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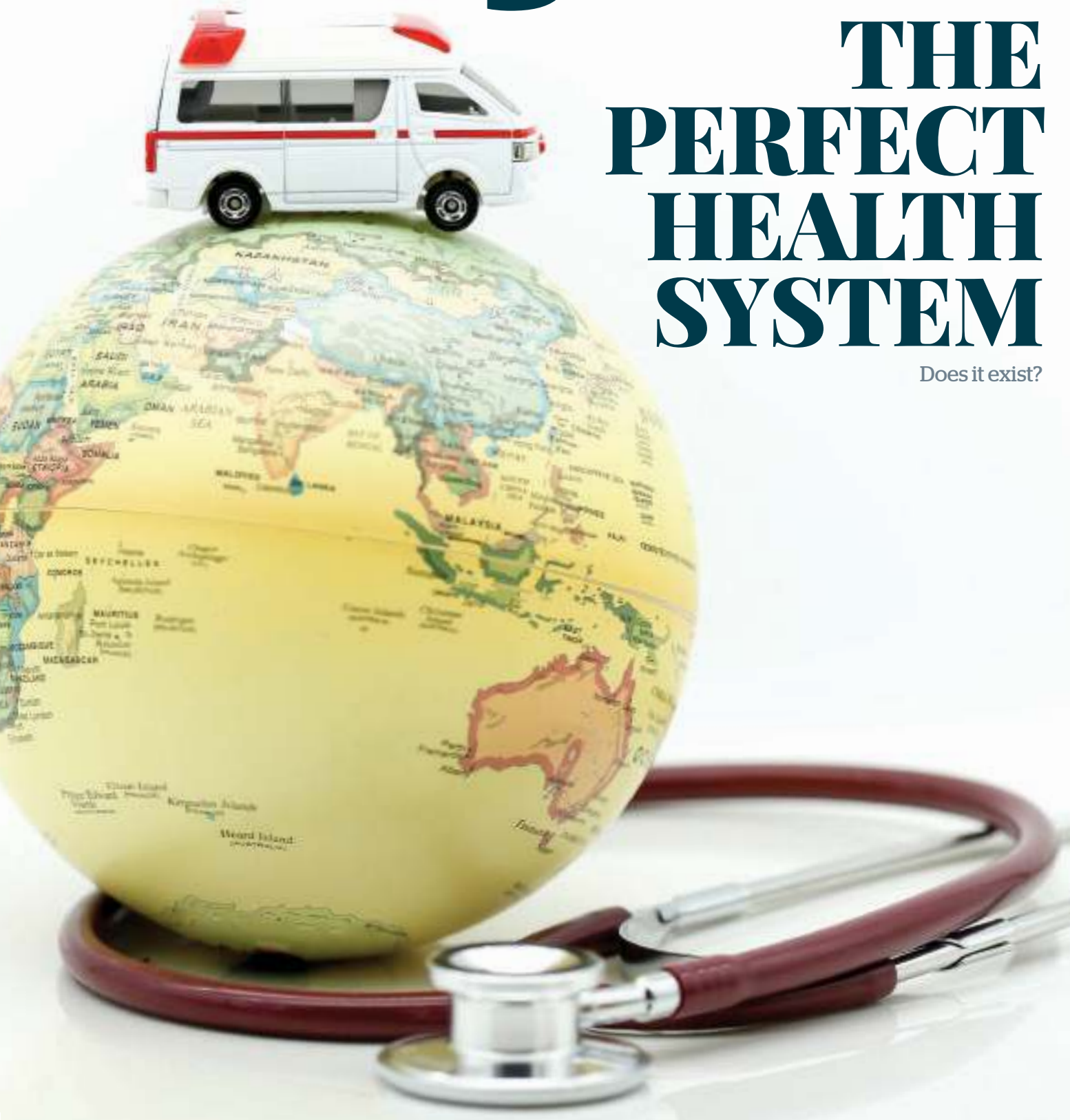
THE INTERNATIONAL FORUM FOR
HEALTHCARE AND LIFE SCIENCES

World
Healthcare
Journal

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Welcome



Sarah Cartledge
Editor
World Healthcare Journal

Welcome to the first edition of World Healthcare Journal

Healthcare is important, possibly the most important industry sector in the world. In many ways, that statement is self evident. Banking, construction, energy, government, trade, commerce, mining, manufacturing - none of these can exist without a fit and healthy workforce. As we all live longer, healthier, fitter lives the importance of healthcare, medicine, medical technology and, crucially, access to these things for every global citizen becomes more and more important to the global economy.

Global is the key word. In 2019, no-one can doubt that we live in a global and connected world and yet the provision and supply of healthcare is uneven. Growing middle classes in places such as China, Africa and South America are demanding better healthcare and their systems are growing and developing fast. The pace of change in the sector is huge as even historically advanced healthcare economies struggle to keep up with the rise of AI, genomic medicine and a revolution in digital health.

Here at World Healthcare Journal we are looking to join up the world of healthcare, online, in print and with our forthcoming mobile app.

Our editorial team has worked all over the world and brings together experience in a vast number of countries and areas of healthcare. We all agree that the delivery of modern, connected, universal healthcare coverage demands an approach that transcends borders and boundaries. It is one that brings nations, systems, providers and suppliers together from all over the world to collaborate and work together to provide the best possible healthcare outcomes to every global citizen.

In this brave new world, everyone has something to teach and everyone has something to learn. The most expert clinicians in the most advanced economies have as much to learn from those delivering basic care in basic facilities as they do to teach. We live in an age - in healthcare at least - where the hierarchy is flat and everyone is a partner and a colleague.

One of the recurring themes of the first issue of the World Healthcare Journal is the question of what a modern, fit for purpose, digital, connected health system should offer.

It's a problem that KPMG have tried to answer through a series of articles interspersed throughout these pages. It's a problem Healthcare UK would like to help answer using the example of the UK's world renowned National Health Service (NHS). The Dubai Health Authority have also written about how they are looking to partner with the world to improve their health systems. We also focus on key elements that need to be integrated into our health systems from infrastructure to digital solutions to data and regulation.

As well as technology and medicine advances there are, of course, some hugely exciting developments in the clinical services arena. We have some fascinating articles on developments in cancer care, imaging and proton therapy as well as the rise of genomic medicine by IQVIA and Genomics England who led the world with the 100,000 genome project which is now expanding up to 5,000,000 genomes.

Lawyers Bevan Brittan and Al-Tamimi tackle the question of what Brexit, Britain's exit from the European Union, will probably mean for the rest of the global healthcare economy. Whilst on the theme of mapping our way through complex problems, you'll find the official floor plan for Arab Health on our centre pages, an invaluable guide to the world's biggest healthcare event.

I hope you enjoy the issue, if you have any thoughts, comments, suggestions or ideas for future issues then please do email me sarah.cartledge@dorsonwest.com

Don't forget to subscribe for future issues and news updates on our website, www.worldhealthcarejournal.com



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Bringing service to life



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The State of Global Healthcare

Healthcare in the 21st century faces a series of unprecedented challenges, says Rt. Hon Stephen Dorrell

Much of what we face is born out of the uniquely human talent for spectacular innovation, as radical advances in modern medicine and improved living conditions have allowed us to live far beyond a lifespan which was regarded as normal only a generation ago.

Extended life has drastically altered the balance of populations so that the frailties which come with old age are felt globally. Demands upon our care and support systems have skyrocketed and we are struggling to train, recruit and maintain the workforce that is needed to accommodate this new demand.

But it is only if we fail to take the opportunities which are presented to us that these factors become global crises. There is no such thing as a perfect healthcare system and no society in the world has found the perfect way to reconcile the conflicting pressures on either their healthcare systems or the wider fabric of public services. Now more than ever we need to harness the human ability for innovation to provide comprehensive solutions and fully understand every social determinant of ill health.

Two elements of technological progress are driving change – the first involves clinical advance as a result of better innovation in pharmaceuticals and medical technology; the second is the digital revolution which makes an important contribution to pharmaceutical and medtech, but also has much wider application in health policy. Advances in digital analytics and in our genomic understanding present the opportunity



Stephen Dorrell
Chair
World Healthcare
Journal

to personalise medicine in a way which will facilitate the development measures that will prevent ill-health. This will undoubtedly change the ways in which medicine is delivered.

No country should believe that healthcare is somehow different to other aspects of public service. All societies need to integrate health with the wider aspects of public services in order to address the social determinants of health. The requirement to deliver more integrated services is rightly under active discussion throughout the world as every country grapples with the need to ensure that public services effectively serve the needs of its citizens. These needs may be best met by a doctor, but sometimes by a teacher, a social worker or just a friendly neighbour. Ultimately we should always be citizens first, patients second.

Defining primary care and ensuring that delivery is fit for the 21st century will be crucial to this in every country in the world. In the UK, the NHS needs to become better at channelling resources towards priority services in primary and community services, but our challenges have echoes in every country. In India, for example, Prime Minister Narendra Modi has unveiled hugely ambitious plans for primary care development ahead of the elections later this year. The need to focus on prevention and early intervention is a global priority, not a fashionable cause in western think tanks.

It is effective, actionable insights which make the difference – and which make a different, positive future possible. Our objective is to share those insights and promote current best practice to create better outcomes.

The scientific community is a global community, which needs to be supported by freedom of movement of both practitioners and their ideas. Our objective is to facilitate that exchange and participate in a free and global exchange of ideas.



Revolutionising cancer diagnosis with a breathalyser

According to government figures, almost half of cancers in England are diagnosed at a late stage, leading to increased cost for the NHS and ultimately patients not receiving the treatment they need.

Trying to address this, Addenbrooke's Hospital in Cambridge, part of Addenrooke's NHS Trust, is currently testing a breathalyser that could potentially revolutionise cancer diagnosis in the UK.

The two-year trial is recruiting 1,500 participants made up of healthy individuals as well as cancer patients. The 'Breath Biopsy

Device' has been developed by UK based company Owlstone Medical and Cancer Research UK.

As part of their normal metabolic processes, human body cells produce a range of volatile organic compounds (VOCs). As cancer can cause recognisable alternations in the pattern of VOCs, the test is designed to detect molecules that have emerged from the lung and into the breath. When using the device, participants will be asked to breathe into the cancer breathalyser for 10 minutes which collects the VOCs and sends them to a laboratory in Cambridge for analysis.

Professor Rebecca Fitzgerald, lead trial investigator at the Cancer Research UK Cambridge Centre, said: "We urgently need to develop new tools, like this breath test, which could help to detect and diagnose cancer earlier, giving patients the best chance of surviving

The Christie helps to train doctors in Kazakhstan

Specialist cancer hospital, The Christie, played host to staff from the East Kazakhstan Regional Oncology Centre this month in a collaboration to help improve cancer services in the country.

Placements were arranged in a number of key departments giving a group of eight visitors the opportunity to observe the latest practice in cancer management, radiotherapy, radiology, rehabilitation, supportive care, surgery, histopathology and cytogenetics.

The training comes at a time of substantial investment by the Kazakhstan government, with around £75 million being allocated to support their plans to improve cancer services in the next four years. The Christie joins some of the world's most prestigious cancer centres in the United States, Europe and Asia, in becoming a key training location.

The Christie's international team, working in partnership with UK based training company, Promedica, has led this initiative, arranging bespoke programmes for each individual through its School of Oncology, to shadow some of the hospital's world-leading cancer specialists.

This is the first stage of what is hoped will be a longer-term collaboration involving education, training and expert consultancy advice, which will help

generate on-going revenue for The Christie, to be reinvested in patient care.

Professor Chris Harrison, Medical Director at The Christie, said: "The Christie is delighted to be involved in this exciting initiative to help train cancer professionals and establish world-leading cancer services in East Kazakhstan."

"As an international comprehensive cancer centre, our ambition is to be the partner of choice in offering specialist cancer expertise, education and training, to support the development of the highest quality cancer care."

Saule Mananbaeva, Deputy Head Doctor for Quality and Internal Audit at the East Kazakhstan Regional Oncology Centre, who undertook a placement at The Christie said: "We have the same goals. We feel very privileged that thanks to the initiative of East Kazakhstan Regional Administration and Health Department, that we are able to observe in practice and use the best of The Christie's achievements as benchmark in the strategic development of East Kazakhstan Cancer Services."

(IMAGE: Christie Deputy Director of Business Development Jenny Scott is pictured centre with Askar Ibrayev, Lyudmila Rebenkova, Saule Mananbaeva and Dana Tulebayeva from East Kazakhstan Regional Oncology Centre (left to right).

their disease. Owlstone Medical's Breath Biopsy® technology is the first to test across multiple cancer types, potentially paving the way for a universal breath test."

Billy Boyle, co-founder and chief executive of Owlstone Medical, said: "There is increasing potential for breath-based tests to aid diagnosis, sitting alongside blood and urine tests in an effort to help doctors detect and treat disease. The concept of providing a whole-body snapshot in a completely non-invasive way is very powerful and could reduce harm by sparing patients from more invasive tests that they don't need."

It is estimated that failure to obtain prompt diagnosis is the reason why only 12 per cent of oesophageal cancer patients survive for as long as 10 years. If this new treatment is found to be successful, it could save thousands of lives and save millions of pounds in healthcare costs.

If the technology does prove to accurately identify cancer, the team hope that breath biopsies could be used in future by GP practices to determine whether to refer patients for further diagnostic tests.

Dr David Crosby, head of early detection research at Cancer Research UK, said: "Technologies such as this breath test have the potential to revolutionise the way we detect and diagnose cancer in the future.

Early detection research has faced a historic lack of funding and industry interest, and this work is a shining example of Cancer Research UK's commitment to reverse that trend and drive vital progress in shifting cancer diagnosis towards earlier stages."

Cancer Research UK has made recognising the importance of early detection in improving cancer survival, one of its top priorities and will invest more than £20 million a year in early detection research by 2019.



Diabetes cases in the MENA region expected to increase by 110 per cent by 2045

A new report by Colliers International entitled 'Diabetes – Impact on the MENA Region' has revealed that the number of diabetic patients in the Middle East & North Africa (MENA) region is expected to increase by 110 per cent to 82 million by 2045, second only to Africa (156 per cent), significantly impacting mortality, loss of productivity (GDP) and increased healthcare expenditure.

The report, which is part of the Arab Health Market Series, also highlighted the economic burden of diabetes in the region which reached US\$ 21.3 billion and is expected to jump by 67 per cent to US\$ 35.5 billion by 2045. Meanwhile, eight Middle Eastern countries – Kuwait, Qatar, Egypt, KSA, Bahrain, UAE, Jordan and Lebanon – have the highest ratio of obesity among adults globally with 27 to 40 per cent of the total population affected.

Published ahead of Arab Health 2019, which takes place from 28–31 January at the Dubai World Trade Centre, the latest research from Colliers International provides in-depth analysis of the key factors impacting the diabetes epidemic - which refers to a twin occurrence of the epidemics of Type 2 diabetes and obesity - with a focus on the

MENA region and its future outlook.

Ross Williams, Exhibition Director of Arab Health, said: "With health professionals and researchers considering diabetes as potentially the greatest epidemic in human history, the advancement of communication technology, telehealth and application of Artificial Intelligence (AI) is now playing a critical role in the management of chronic illnesses such as diabetes and obesity. The economic and societal impact of the epidemic is a catalyst for the entire healthcare industry to come together to offer collective solutions to this global problem."

