated Dubai Health (NABIDH).

As its name suggests, the initiative is a world-class health information exchange that securely integrates or unifies patient data from all public and private facilities in Dubai, that will result in improved quality and patient safety, reduced cost, and evidence-based care. With more than 3,000 health facilities in operation across Dubai, NABIDH will usher in an era of smoother and more efficient healthcare via a single interface (www.nabidh.ae).

Dr Marwan Al Mulla, CEO of Health Regulation Sector at the DHA and Dr Mohammed Al Redha, Director of Health Information and Smart Health Development at DHA, revealed the latest on NABIDH to *Omnia Health Magazine*, and what it will mean for Dubai's healthcare landscape.

Launched in late 2020, NABIDH now has 204 facilities and 25 Electronic Medical Record systems

connected across DHA and the Ministry of Health and Prevention.

Dr Al Mulla highlighted that in line with the vision of the leadership and in line with DHA's aim to move towards digital health, this project will significantly benefit the overall health sector – from healthcare physicians to patients ensuring that every patient has one electronic medical file and that file follows the patient irrespective of which facility the patient chooses.

Dr Redha said that the project has seen significant progress since its inception. Presently more than 26,000 authorised healthcare professionals in Dubai now have online access to 7.2 million individual patient electronic files - including reports, previous surgeries, allergies and medications - to make faster and more accurate clinical decisions with less testing.

Dr Redha acknowledged the large number of health files in the millions. "We are now in the process of looking at duplication of records," he clarified. "And this, by the way, is one of the benefits that the Health Information Exchange System provides."

A seamless patient experience

While NABIDH is presently focused on the healthcare professional serving the patient, patients too will equally benefit, no longer having to print paper or create a CD containing their records for their new doctor when visiting another health facility.

Instead, the patient's files from their previous provider will be readily accessible via a user-friendly online interface by their new physician, therefore cutting down on time and effort, while also reducing errors and duplication of tests. This will have the added benefit of reduced costs, along with quicker and improved diagnoses.

Improved policy outcomes

There is a third beneficiary: the national population at large. The availability of so much health data can help government entities make better decisions affecting the population, in particular with the early detection, management and prevention of chronic diseases.

A central system, Riayati, was launched in December 2021 in line with the UAE's strategic directions in improving disease monitoring and management of population health across the nation.

Health data protection and privacy

With tens of thousands of medical records easily accessible online, concerns may arise over health data protection.

Dr Redha was quick to highlight, however, the UAE's maturity in IT and data infrastructure, underlining how multiple laws in the UAE govern connectivity both generally and specifically in relation to healthcare.

He offered two examples. The first, UAE Federal Decree Law Number 45 of 2021, echoes GDPR legislation in the EU through the protection of personal data. Issued on 20 September 2021, the "Protection of Personal Data Law" (PPDL) came into effect in January 2022.

An earlier law from 2019 meanwhile specifies the use of ICT in the area of health: Federal Law No.2 of 2019 or "ICT Health Law" - the outcome of efforts of all UAE government entities, led by the Ministry of Health and Prevention.

NABIDH has regulatory compliant security measures that protect all personal and health information, and all participating facilities and professionals will comply with the applicable UAE laws – including those above – and DHA regulations. Furthermore, health records will be accessible by authorised users only in accordance with strong privacy, protection and security rules.

Looking to the future

While the Dubai healthcare sector is extensive – its 3,000 hospitals and health services include clinics, polyclinics, pharmacies and more - Dubai Health Authority is nonetheless aiming to connect all 100 percent to NABIDH by the second quarter of 2022. As part of the onboarding experience, physical and online training will be available so that healthcare professionals from doctors to nurses, and administrative users, become familiar with the platform.

Beyond connecting Dubai's healthcare sector, and connecting at national level, the emergence of new technologies such as AI is also presenting exciting possibilities.

"In terms of using artificial intelligence algorithms on the NABIDH platform, the potential is huge," said Dr Redha.

"We have already started deploying and exploring algorithms that will help with the logistics or administrative aspects of NABIDH. The potential for patients again is huge in terms of speculating how well they will perform with or without a treatment or medication. All this is coming soon."

Dr Redha also hinted at new developments that will result from collaborations at the federal level and with Dubai Digital Authority. "The sky's the limit in terms of what you can integrate," he said. "There are exciting things that are going to be deployed very soon."

In terms of using AI algorithms on the NABIDH platform, the potential for patients is huge

UAE expected to appeal to more medical tourists as country continues to attract visitors

By Omnia Al Desoukie, Contributing Writer

Dubai received 4.88 million visitors between January and October 2021

Much like international tourism generally, medical travel to the UAE has been impacted by COVID-19. However, the country is an established medical travel destination, having worked over the years in creating the infrastructure necessary to handle the needs of the industry.

"During December, there was a vast number of tourists to Dubai, especially from countries which still had lockdowns or social restrictions in place. Today, we still see people coming in, and once they have tested negative for COVID, they are clear to enjoy all that Dubai offers. Naturally, when the pandemic has passed, the number of visitors (including those coming with medical tourism as their main reason) will sky-rocket even more," said Dr Dany Kayle, founder of Dr Kayle Aesthetic Clinic in Dubai.

Dr Kayle explained that before the pandemic, medical tourism was increasing and that once travel restrictions are no longer an issue for people, this trend will continue and indeed grow.

"Before the pandemic, we had a good number of patients that travelled to us to have procedures. In fact, rarely a week passed without having at least two patients who had travelled from abroad to visit the clinic. Patients came from all over the world, including the Far East, the Middle East, Europe, Africa and the U.S.," he explained.

Dubai, which has positioned itself as the main destination for medical tourism in the UAE, is governed by strict rules and continuous monitoring by DHA to ensure standards of the practice. The city is an attractive hub for medical excellence and is easily accessible from anywhere in the world.

According to Dubai's Department of Economy and Tourism, the city received 4.88 million visitors between January and October 2021, with more than one million international visits during October alone.

Most vaccinated nation globally

The UAE has one of the highest vaccination rates globally. The country has also made its business and visa procedures much easier post-COVID.

"Keeping all these factors in mind, UAE is the most favourable and well-prepared destination for medical tourism," said Vidya Rani, co-founder and General Manager at VAID Health Care Services LLC.

According to the "Global Medical Tourism Index" issued by the International Health Care Research Center (IHRC), Dubai ranked sixth worldwide within a list of 46 of the most unique international destinations in developing modern infrastructures and advanced medical facilities.

Tourists come for a variety of procedures that includes cardiac surgery, neuro and ortho surgeries, cosmetic and aesthetic treatments as well as wellness packages are most sought after by medical tourists.

"The sector is innovating in many ways. There are many collaborations between allopathic treatments as well as alternative medicine options. This provides a holistic approach for the people seeking treatments," added Rani.

Attracting healthcare professionals

It is not only Dubai that is eyeing medical tourists. The UAE's capital Abu Dhabi previously launched the Abu Dhabi Medical Tourism e-portal in 2018, which is a digital platform that provides visitors to Abu Dhabi with all medical offerings and healthcare facilities available throughout their visit.

According to Rani, the health sector across the country is expanding by promoting screening or regular checkups which promotes a healthier landscape in the country.

But COVID has been a challenge to the industry. New COVID variants and travel restrictions imposed by countries worldwide are challenges that the UAE has faced in attracting more medical tourists in 2021.

Tour agents have often clubbed tourism with medical tourism over the years."There's definitely a high trust element as we have seen a surge of confidence both locally and globally thanks to the way the government has handled the pandemic," said Raheesh Babu, COO at travel website musafir.com.

Babu said that there is a surge in the number of doctors and medical professionals coming to the UAE to set up practices and further their careers which increases the calibre in the country and hence attracts more tourists.

"We do expect a growth in the trend. The UAE has recently opened its borders to tourists from all over the world. We are currently offering mandatory medical coverage to all our customers arriving from different destinations," added Babu.

Research-based therapies enhance patient outcomes

Article provided by The Ohio State James Comprehensive Cancer Center

The Ohio State University Comprehensive Cancer Hospital - James Head and Neck Cancer Team consists of more than 200 experts and is one of the most experienced of its kind in the country. Our physician group includes nine head and neck and reconstructive surgeons, nine head and neck radiation oncologists, three head and neck medical oncologists, four laryngologists, and numerous researchers — all focused solely on these cancers. We have numerous head and neck specific navigators, swallow therapists, nurses, physician assistants, nurse practitioners, medical assistants, and research staff who help guide our patients through therapy as well as two dedicated dentists/prosthodontists to assist with our patients' oral care and dental rehabilitation, all co-located in our clinic in a free-standing cancer institution.