According to the report, factors contributing to the diabetes epidemic in the Gulf region include; altered eating patterns due to increased income and urbanisation (only 38 per cent of the GCC population eats fresh fruit and vegetables), sedentary lifestyles (60 per cent of men and 73 per cent of women are physically inactive), barriers to a healthy diet and lesser emphasis on nutritional education, as well as increased consumption of sugar and sugar substitutes (GCC countries represent a US\$ 8.4 billion soft drink market).

The report also outlined a number of preventative measures being taken by governments around the region to tackle the

growing problem of diabetes. For example, the UAE has developed a clear roadmap for combating and controlling the condition. Though the challenges are still being faced in some areas such as lifestyle modification, physical inactivity and diet, government measures have led to a drop in the prevalence of diabetes in the UAE from 19.3 per cent in 2013 to 17.3 per cent in 2017.

Some of the current measures being carried out by the UAE government include the Abu Dhabi Children's Obesity Task Force which plans to reduce obesity by increasing physical activity in children by 15 per cent and reducing the average body mass index by 15 per cent by 2020, as well as the introduction of a 50 per cent "sugar tax" on soda and 100 per cent on energy drinks and tobacco products, in order to lower obesity and diabetes rates.

Arab Health, the largest exhibition and congress for healthcare and trade professionals in the MENA region, will host the 5th Diabetes Conference bringing together the region's foremost experts to measure the prevalence of diabetes in the region and to discuss the latest developments in its prevention, treatment and management.

"The Diabetes Conference at Arab Health is the perfect platform to bring together all stakeholders - from government authorities to the region's leading diabetes experts - to assess the various public health measures and technological advances that can be adopted in order to tackle the growing burden of this epidemic," added Williams.

Organised by Informa Life Sciences Exhibitions, the 44th Arab Health Exhibition & Congress will welcome more than 4,150 exhibiting companies from 66 countries and an anticipated 84,500+ attendees from across the globe. As well as providing a platform for the world's leading manufacturers, wholesalers and distributors to meet the medical and scientific community in the Middle East, delegates can benefit from 11 Continuing Medical Education (CME) conferences as part of the Arab Health Congress.





Czech Experts

The Czech Republic is a small country with a big punch in medicine, says David Duffy

For a country with a population of around ten million, it's surprising to hear that the Czech Republic is a global leader in specialist, cutting edge healthcare. But despite its size, the Czechs can boast some major achievements in medical innovation.

The first heart transplant to be performed in Eastern Europe was performed in the Czech Republic. Similarly the Czech Republic has world-renowned cancer care and makes use of high class, home produced, medical devices and facilities across the cardio and gastrointestinal, medical technology and general medical sectors.

"Both the standards of medicine and of the medical devices produced are regarded as some of the best in Europe," says Czech Ambassador to the UK, Mr Libor Secka. "It is well known at home but our reputation is growing abroad every week."

Czech experts are not standing still and relying on past achievements, but moving forward and keeping abreast of global scientific progress. Currently, the Czech Republic spends more resources on research and development than many competing countries.

Speaking to World Healthcare Journal, Deputy Minister for Health, Radek Policar echoes the Ambassador's comments: "We have long tradition of high quality medical device production that is competitive on the global market. It's no exaggeration to say that Czech producers are world class and offer top quality, cutting edge technology. It is down to our tradition of solid relationships between clinicians, suppliers and the government. It has always been this way so we have found it easier to innovate than other countries of a similar size." Epitomising this level of clinical cooperation is Mediatriade, which has more than 20 years of tradition in working with doctors to produce high quality, globally used, pacemakers.



"Both the standards of medicine and of the medical devices produced are regarded as some of the best in Europe"

Libor Secka
Czech Ambassador
to the UK



Radek Policar, Deputy Minister for Health

Unique products

Understandably, there is a high amount of pride in the level of innovation occurring in Czech medicine. Karel Volenec, Chairman the Association of Manufacturers and Suppliers of Medical Devices, notes that it is the Czech Republic, not the United States, that is currently supplying UCL in London with first ever self-expandable, biodegradable prosthesis. "We can offer devices that are not only commercially competitive but truly globally unique," says Mr Volenec.

The Czech Republic medical sector currently exports to a high extent. Ella-CS, a purely Czech-owned company which specialises in stents for the gastrointestinal tract, already distributes to more than 60 countries worldwide. Additionally, MZ Liberec distributes high quality medical gas distribution systems to 45 countries worldwide, including China.

"The ever-increasing needs of our patients will require even more technology to address them and we will require suppliers who have innovative products and services to help the NHS deliver the services that we need," says Dr Nikki Patel, Clinical Programme Lead for NHS England.

She hopes that in the future the UK will be able to make use of the innovative medical devices currently being produced in the Czech Republic and that the UK health care market will be able to facilitate this. "We are trying to develop a market of innovation to help our suppliers survive," she says.

Many Czech firms are already suppliers to a large international market and are now seeking partners in the UK. In October the Czech embassy in London held a Czech Medical Devices day, showcasing the breadth of their knowledge and expertise to British healthcare providers. With such innovative and new medical products, the Czech medical sector is sure to find new markets both in the UK and abroad.



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Health Investment needs and opportunities in Dubai

Dubai remains one of the fastest growing cities in the world, and Dubai leads the way for private sector participation in healthcare in the MENA region. The private sector healthcare providers in Dubai have contributed to developing a strong health ecosystem; they account for over 79% of the utilisation for outpatient services and more than 74% of inpatient services. This is in line with the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. It is also within the directives of His Highness Sheikh Hamdan bin Mohammad bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council.

Increase in demand for quality health services due to Dubai's rapid urban development, population growth and influx of medical tourists is one of biggest challenges facing the Dubai Health Authority.

Many of the world's largest hospitals and specialised centres have invested in Dubai's healthcare sector after realising the city's unique investment climate, which provides a number of investment incentives in the healthcare sector.

The Dubai Health Investment Guide, a key initiative of the Dubai Health Investment Strategy 2017-21, is aimed at providing investors and private sector health facilities with information on investment priorities and gaps as well as mapping of the investor journey for health investments, key developments in the health sector and to highlight the drivers that underpin investment and growth in the health sector in Dubai.

Dubai's health sector has seen tremendous growth over the last few years, with the number of licensed health facilities growing to 3,100 by April 2018 from approximately 2,800 facilities in 2014 with an approximate year-over-year growth of four per cent.



“Dubai has achieved a number of qualitative accomplishments in the development of its health care system due to the availability of infrastructure resources, the human resources potential, and the ambitious plans to improve the healthcare sector in the Emirate. Our aim is to attract investments that benefit the Emirate and the community via an investment strategy in the health sector in line with the Emirate's aspirations to provide a healthy global model that also meets with the objectives of the Dubai Plan 2021.”

Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum
Deputy Ruler of Dubai

This increase includes private hospitals, specialised health centres, pharmacies, diagnostic centres and dental centres.

In the same period, the number of licensed medical professionals has grown from 30,600 in 2014 to 38,500 in April 2018, at a rate of approximately eight per cent year on year. The growth is supported by a rise in population, rising utilisation of health services specifically in the private sector, the implementation of mandatory health insurance which has seen approximately 98 per cent of Dubai's resident population covered by health insurance (as of 3 September 2018), and an increase in healthcare spending due to growing confidence in the health system and improved access to specialised health services in the Emirate of Dubai.





Key Highlights of the Health Investment Guide 2019

“Dubai’s attractive location along with the availability of high quality medical professionals and technology has enabled the city to build a strong and favourable platform to build its medical tourism capabilities.”

His Excellency Humaid Mohammed Obaid Al Qatami
Director General, Dubai Health Authority



While the Emirate has a robust health sector, it continues to develop all its systems to create a suitable environment for local and international investors in the medical field. It has a strong regulatory system in place that upgrades, reviews and develops healthcare standards and regulations to ensure it provides high-quality medical services to the population and medical tourists.

- The Health Investment Guide lists the advantages of investing in Dubai and presents a snapshot of the health system in Dubai with key trends on patient volumes, the growth of health infrastructure and health spending;
- It details the drivers underpinning the growth of healthcare demand in the Emirate of Dubai which includes the growing population, strong and diversified economy, a stable and attractive investment climate, the rising burden of disease and prevalence of chronic diseases, the rise in health tourism among others;
- An overview of health regulations and the health insurance system which includes upcoming changes and initiatives relevant to investors;
- Mapping of the investment journey for different types of health facilities and for health professionals;
- Snapshot of the investment needs and priorities for outpatient care units and acute inpatient beds for 2020, 2025 and 2030 based on comprehensive surveys and analysis of demand and supply projections across specialties service types for the Emirate of Dubai from the Dubai Clinical Services Capacity Plan 2018-2030;
- A snapshot of freezones in Dubai focused on supporting healthcare and life sciences and key initiatives by Dubai Health Authority to support health tourism in Dubai, and health innovation through Dubai Future Accelerators programme.

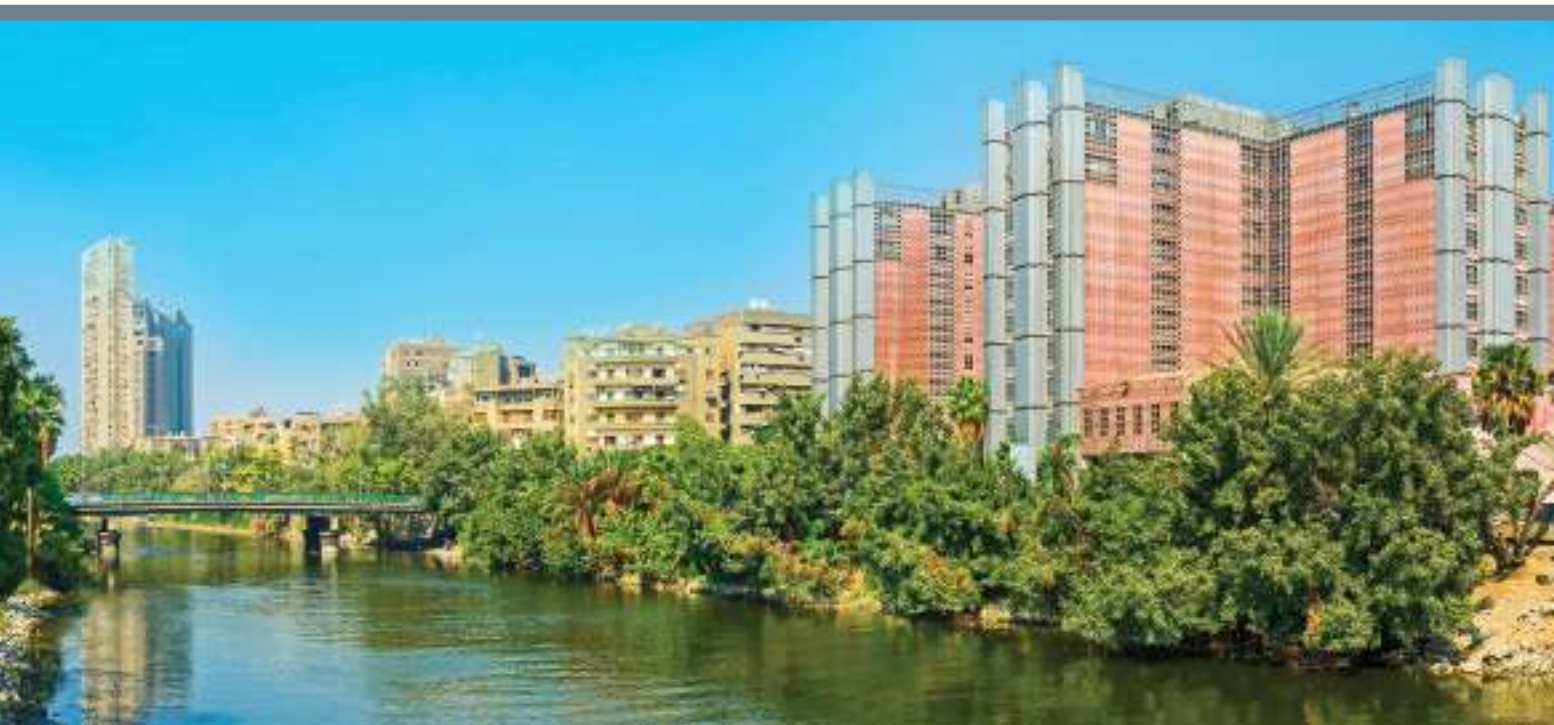
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Appetite to invest

There is a new dawn for health reform in Egypt, His Excellency Dr Mohamed Maait, Egypt Finance Minister tells WHJ's Dan Male

With a population of 106m, growing at 2.6 per cent per annum, Egypt faces a continuing need to invest in infrastructure and healthcare services to ensure it is able to meet the needs of its citizens. World Healthcare Journal speaks to Egyptian Minister of Finance, HE Dr Mohamed Maait, about investment and opportunities in the region.

Egypt currently has both public and private healthcare systems. However, these vary dramatically in terms of quality. According to Allianz Care, the Egyptian Government spends only 1.5 per cent of annual GDP on healthcare, meaning public health services are often of poor quality with outdated equipment, long queues, poor sanitation and workforce issues. These also vary regionally, with urban areas having far more access to these services than rural districts.

Public health insurance is offered by the Health Insurance Organisation (HIO) which was set up in 1964 to provide insurance to all Egyptians. However, currently the HIO only supports those in employment and those in education. Uptake of public health insurance has been historically low due to the inconsistency of services. Alternatives to public and private services that many Egyptians choose are mosque and church-based clinics which operate independently.

“Life expectancy is increasing but at the same time we have a high level of fertility,” Dr Maait says.

“The population is not aging but we have a growing population.” This brings numerous health challenges for Egypt to contend with, not dissimilar to those experienced around the world.

With 82 per cent of premature deaths in Egypt attributable to lifestyle factors, there is vast ground for boosting health outcomes through investment in health services as well as prevention and early intervention strategies. However, this only forms part of wider plans to reform healthcare in the country.

“Our concentration today is on three main elements,” explains Dr Maait. “One is Hepatitis C, so we are investing in that. The second is regarding long queues for waiting lists for medical operations; we are investing in cutting this waiting list. Number three is upgrading 50 hospitals around the country to be units of excellence in order to ensure there is a place people can receive very high-quality services.”

There is a clear appetite in Egypt to invest in health. This can be seen most prominently through the investment in training new doctors and nurses. According to Mansoor Ahmed from Colliers MENA, Egypt performs well in comparison to the wider region. Egypt has 3.2 doctors and 3.6 nurses per thousand of the population. This is in comparison to 2.5 doctors and 2.9 nurses on average for MENA. However, there is still much work to be done.

According to the Minister, Egypt needs 8 per cent GDP growth annually to support its growing population. But at present, he acknowledges that it is not happening at ‘a quick enough rate,’ resulting in people becoming poorer. So what strategy has been put in place to meet these needs?

“Number one is to ensure that we have enough financing to pay for the cost of caring for the elderly,” says Dr Maait. “Number two is that we need to invest more in preventative measures.” These both require new systems and frameworks to be implemented



and Egypt needs to attract international investment and partnerships to facilitate their development. Currently, 90 per cent of health spending is on salaries with not enough being invested elsewhere across the healthcare sector, something Dr Maait and the government are looking to change.

Universal Health Coverage

Most prominently in Dr Maait's strategy is the 'introduction of universal coverage' which would provide a mechanism 'to ensure that there will be efficiency in the system' and a structure that will stop the system from collapsing. While an extremely ambitious plan, it is not the first time that Egypt has attempted such a policy. Health insurance was initially introduced in 1964 but uptake was extremely low. As the minister reports, uptake has only ever reached 15 per cent after 54 years.

The issue in the past was structural, according to Dr Maait. "We didn't create the right mechanism because it was only one organisation responsible for financing, providing the services, supervising the quality of the services and for contracting, so one organisation doing everything." The solution is to ensure sufficient funds and stable and viable financing by ensuring it has a foundation in 'actuarial law' as opposed to being just a 'political decision.' This, says Dr Maait, "includes training for nurses, doctors, and equipment" as well as focusing on 'human capital development.'

The plan is not just to cover people, but also their families and to give them the choice about where to get treatment, with the government as the main provider. This is a model that is not unusual throughout the world with the USA most notably offering such

"Egypt needs to attract international investment and partnerships"

a system to its citizens. While the potential gains of ensuring a reliable and sustainable health insurance system offering universal cover are great, the delivery is still a substantial feat to be achieved.

Delivering the system

In terms of the health insurance system, Dr Maait is keen to ensure that it is not controlled by government, but instead is formed of three separate entities; a financing agent, public health provider and a regulator. The financing agent will exist as a health insurance company under the Prime Minister to ensure funding is available to treatments and services within the system. Meanwhile, the public health provider will bring together all hospitals and the regulator will set standards and supervise as an independent entity under the President.

The Egyptian government plans to roll this out over a 15-year timeline, with funding coming equally from public contributions, from the state budget for those who cannot finance themselves and from taxes levied on cigarettes, highways and other streams. Due to delays, the implementation of the system has been pushed back from the intended date of July 2018. As the minister makes clear, the changes are not simply a new health system, but a "health reform for Egypt."

Funding and investment

According to Professor Magdy Ishak, Chairman of the Executive Committee and Chief Executive of Magdi Yacoub Foundation Egypt, 70 per cent of total spending on healthcare in Egypt comes from the private funding, a portion far higher than in most developed countries. This 'open field of investment' makes Egypt highly attractive to investors says Professor Ishak.

Perhaps unsurprisingly, therefore, the reforms outlined by the Minister have been broadly welcomed by the private sector. Responding to the focus on preventative measures, Shady William, Director of Business Development at Samcrete, said: "The private sector has to play a role in bridging the gap between demand and supply." While conventional investment falls into two key pathways; infrastructure and services, a contemporary focus on preventative healthcare has the potential to blend this gap even further. This coincides with a shift towards specialist services as opposed to carbon copying general hospitals.

As with many countries reviewing and upgrading their healthcare systems, Egypt has the very real possibility of making key advances in its delivery of healthcare to its expanding population if the funding and investment is made available.

HE Dr Mohamed Maait



HE Dr. Mohamed Maait is currently serving as the Minister of Finance. Previously he held the position of Vice Minister of Finance for Public Treasury Affairs & Head of the Economic Justice Unit, First Deputy Minister of Finance in 2015 and Deputy to the Minister of Finance for Pension and Social Insurance (2009–2013). In addition, he served as First Deputy Minister of Health & Population (2014–2015), Vice Chairman of the Egyptian Financial Supervisory Authority (2013–2015), Chairman of the Egyptian Governmental Actuarial Department (EGAD) at the Ministry of Finance (2010–2013). He also worked as a senior lecturer and has more than 30 years of teaching and researching experience at many universities in Egypt, Sudan, England and Scotland.



Digital Expansion in China and the effect on Healthcare

As the health needs of the population continue to grow China must provide additional resource and apply significant innovation and creativity to meet these demands, says Dr Harriet Leyland, China correspondent.

China's health landscape

The healthcare industry in China is growing, estimated to be worth USD \$1tn a year by 2020. It provides care to a population of 1.4bn people in 27,000 hospital facilities nationally. However, the amount of healthcare workers is strikingly low with only 2.2 doctors and 2.54 nurses for every 1000 people (2016) compared to the OECD average of 3.4 and 9.0 respectively. Concurrent issues of increasing

life expectancy, a more urban population with large health disparities between socioeconomic groups, the rising incidence of non-communicable disease (NCD) and health issues caused by a polluted environment are building. An imbalance between the allocation of resources and the utilisation of different segments of the healthcare system causes overcrowding and poor access, with late diagnosis being a frequent occurrence, and the healthcare system is currently being tested to its limits.

Technology and innovation as a strategic priority

Despite the 2008 financial crisis China's economy continues to grow, partly due to rapid technological development. Healthcare is a key sector in the current round of digitalisation, where disruptive technologies have the potential to dramatically reshape the country's healthcare system by disintermediating traditional hospital-based care delivery. Despite the desire, however, the fragmented government-run public health system, which makes up more than 85 per cent of the healthcare provision has, so far, been slow to adopt



digital solutions, and the drive to use technology in healthcare has largely come from the private sector.

Multiple factors play into making China's desire to lead the world in the digitalisation of healthcare a realistic proposition. The population is well-connected by mobiles, accessible to most due to low cost and good networks and the use of smart devices that continuously collect health data is prevalent.

Concerns around privacy seem less prevalent than in many regions and, rather than provoking fear about job losses, technology is more often seen as an enabler, for example Chinese doctors appear to be keen to automate their most repetitive work. The two most significant factors in China's favour are the scale of the data held by China and that the restrictions on the use of this data are currently less stringent than in many judiciaries.

The technology push within China's healthcare landscape has been driven by large tech companies, and the first-wave of these highlights both the potential and the scale. Good Doctor, an online health platform, backed by Ping An Insurance, the world's largest and most valuable insurer, connects to a nationwide network of healthcare providers including 3100 hospitals and more than 1000 health check centres as well as dentists and pharmacies. This service has gained 190m registered users since being founded in 2014, although those currently accessing these types of services are only a small percentage. The convenience of easily accessible online healthcare compared to the care delivered in crowded hospital outpatient departments will continue to drive the success of these services.

Chinese hospitals are increasingly using technology to bridge the gap between urban centres, suburbs and

“Chinese hospitals are increasingly using technology to bridge the gap between urban centres, suburbs and more remote parts of the country”

more remote parts of the country. Both document sharing and livestreaming are used to provide support to the local staff and to deliver a more consistent level of medical care. Video consultations for patients in remote regions are becoming more prevalent with many hospitals developing dedicated telemedicine services.

Artificial intelligence

The Chinese government is thinking big when it comes to AI and aims to become the global leader in this technology by 2030. In 2017 the China Food and Drug Administration incorporated AI diagnostic tools into its list of permitted medical devices and there are currently around 130 companies working on healthcare sector AI applications.

iFlytek, a voice recognition software company, has developed an AI medical assistant that listens to doctor-patient consultations and produces reports. It even suggests prescriptions to help save doctors' time. Their medical robot famously passed China's medical licence examination in 2017, becoming the world's first robot to pass a national medical licence exam, a year earlier than a similar accolade achieved by a Babylon chatbot in the UK.

The future and opportunities

The next ten years will be revolutionary in the healthcare sector in all geographies. Digital technology, including AI, will be being used in healthcare delivery, expanding the range of models from the current face-to-face patient-healthcare worker interaction model. The openness to digitalisation and the light touch regulatory environment, alongside access to massive amounts of data, make China a very interesting space to watch during this development.

Progress is unlikely to evolve in a smooth, well-planned manner, and the disparity in healthcare access between social groups is likely to continue as the best care remains out of reach for many. As the popularity and uptake of online health services increases, the development of new services will continue and it seems the government will be pushed into defining more coherent policy on how healthcare should be delivered in the 21st century.

The ability of the government to implement change where the will exists means China has the potential to trailblaze digital advances, so anyone with an interest in the delivery of healthcare in the next few decades ought to pay attention.

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Dr Harriet Leyland **MBChB, FRCA, MSc Global** **Health Policy, FFMLM**



Dr Harriet Leyland is a physician and healthcare consultant with expertise in clinical, commercial and regulatory domains. She has a background in anaesthesia, primary care and global health, and spent six years working in Asia. She provides strategic insight to the development of policy and practice in international healthcare, and has advised on running and development of global commercial health products and services, the interactions between international healthcare systems, clinical governance and quality improvement, and health promotion. She is increasingly interested in the power of disruptors and innovative healthcare solutions to reduce health inequalities worldwide.



Setting a new pace

Fenton Whelan, Founder of Acasus, reveals how Punjab, Pakistan, achieved unprecedented improvements in public health outcomes

In 2014, the Punjab Health Roadmap was launched with the objective of implementing three priorities: improving care around the time of maternal delivery, increasing immunisation coverage and transforming primary care facilities. The aim of the Roadmap was simple – make it happen. By 2018, all three goals had been achieved. Punjab had achieved the fastest-ever increase in immunisation coverage, the fastest-ever increase in skilled birth attendance, and a radical transformation of its primary facilities.

Punjab is the largest province in Pakistan, home to 111 million people, more than half of the population



of Pakistan. The complex programme was rolled out with the active support of the Chief Minister and a huge workforce of frontline healthcare workers who vaccinated children, delivered babies, and provided frontline care in difficult settings.

As a result, by late 2014 the health system in Punjab was improving rapidly. 300,000 more children were being born in the presence of medical professionals each year and almost one million additional children were being fully immunised. Primary health facilities were being transformed, and parallel efforts were leading to substantial improvements in hospitals. All these achievements were underpinned by improved management, new systems and routines, increased knowledge about what works, increased expectations and reliable data.

The improvements targeted and benefited the poorest communities in the province. Every indicator improved most among the poorest quarter of the population. The health service was extended to large numbers of previously unreachable or underserved communities.

Simple but effective solutions

With the introduction of 4,000 phones to health workers, vaccination of children reached an all-time high. The phones included a mobile application that enabled vaccinators to report their exact location every time they vaccinated a child. Within months, they were submitting hundreds of thousands of vaccination reports every month. The data from the phones meant the local government knew in real time exactly which communities were being visited and which were not. As a result, officials were able to take action to gradually solve problems and ensure that every community was visited.



At the same time, the government upgraded 1,000 small clinics to provide 24 hour maternal care services, instead of the usual six hours. This suddenly opened up the possibility of delivering in a safe environment to hundreds of thousands of expectant mothers. A multi-year effort was launched to increase utilisation of the facilities, improve the quality of care, and ensure that they were always ready to provide care. In addition, 450 dedicated maternal care ambulances were introduced to provide free transport to the clinics, and to transport mothers to hospitals in the event of complications..

When the Roadmap started, just one per cent of health facilities had all of the required staff, medicines and equipment to be fully functional, and a range of

Key Health System Improvements

Between 2014 and 2017, Punjab achieved unprecedented improvements in its health system:

- Immunisation coverage increased by 35 percentage points a rate of improvement unheard of in a large health system. By 2017, almost 1m more children were being fully immunised each year against a range of deadly childhood diseases, saving thousands of lives.
- The proportion of women giving birth in the health system increased by 15 percentage points, meaning that 350,000 more children were born each year with medical care during their first moments of life, again saving thousands of lives.
- A new ambulance service was launched handling roughly 25,000 patient transfers a month by December 2017.
- Additional vaccines, including rotavirus, were rolled out.
- A new referral system for complicated cases was established.
- The performance of primary health facilities rose, with substantial improvements in staffing, medicine availability, facility outlook and patient care.
- Behind the scenes, new data systems, management routines and processes were implemented:
 - Agreeing priorities based on what would make the most difference.
 - Using cost-effective and innovative new technologies.
 - Getting good data to understand what works and to manage performance.
 - Building capacity throughout the system.
 - Creating routines to solve problems and drive progress.
 - Engaging political leadership.



“With the introduction of 4,000 phones to health workers, vaccination of children reached an all-time high”

Fenton Whelan
Founder, Acasus

problems existed from poor quality of care to staff absenteeism. Again, the government approached the problem by first getting monthly, reliable data on the status of every health facility, and then using the data to solve the problems one by one. 170 independent monitors were recruited to visit the 2,780 rural health facilities every month. Data was fed back to managers at every level, and ultimately to the Chief Minister. Within months intractable problems were being solved and the facilities were improving.

Routine - the key

Progress in all areas of the Roadmap was driven by routines. The routine of stock takes with the Chief Minister in particular ensured a consistent focus on primary health during the first four years and provided a forum for setting direction and targets, checking progress, solving problems and increasing accountability. Equally important were the monthly meetings of all 36 districts where progress was compared and high-performing districts explained to others how they were achieving results.

Punjab’s success demonstrates that the key to saving lives in the developing world lies not in complex development theories or massive injections of funding, but rather in the application of good management and innovative technology to improve the delivery of services on the frontline.

Contact Information

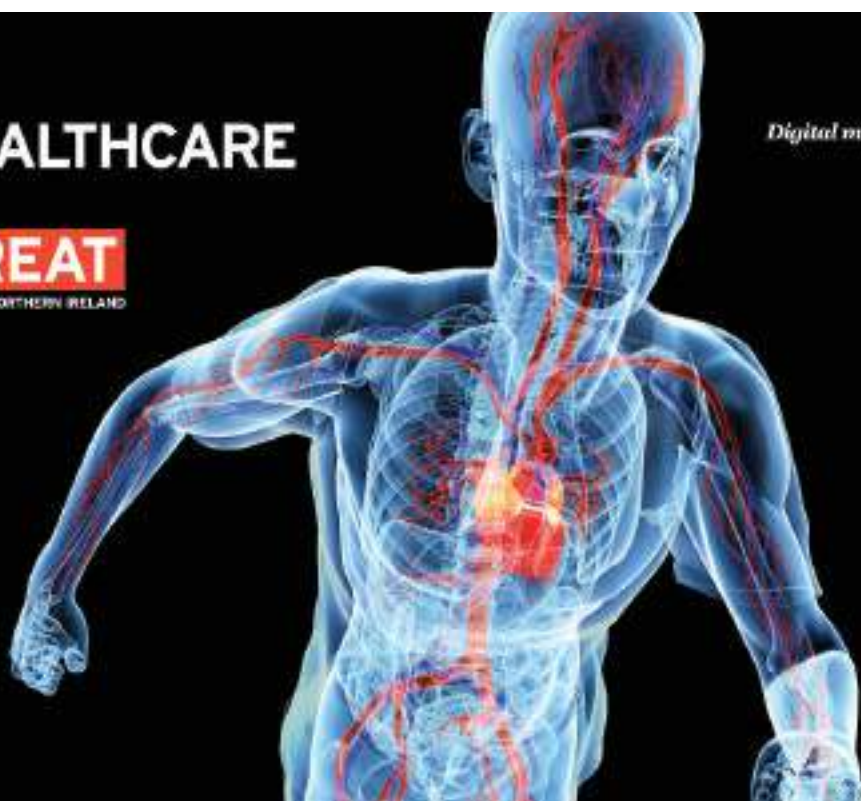


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Digital medical illustration of human



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The UK Healthcare Model

Governments and healthcare organisations around the world are using UK expertise to develop their own health services and infrastructure.

The UK's incredible wealth of experience, drawn from its own healthcare model and enhanced clinical outcomes, is shared with governments and organisations around the world, saving many lives in the process.

Healthcare demands such as the needs of a growing and ageing population, improving patient care and ensuring healthcare professionals get access to the best training are now becoming global issues. The UK works with overseas partners to improve and enhance quality and reliability in their own healthcare systems.

The international community is drawn to the success of our National Health Service (NHS), which, as the largest integrated national health system in the world, delivers high-quality care to over 1m patients every 36 hours.

Additionally, the UK is home to a range of cutting-edge healthcare businesses and pioneering academic institutions that are making an impact on how

healthcare is designed and delivered globally and we are continually adapting new solutions for healthcare problems.

Whatever type of health facility, service or training programme you are planning, we can connect you to the diverse and experienced expertise you need.