Every year, we treat one of the largest numbers of head and neck patients in the country and see a wide variety of cancer types, both common and uncommon, giving us a thorough understanding of these malignancies, how best to treat each individual patient, and the impact of our research-based therapies on each patient's quality of life. We have a clinical trial portfolio of over 20 head and neck cancer trials. The knowledge we have gained from treating a high volume of patients helps to ensure better survival and functional outcomes — a fact that has been proven in multiple studies. Our Department of Otolaryngology – Head and Neck Surgery is ranked among America's best by U.S. News and World Report.

New and exciting advances:

- The Head and Neck reconstructive team is now performing over almost 300 reconstructions per year and is training the future generations of head and neck surgeons from all over the country and world on the latest, cutting edge techniques and technology for optimal outcomes. Coupled with this effort is Head and neck and skull base surgeon, Dr. Kyle VanKoevering who leads the new Medical, Modeling, Materials and Manufacturing (M4) Lab, a collaboration between The James Comprehensive Cancer Center, College of Engineering CDME, and Institute for Materials Research. The heart of the program is a world leading point of care 3D printing and manufacturing facility with state-of-the-art polymer, metal, and bioprinting equipment staffed by surgeons working shoulder to shoulder with engineers.
- The Head and Neck surgeons' expertise and volume assisted with the achievement of a Center of Excellence Designation for Treating Paragangliomas. The multidisciplinary team comprehensively manages one of the largest volumes of paragangliomas—rare neuroendocrine tumors that can be benign or malignant as well as hereditary.
- The North American Skull Base Society (NASBS) has designated The Ohio State University Skull Base Surgery team as an NASBS 2021 Multidisciplinary Team of Distinction (MTD), formerly the NASBS Team Honor Roll program. Designation as an MTD is based on the comprehensive management team as well as the high volume of skull base tumors.
- Swallowing problems are inherent to many head and neck cancers and the necessary treatments. Otolaryngologist and laryngologist Dr. Apoorva Ramaswamy focuses solely on these issues and leads the way on research and clinical efforts to treat, prevent, and provide patients the best quality of life throughout treatment and after.

The Department of Otolaryngology – Head & Neck Surgery, Division of Head and Neck Oncologic Surgery members:

- Amit Agrawal, MD, James Chief of Staff
- Carol Bradford, MD, Dean of the College of Medicine
- Ricardo Carrau, MD, MBA, Director of the Comprehensive Skull Base Surgery Program
- Stephen Kang, MD, Head and Neck and Microvascular Reconstruction Fellowship Director
- Matthew Old, MD, Division Director and Medical Director of the Head and Neck Cancer Service Line
- Enver Ozer, MD, Director Head and Neck Robotics Program
- Apoorva Ramaswamy,MD, Lead of the Head and Neck Dysphagia Program
- James Rocco, MD, PhD, Department Chairman
- Nolan Seim, MD, Director Medical Student Education
- Kyle VanKoevering, MD, Director M4 Labs

Research Scientists:

- Thomas Cherpes, MD, DVM
- Rodolfo Vicetti Miguel, MD
- Andreas Wieland, PhD
- Ed Mroz, PhD.

For more info contact:
DestinationMedicine@osumc.edu

The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James)

Distance from the airport: 8.6 miles from John Glenn Columbus International Airport

Location/City: Columbus, Ohio

Address: 460 W. 10th Avenue, Columbus, Ohio, 43210

Tel: 1-614-685-5422
email: DestinationMedicine@osumc.edu
web: https://cancer.osu.edu
https://wexnermedical.osu.edu

The Ohio State University Comprehensive Cancer Center – James Cancer Hospital and Solove Research Institute (OSUCCC – James) strives to create a cancer-free world by integrating scientific research with excellence in education and patient-centered care, a strategy that leads to optimal methods of prevention, detection and treatment. One of only 51 National Cancer Institute (NCI)-designated CCCs, the OSUCCC – James has over 330 researchers, 220 clinical subspecialists and a 21-story, 356-bed cancer hospital that has achieved Magnet® designation. The James is one of seven hospitals at the Ohio State Wexner Medical Center.

No. Of Beds	OSUCCC – James: 356
No. Of Beds	Wexner Medical Center: 1,882
No. Of Operating Rooms	
No. Of ICU beds	
No. Of CCU beds	
Emergency & Trauma Care Service	Yes
Air Ambulance Service	Yes
Interventional Cardiology	Yes
Paediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	Yes
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

The Ohio State University Comprehensive Cancer Center –
Arthur G. James Cancer Hospital and Richard J. Solove Research Institute

Creating a cancer-free world

The James

THE OHIO STATE UNIVERSITY
COMPREHENSIVE CANCER CENTER

The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James) is an international leader in cancer prevention, detection and treatment. Understanding that no cancer is routine because every case is biologically different, OSUCCC – James physicians and scientists focus on basic, clinical and translational research to determine the molecular origin of each person's cancer and how best to treat it, leading to better outcomes, fewer side effects and more hope.

The OSUCCC – James is a 356-bed cancer hospital, one of only 51 comprehensive cancer centers designated by the National Cancer Institute (NCI) and one of only a few institutions funded by the NCI to conduct both phase I and phase II clinical trials on novel anticancer agents provided by the NCI. OSUCCC – James researchers are advancing the understanding of cancer and translating that knowledge into new treatments, moving us closer to achieving our vision of a cancer-free world.

To learn more, visit **cancer.osu.edu**.

Cedars-Sinai

Distance from the airport:	9 miles
Location/City:	Los Angeles
Address:	8700 Beverly Blvd, Medical Office Towers West, Suite 490, Los Angeles, CA 90048
Tel:	1-312-926-1089
Fax:	1-312-694-0543
Email:	IntlHealth@cshs.org
Web:	www.cedars-sinai.org/international

Since its inception in 1902, Cedars-Sinai in Los Angeles, California, has evolved to become the largest nonprofit hospital in the western United States. With 250+ locations throughout Southern California, Cedars-Sinai is dedicated to providing the best care for everyone who needs it, no matter where they live.

Cedars-Sinai once again has been recognized by *U.S. News & World Report* as one of the best hospitals in the nation. The medical center ranked #6 nationally in the magazine's "Best Hospitals 2021–2022" analysis. In addition, Cedars-Sinai ranked #1 in California in multiple specialties and was ranked nationally in 11 specialties, including:

Gastroenterology and GI Surgery (#2)
Cardiology and Heart Surgery (#3)
Orthopaedics (#3)
Pulmonology and Lung Surgery (#3)
Urology (#7)
Cancer (#9)
Geriatrics (#10)
Neurology and Neurosurgery (#11)
Gynecology (#12)
Ear, Nose and Throat (#18)
Diabetes and Endocrinology (#21)

No. of Beds	886
No. of Suites/Deluxe Rooms	32
No. of Operating Rooms	42
No. of ICU Beds	175
No. of CCU Beds	15
Emergency & Trauma Care Service	Yes
Air Ambulance Service	Yes
Interventional Cardiology	Yes
Pediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	Yes
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

Johns Hopkins Medicine

Distance from the airport: Varies by location

Location/City: Baltimore, Maryland, U.S. (headquarters) / Washington, D.C., U.S. / St. Petersburg, Florida, U.S.

Address: 1800 Orleans St.
Baltimore, Maryland, United States 21287

Tel: +1-410-502-7683

web: hopkinsmedicine.org/international

Johns Hopkins Medicine, headquartered in Baltimore, Maryland, is an integrated global health enterprise and one of the leading health care systems in the United States. Johns Hopkins Medicine has six academic and community hospitals, four suburban health care and surgery centers, over 40 patient care locations, a home care group and an international division, and it offers an array of health care services. Johns Hopkins Medicine International—the global ambassador of Johns Hopkins Medicine—helps leading hospitals, health providers, governments and educational institutions expand and enhance services locally so patients can receive quality care closer to home. For complex cases where patients need to travel for the best care, Johns Hopkins Medicine International has one of the most experienced international programs in the United States. We are with our patients and families through every step of their visit to Johns Hopkins, so they can focus on their health.

No. Of Beds	2,643
No. Of Suites/Deluxe Rooms	
No. Of Operating Rooms	
No. Of ICU beds	
No. Of CCU beds	
Emergency & Trauma Care Service	Yes
Air Ambulance Service	Yes
Interventional Cardiology	Yes
Paediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	Yes
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

Northwestern Medicine

Distance from the airport:	14.3 miles
Location/City:	Chicago, IL
Address:	676 N. St. Clair St., Suite 2200 Chicago, IL 60611
Tel:	1.312.926.1089
Fax:	1.312.694.0543
email:	international@nm.org
web:	northwesterninternationalhealth.com

Northwestern Medicine® is the collaboration between Northwestern Memorial HealthCare and Northwestern University Feinberg School of Medicine around a strategic vision to transform the future of healthcare. Northwestern Medicine is dedicated to providing the most advanced healthcare to the communities and patients we serve. The Northwestern Medicine clinical and administrative staff, medical and science faculty and medical students come together everyday with a shared commitment to superior quality, academic excellence, scientific discovery and patient safety.

No. Of Beds	894
No. Of Suites/Deluxe Rooms	all rooms are private
No. Of Operating Rooms	69
No. Of ICU beds	139 Adult & 86 Neonatal
No. Of CCU beds	14 CCU & 23 CTICU
Emergency & Trauma Care Service	Yes
Air Ambulance Service	No
Interventional Cardiology	Yes
Paediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	Yes
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

Atrium Health Carolinas Medical Center (CMC)

Distance from the airport:	8.6 miles
Location/City:	Charlotte, NC
Address:	1000 Blythe Blvd., Charlotte, NC 28203
Tel:	+1-704-446-7028
email:	GHS@AtriumHealth.org
web:	www.AtriumHealth.org

Atrium Health Carolinas Medical Center (CMC) is the flagship hospital of Atrium Health, headquartered in Charlotte, North Carolina. Also located on the CMC campus are Levine Cancer Institute, Carolinas Rehabilitation and Levine Children's Hospital, all nationally recognized institutions for their excellent patient care and best-in-class medical expertise.

U.S. News & World Report has honored CMC with multiple accolades, including Best Hospital in the Charlotte region and Best Hospital for Rehabilitation. Levine Children's Hospital has received Best Children's Hospital rankings in multiple specialties for 14 years in a row.

CMC serves as the southeast region's only Level 1 trauma center and is an approved transplant center for heart, kidney, pancreas and liver.

No. Of Beds	1,211
No. Of Operating Rooms	74
No. Of ICU beds	134
Emergency & Trauma Care Service	Yes
Air Ambulance Service	Yes
Interventional Cardiology	Yes
Paediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	No
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

Ronald Reagan UCLA Medical Center

Distance from the airport:	12 miles from Los Angeles International Airport
Location/City:	Los Angeles, California
Address:	757 Westwood Plaza Los Angeles, CA 90095
Tel:	+1 310-794-8759, +1 310-825-9111
email:	International@mednet.ucla.edu
web:	www.uclahealth.org/ www.uclahealth.org/international-services/

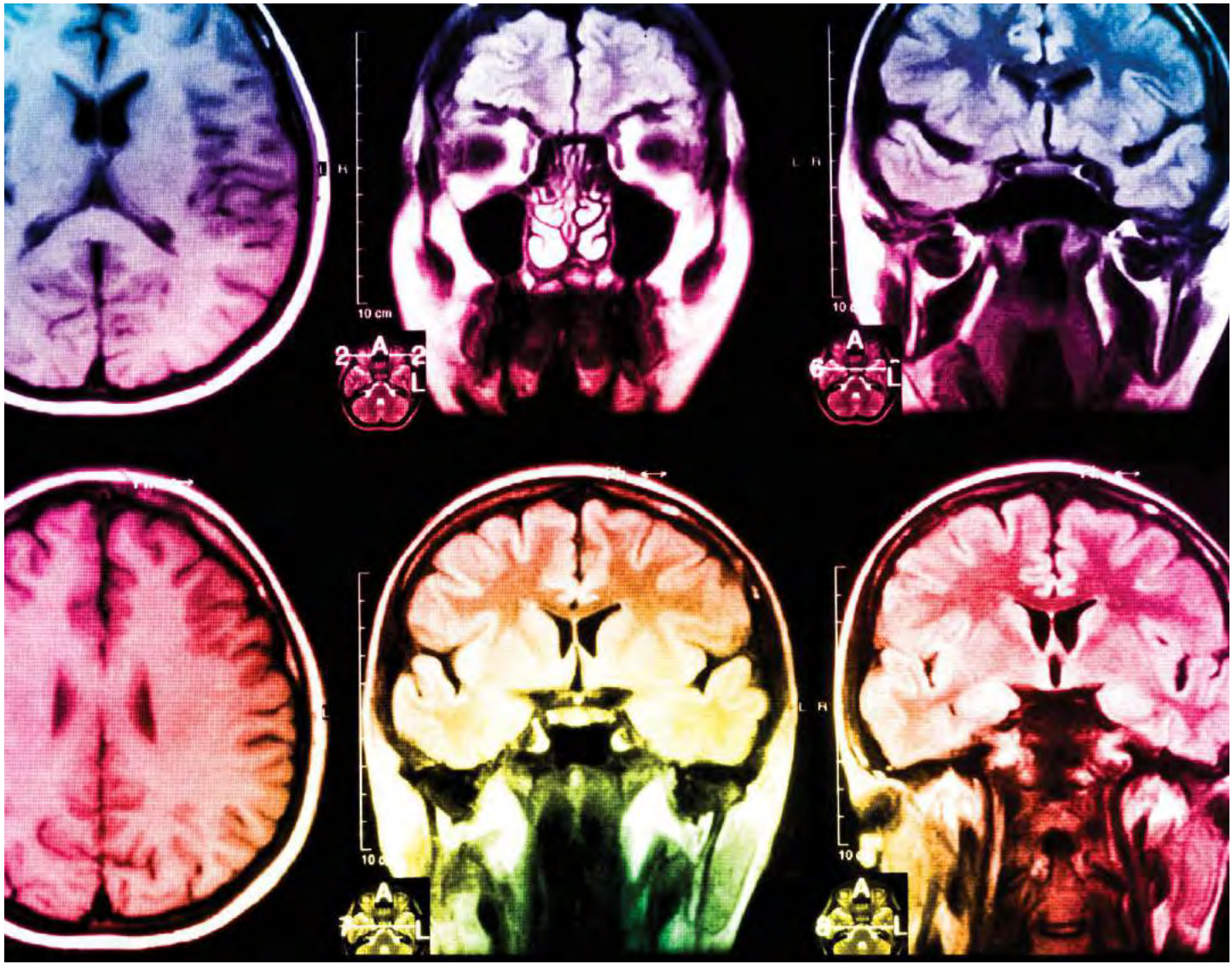
For more than half a century, UCLA Health has provided the best in healthcare and the latest in medical technology to the people of Los Angeles and throughout the world. UCLA Health's physicians are world leaders in the diagnosis and treatment of complex illnesses, and its hospitals are among the best in the United States. Ranked as the #3 hospital in the nation and the best medical center in the western U.S. by U.S. News & World Report, Ronald Reagan UCLA Medical Center is at the cutting edge of biomedical research, and its doctors and scientists are leaders in performing pioneering work across an astounding range of disciplines, bringing the latest discoveries to virtually every field of medicine.

No. Of Beds	520
No. Of Suites/Deluxe Rooms	520
No. Of Operating Rooms	25
No. Of ICU beds	132
No. Of CCU beds	12
Emergency & Trauma Care Service	Yes
Air Ambulance Service	Yes
Interventional Cardiology	Yes
Paediatric Cardiology	Yes
Hip Replacement	Yes
Knee Replacement	Yes
Arthroscopy	Yes
Medical Oncology	Yes
Surgical Oncology	Yes
Radiation Oncology	Yes
Interventional Neurology	Yes
Surgery for Stroke	Yes
Brain & Spine Surgery	Yes
Hepatology	Yes
Bariatric Surgery	Yes
Liver Transplants	Yes
Kidney Transplants	Yes
Heart Transplants	Yes
Corneal Transplants	Yes
Bone Marrow Transplants	Yes
Pancreatic Transplants	Yes
CT Scanner	Yes
MRI Scanner	Yes
Robotics Radio Surgery	Yes

JAN - FEB 22

Omnia Health
By Informa Markets

Total Radiology Magazine



Exploring the enhancing rings of brain by routine and advanced neuroimaging techniques

By Dr. Sivakumar Dhanaraj, MD,DNB, MNAMS, DM (Neuroradiology), Consultant Neuroradiologist, Sheikh Khalifa Speciality Hospital (SKSH), RAK and Dr. Vidhya Sundaram DNB Radiology, Specialist Radiologist, Mediclinic Welcare hospital, Dubai

Introduction

The UAE has 80 per cent expatriate population with significant tropical population. So, it is mandatory to differentiate ring enhancing granulomas from tumorous conditions and also characterize these granulomas for notifying infectious disease. Although STB remains gold standard, we should be able to diagnose non-invasively by a systematic approach like this.