The UK integrated health system

Over the course of nearly 70 years, the NHS has delivered world-class and cost-effective healthcare through a system in which every part works to improve outcomes for patients, and which has inspired and influenced governments and organisations around the world. Our healthcare system is based on expertise in areas such as strategy and planning, funding, training, innovation, service delivery and regulation which work together to support a complete and integrated service.

Continuous innovation

The NHS is developing new models of care including whole system and population-based integrated care, and the system's success is reflected in the fact that we can support 66.5m people in the UK with access to the highest quality of care, free of charge at the point of use.

It is home to pioneering sites of local areas using ambitious and innovative approaches to deliver



person-centred health care and support. It is also home to accountable care systems of collaborations or organisations agreeing to provide all health and social care for a given population.

- **66.5m**
The NHS supports the entire population of the UK with access to the highest quality of care, free of charge
- **1st**
UK has the best healthcare system in the world (Commonwealth Fund 2014, 2016, 2017)
- **1.4m patients every 24 hours**
The NHS performs over 6m day-case procedures per year

Some of the best clinical expertise

Every year a new development is uncovered; a new piece of intelligence is unveiled, and the NHS continues to build on its track record of innovation. From the world's first liver, heart and lung transplant to the first health system to use mitochondrial donation, the innovation taking place in the UK's healthcare system is unequivocal.

By collaborating with NHS institutions and their private-sector partners, you too can benefit from their unparalleled skills and experience across the whole spectrum of medical, surgical and mental health services. This can be through:

- consultancy and professional services: from needs analysis to design of clinical pathways
 - local partnerships, licensing and franchising: running clinical services based on NHS models
 - remote service delivery: from distance learning to remote diagnostics
- **142**
England has 142 major NHS Trusts and private mental health providers
 - **x2**
Cancer survival in the UK has doubled in the last 40 years

Education and training

Matching the healthcare needs of growing, ageing populations with the right supply of trained health professionals is a global challenge. The UK is tackling this by developing world-renowned education and training programmes to deliver the health professionals needed to meet demand today and in the future.

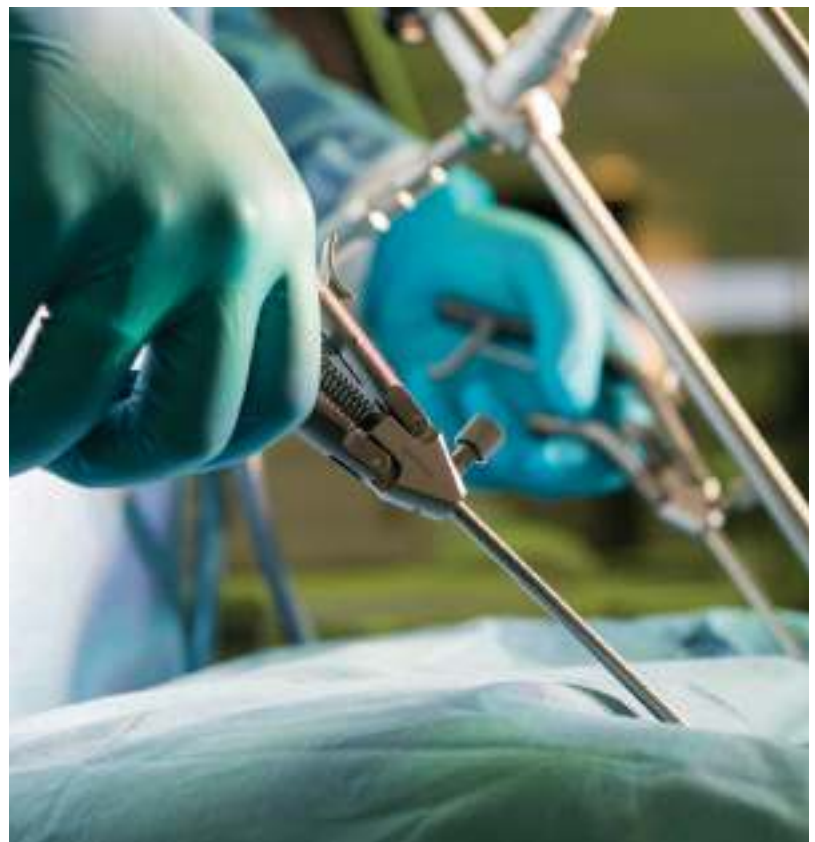
“Every year a new development is uncovered; a new piece of intelligence is unveiled”

The quality of the health system in the UK is underpinned by education and training requirements defined in collaboration with the universities and colleges, the regulatory bodies, the Royal Colleges and the Government. These organisations work together to ensure that health professions have the skills to deliver safe, high quality care.

We are home to three of the world's top five universities for clinical, pre-clinical and health subjects where international students can benefit from quality training in leading facilities. We can help you find the partners you need to produce world-class doctors, nurses and other health professionals, and respond to a rapidly changing healthcare environment.

Pioneering digital health innovations

Digital technology is crucial in improving healthcare, and the UK develops some of the world's most sophisticated digital systems for diagnosing, delivering and monitoring high quality, patient-centred services. We are at the forefront of transforming healthcare services by using digital solutions to prevent and manage chronic illnesses more effectively. If you're looking to digital health to improve access, reduce costs and raise quality, the UK has the expertise you need. ▶





Partnering with our digital health sector means your patients will benefit from innovative, research-driven and evidence-based technology in areas such as mobile health, remote care, artificial intelligence and data-driven business intelligence.

UK expertise can:

- bring care closer to home
- empower patients to take control of their health
- reach out to communities in remote areas
- help develop more effective treatments, for example through use of Big Data

Infrastructure services

Great infrastructure is the foundation for excellent healthcare. In the UK, the experience and expertise of our health planners, architects, engineers, equipment manufacturers and facility operators and managers underpin the success of our NHS. UK companies are leaders across the spectrum of infrastructure services, from modelling, financing and patient-centred design through to construction and operation, and essential services such as digital systems. You can benefit from their expertise, by working together to deliver efficient infrastructure projects that:

- are designed around patients' needs
- support high-quality, responsive, accessible and safe services
- make the most efficient use of space and resources
- motivate staff
- inspire public confidence

About Healthcare UK

- We know the UK market inside-out and make it our business to understand the healthcare needs in our target markets around the world. If you are planning a complex or large-scale project, we can bring together a consortium of UK organisations to support all or part of it
- Healthcare UK is a joint initiative between the UK Department of Health and Social Care, Department for International Trade and NHS England; we are connected to decision-makers at the highest levels. This enables us to bring together expertise from across the UK's health sector, including the NHS
- We are specialists in setting-up healthcare partnerships, around the world
- The Department for International Trade has offices in more than 100 markets worldwide, so you can benefit from our local expertise

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Global leaders in cancer care

The NHS is acknowledged as being one of the leading health care systems in the world and Manchester's Christie NHS Foundation Trust is one of the world's leading cancer centres. WHJ Publishing Director Steve Gardner sat down with three of The Christie's leading lights, Professors Nick Slevin, Cathy Heaven and Peter Trainer to find out how they are taking NHS expertise internationally

The Christie NHS Foundation Trust is Europe's largest single site cancer centre and has pioneered many of the global advancements in cancer research. The Christie is constantly striving to improve patient experience through ensuring that all of its activities are centred around patients and their families and this is achieved through research and education being fully integrated with clinical service delivery.

The Christie has consistently been rated as 'Outstanding' by the national health and social care regulator, the Care Quality Commission. National patient surveys have also demonstrated the value and trust patients and their families have in the care they have received with over 97 per cent recommending The Christie as a place of treatment.

The Christie has one of the world's largest radiotherapy departments with 15 linear accelerators and extensive experience of developing digitally networked satellite facilities. The first NHS high energy comprehensive proton beam therapy (PBT) service has also recently been established on The Christie site.

SG: Why did The Christie decide to start working overseas?

NS: The Christie was looking for an opportunity to share our learning and expertise, particularly in terms of ensuring that patients get access to the latest technology and best possible treatments.

PT: We decided some years ago that the best way to do this would be on a commercial footing, in order

to allow any income to be used to the benefit of NHS patients.

We identified three main areas of work, consultancy, bespoke multidisciplinary education and training packages for workforce and finally making provisions for international private patients to come to us for advice and care.

SG: What kind of work have you done so far?

NS: We have conducted clinical observerships with Kazakhstan; given advice on radiotherapy procurement to clients in India, we've signed a contract with a Chinese client for a new oncology service, we're advising a major teaching hospital in Ireland and we're in advanced discussions with number of far east and middle eastern clients.

SG: How and why did you decide to pursue these partnerships?

PT: It's taken around 3 years and we're still in the foothills, but we saw massive opportunity to improve our international brand.

NS: We have the expertise, reputation and scale to do it well. We're now the largest standalone cancer centre in Western Europe and it was really important for our reputation to deliver a quality product. The Christie has been rated as an outstanding institution by regulators.

SG: How is the NHS brand viewed internationally?



“We are one of the top 10 cancer centres in the world and have patients coming from far and wide to access our innovation and expertise”

Professor Nick Slevin
The Christie

PT: The NHS has a reputation as one of the best healthcare systems in terms of effectiveness, but also value for money. Clients are turning away from other models towards an NHS model because they want to implement a system of real benefit to the patient in a cost effective way.

SG: What types of partners do you work with?

CH: It's important to develop a partnership and relationship with clients that share the same ethos as The Christie. We keep the patient at the heart of everything we do.

NS: We have worked with both government and private clients and there are a whole range of different business models under which we can operate; the main focus is that the patients get access to the best possible care.

PT: We have principles from the outset, such as not taking responsibility for the clinical management of local patients, we do not invest financially in international ventures. Most importantly we make sure that our international work does not impede core NHS responsibilities.

SG: What types of advice do you offer?

NS: From a clinical perspective, we are in a good position to give advice on the entire patient pathway, but the type of advice that we give is dependent on the needs of the patient/client.





CH: We can offer advice on the number of staff that they need and the skills they require to develop and optimal workforce, but ultimately the client must take responsibility for recruiting a workforce.

PT: In some cases clients want design advice on their build projects, which is essential as it relates to clinical services and environment; the right building design can be very influential for patient experience and outcome. We also advise on equipment, procurement and all the support services available to ensure patients get treated safely and effectively.

CH: Our School of Oncology aims to educate the next generation of clinical leaders across the world. We provide international partners with access to a unique environment of the highest quality. Our approach provides the opportunity to experience outstanding clinical services, cutting edge research and excellent education through observerships, fellowships, clinical and academic programmes.

SG: Would you ever allow an overseas client to use The Christie brand?

NS: The Christie name has huge value, it's been in existence for hundreds of years and we have an international reputation for innovation. We are recognised as the most outstanding single service hospital in the country by CQC – Care Quality Commission.

PT: Clients must comply with our standards absolutely because of the reputational risk. For hospitals from other countries, international work has simply been to lend their brand or name to the local hospital of that country and that income for those institutions has been huge. Our model is much more on the ground, benefiting patients, real clinical services, but most important of all we would have to be certain that the quality of their services were on a par with our own.

CH: Our reputation is not just in clinical services, but also in research. We are one of the top 10 cancer centres in the world. We have patients coming from far and wide to access our innovation and expertise.

SG: Why should international clients choose The Christie?

PT: Here at The Christie, we are passionate about the care we provide to our patients and are delighted to be able to work with international partners to share our expertise. Our aim is to develop high quality, long term relationships that drive transformation in oncology services.

Contact Information



www.christie.nhs.uk



How to develop a 21st century health system

What does the perfect health system look like? Asks Dr Mark Britnell Global Chairman for Health at KPMG

As Global Chairman for Health for KPMG, I've had the privilege of working in 78 countries on more than 350 occasions over the past decade. This has provided me with a unique opportunity to look closely at the strengths and weaknesses of health systems around the world.

In this series of articles we explore a number of these aspects in further detail, bringing you our practical knowledge and experience of health systems and services from our leaders across our international healthcare practice network:

- Building universal health coverage and payor mechanisms
- Delivering a healthcare workforce fit for the future
- Health infrastructure and public private partnerships
- Regulation and governance across healthcare
- Strengthening primary and integrated care
- Health worker training and education
- The role of prevention and digital health
- Health data and data governance

Globally, governments and businesses are enabling more patients to access universal healthcare (UHC), which has led to marked improvements in life expectancy. By improving public healthcare, governments and businesses are increasingly recognising the economic and social benefits of a healthy, long-living population. These latter points are important, as politicians realise that investment in “healthcare for all” is a value and not just a cost.

The world doesn't have a perfect health system, but if it did, it might look like this:

- The values and universal healthcare of the UK
- Primary care in Israel
- Community services in Brazil
- Mental Health and well-being in Australia
- Health promotion of the Nordic countries
- Patient and community empowerment in parts of Africa
- Research & Development in the USA
- Innovation, flair and speed in India
- Information, communication and technology in Singapore
- Healthcare choice in France
- Health funding in Switzerland
- Aged care in Japan



**Dr Mark Britnell,
KPMG International**

Dr Mark Britnell is KPMG’s Global Chairman of Healthcare, Government & Infrastructure, and one of the foremost global experts on healthcare systems. He has a pioneering and inspiring global vision for health in both the developed and developing world, having led healthcare organisations at local, regional, national and global levels – provider and payer, public and private.

It has been estimated that a one-year increase in life expectancy can augment GDP per capita by 4 per cent, and the recent Lancet Commission noted that reductions in mortality in low and middle income countries accounted for approximately 11 per cent of recent economic growth. Given the ways in which healthcare has a direct gain on a country’s GDP, new global health funding streams have increased dramatically and remains an almost uniquely favoured area of interest for international donors. KPMG’s new Center for UHC exists to help countries overcome these issues. We have developed an unmatched suite of tools, intelligence, insights and experience to make UHC reforms a success.

“By improving public healthcare, governments and businesses are increasingly recognising the economic and social benefits of a healthy, long-living population”

Dr Mark Britnell
KPMG

As health systems around the world grow, strengthen and mature in the coming years, what does the future vision look like? It will be increasingly important to understanding what citizens want, with reforms frequently failing to deliver their promise of building the system around the patients that use them. A ‘Paradigm Shift’ is needed; the current care model is heavily focussed on the hospital, and around the world we are seeing a pivot towards strengthening primary care led models, underpinned by patient and clinician activation and engagement to enable the behaviour changes needed.

Same solutions, different countries

- 1) Prevention and promotion across public and private sectors
- 2) Population and patient segmentation and stratification
- 3) Scaled-up primary care
- 4) Centralised and localised clinical services as necessary
- 5) Clinical pathways supported by improvement science
- 6) Workforce development and motivation
- 7) Hospitals as health systems
- 8) Medical home as a hub for aged care
- 9) Community-based mental health services
- 10) Patients as partners. Communities as carers. A dignified death.



Dr Mark Britnell. In search of the Perfect Health System. Macmillan International Higher Education, 2015.

Despite this, our recent study with the World Economic Forum (ref) has emphasised the importance of ensuring that health system incentives, structures, and policies are aligned in order to achieve this. Our report demonstrated that if all countries performed at the level of the best in their spending group, average global life expectancy would cumulatively increase by four years. While some health systems are better aligned than others, many examples of alignment coexist with significant misalignments, conflicts and inefficiencies. The question is how we can learn from others to ensure we get this right.

Delivering this successful shift will entail a move from the traditional approach of building and organising around providers to focusing on organising around demand (the patient) and a focus on expanding primary care coverage with more highly skilled professionals to manage a broader set of chronic conditions. This will be supported through a smart and technology-enabled front line healthcare delivery mechanism to maximise the provision of care within existing human resource.