It is mandatory to differentiate ring enhancing granulomas from tumorous conditions

Classification:

Mnemonic for Ring enhancing lesions - MAGICAL DR M
M:metastases
A:abscesses
G:glioma, granuloma (TB, Fungal)
I: infarct (subacute)
C:cysticercosis
A: AIDS (toxoplasmosis, cryptococcosis. etc.)
L: lymphoma (in immunocompromised)
D: demyelinating disease
R: radiation necrosis, resolving hematoma
M: miscellaneous

Etiological classification of Ring enhancing lesions (REL) of the brain:

Bacterial: Pyogenic abscess, tuberculoma
Fungal: Nocardiosis, actinomycosis, histoplasmosis, aspergillosis, mucormycosis
Parasitic: Neurocysticercosis, Toxoplasmosis, Amoebic brain abscess, echinococcus
Neoplastic: Metastases, primary Glioma and lymphoma
Inflammatory & Demyelination: Multiple sclerosis, ADEM, Sarcoidosis, Behcets, SLE
PATHOGENESIS: Two components and the etiology

Rim enhancement:
Breakdown of blood brain barrier leads to increased permeability.
Hypervascularity of the granulation tissue/ neoangiogenesis in tumors.
Non enhancing centre:
Necrotic area or nonviable debris.

Clinically, they manifest as recurrent seizures, visual impairment, focal neurological deficit and raised intracranial pressure (severe headache, vomiting and papilledema).

If cerebral edema is severe, patients may develop loss of sensorium and posturing of limbs because of transtentorial brain herniation.

Imaging:

A. ROUTINE IMAGING:

EDEMA PATTEN: Least perilesional edema around NCC followed by demyelination. Significant edema around other granulomas & tumours. Disproportionate edema around metastasis.

ENHANCEMENT PATTERN: Abscess-thickest near the cortex and thinnest near the ependyma, daughter lesion. GBM—Thick, irregularly enhancing rim. Cysticercosis—Ring enhancement with eccentric scolex, adjoining cysts. Toxoplasmosis & Tuberculosis— Target appearance; ring with central nodular enhancement. Coalescent lesions in TB. Demyelinating lesions – Open ring or Arc sign with unenhanced open side towards cortex.

B. Advanced Imaging Techniques & Quantitative Methods:

Susceptibility imaging (SWI includes GRE, EPI, BOLD), MT ratios, MRS, DWI, PWI, SPECT/ PET CT imaging

MT IMAGING: Basically, SET1 sequence – obtained after applying a half resonance pulse and depends on the concentration of proteins (macromolecules). Higher the concentration of proteins, greater is the MT. MT ratio obtained by the formula S0-Sm/ S0 x 100

MRS is representation of signals as a function of frequency and obtaining metabolic information. (CPT code 76390 for MR spectroscopy created in 1998)

Proton MRS or H1 MRS determines the concentration of brain metabolites such as N-acetyl aspartate, choline, and creatine in the brain tissue. It may be helpful in differentiating tumour from infective pathologies and abscesses when considered along with other magnetic resonance findings. It can also help in the identification of the causative organism of the mass lesions of the brain and characterisation of brain tumours - virtual brain biopsy. Two types are available: Single voxel (SVS) and Multivoxel spectroscopy (CSI). Major steps to get better MRS depiction are HOMOGENEITY (shimming), PRECISE VOI, WATER SUPPRESSION

Description according to etiology:

METASTASES: ROUTINE IMAGING: Gray – white matter interface is the usual location. Disproportionate edema– follows white matter boundaries.

ADVANCED IMAGING: 1. Susceptibility imaging –hemorrhagic metastases. 2.CE MT imaging - multiple lesions better delineated 3.MRS- high Cho/NAA ratio, lipid peak, almost normal PLE. DWI - necrotic portion- free diffusion, more ADC (free diffusion) in PLE 4. PWI - Vascularity (CBV) depends on Primary foci but Peak height is less than GBM and delayed time of signal intensity recovery in PLE (Cha et al AJNR June 2007)

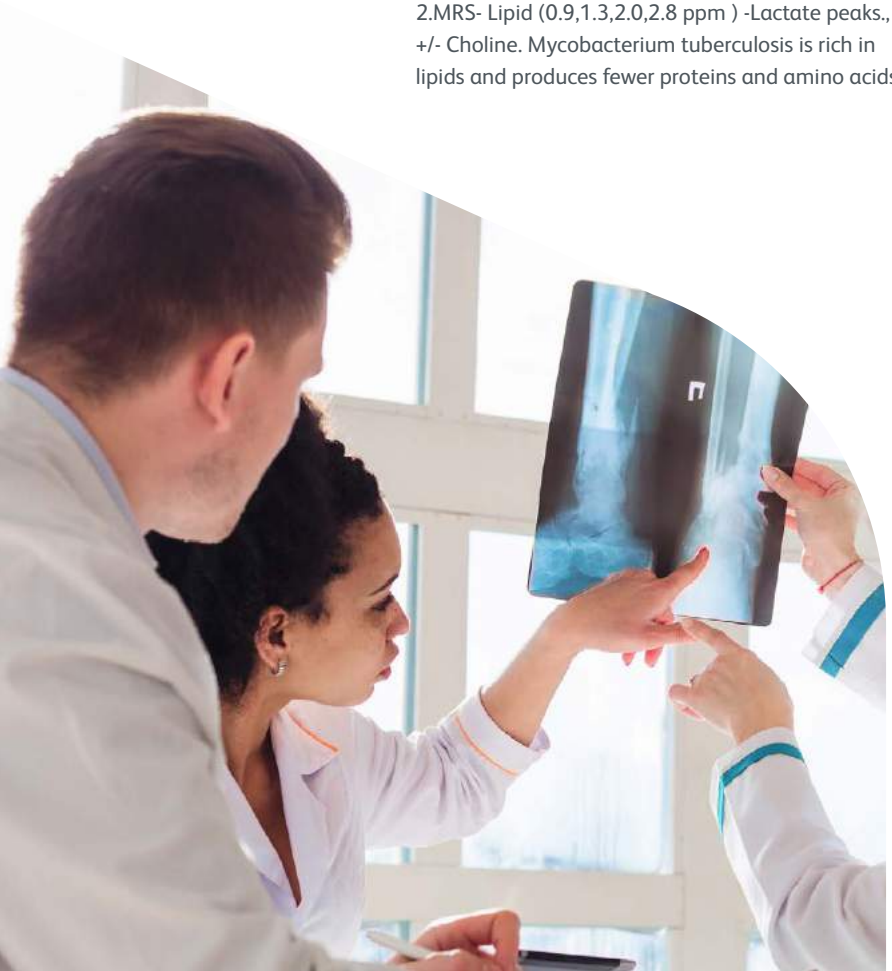
If cerebral edema is severe, patients may develop loss of sensorium

ABSCESSES – PYOGENIC (mature): ROUTINE IMAGING: T1--Center of the cavity is slightly hyperintense to CSF, surrounding area is hypointense. Rim is iso to slightly hyperintense to white matter. T2– hyperintense core, hypointense rim.

ADVANCED IMAGING: 1.DWI: restricted diffusion (light bulb appearance.) Verses free diffusion in necrotic tumours. Brain abscess cavity shows increased FA values with restricted mean diffusivity (Dav) compared with other cystic intracranial lesions -Gupta and werner Reiche et al. 2. MRS : branched chain Amino acids (0.9), acetate (1.9), alanine (1.5) & succinate(2.4), lactate (1.3ppm) peaks. Large amounts of hydrolytic enzymes in pus, resulting in a high concentration of proteins and amino acids. Alanine and acetate absent in aerobic abscess. 3. MT ratios significantly higher than tuberculous abscess.4.PWI- pericapsular area CBV but still less than the cutoff of 1.75 for malignancy. (okaili et al in oct.2006 Radiographics).

GRANULOMA-TUBERCULOMA: ROUTINE IMAGING - central zone of caseation necrosis surrounded by a capsule. CT– ring/disc enhancing lesion, Target sign (1/3) MRI:T1 isointense with slight hyper intense rim. T2 isointense to hypointense, T2 hyperintense in non-caseous & abscess types.

ADVANCED IMAGING: 1.MT ratios (≈25) for tuberculoma differ from Cysticercosis (≈32) 2.MRS- Lipid (0.9,1.3,2.0,2.8 ppm) -Lactate peaks., +/- Choline. Mycobacterium tuberculosis is rich in lipids and produces fewer proteins and amino acids.



3.DWI- affected by T2 effects but free diffusion in caseation necrosis and decreased FA values. On treatment FA values 4.PWI- hypervascular tuberculomas respond well to ATT with rCBV reduction on ATT, whereas hypovascular might need surgical resection.

GLIOMAS -HIGH GRADE (GBM): ROUTINE IMAGING: CT- hypodense mass. MR– T1– mixed iso to hypointense areas +/- Haemorrhagic foci , T2– central core of hyperintensity with peripheral thick rim of iso or hypointensity with moderate mass effect, Contrast– marked ,irregular, peripheral ring enhancement, DWI-free in centre, restricted in rim.

ADVANCED IMAGING:1.Susceptibility imaging –hemorrhagic, 2.MRS- Very high Cho/ Cr ratio (>3) in rim, Lipid-lactate peak+, 3.DWI- low ADC values in rim (restricted) & free diffusion in core. PLE also has tumour infiltrates with NAA/Cho <1 (Burtscher et al in AJNR 2000). 4.PWI- Highest CBV compared to other REL including lymphoma. 5. Metabolic status by molecular imaging in PET

INFARCTION- Sub acute infarct can show ring enhancement in contrast studies. Usually suspected and diagnosed clinically and does not cause any diagnostic difficulty.

CYTICERCOSIS (NCC)- nodular or ring contrast-enhancing lesion, <20-mm diameter lesion, no severe cerebral edema (no midline shift) MRI: T1 hypointense centre with an isointense rim, T2 hyperintense (CSF intensity) lesion with nodule, Later becomes T2 iso to slightly hypointense-granulonodular stage, Eccentric Scolex better visualised on MRI– FLAIR , PCT1,CISS-3D

ADVANCED IMAGING: 1.MTR-T2 hypointense cysticercus granulomas have significantly higher MT ratio (≈ 32) than tuberculomas (≈ 25) and are of low visibility-Gupta et al. 2.MRS- pathognomic pyruvate/succinate peak at 2.4ppm in early stages (Jayakumar et al/ Gupta et al) 3.DWI- free diffusion in the cyst, PWI-no increased rCBV in the cyst/ wall

AIDS TOXOPLASMOSIS: ROUTINE IMAGING: central– avascular coagulative necrosis, CT– Iso to hypodense lesions (1-3cm) in ganglio-thalamic region & corticomedullary junction. Haemorrhage+/-., MR—T1– lesions are iso to hypointense, T2 – hypo or iso to hyperintense, Enhancement– nodule /ring enhancement.

ADVANCED IMAGING: 1.SWI-may detect hemorrhage, MRS- huge Lipid (1.3 ppm) -Lactate peaks., other constituents reduced very much, 2.DWI- free or less restriction with ADC >1.2 compared to lymphoma with restricted diffusion & ADC ratios <1, 3.PWI- less rCBV compared to lymphoma, with values lower than normal white matter, 4.Radionucleotide studies.

LYMPHOMA (IN IMMUNOCOMPRISED PATIENT WITH CENTRAL NECROSIS) ROUTINE IMAGING : Location-periventricular regions, corpus callosum, More edema than in immunocompetent, Only rim is hypercellular (T2 hypointense) with central necrosis, No evidence of haemorrhage or calcification. Contrast also identifies subependymal spread.

ADVANCED IMAGING: 1.SWI-may detect hemorrhage, 2.MRS- huge Lipid (1.3 ppm) -Lactate peaks., other constituents reduced very much, 3.DWI- free or less restriction compared to lymphoma, 4.PWI- less rCBV compared to lymphoma, with values lower than normal white matter, 5.Radionucleotide studies.

DEMYELINATION - TUMEFACTIVE MULTIPLE SCLEROSIS- ROUTINE IMAGING : Circumscribed lesions with little mass effect &edema. Centred within the white matter, +/- Corpus callosum, T1 hypo, T2 hyperintense, chronicity decides. Contrast-incomplete ring or open ring.

ADVANCED IMAGING: 1.Decreased MTR in plaques detects more plaques and also MTR histogram to see the demyelination load for prognostication.2.MRS- Lipid (1.3 ppm) peaks., mild elevation of Cho/cr ratio. 3.DWI- free or restricted depending on chronicity. 4.PWI- due to absence of angiogenesis, tumefactive demyelinating lesion have less rCBV values than high grade brain tumors and also lymphomas.

RADIATION NECROSIS- ROUTINE IMAGING : Delayed radiation necrosis is usually indistinguishable from recurrent tumor on routine imaging or clinical grounds. Pathologically- In delayed radiation necrosis - extensive vascular injury and tissue hypoxia. Recurrent tumor is characterized by neovascularization in the margins of central ischemic necrosis. MR shows central cystic necrotic area (T1 hypo and T2 hyper). The peripheral rim enhancement is due to blood-brain breach and not due to neo-angiogenesis as in recurrent tumour. These features are better differentiated by MRS, Diffusion imaging, Perfusion and PET studies.

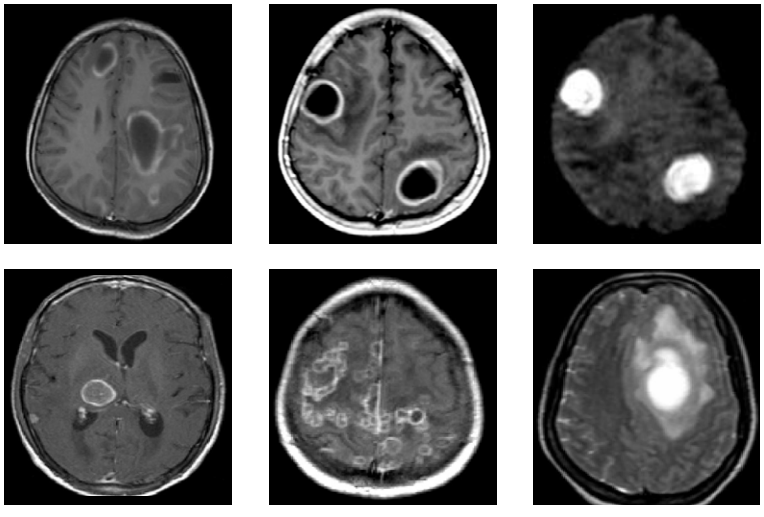
ADVANCED IMAGING: 1.MRS- no elevation of Cho/ Cr ratio, Lipid-lactate peak+/_. DWI- free diffusion in core and rim, high ADC values in rim. 2.DWI in radiation necrosis shows ADC ratio of 1.8 vs recurrent high grade glioma of 1.4 and mean ADC values is 1.4 ± 0.2 x 10^{-3} mm/s^2) - Patrick et al AJNR 25; 201-210, Feb 2004. 3.PWI -neovascularization in the margins of ischaemic necrosis with rCBV > 2.6—in recurrent tumor (Law et al AJNR 21:901-909, MAY 2000). rCBV < 0.6– in radiation necrosis. If the rCBV is between 0.6 to 2.6 FDG PET scan can be used to differentiate.

4. Radionucleotide studies: Thallium uptake and FDG uptake is not significant in SPECT & PET respectively

Conclusion:

- Always look at the clinical details properly
- Narrow differential diagnosis by routine imaging
- Use DWI and GRE imaging regularly for such cases.
- If available do MRS, MT and PWI for further characterization (virtual brain biopsy) although STB remains gold standard.
- Expanding horizon of radiology might produce further imaging tools and techniques.
- Keep updated with the recent trends.