The complexity of reinventing health across a nation, whilst also reinforcing the critical role it plays in developing a sustainable, accessible and cost effective healthcare system, is a huge task requiring the greatest minds and world-class experience. I am proud that KPMG Healthcare brings both to clients around the world, and pleased to share some of our learning with you in the sections that follow.

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Putting together an international consortium

Paul Jobson, Managing Director of UKIHMA, explains the quickest way to achieve results

Although the UK is well regarded internationally for its healthcare systems and governance, the system can be very tricky for those looking to access its vast network of knowledge and capabilities. A shortcut for many overseas clients is to consult UKIHMA, the UK International Healthcare Management Association, whose primary goal is to support the delivery of healthcare services internationally.



Paul Jobson

UKIHMA Managing Director Paul Jobson is an accomplished Interim Director equipped with a distinguished track record across several sectors of delivering excellent commercial results and growth through strategic leadership in all aspects of business. His particular skillsets in designing and implementing ambitious business-critical turnaround/development strategies against challenging expectations and timescales.

As a membership association, UKIHMA enables members to rapidly come together to create successful partnerships that combine all the elements of healthcare provision in a single service line offer or complete end-to-end solutions.

Offering the skills to plan, design, build and run hospitals and primary care facilities, as well as support services such as quality assurance, technology, IT, commissioning, education and financial service offerings, UKIHMA's 50 plus members focus on complex multi-specialism opportunities.

Scoping the opportunity

"The first thing we do at UKIHMA is verify each opportunity that comes to us," explains Managing Director Paul Jobson. "This usually involves looking at whether the proposers have the knowledge, experience and the right partners to achieve their vision. We also look at whether there is funding available from the UK and whether it's a primary country for the UK to be involved in.

"Then I scope out the opportunity with the potential client and, on investigation, it can often be completely different from their original thoughts.



For example, building a hospital is a clear goal, but operating it is very different. I try to ascertain whether they are looking for clinical provision, administration support or facilities management. Are they looking to take the risk of ownership of the hospital, or the volume of the hospital, or just a management fee?”

Once the brief is clear, UKIHMA’s aim is to give all the members the opportunity to join a consortium without too many companies competing among themselves. “What I try to do with the client is turn it from being a potential tender or procurement process to a negotiation with a select group of people,” Paul says.

From a client point of view, working with UKIHMA offers them free consultancy and access to a complete turnkey solution. As a not-for-profit members’ organisation, consultants can respond immediately and personally, connecting across the world to provide a quick response to each opportunity. Around 75 per cent of members are shareholders and own the business, and the rest are institutions such as universities or non-foundation trusts that are prevented from ownership by their own constitutions.

In 2018 UKIHMA were presented with 180 opportunities of which 50 per cent were valid concepts representing £4bn worth of potential work. “Much of it is construction and design opportunities – we have two groups of architects – as well as healthcare planning,” he adds.

Building hospitals and offering consultancy

As a relatively small organisation with tight specialities, UKIHMA has already had significant success in its 2 year history. In early 2018 it won a contract for three new hospitals in Greece, including the country’s first specialist children’s hospital. “We were able to offer midwifery training as part of the pitch, and although it may only be a small part of the process our service breadth was significant to securing the contract,” Paul says.

“The project started out with just a healthcare planner, an architect and a little midwifery advice and now it has moved on to requiring facilities management and cost management support. The team fills in as the project progresses to offer support in all the areas we cover.”

About 40 per cent of UKIHMA members are NHS bodies, but as busy foundation trusts they are unable to focus exclusively on the commercial aspects of such projects. With this in mind Paul has devised a consortium format offering consultancy around continuing medical education and clinical governance from top institutions such as Alder Hey Children’s Hospital or Moorfields Eye Hospital, as well as software and supply chain management.



“I scope out the opportunity with the potential client and, on investigation, it can often be completely different from their original thoughts”

“Our project manager will find the right specialist for you and make all the arrangements, so the client is immediately speaking with the right people which is very powerful.”

UKIHMA can also arrange funding via UK Export Finance (UKEF) for foreign contractors, ensuring that 20 per cent of the work comes from the UK to qualify for the funding. In addition, they try to find partners in the countries the client works in, and will also help with language issues where English is not the main working language.

Even large organisations such as Arup and Mott McDonald are finding UKIHMA membership invaluable, enabling them to connect immediately to partners to form consortia where it might take them twice as long on their own. “And clients know they are talking to people at the right level, getting buy in from the very top of the organisation, which is extremely helpful and very powerful.”

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Race against time

Mobile Stroke Units are the way forward for treating more patients within the Golden Hour, says Innovation Correspondent Professor Rory Shaw

Whenever the Mobile Stroke Unit of Southend Hospital is out and about in the East of England, members of the public demonstrate their support for this pioneering ambulance. It's the first of its kind in the UK and is proving to be hugely successful in its current trial, thanks to the tireless work of Interventional Neuroradiologist Professor Iris Grunwald and East of England Ambulance Service who have fought hard to make it a reality.

Invented by Professor Klaus Fassbender of the University of Saarland in Germany, this state of the art ambulance takes treatment to the patient, rather than waiting for them to arrive at hospital. He came up with the idea when a breakthrough clot-busting drug was released in 1995 and he was unable to administer it to patients because they arrived too late.

It wasn't until 2008 that the first unit took to the roads, and since then these customised ambulances have revolutionised stroke treatment.

Thanks to Professor Grunwald's strong links with her former University, a unit was made available to Southend Hospital from April 2018. Run in conjunction with East of England Ambulance Service and equipped with state of the art technology, the ambulance is a miracle of design. It has the world's smallest CT scanner and on board AI technology to interpret images and relay them to the hospital





while en route. It also has blood-testing equipment, weighing equipment and specially positioned cameras to allow the remote clinicians to see and hear the patient and advise on treatment accordingly.

Precision triage

Early treatment of a stroke improves patient outcomes. When a patient is suspected to have had a stroke, a CT scan is vital to determine whether there is a blood clot or a bleed in the brain. Once the diagnosis is confirmed the patient is triaged, just as they would be in a hospital but with onboard triaging the patient is sent directly to the right ward and hospital, saving valuable time.

“Before you can give treatment you have to decide which type of stroke the patient has - a haemorrhagic stroke, which is a contraindication for lysis, or whether they or whether they have an ischaemic stroke where you have a blockage of the vessel,” says Professor Fassbender. “If you give the clot-busting drug in a bleed it would increase the bleeding. The only way to tell is to look with the scanner. It is different to a heart attack, the brain is much more sensitive. With the ambulance, not only do we have a range of diagnostic tools, but we can do the treatment.”

“If you give the drug and the brain is already dead you actually cause harm,” says Professor Grunwald. “In a stroke victim 2 million brain cells die per minute, so time is critical. To give the clot busting drug we need to know how much the patient weighs, and we can measure this exactly when they are on the table. Often we don’t know if a patient is on blood-thinning drugs and we can identify this too.”

In the unit the team are also able to do a contrast angiogram to see whether the vessel is occluded. NICE guidelines state that thrombectomy can be up to 24 hours. “Often we don’t know when the stroke began i.e. if it happened during sleep - but with the advanced imaging (Perfusion) and software we can still make a decision.”

The onboard Artificial Intelligence software, co-invented by Professor Grunwald who is also Director for Neuroscience at Anglia Ruskin University, automatically analyses the scan and identifies how much brain is damaged using the standardised ASPECTS score. The ASPECTS score is recommended in 19 guidelines for treatment of patients with thrombectomy.

Freeing up resources

Professor Grunwald specialises in thrombectomy or clot removal via a catheter inserted into an artery to remove the clot, restoring blood flow and minimising brain tissue damage. When used in conjunction with other medical treatments, such as the clot-busting drugs and specialist rehabilitation it can significantly



“In a stroke victim 2 million brain cells die per minute, so time is critical”

Professor Iris Grunwald

reduce the severity of disability caused by a stroke. Southend Hospital is one of just a few hospitals that offers this procedure and Professor Grunwald is a world-renowned specialist in her field.

In November Professor Grunwald and her team performed the second fastest thrombolysis in the world in just 16 minutes, thanks to the Mobile Stroke Unit.

Although she is still gathering data, the unit has been able to treat one third of stroke patients at home, freeing up both ambulance resource and hospital beds. Often the unit can bypass A&E and take the patient directly to the stroke ward. Within 26 days with 58 patients the unit has saved between 114 and 250 bed days, and saved the hospital more than £17,000 per patient treated with thrombectomy.

She is hoping to run more evaluations with different centres and in the meantime is raising money to build a UK ambulance. The total cost is around £750,000 but she is hoping the costs will reduce in future as there is more competition in the scanner market.

There are currently Mobile Stroke Units in Norway, Melbourne and the US including healthcare group Cleveland Clinics, most built in consultation with Professors Fassbender and Grunwald.

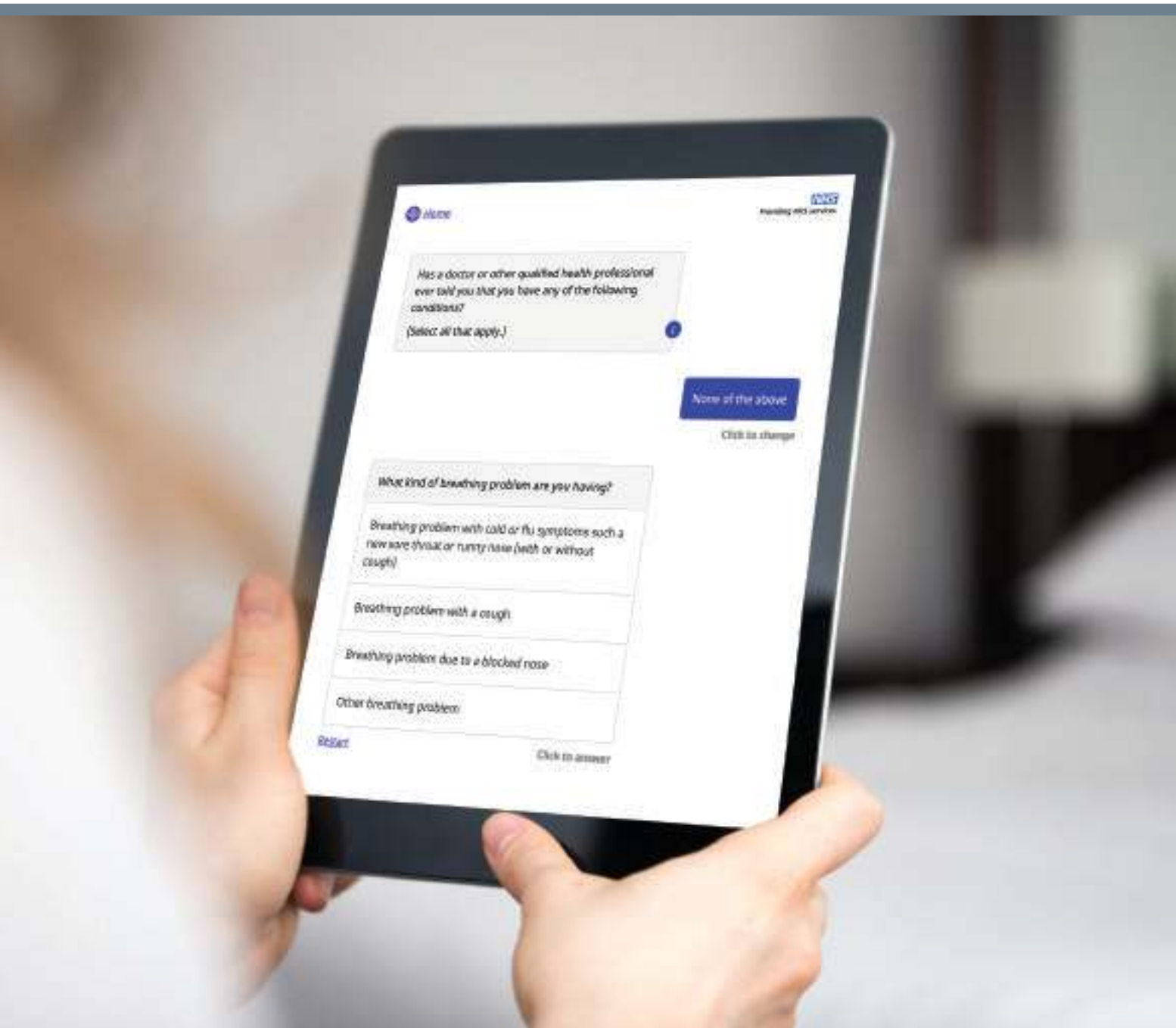
“I think the future of the unit will be paramedic run,” Daniel Phillips, East of England Ambulance Service says. “At Anglia Ruskin University we are looking at setting up a special diploma for paramedics to be trained for a stroke unit so many more patients can receive treatment. The concept of the Mobile Stroke Unit has saved thousands of lives across the world.”

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Linking Up

In a world moving to HIEs, Doctorlink seems to be the “missing link” in the ecosystem and information exchange.

Health Information Exchange (HIE) is the mobilisation of healthcare information via electronic means across organisations within a region, community or hospital system. The data provided by these systems can be used to improve the quality of patient-centred care in an effective and timely manner.

At present HIEs tend to focus around Electronic Health Care Records (EHR) and clinician-facing data capture. EHRs have become a very important and integral part of the healthcare system. In

these scenarios the HIE becomes the central hub of clinical-led data between multiple care settings (providers), insurance companies (payers) and governments.

Sharing electronic patient information enables providers to access and confidentially share patients’ vital medical history, no matter where patients are receiving care - this could be specialist care, primary care, labs, community care, pharmacy or emergency care etc.

There are clear benefits to the health ecosystem, providing safer and more effective care tailored to patients’ unique medical needs, as well as the obvious financial benefits that include avoiding unnecessary and repeated diagnostics, and reducing the variation of care across a strategic region.



Ultimately these benefits contribute to improving diagnosis in the patient, potentially saving lives by avoiding medical errors, and improving clinical outcomes and thus improving overall public health.

To further the success of HIEs there needs to be more focus around empowering patients and creating a means for data capture by the patient themselves. HIEs need to have a patient-facing front end which seems to be missing in many HIEs that are in existence today. This is not just about data capture; this is about educating patients, supporting them from the beginning of their patient journey and signposting them to the right place at the right time based on their clinical need.

Doctorlink (DL) is an extremely successful clinical engagement platform with a global presence including the NHS in the UK. The platform is designed to empower patients to take greater control of their health and enable them to gain access to the right care at the right time.

At its core lies a suite of algorithms that include but are not limited to, symptom assessment, which covers 95 per cent of presenting conditions triaged and signposted using clinically robust and indemnified algorithms, health-risk assessment, including population health management algorithms that proactively manage and identify patient risk, and service finder, which is a tailored directory of services that integrates with the algorithms to drive patients to the right place at the right time.

There are many benefits of using the DL Platform as the patient-facing front end of an HIE. Firstly, by implementing DL, regions will be able to gain a highly intuitive level of syndromic surveillance using the patient-facing tools. This is a deeper collection of data from the population. The data is collected and presented in real time using machine learning and AI. This approach gives regions the most comprehensive insight into population health and helps manage and control disease outbreak. Most important is the ability to individualise the data, enabling personalised medicine concentrating on prediction and prevention.

The second key benefit to an HIE is the care coordination and management programmes of patients. The DL platform can manage individual patients using clinical algorithms, offering self-care advice and guidance and most importantly, predicting and highlighting risks, interventions needed and suggesting the next steps of care on the patient's pathway in a clinically appropriate time frame. High risk patients can be identified and prioritised to clinicians in real time. The clinical prioritisation of patients ensures efficient and effective care which is preventative and actionable with improved clinical outcomes.

Patients have the ability to manage their own health and conditions, and the ongoing management of these patients through the platform

“Doctors report they have more time to be doctors with less clinical time spent on easily resolved problems”

Michelle Lea
Chief of
Global Market
Development

helps educate patients and support them in self-management. Most importantly it helps prevent the deterioration of a patient's condition. The clear and primary focus of embedding DL into the “patient-facing door” of an HIE is to give focus to empowering patients and promoting patient-centred care which is preventative in nature.

There are also clear benefits to the workforce in an HIE region using DL as the first point of access; these include but are not limited to enhanced, efficient workflow. Clinicians are supported by the DL platform using clinical prioritisation and real time management feeds. A solution like this is key in the demand management and prioritisation of ageing populations with increasing comorbidities.

The results of DL speak for themselves and already DL is helping health economies all over the world by reducing costs and improving access - interoperability with existing health care systems which is key to improving demand and outcomes.

Doctors report they have more time to be doctors with less clinical time spent on easily resolved problems. They have peace of mind that care is becoming standardised and the right patient is being seen at the right time.

Patients are happier, healthier and report an improved patient experience with 24/7 support centred on their needs. Globally, DL concentrates on patient- focused preventative medicine which is prescriptive and cost effective.

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Training, Education and the Art of Regulation

People are at the heart of the delivery of healthcare and quality of outcomes, the quality of healthcare outcomes depend largely on the standard of the professionals delivering patient care, say KPMG's Louise Scott-Worrall.

In the coming years there will be a clear issue around the number of qualified healthcare professionals across the globe, with an expected shortage of some 18 million by 2030.

Many healthcare economies rely on a continuous supply of overseas professionals. As well as being unsustainable in the long term, this approach comes with a number of challenges, not least that of validating the standards and qualifications of staff trained in other jurisdictions.

To maintain a sustainable, high standard, quality workforce requires long term planning. "Growing your

own" means a commitment to standards, education and training which encompasses everything from the promotion of healthcare as a career of choice through to the setting and enforcement of educational and professional standards. Essentially, healthcare education and training requires an infrastructure all of its own and cannot function in a long-term, sustainable way without being interdependent and having an understanding of disease profiles both now and in the future.

The importance of regulation

Planning how to scale and develop the future workforce starts with an assessment of the skills required and the architecture of grades from newly qualified through to the most senior roles. The quality of the workforce is defined by professional standards and regulation. All healthcare systems require understanding of the levels of qualification and experience that allow professionals to deliver healthcare at the desired standard. The level of regulation should be seen as an external assessment forming part of the overall governance regime for health systems. Strong regulatory markets include both the USA and UK, where KPMG has worked extensively with regulators to understand and provide advice on these requirements.

In addition, well developed regulatory regimes include a level of revalidation, with continuous professional development being a pre-requisite, along with a robust "fitness to practise" regime through which professionals and organisations can capture experience and learning for the future.

Education and training must be continuously updated and improved upon in order to continue to keep pace with developments in clinical practice and new technologies. In addition, a system needs to be put in place that can capture gaps in knowledge or competency and continuously address them.

This is where revalidation is key, constantly retesting and understanding the core competency of practitioners and ensuring that their individual CPD has kept pace with organisation and health system requirements.

Having defined the levels of qualification and competence required from a healthcare workforce, there are then a number of considerations and methods to satisfy them.





“To maintain a sustainable, high standard, quality workforce requires long term planning. ‘Growing your own’ means a commitment to standards, education and training”



Louise Scott-Worrall
KPMG

Options for delivery

The ideal, of course, is an established system; universities with established medical, nursing and professions allied to medical schools. These institutions have over many years forged relationships with a wide range of healthcare organisations, with teaching hospitals playing an important role.

In developing health systems, there may be the potential to establish links with educators, universities and teaching hospitals in more established nations and systems. These exist particularly in nations that have highly regulated markets. Again, these must be true partnerships ensuring internationally transferable skills and qualifications but also meeting local needs.

The delivery of education and training, particularly with the involvement of international partners can take several forms:

- The training and qualification of individuals in developed health systems with the intention of returning to practice in their country of origin. This can be incentivised through the award of bursaries or financial support to students. In a number of countries there is a constraint around availability of visas and in that the global shortage of clinical staff means that there is significant “leakage” on qualification, as individuals make the decision to stay in the country in which they received their training – availability of visas permitting;
- A second option is for internationally-focussed universities to set up outposts in other jurisdictions, for example in Dubai with the Harvard Medical School and in Malaysia with the University of Nottingham’s pharmaceutical campus. This approach can be successful where there is a strong, motivated potential workforce and ongoing revenue streams for the international educator.

Some training, ongoing CPD and professional qualifications can also be provided by distance/online learning, an easy and convenient route particularly for CPD. There are numerous online learning platforms that can be adapted to the needs of the individual system, role and regulatory requirement.

Distance / online learning can also be combined with face to face teaching from visiting professionals to create a blended solution, allowing some elements of classroom teaching with follow up online. This solution can be particularly effective.

Non-Clinical Education and Standards

Finally, we must consider the leadership and management of healthcare systems. This is a vital component of any health system, not only to ensure most effective use of resources and adherence to regulatory and quality frameworks, but also to help clinical services adapt to the impact of technology developments. KPMG has had particular experience providing leadership training, having led a consortium that designed and delivered national leadership programmes with the NHS Leadership Academy.

It should be remembered that there are many interconnected elements to creating high quality healthcare. All of them require a training and education element and infrastructure, from accountancy to facilities management, laboratories to brain surgeons. The regulatory systems within which they operate are an important part of what needs to be defined, and at KPMG we have the people, expertise and experience to support in their development. ●

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Diagnosing the future

Early diagnosis is key to future of healthcare, says Dr Steven Powell, Chief Diagnostic Officer at Rutherford Diagnostics

Diagnosics is a word which increasingly came to the fore of the healthcare industry in 2018, with the agreement across the board that quicker diagnosis is needed in order to ensure the best possible treatment outcomes. 2019 has started with a similar emphasis, with the British government announcing a 10-year plan for the NHS that places early detection and prevention of disease at the core of the NHS future, as part of an additional £20bn investment in the NHS. The government and NHS bosses believe the plan could save up to 500,000 lives.

One company, Proton Partners International, is opening its Rutherford Diagnostics centres across the UK in a bid to detect a range of diseases at the earliest opportunity.

This January saw a construction team break ground on Rutherford Diagnostics' headquarters in the heart of the Knowledge Quarter Liverpool (KQ Liverpool) within Liverpool City Council's £1bn Paddington Village development. The five-storey building will be positioned opposite the Royal College of Physicians' new northern headquarters, 'The Spine', and sits directly adjacent to the Rutherford Cancer Centre North West, which is the Liverpool branch of Proton Partners International's cancer centres being built across the country to

provide high energy proton beam therapy to cancer patients.

The arrival of the Liverpool headquarters for Rutherford Diagnostics was welcomed by the Mayor of Liverpool, Joe Anderson, who said: "This diagnostics centre is going to be a fantastic addition to Paddington Village and further boosts our plans for a world leading innovation hub in the heart of the city's Knowledge Quarter. Paddington Village is gaining real momentum with renowned tenants like Proton Partners International, the RCP and Kaplan investing in the city and creating highly skilled jobs – and the great news is that there is much more to come."

The Rutherford Diagnostics headquarters will focus on the prediction, prevention and detection of various health conditions, while also utilising innovative technologies such as genomic sequencing,





“We aim to be able to provide a 24-hour turnaround service. This will mean that patients can commence treatment sooner, which has the potential to save lives”

Dr Steven Powell
Chief Diagnostics
Officer, Rutherford
Diagnostics

personalised screening and state-of-the-art diagnostic treatments to reduce levels of acute illness and support good health.

Dr Steven Powell is the Chief Diagnostic Officer at Rutherford Diagnostics, having previously worked in various aspects of radiology for many years, as well as being Clinical Director of a busy UK teaching hospital. He joined the team in 2017 after being Director of the Accelerator, a home for life science businesses in QJ Liverpool.

“The Health Foundation recently reported that 10,000 deaths could be prevented each year in cancer alone through better diagnosis,” says Dr Powell. “At present, the healthcare industry is reactive to people’s needs, but we need to take a more holistic approach to the problem by focusing on early detection. The UK government is finally getting to grips with the need for rapid diagnosis, with the Prime Minister’s recent 10-year plan for the NHS placing considerable emphasis on prevention and early detection.

“In many parts of the UK, patients are often forced to wait many weeks or months for a proper diagnosis, and these delays can be dangerous – especially in advanced cases. By opening centres such as Rutherford Diagnostics across the country, we plan to work with public and private healthcare bodies in order to reduce waiting times down to days instead of weeks. Ultimately, we aim to be able to provide a 24-hour turnaround service. This will mean that patients can commence treatment sooner, which has the potential to save lives.”

Rutherford Diagnostics will provide services such as CT, PET-CT, MR, ultrasound and endoscopy, working

not just in oncology but in other key areas of healthcare where faster diagnosis is needed such as cardiac disease.

Dr Powell adds, “The UK currently lags behind other countries in terms of the actual machinery we have in order to diagnose patients. For example, Germany has five times as many CT and MR scanners as the UK healthcare system does, relative to the population sizes of each country. Britain is more on a level with countries such as Mexico and Hungary in terms of the diagnostic scanners we have, whereas we should be aiming to be a centre of excellence within the healthcare field.

“Our aim for the Rutherford Diagnostics centres is to provide a pleasant and welcoming non-hospital clinical environment where all relevant tests can be done without facing the hurdles and obstacles often associated with a larger, all-encompassing healthcare facility.”

As well as diagnosis itself, Rutherford Diagnostics aims to focus on the prediction and prevention of disease by using genomic data in order to study medical patterns in certain conditions and determine risk factors.

Dr Powell said, “Our aim is to revolutionise healthcare by looking at the whole picture – if we can anticipate an individual’s condition before it becomes a major issue, this will allow them to fast-track through the system and present them with the opportunity to tackle their condition at the earliest possible opportunity.

“Our team is hugely excited to be a part of this process and we look forward to welcoming the first patients at our Liverpool centre later this year.”

Contact Information



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Exit Britain?

The impact of Brexit on the globalisation of health and social care.

The UK is set to leave the European Union on March 29th 2019, but is in disarray over how that might happen. Among the issues causing greatest division between “remain” and “leave” supporters is the future of health and social care.

Those opposing Brexit believe that the international agreements under which the UK currently trades with global partners provide vital protection to the NHS, safeguard the UK’s right to regulate in the interest of public health, sets high health and safety standards on imported products, and maintain open border arrangements with free movement of much needed healthcare and medical research staff.

Leavers – and especially those pushing for a “no-deal” departure – argue that the UK’s future lies in a more global environment, and that a significant number of trade agreements can be negotiated that will increase access to markets and limit the economic cost of Brexit.

They say the UK’s expertise in sectors such as healthcare can not only generate more investment

and resources for the NHS, but can also be leveraged as a valuable global trade commodity in an increasingly interconnected world.

Brexit gridlock

At time of publication, there is still considerable uncertainty over Brexit, because the UK Parliament hasn’t made key decisions about how the country will leave – and its future relationship with the remaining EU27 countries and other jurisdictions.

Currently, the Government is trying to win Parliamentary approval for a Withdrawal Agreement, but it faces strong opposition. Unless agreed, it raises the prospect of the UK leaving on a “no deal” basis and without a transition period. Other scenarios include seeking an extension to Article 50 that would delay departure, and/or a second referendum that could reverse the 2016 vote to leave. The Government has so far resisted both of these options.

The current gridlock means there are no immediate prospects of talks starting on free trade agreements



(‘FTAs’) to decide the UK’s future relationship with the EU or many other countries with whom there are often strong relationships based on shared histories.

Global mobility and immigration

When the UK Government made clear that ending freedom of movement between countries is a red line Brexit commitment, there was naturally concern among health providers.

The majority of NHS staff in England are British nationals – but a substantial minority are not. Around 144,000 out of 1.2m staff report a non-British nationality. This is 12.7 percent of all staff for whom a nationality is known, or one in every eight. Between them, these staff hold 200 different non-British nationalities. Around 63,000 are citizens of other EU countries - 5.6 per cent of NHS staff in England. Around 49,000 staff members are Asian nationals. (source: UK House of Commons Library).

In common with other countries, the UK has an ageing population that places increasing demands on health and social care services. It therefore competes with other countries such as Australia, the United States and Canada for the same global pool of workforce resources – including India and the Philippines.

The World Health Organisation estimates the world will be short of 12.9m health-care workers by 2035, a problem made worse as populations rise.

To provide greater clarity for employers (and in particular health organisations) needing to recruit from within the EU and elsewhere, the



“The current gridlock means there are no immediate prospects of talks starting on free trade agreements (‘FTAs’)”

Carly Caton
Partner
Bevan Brittan LLP

Government recently launched a White Paper on Immigration with the aim of creating a post-Brexit system that will prioritise skilled workers.

From 2020, a more restrictive immigration policy is planned, with the same rules applicable to individuals whether they are from the European Economic Area (‘EEA’) or the rest of the world.

The Paper proposes to end the cap on skilled workers, and scrap the requirement for employers to carry out a resident labour market test before hiring a worker from overseas.

UK Home Secretary Rt. Hon Sajid Javid MP says this will place the focus on “talent and expertise, rather than where people come from”. Individuals meeting the criteria will be entitled to bring their dependants to the UK, to switch to other immigration routes and, in some cases, to settle in the UK permanently.

From an immigration perspective, the proposed changes are likely to make it easier for UK healthcare providers to seek skilled workers from overseas, but this will depend on the exact salary levels at which such skilled workers are considered.

At present, non-EU migrants must earn more than GBP £30,000 a year to work in the UK. The government – under pressure from employers in the health, social care and other sectors - will consult on whether or not this threshold should be retained for all overseas workers.

As a first priority, organisations wanting to hire non-UK workers should register now as sponsors (and thereafter issue certificates of sponsorship to their employees). This could take four months to secure, and will also involve substantial record keeping and reporting obligations, with the added worry that any non-compliance risks employers losing their licence and ability to recruit overseas staff.

The Government has also introduced a settlement scheme for EU citizens wanting to live in the UK. Under the scheme, EU citizens can apply for ‘settled’ or ‘pre-settled’ status:

- Settled status - EU citizens and their family members who have been continuously resident in the UK for five years, by 31 December 31 2020, will be eligible for settled status, enabling them to stay in the UK indefinitely;
- Pre-settled status - EU citizens and their family members who arrive in the UK by December 31 2020, but will not yet have been continuously resident here for five years as at that date, will be eligible for pre-settled status, enabling them to stay until they have reached the five-year threshold. They can then apply for settled status;

Both public and private sector organisations can’t get enough skilled people they need both now and for future investment, and are worried that Brexit will increase difficulties in retaining workers from EEA and other countries.



Consequently, a substantial burden will remain on employers trying to manage complexity and compliance, amid concerns that recruitment and hiring difficulties in the UK have now reached critical levels.

New health systems

There is a rapidly changing global landscape of health provision that requires fresh thinking and innovation. In this context, “necessity may be the mother of invention” as UK organisations may be at the forefront of having to adapt to these challenges even sooner than would have been the case if Brexit had not become an issue.