References available on request



SCHRÖDER HEALTH PROJECTS

BLIZZ 1100

https://www.schroderhealth.de/blizz-1100-electrical-obstetric-delivery-bed/

The delivery bed BLIZZ 1100 proves itself with its spectacular appearance as well as its technical features. The bed powered by three motors provides safety, bacteriological protection and comfort during for obstetrics department. Meet with the BLIZZ 1100 improve your patients comfort, safety and satisfaction.

MEDTRON AG

Accutron CT

www.medtron.com

The Accutron CT is a contrast delivery system designed for computed tomography and built using the same technology platform that all Accutron injectors are based upon. Whether you are budget conscious or newly exploring the potential use of a powered injector in your CT department, Accutron CT is your starting point.
The Accutron CT doesn't forego essential comfort and safety features; it offers a touch screen interface, an optional remote touch screen for your control room as well as a hand switch all of which is supported by our renowned injection control software technology.

MAVIG GmbH

Modular Lower Body Protection MAVIG UT70

https://mavig.com/system-solutions/lower-body-protection/ut70/

The modular design of the lower body protection: All components are interchangeable to give you the option to decide what amount of protection is needed and from which side of the table (possible mounting position: left or right). An accessory rail has been built into the shield to give the needed space for table and C-Arm controls, as well as other required equipment.

- Lead equivalent of Pb 0.50 mm for all shields/panels
- Up to max. 1620 mm width
- Additional front accessory rail to match your table profile rail
- Optional wall mounts for storage

MEDTRON AG

Accutron CT-D Vision

www.medtron.com

The Accutron CT-D Vision is the latest evolution of MEDTRON AG flagship CT injector. Designed to enhance the operability, the modernized user interface is displayed on larger touch screens and provides a simplified programming and a more comprehensive follow-up of each injection step. The new IDS (Injection Data Sharing) option allows to share injection data through a RIS/PACS integration with the digital radiology infrastructure.

THE NEW ACCUTRON® CT-D VISION. SIMPLY MORE.

The diagnostics specialist that can do more. More comfort, more mobility, more operating safety. More integration through Injection Data Sharing with RIS/PACS connection. View now at **medtron.com**

MEDTRON® AG

medtron.com

Ampronix Medical Imaging Technology

Lumimaxx G11S

https://www.ampronix.com/lumimaxx-g11s

The Lumimaxx G11S 1MP Grayscale Medical Display is complete with multiple display modes which allows medical professionals to review multiple images at a time. The displays excellent performance allows for clear clinical imagery for hospitals and staff to make crucial decisions, as well as improve the overall efficiency of the institution and patient satisfaction. Calibration of each monitor is compliant with DICOM standards to ensure accuracy of the medical images displayed and the built-in backlight stabilization system provides assurance of consistent long-term performance.

Richard Wolf GmbH

System green

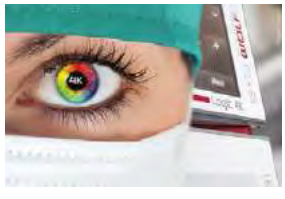
www.richard-wolf.com

The new System green, in combination with the ENDOCAM Logic 4K platform, enables real-time fluorescence endoscopy of the highest quality.
The system provides simultaneous NIR/ICG and white light endoscopy with crystal-clear image quality.
An incredible sharp image of the perfused blood flow, the lymphatic or biliary system offers the operator a significant advantage and helps to ensure that the operation is carried out safely. The special camera head is compatible with the ENDOCAM Logic 4K platform and does not need to be operated via a stand-alone controller. Furthermore, the system can also be used for white light endoscopy.

Richard Wolf GmbH

ENDOCAM Logic 4K

www.richard-wolf.com



With four times the resolution of regular HD, 4K technology gives sharpness a new meaning. Fine details are more visible. Spatial depth is magnified. And colors are truer. The new ENDOCAM Logic 4K system from Richard Wolf brings the brilliance of 4K to the operating room.

- High-resolution PANOVIEW ULTRA Telescopes
- Distortion-free objective lenses
- ENDOCAM Logic 4K Camera Controller for a brilliant resolution in 4K UHD
- Special Imaging Modes (SIM) for improved tissue differentiation to suit the situation
- Autoclavable, lighter, and more ergonomic camera head
- ENDOLIGHT LED 2.2: light-intense – long-life – efficient
- Fusion high-power light cable
- Harmonized 4K monitors

Richard Wolf GmbH

System blue

www.richard-wolf.com

The “blue-standard” for photodynamic diagnostic (PDD). Facts of System blue:

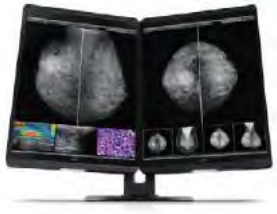
- LED-Technology - no bleeching effect
- 2 different special imaging modes for the differentiation of tumorous tissue
- The additional 2nd PDD Color Contrast mode with more detailed color visualization
- 4 PDD telescopes (Direction of view: 0°,12°,30°,70°)
- Special autoclavable fiber light cable
- Very quiet during operation
- No delay due to HighSpeed image processor.
- Complete resection possible under blue light

In combination with the resectoscope-line “SHARK” and the suitable electrode portfolio, Richard Wolf offers the complete system for resection of bladder tumors under blue light.

JVC

JVC 5-15MsP Super High Resolution Display for Mammography and Tomosynthesis

http://healthcare.jvc.com/



5MP with Independent Sub pixel Drive Technology.

- 21.3”
- FDA(510K) clearance for the Digital Mammography and Tomosynthesis
- Luminace Stabilizing System
- Uniformity Equalizer System
- Automated free calibration and QA system
- Built-in and energy- saving power supply
- High contrast 2000:1

JVC

JVC 12MP 30”Color Display for Mammography and Tomosynthesis

http://healthcare.jvc.com/

An ideal system for diagnostic viewing in multi modality environment including Mammography and Tomosynthesis

- 30.9”
- FDA(510K) clearance for the Digital Mammography and Tomosynthesis
- Luminace Stabilizing System
- Uniformity Equalizer System
- Automated free calibration and QA system
- Built-in and energy- saving power supply
- Turbo Luminance
- Visual Point Mode
- Dynamic Gamma
- Auto Text Mode
- High contrast 1500:1

JVC

JVC 9MsP Display for Mammography

http://healthcare.jvc.com/

3MP based display with Independent Sub pixel Drive Technology.

- 21.3”
- FDA(510K) clearance for the Digital Mammography
- Luminace Stabilizing System
- Uniformity Equalizer System
- Automated free calibration and QA system
- Built-in and energy- saving power supply
- High contrast 1500:1

JVC

JVC 6MP 30”Color Display

http://healthcare.jvc.com/

An ideal system for diagnostic viewing in multi modality environment.

- 30.0”
- One touch display switching
- Bezel free and special AR coating
- Luminace Stabilizing System
- Uniformity Equalizer System
- Automated free calibration and QA system
- Built-in and energy- saving power supply

JVC

JVC i3 series 3MPand 2MP Display

http://healthcare.jvc.com/

High-luminance and High-contrast 3MP and 2MP display

- 21.3”
- Monochrome or Color
- Automatic Dynamic Gamma control system
- Automatic brightness control for text data
- Luminace Stabilizing System
- Uniformity Equalizer System
- Automated free calibration and QA system
- Built-in and energy- saving power supply
- 5 years warranty including front sensor

MAVIG GmbH

Lead Acrylic X-Ray Protective Shield MAVIG OT54

https://mavig.com/system-solutions/x-ray-protective-shields/ot54001/

Scattered radiation protection for femoral and radial access with an overlapping panel curtain and ergonomically fitted radiation protective drapes. Follows the contour of the patient’s body and does not offer any gaps through which the scattered radiation might reach the examiner-perfect for today’s applications.

- Drastic reduction of scattered radiation exposure
- Greater freedom of movement within safe, protective zones
- Reduced burden on the personnel by wearing lighter protective clothing
- Body-shaped cut-out for better positioning above the patient
- Easy integration through compatibility with Portegra2 ceiling-mounted systems

MAVIG GmbH

Heavy Load Monitor Suspension System MAVIG GD60

https://mavig.com/system-solutions/monitor-suspensions/gd60/

Our GD60 is one of the most frequently bought systems, worldwide.
Designed for heavy load conditions up to 120 kg / 264.5 lbs, it is the ideal solution if multiple monitors or large displays are needed.