The UK already ‘exports’ its expertise in healthcare. Its knowledge of how technology platforms can deliver care via new models - and frequently on a remote and cross-border basis – are likely to be an important feature in future FTAs the UK may seek to make with other countries.

Such opportunities may make it easier, therefore, for UK organisations to market their existing capabilities and experience in delivering innovative solutions to meet burgeoning healthcare and social care demands.

Currently, efforts are being made in the UK for better cross integration between social and healthcare provision - as well as more integration between primary and secondary healthcare services.

Given the relative maturity of the UK healthcare system and the mix of public and independent healthcare providers already providing services, there are likely to be opportunities for organisations globally that have experience in delivering such services innovatively to consider such opportunities in the UK.

We have advised on a number of partnership ventures between UK healthcare organisations and third/Middle East countries in recent years, and this trend is likely to continue in the future as UK organisations look to build on marketing their expertise globally.

A key requirement will be training the right number of people, with the right skills to deliver health and social care, in the right place.

Leading health economies now acknowledge that greater integration of services, more community based care and digital solutions – all of which are receiving substantial investment now in the UK – will be critical in delivering the advanced public health and disease protection models their citizens need.

The UK is well-placed in contributing to training and education, particularly for non-EU countries as they seek to develop their own healthcare systems. In the UAE’s fast developing healthcare sector, for example, the UK already holds a prominent position in the market with world-class UK NHS brands such as Imperial College, Moorfields, King’s College Hospital and Maudsley Hospital delivering high quality clinical services.



“The World Health Organisation estimates the world will be short of 12.9m health-care workers by 2035”

Jodie Sinclair
Partner
Bevan Brittan LLP

The increase in new-build hospitals and medical centres offers joint opportunities for filling gaps in provision such as oncology, paediatrics, mental health, primary care, trauma, emergency services and long term rehabilitation – and delivering high quality training and education programmes for medical staff.

Global health regulation

The UK’s likely decoupling from the EU will disrupt a well-understood global regulatory framework for health product development, licensing and ongoing monitoring, including pharmaceuticals and medical devices.

There are many “third countries” whose own regulations refer to the EU’s regulations as part of





their own quality assurance framework. By way of example, in the Kingdom of Saudi Arabia, the Saudi Food and Drug Authority ('SFDA') issues a broad sweep of guidance on the regulation, licensing, importation, batch testing and marketing of pharmaceuticals, biological products and medical devices.

Whilst there remain some very limited references to British standards, these appear vestigial and given the pre-eminence of organisations such as the European Medicines Agency ('EMA'), of limited application in any event.

For UK manufacturers, this position presents a serious challenge. The EMA is moving from London to the Netherlands. There has been something of a stampede for UK manufacturers to establish branches or subsidiaries in the Netherlands to facilitate seamless

licensing of existing product and future simultaneous releases in the UK and the EU.

With a "hard" Brexit, the UK will lose the right to have its laws presumed equivalent to those of the EU, though we should expect some sensible "work-arounds" together with a great deal of goodwill and commonality of purpose within the sector.

In jurisdictions less familiar with Brexit issues, the position will differ markedly. In 1988, the EU and the Gulf Cooperation Council ("GCC") entered into a Cooperation Agreement that provides reciprocally for "most favoured nation" ('MFN') status as regards the regulation of trade.

In effect for the UK it sets the high water mark in terms of how its goods will be treated (i.e. it will not get any better treatment than that accorded to the



EU). What the Cooperation Agreement does not provide for is the position where a member state of a signatory organisation secedes from such membership.

So what is likely to happen? From a Gulf perspective, much depends on the common sense of regulators in the GCC. Soundings indicate that they are adopting a “wait-and-see” position (in common with the rest of the world) as regards the outcome of the Brexit deliberations in the UK Parliament.

However, it should be noted that the issue is simply not that important to some countries in the region. There appears to be an assumption that a sensible way through whatever regulatory hurdles present themselves will be found. No measures have yet been announced as regards stockpiling against a worst-case scenario.

Health investment

There is ground level evidence in the Middle East that the UK Government is working hard at consolidating existing relationships and setting ambitious targets to improve trading relationships.

The United Arab Emirates is the UK’s largest export market in the Middle East, the 13th biggest globally and also the UK’s fourth largest export market outside the EU (source: UK Department for International Trade).

In the provision of services, Brexit therefore represents a significant opportunity for UK health operators to secure lucrative contracts in the Middle East, with the timing being perfectly aligned with the region reducing public spending on healthcare and hoping to attract private sector investment and operators of facilities.

There is substantial demand in the region for specialist clinical services in which the UK excels. Success stories include the Imperial College London Diabetes Center in Abu Dhabi, and the new King’s College London hospital and clinic in Dubai, along-with UK interest in other projects in the Kingdom of Saudi Arabia and in Kuwait.

It seems likely that once more is known about the ultimate shape of the Brexit deal, more detailed guidance will be issued to the relevant authorities regarding the status of UK-origin products and their interim status.

Longer term, much will depend on new trade arrangements put in place by the UK and the GCC (or constituent members). However, whether the finer trade terms promised by leave supporters in the UK are actually possible - given the most favoured nation status provisions in most existing EU agreements - remains to be seen.

In the short term, and with an end to freedom of movement, Brexit may result in a system that is flexible enough to meet resourcing needs for skilled and intermediate skill levels - but this does not change the short term likelihood of more administration resource needed to comply with any new system once Freedom of Movement ends.



“The UK’s likely decoupling from the EU will disrupt a well-understood global regulatory framework”

Francis Patalong

Senior Associate at Al Tamimi & Company

The increased demand for such health services globally not only means competing for a limited global pool of resource, but also that there is greater pressure upon UK organisations within health and social care provision to look at improved productivity and innovation solutions to meeting challenges ahead, with increased use of technology and digitisation.

Conclusion

The UK government has high hopes that FTAs with non-EU countries, will result in greater trade liberalisation in both goods and services, and many third countries have announced they are willing to sign-up to new deals.

However, based on other countries’ experiences, it is likely the UK will face some significant challenges and complexities in negotiating service agreements. The UK’s bargaining power could be limited by the MFN clauses for services that exist in several of the EU’s existing FTAs.

But, given the limited global pool of labour and resources to meet ballooning healthcare needs, capability in delivering innovative solutions to healthcare and social care provision is likely to be a precious asset.

Brexit or no Brexit, changing demographics and rising demand for better healthcare and social care - together with the need to deliver those services at sustainable cost - means there are many opportunities for providers to market their healthcare know-how globally.

The specific opportunity for the UK is not only to showcase its particular range of expertise, but also for other third country healthcare providers to explore potential opportunities to meet the considerable health and social care challenges in the UK. ●

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Plugging the Gap

By 2030, the World Health Organisation predicts the world will be short of 18m health workers, says Dr Mark Britnell, Global Chairman Healthcare KPMG

Demand for health services is growing fast. Not only are our populations growing, but they are also ageing and ailing. The most recent Global Burden of Disease study from 2016 shows that while life expectancy is rising, a greater proportion of those extra years are spent in ill health, as the global incidence of non-communicable diseases, like diabetes and heart disease, soar. The honourable commitment made by all UN countries in 2015 to achieve Universal Health Coverage by 2030 has only added fuel to the fire – by steadily converting what was previously unmet need into fully-funded demand.

For years, high income countries like the US and Europe have been able to buy themselves out of trouble. Swathes of migration have characterised the international health labour market, with currents trending from East to West and South to North across the globe. Increasingly however, high income countries are finding that even where the money exists, the staff don't.



“I see the most innovative use of health workers' time in countries where their skills are most scarce”

Dr Mark Britnell
KPMG

The answer is not the “predict and provide” workforce planning of old. Traditional models of care are too labour intensive and expensive to scale – instead, we need innovative thinking about how best to curb demand, improve the productivity of staff, and make that workforce more motivated and agile. Fortunately I see pockets of excellence everywhere.

In the Netherlands, patients using the district nursing service Buurtzorg require almost a third fewer care hours because of a commitment to continuity of care, from highly trained professionals, who are well integrated with other health and social services, (though total care costs remain the same). When Germany introduced Long Term Care Insurance in 1995, providing payments to friends and relatives to help care for their loved ones at home, the demand for care assistance from the state halved in three years.

We tend to shy away from labour productivity in healthcare but it doesn't have to mean working harder, just smarter. I see the most innovative use of health workers' time in countries where their skills are most scarce. At the Aravind Eye Care Hospitals in India for example, ophthalmic surgeons only ever perform that part of the operation that requires their presence, while the tasks not requiring surgical skills are carried out by trained support staff. While US surgeons average around 400 surgeries a year, Aravind surgeons average closer to 1000. In South Africa, community health workers diagnose and manage HIV, whilst in Mozambique, nurses have been trained to perform caesarean sections. In Bangladesh, a digital healthcare service called Tonic reports dealing with up to 70% of its calls and enquiries online or on the phone, with artificial intelligence algorithms guiding consultations.

Inevitably we will need more staff, more generalists than specialists, practicing in the community rather than hospital, and they will need to be digitally and tech enabled with a more flexible mind-set - skills will decay quickly unless we learn to re-learn. In return however, we need to treat our health staff better. The UK estimates its nurse vacancy rate would be half what it is now, if retention rates had remained stable for the last 5 years.

Solving the global workforce crisis in healthcare will not be easy. But as I point out in my forthcoming book, “Human: Solving the global workforce crisis in healthcare,” it will be worth it. When KPMG helped introduce National Health Insurance to the Bahamas in 2016, the estimated return on investment to GDP was 9 to 1. Health is wealth, and spending on our healthcare workers is an investment, not a cost. ●

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The Centre of the Global Healthcare Market

Arab Health is definitely a global event and a global brand, says Exhibition Director Ross Williams

With more than 4000 exhibiting companies and 84,500 healthcare and trade professionals in attendance, Arab Health kickstarts each year with a punch. With \$778m worth of business generated by exhibitors during the 2018 edition of the show, it's an unmissable event on the global healthcare calendar.

Exhibition Director Ross Williams has been a part of Arab Health for the past eight years and understands the reasons behind the growth of the show. Dubai is the perfect location for such a global event, with easy access to visitors from anywhere in the world. But crucially for Arab Health, the city has a visibly thriving healthcare industry. "Even on my way to work this morning, there are two brand new hospitals which are being built and one which has just opened," says Ross.

"With a name like Arab Health people may see it as a Middle East show, but with the audience we have attracted it is definitely a global event and a global brand."

That Dubai's hospital facilities are growing so quickly is reflective of rapid regional growth in the Middle East and North African (MENA) healthcare market. The World Health Organisation predicted last year that the MENA healthcare market is set to grow by 5% per annum and, according to Ross, "There are 700 health care projects worth 6.9bn US dollars under various stages of development at the moment, in addition to vast government initiatives."

This expansion is putting the Middle East at the centre of the global healthcare market and has generated the framework along with the historical longevity that allows Arab Health to thrive as a global event. This year's exhibition will see leaders and providers in healthcare representing more than 160 countries.

With a large international population, Dubai's own health challenges are becoming increasingly reflective of global health challenges. "The population here is growing constantly, and getting older, largely from expats like myself who decide to travel over to seek out our fortune and our place in the sun. As such there is a higher prevalence of western diseases and health conditions. Some of the key factors stimulating the growth of the healthcare market in the region include the ageing population, increasing frequency of non-communicable disease, high cost of treatment and mandatory health insurance."

That demographics in Dubai are shifting to widen the variety of health conditions prevalent in



“It is really an interesting time for healthcare and we are right in the middle of it here in the UAE”

Ross Williams
Exhibition Director
Arab Health

“One of the innovations I have seen recently is a Virtual Reality headset from Polish healthtech company Pavilion to treat children who suffer from sight problems,” Ross comments.

“We also have an innovation demo area where some of the companies in the show will be able to demonstrate their products with a hands-on approach,” he adds. “This means you can actually feel the product and use it and then see what it does.”

Technological innovations such as the VR headset have the potential to give independence back to patients, surely in line with the priorities of providers and governments across the world.

“The trade generated during the last edition of Arab Health is a strong indication that the private sector is also playing an important part in the development of the healthcare industry,” says Ross. “We anticipate that these figures will continue to grow in subsequent years. It is really an interesting time for healthcare and we are right in the middle of it here in the UAE.”

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 **ARAB HEALTH**

www.arabhealthonline.com

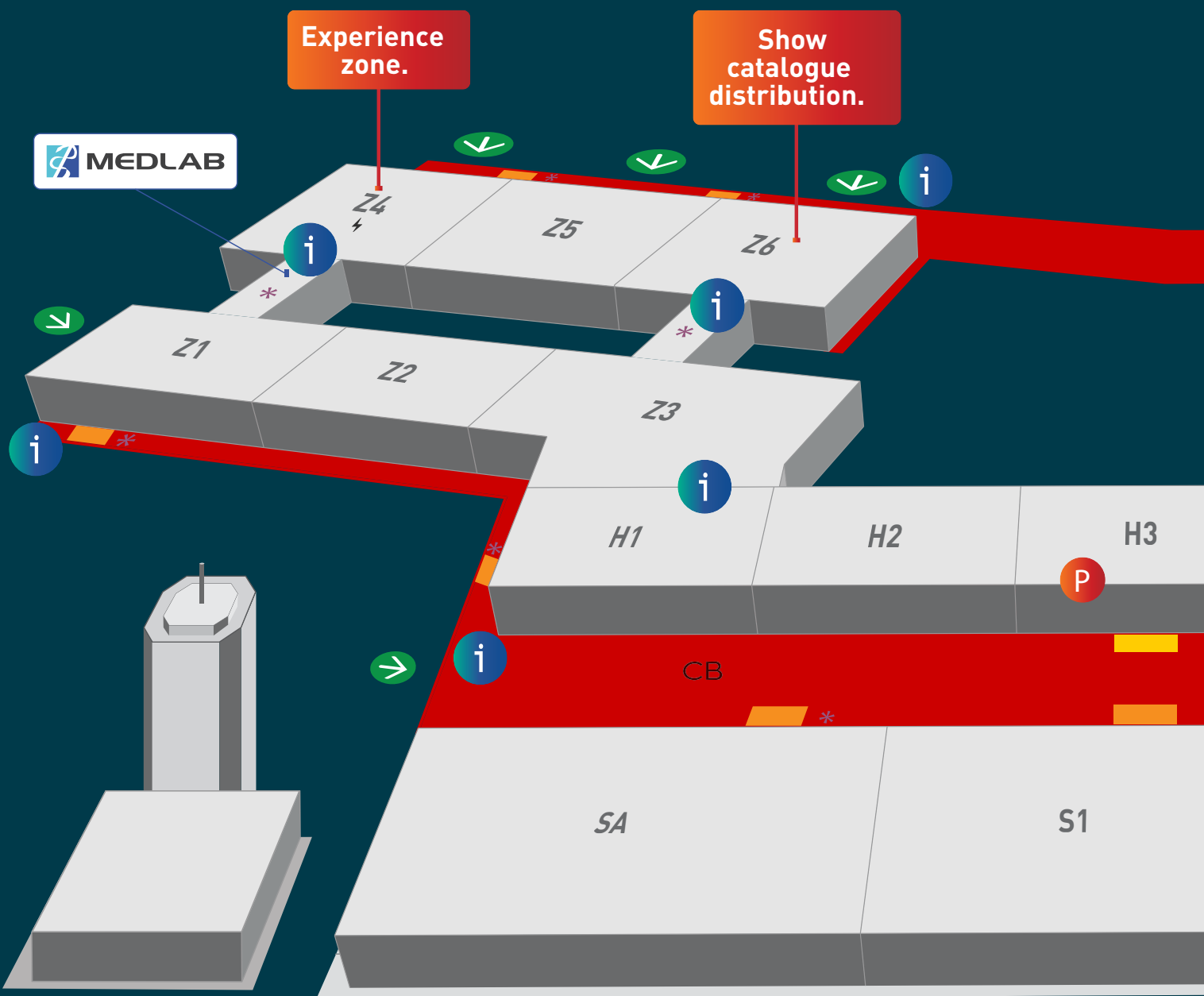
the area has led to a change in the perception of healthcare. This has facilitated the development of initiatives and technologies designed to treat an ever-increasing variety of medical conditions. This is further justification for Arab Health to command such significance in the global health care event calendar.