- Heavy weight loads up to 120.0 kg / 264.5 lbs possible
- Maximum system/suspension arm range of 2240 mm
- Monitor / display sizes up to 60” possible
- Number of monitors: depending on configuration 1 or 4–8 displays
- Patented cardanic joint for more security in case of collision

MAVIG GmbH

Height-Adjustable, Mobile X-Ray Protective Shield MAVIG WD257

https://mavig.com/system-solutions/mobile-shields/wd257/

Mobile shield with a transparent and height-adjustable lead acrylic panel. Upper and lower body radiation protection are combined into one mobile system.

- Easy and simple positioning
- Easily height-adjustable lead acrylic panel
- Special base design that requires minimal space yet still provides maximum tip-resistance
- Accessory rail, 9 x 25 mm, for equipment up to 4 kg

VILLA

radiology ahead

armonicus 2.0

the all-in-one system that meets every need

Villa Sistemi Medicali SpA – vsminfo@villasm.com – www.villasm.com

ESSENTIALLY **BETTER**

Evario one

The economical hospital bed

The Evario one from Stiegelmeyer combines high economic efficiency with a noticeable relief for the nursing staff. Intuitive operation, good mobility and reliable hygiene are decisive strengths in everyday work. Discover the advantages of this bed for all wards:

Your advantages:

- 2 selectable safety sides for protection and mobilisation
- Customised operating concepts depending on the place of use
- Hygienic design with few niches
- Bed surrounds and optional brackets offer space all around for equipment and accessories

stiegelmeyer.com

STIEGELMEYER

Omnia Health
By Informa Markets

Global Medical Product Directory

MEDTRON AG

Accutron HP

www.medtron.com

The Accutron HP is a contrast delivery system designed for precise injection of contrast media in angiography procedures at high pressure. Accutron HP is an allrounder because in addition to working with angiography procedures in “angio mode”, the Accutron HP offers a standard pressure “CT mode” for intravenous use in hybrid CT procedures in the angiography suite.
The Accutron HP smartly adapts to fit your differing requirements. Regardless if you need a mobile imaging feature to be added to a surgical environment, the battery powered version can offer ideal wireless interoperability with mobile C-Arms.

MEDTRON AG

Accutron MR

www.medtron.com

The Accutron MR is a double syringe contrast delivery system designed for precise injection of contrast media and saline in MR clinical imaging including pediatric, angiography, neuro and mammography as well as other routine MR examinations.
The Accutron MR continues to push the limits of wireless operations by now allowing two MR units to share the same injector with the use of a separate touch screen for each scanner. The compatibility with Siemens scanner is up to 7 Tesla.

MEDTRON AG

Accutron HP-D

www.medtron.com

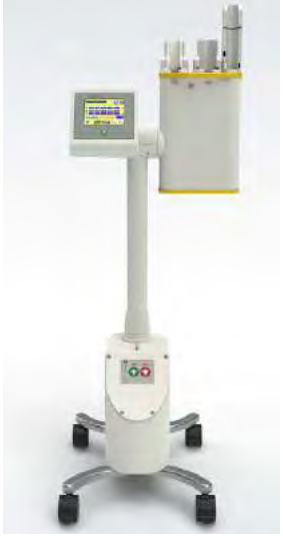
Accutron HP-D is a double syringe contrast delivery system designed for precise injection of contrast media and saline in angiography procedures at high pressures.
It is particularly suitable for 3D angiography and Cone Beam CT due in part to its multiple phase capability and contrast concentration adjustment by simultaneous saline injection.
It can also be operated as a single head injector, making it adaptable to all types of imaging protocols, for both diagnostic and interventional procedures.
In addition to working in “angio mode”, it offers a standard pressure “CT mode” for intravenous use in hybrid CT procedures in the angiography suite.

MEDTRON AG

Accutron MR3

www.medtron.com

The Accutron MR3 is a double syringe contrast delivery system with a third syringe acting as a dedicated infusion pump. The Accutron MR3 double syringes are designed for precise injection of contrast media and saline in MR clinical imaging including pediatric, angiography, neuro and mammography as well as other routine MR examinations. Whereas the dedicated infusion pump is intended for the slow delivery of any additional or necessary medications required during specific MR examinations. This includes heart stimulating medication for cardiac stress tests or examinations requiring pain control or light sedation to support the patient during the MRI scan.



Stiegelmeyer GmbH & Co. KG

Evario one

www.stiegelmeyer.com

Stiegelmeyer's new hospital bed Evario one is tailored to the demands of international markets. It meets economic and functional requirements in equal measure. Modern hospital beds help to overcome many challenges. In times of staff shortage, they have to reduce workload and physical stress. In the fight against nosocomial infections, good hygiene properties are a strong asset. And in view of the many cost-cutting pressures, economical operation of the beds with little maintenance is a great relief. The Evario one is characterised by a selection of individual features, high durability and low maintenance requirements. Thus, increasing its economic efficiency.

Stiegelmeyer GmbH & Co. KG

Evario

www.stiegelmeyer.com

Thanks to its intelligent modular system, the Evario hospital bed is suitable for all types of wards. Various control options, safety side systems, castors, headboards and footboards, external dimensions and optional scales create a flexible bed, suitable for general wards, premium rooms, and ICUs. Removable elements and curved shapes make the Evario easy to clean by hand. A machine-washable version is available, also with the plastic Protega safety side – a decisive advantage over comparable models. Automated reprocessing and disinfection in a washing system offers many strong advantages. Beds are always reprocessed in a consistently thorough and validatable manner.

Stiegelmeyer GmbH & Co. KG

Sicuro tera

www.stiegelmeyer.com

The Sicuro tera is an intelligent, easy-to-operate ICU bed with numerous attachment options for accessories. In tense situations it offers effective support. During anamnesis the integrated scale assists nursing staff in safely determining the patient's weight for proper medication. The lateral tilting capability of the Sicuro tera allows ideal positioning of the patient. Turning a patient in bed is one of the most strenuous and time-consuming tasks in the hospital – especially when numerous tubes and cables have to be attended to in the process. The strength and effort required here can be considerably reduced by laterally tilting the mattress base.

Stiegelmeyer GmbH & Co. KG

Quado

www.stiegelmeyer.com

The slim, lightweight Quado bedside cabinet from Stiegelmeyer is a great help. It can be moved aside effortlessly at any time and never gets in the way. Thanks to its intelligent layout, the Quado also offers sufficient storage space. These advantages make it the ideal bedside cabinet for multi-bed rooms and wards with a short length of stay where patients do not bring too many personal belongings. Thanks to its height-adjustability it combines the best features of a server and a bedside cabinet. The large, damped fold-down bedside table top allows for enjoyable meals in bed.

Stiegelmeyer GmbH & Co. KG

Elvido

www.stiegelmeyer.com

The modernised Elvido care beds are even more comfortable and digital. With easy operation and homelike design, the low-height beds ensure well-being in care facilities. Digital support is the key to more relief in nursing care. The new Out-of-Bed systems are a big step forward.

Two variants are available: the OOB Smart, which is permanently installed on the bed, and the mobile OOB Flex, which works with a sensor bar on the mattress base. If a fall-prone resident gets up, both systems send the message on request not only to the house call system, but also to smartphones and PCs.

MEDTRON AG

Accutron CT

www.medtron.com

The Accutron CT is a contrast delivery system designed for computed tomography and built using the same technology platform that all Accutron injectors are based upon. Whether you are budget conscious or newly exploring the potential use of a powered injector in your CT department, Accutron CT is your starting point.

The Accutron CT doesn't forego essential comfort and safety features; it offers a touch screen interface, an optional remote touch screen for your control room as well as a hand switch all of which is supported by our renowned injection control software technology.

Stiegelmeyer GmbH & Co. KG

Libra partner

www.stiegelmeyer.com

The Libra partner care bed can be used as a double bed or as two single beds. As successful as common electrically adjustable care beds are in supporting the single person in need of care, the situation for couples has been difficult. Technical strengths of care beds such as height adjustment or even a basic requirement such as accessibility of the patient from all sides could hardly be implemented in a common double bed. The Libra partner solves these problems without compromising on comfort and safety – both bed halves on castors and can be separated and rejoined with little effort.

MEDTRON AG

Accutron CT-D Vision

www.medtron.com

The Accutron CT-D Vision is the latest evolution of MEDTRON AG flagship CT injector. Designed to enhance the operability, the modernized user interface is displayed on larger touch screens and provides a simplified programming and a more comprehensive follow-up of each injection step. The new IDS (Injection Data Sharing) option allows to share injection data through a RIS/PACS integration with the digital radiology infrastructure.

AMS®
America Medic & Science

MEN'S & WOMEN'S FERTILITY

GIVE YOUR REPRODUCTIVE HEALTH **THE SUPPORT IT NEEDS**

AMS®
America Medic & Science

America Medic & Science (AMS) LLC.
8321 219th St. SE. Woodinville, Washington. 98072
Toll Free 1.855.470.6722 | Office 1.425.558.5811 | Fax:1.425.558.5881
inquiries@americamedic.com | **www.AmericaMedic.com**

MADE IN USA

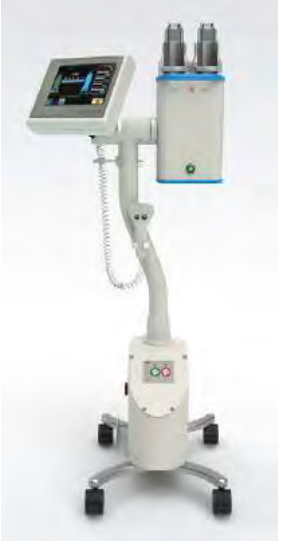
MEDTRON AG

Accutron HP

www.medtron.com

The Accutron HP is a contrast delivery system designed for precise injection of contrast media in angiography procedures at high pressure. Accutron HP is an allrounder because in addition to working with angiography procedures in “angio mode”, the Accutron HP offers a standard pressure “CT mode” for intravenous use in hybrid CT procedures in the angiography suite.

The Accutron HP smartly adapts to fit your differing requirements. Regardless if you need a mobile imaging feature to be added to a surgical environment, the battery powered version can offer ideal wireless interoperability with mobile C-Arms.



MEDTRON AG

Accutron MR

www.medtron.com

The Accutron MR is a double syringe contrast delivery system designed for precise injection of contrast media and saline in MR clinical imaging including pediatric, angiography, neuro and mammography as well as other routine MR examinations.

The Accutron MR continues to push the limits of wireless operations by now allowing two MR units to share the same injector with the use of a separate touch screen for each scanner. The compatibility with Siemens scanner is up to 7 Tesla.

MEDTRON AG

Accutron HP-D

www.medtron.com

Accutron HP-D is a double syringe contrast delivery system designed for precise injection of contrast media and saline in angiography procedures at high pressures. It is particularly suitable for 3D angiography and Cone Beam CT due in part to its multiple phase capability and contrast concentration adjustment by simultaneous saline injection. It can also be operated as a single head injector, making it adaptable to all types of imaging protocols, for both diagnostic and interventional procedures.

In addition to working in “angio mode”, it offers a standard pressure “CT mode” for intravenous use in hybrid CT procedures in the angiography suite.

MEDTRON AG

Accutron MR3

www.medtron.com

The Accutron MR3 is a double syringe contrast delivery system with a third syringe acting as a dedicated infusion pump. The Accutron MR3 double syringes are designed for precise injection of contrast media and saline in MR clinical imaging including pediatric, angiography, neuro and mammography as well as other routine MR examinations. Whereas the dedicated infusion pump is intended for the slow delivery of any additional or necessary medications required during specific MR examinations. This includes heart stimulating medication for cardiac stress tests or examinations requiring pain control or light sedation to support the patient during the MRI scan.

Villa Sistemi Medicali

Apollo DRF 4.0

www.villasm.com

- Premium digital remote controlled system for full clinical coverage in R/F applications
- Borderless tabletop and touch screen collimator
- Touch screen control console with integrated intercom system and smart-touch joysticks
- Simplified patient positioning system through integrated camera
- Available with DSA, stitching and tomosynthesis options

Villa Sistemi Medicali

Melody III TS 3.0

www.villasm.com

- Selection of three different scan angles and full detector resolution in tomosynthesis
- Extremely fast scanning times and maximum scanning angle of 50°
- Special anti-scatter grid allowing superior image quality
- Advanced algorithm for fast and accurate reconstruction of 3D images
- Multiple acquisition modes: 2D, 3D, Combo (2D+3D), 2D synthetic images, stereotactic biopsy
- Optional diagnostic workstation available with CAD software

Villa Sistemi Medicali

Moviplan iC

www.villasm.com

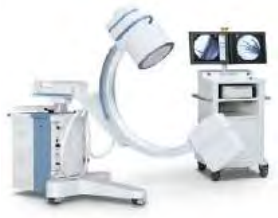
- High-end radiographic system, featuring elevating table, ceiling suspended tubestand and tilting chest stand
- Configurable with both portable and fixed Flat Panel detectors
- Touch screen interface on the tubehead
- Available with full auto-tracking, stitching, and auto-positioning functions
- Dual-Energy acquisition mode offering selective display of soft and hard tissues

Villa Sistemi Medicali

Arcovis 3000

www.villasm.com

- 15 kW, 150 mA generator for a great coverage of main surgical applications
- Efficient cooling system for long-lasting fluoroscopic exams
- High resolution CCD camera with 9" or 12" Image Intensifier
- Powerful memory system with full range of post-processing tools
- DICOM connectivity for integration with RIS/PACS



Villa Sistemi Medicali

Armonicus 2.0

www.villasm.com

- DR U-arm system for general radiographic and orthopaedic studies, available with integrated or wireless flat panel detectors
- Compact structure with telescopic arm, integrated cabinet and reduced height column
- Easy patient positioning via manual mode or APR functions, with stitching procedures for full spine exams
- Touch screen control panel, secondary keyboard and infrared remote control as standard
- On-board parking station for two grids

Villa Sistemi Medicali

Visitor T40 M-DR

www.villasm.com

- Motorized 40 kW DR mobile unit designed for ICU, orthopedics, pediatric or surgery departments
- Battery-powered system for both motorized movements and exposures
- Available with wireless or wired Flat Panel detectors
- Large touch screen monitor with intuitive interface, allowing quick and easy selection of exam parameters

AMS®
America Medic & Science

WELLNESS SUPPLEMENTS

ON A MISSION TO BRING YOU **WELLNESS & HEALTH**

AMS®
America Medic & Science

America Medic & Science (AMS) LLC.
8321 219th St. SE. Woodinville, Washington. 98072
Toll Free 1.855.470.6722 | Office 1.425.558.5811 | Fax:1.425.558.5881
inquiries@americamedic.com | **www.AmericaMedic.com**

MADE IN USA

French Healthcare

Improving

Join the French Healthcare 2-day conference

January 25-26, 2022

France Pavilion at Expo 2020 Dubai

EXPO 2020 DUBAI UAE

FRANCE EXPO 2020 DUBAI

To register, visit:

frenchhealthcare-expo2020dubai.site.digitevent.com

organized by

French Healthcare Association

BUSINESSFRANCE

healthcare for all

Choose France™

Get inspired by French expertise in healthcare

Tuesday, January 25, 2022

10:00-11:30	Future perspective in health and urban planning
12:00-13:30	Getting medical treatment in France
14:30-16:00	French innovations for women at risk or affected with female cancer

Wednesday, January 26, 2022

10:00-11:30	Diabetes education and prevention: facing rising challenges in the Middle East
12:00-12:45	French excellence in pediatric congenital heart disease surgery
13:00-13:45	Addressing the cardiometabolism diseases challenge: IHU ICAN Foundation model
14:30-16:00	Digital health for underserved areas: disruption from the French healthcare ecosystem

Follow us:

Frenchhealthcare.fr

#FrenchHealthcare

French Healthcare

@FrHealthCare_EN

Mayo Clinic

No. 1 hospital in the USA.

U.S. News & World Report 2021-2022

As the No. 1 hospital in the USA, we turn scientific discoveries into promising treatments faster, so patients can get the care they need sooner. We are available to partner with you and make sure your patients are getting the answers they need, and the best care possible. We can provide answers to your most challenging cases, either through collaboration or referral. Visit **mayoclinic.org/international** or scan the QR code below to learn more.

MAYO CLINIC

Rochester, Minnesota, United States

USA | Abu Dhabi | London