Predicting the future

As health providers and manufacturers try to stay ahead of the curve in the healthcare market, innovation is a key driver both in clinical technology and in the business models built around it. Showcasing this is a key priority for Arab Health. Working alongside government entities such as the UAE Ministry of Health and Prevention, Dubai Health Authority, Department of Health Abu Dhabi and SEHA, Arab Health will host the new Innovation Hub – a dedicated area at the show for attendees to immerse themselves in the latest healthcare innovations.

“The market is ripe for new healthcare start-ups and entrepreneurs looking to make their mark on the industry,” says Ross. “Over the years we have seen growing interest in new products and innovations that will contribute to shaping the future of healthcare. Hospitals, medical device manufacturers and service providers across the globe are facing increasing pressure to innovate in order to become competitive.”





Stand key prefix.

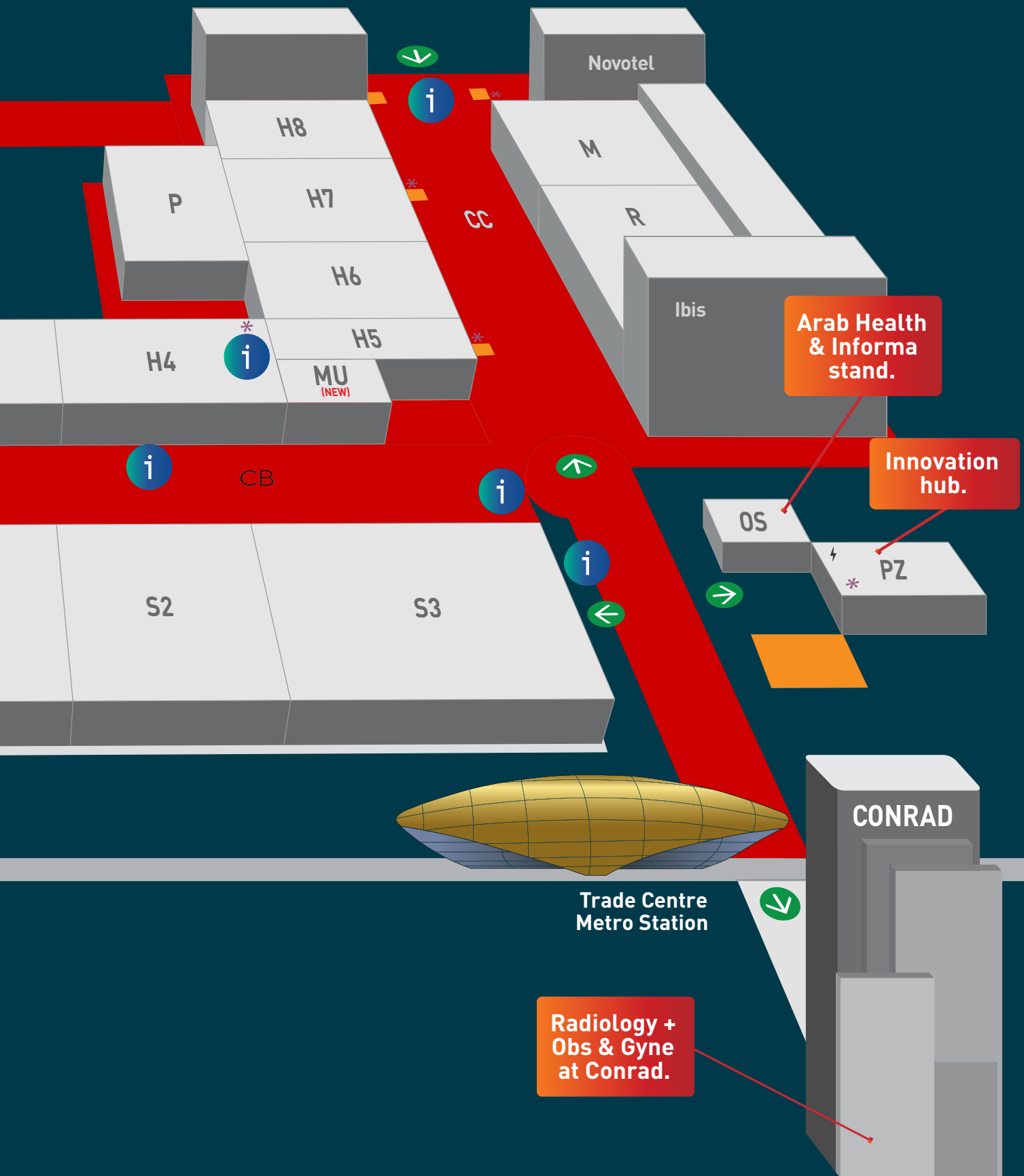
- Visitor badge collection & registration
- Conference badge collection & registration
- Exhibitor badges
- ✱ Supplier finder (Navigation kiosk)
- i Information
- ↑ Entrance
- P Press Office - Al Ain C, Level 1 above Hall 3
- ⚡ Charging station

- H1 - Hall 1
- H2 - Hall 2
- H3 - Hall 3
- H4 - Hall 4
- H5 - Hall 5
- H6 - Hall 6
- H7 - Hall 7
- H8 - Hall 8

- SA - Trade Centre Arena
- S1 - Sheikh Saeed Hall1
- S2 - Sheikh Saeed Hall2
- S3 - Sheikh Saeed Hall3
- M - Sheikh Maktoum Hall
- R - Sheikh Rashid Hal

- Z1 - Za'abeel Hall1
- Z2 - Za'abeel Hall2
- Z3 - Za'abeel Hall3
- Z4 - Za'abeel Hall4
- Z5 - Za'abeel Hall5
- Z6 - Za'abeel Hall6

- P - Pavilion
- PZ - Plaza
- OS - Outside
- CB - Concourse 1
- CC - Concourse 2
- MU - Al Multaqua





Arab Health 2019

Showcasing the future of healthcare in the MENA region

As a consequence of falling oil prices, diversification of the economy has remained a priority for governments across the GCC in recent years. Also, the expanding and ageing population, high prevalence of noncommunicable diseases, rising cost of treatment and increasing penetration of health insurance are some of the key factors spurring on the growth of the healthcare market in the region.

According to a 2018 GCC Healthcare Industry Report by Alpen Capital, the current healthcare expenditure (CHE) in the GCC is projected to reach US\$ 104.6bn in 2022 from an estimated US\$ 76.1bn in 2017, implying a CAGR of 6.6 per cent.

Meanwhile, in view of the anticipated rise in the number of patients, the GCC may require a collective bed capacity of 118,295 by 2022, indicating a demand for 12,358 new beds. This demand is being mitigated by the 700 healthcare projects worth US\$ 60.9bn under various stages of development.

Driving the healthcare industry

With the demand for healthcare products and services continuing to increase within the region, the Arab Health Exhibition & Congress has once again proved its credentials as a must-visit exhibition for anyone associated with the industry - not only in the Middle East, but also across the globe.

As the largest gathering of healthcare product manufacturers, service providers and trade professionals in the MENA region, Arab Health is gearing up to welcome more than 84,500 attendees from over 160 countries in January 2019 for the 44th edition of the show.

Taking place from 28 - 31 January at the Dubai World Trade Centre, the show is the perfect opportunity for trade and healthcare professionals to stay abreast of the industry's latest trends and advancements and engage with more than 4,150 companies from 66 countries that will be showcasing the latest healthcare technology, products and services. With 39 dedicated country pavilions, international representation at the show remains robust with many pavilions increasing in size and number of exhibiting companies year-on-year.

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

Deals to be done

Manufacturers of medical devices and service providers use Arab Health as an opportunity to showcase their latest products to the MENA region's healthcare industry. Companies vary from large organisations such as Siemens and Philips to smaller business houses exhibiting for the first time. With thousands of products on display, business deals occur every minute of the show. In fact, a number of regional 'firsts' were announced at the 2018 edition of the show and millions of dollars of contracts are negotiated and signed during the four-day industry showcase.



One example was GE Healthcare's announcement that it would deliver advanced diagnostic technology to fully equip the radiology department of King's College Hospital London in the UAE, which is set to open in Q1 2019. Another was British healthcare technology company Babylon announcing an agreement with THIQAH to provide Artificial Intelligence health services to Saudi Arabia, in association with the Saudi Ministry of Health.

Other marquee deals signed during the event included a health IT strategic partnership between Al Jalila Children's Specialty Hospital and the Children's National Hospital, while Fakeeh Care signed an agreement with Emitac Healthcare Solutions to provide advanced turnkey healthcare solutions to its Fakeeh University Hospital project being developed at Dubai Silicon Oasis.

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

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

The digital exhibition

Attendees can utilise Omnia 360 – an all-encompassing digital platform and global medical directory as a real-time tool to explore the exhibitors and products on show at Arab Health. With the listed companies updating their information throughout the year, visitors can watch product demonstration videos, view PDFs and brochures, download catalogues as well as interact with multiple companies on the portal.

Apart from being able to connect with the exhibitors before, during and after the show, visitors can create a wish list of companies and products of interest and download these interactive tools to personal devices for future reference and planning. Through Omnia360, listed companies get genuine business enquiries and visitor information, while visitors are able to make informed decisions even off the exhibition floor.



“The Innovation Hub will feature the Innovation Showcase allowing visitors to explore cutting-edge healthcare technology”

All eyes on innovation

Innovation is driving the healthcare industry forward and advances in technologies are creating vast new possibilities and opportunities for the UAE healthcare sector. Healthcare facilities, medical device manufacturers and service providers across the globe are constantly innovating to remain competitive and offer new and improved treatments to patients. In line with this, Arab Health 2019 will introduce a dedicated Innovation Hub to highlight some of these technological advances and innovations.

The Innovation Hub will feature the Innovation Showcase allowing visitors to explore cutting-edge healthcare technology including AI, disease management and home care devices, mobile device accessories and telemedicine platforms, to name a few.

The Innovation Hub will also be the platform for the inaugural Innov8 Talks at Arab Health. As well as daily free-to-attend talks with discussions led by keynote speakers, the Innov8 Talks will also host a series of Pitch sessions for the region's most creative and forward-thinking healthcare start-ups and SMEs to sell their ideas to an esteemed panel of judges who are involved in driving innovation in the UAE.

Education the Arab Health way

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

With 11 conferences, Arab Health Congress is one of the largest CME accredited multi-track medical conference in the world. More than 4,500 delegates and 400 international and regional speakers will be welcomed over the four days of the congress.

By running conferences that are led by internationally acclaimed speakers, medical practitioners get to learn about topical healthcare issues and how to approach them in their daily practice. Additionally, through the exhibition, healthcare organisations have the opportunity to explore the latest technologies that may be integrated into their current or future facilities. Both aspects, the conference and the exhibition, bring together global leaders in the healthcare industry to exchange ideas and discuss advancements in the field, which may then be applied to benefit the patient.

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 **ARAB HEALTH**

www.arabhealthonline.com



The shift to digital healthcare

Navigating the new digital healthcare landscape is challenging for everyone, says Dr Niti Pall, Medical Director, KPMG's Global Health Practice

The global healthcare landscape is rapidly changing with digital technologies becoming increasingly normalised into the everyday delivery of healthcare. But how does this change how healthcare organisations provide and deliver care?

In the future, the digital landscape might span everything from patients to wider healthcare delivery organisations (See Figure 1). Patient-facing technologies are at the centre, reflecting the impact that this new ecosystem of self-monitoring and decision support will have on their experience and quality of care. Other technologies are broadly categorised as professional-facing and organisation-facing depending on their primary user and value in enhancing individual patient care



An overview of the digital healthcare landscape



“Technological transformation will be one of the major differentiators between successful and unsuccessful providers over the next decade”

Dr Niti Pall
KPMG

or improving care systems. The electronic health record straddles the system as a whole, reflecting the pivotal role it plays in any digital strategy. It is the foundation upon which many of the other applications are built.

Navigating this new landscape is challenging for organisations and their leaders and there are many pitfalls. There is no doubt, however, that technological transformation will be one of the major differentiators between successful and unsuccessful providers over the next decade. The pressures of cost and expectations of quality mean that doing nothing is not a sustainable option.

Deploying information technology in healthcare

The history of health information technology (IT) has certainly not always been smooth. Examples of spiraling costs, slow take-up and elusive productivity gains are found in virtually every health system around the world. Why has healthcare delivery been so resistant to digital transformation, and when big investments have been made, why have strategies so often failed to pay off?

Based on my experience at both local and national levels, perhaps the most important lesson of all is that becoming a digitally enabled healthcare provider isn't about replacing analogue or paper processes with digital ones. Where implementations have failed, technology has often simply been layered on top of existing structures and work patterns, creating additional workload for healthcare professionals.



For me, the technologies that have released the greatest immediate benefits have been carefully designed to make people’s jobs or the patient’s interaction easier, with considerable investment in both the design of the tool and the redesign of ways of working.

A pattern I’ve seen time and again is the great expectations of new technology clashing against an initial period of frustration and reduced productivity. Benefits eventually materialise – often after two or more years – but weathering this ‘digital dip’ is an important hurdle that has led to many transformation strategies being scaled back or even abandoned.

A case in point is electronic health records (EHRs). These are an essential foundation to any digital strategy, but rarely do they produce any immediate benefits to the frontline. In reality, most organisations see an initial phase of added inefficiencies before the tools that work off the EHR (patient flow management, e-prescribing, automated alerts and data transfer) are developed, implemented and get to work. The unexpected pain of the initial EHR implementation has caused many providers to get stuck in the dip – unable to roll back to previous systems, but unwilling to invest further to get the benefits.

Seven lessons on realising opportunities

I have found that substantial gains in terms of productivity and health outcomes are possible – and have been demonstrated – from specific areas of health IT. As the history of frequent disappointment and failure shows, however, digital technologies will not deliver these improvements on their own. Through my digital transformation experience with healthcare providers around the world, I have identified seven key lessons from those that have successfully realised the benefits and overcome the setbacks:

01	Transformation first	You need a transformation program supported by technology
02	People problems not technology problems	These require sophisticated leadership and change management capabilities, and are creating new ‘hybrid’ professionals
03	System design	Technologies need to solve problems recognized by people who are going to use them. This requires a deep understanding of the work as well as the needs of the worker
04	Invest in analytics	Far too often providers overlook the capabilities to use the data collected
05	Multiple iterations and continuous learning	Even with careful design there may need to be a number of iterations before systems reach a tipping point where the investment starts to pay off
06	Support interoperability	A coordinated approach to minimum interoperability standards would help accelerate healthcare providers’ digital journey
07	Sound information governance and data security procedures	Action is required at a national and local level to help organizations hold and share data safely

Seven opportunities to drive improvement

Looking at the highest performing and most digitally enabled healthcare providers around the world, as well as ‘frugally’ innovative organisations in emerging economies, seven improvements in productivity and quality of care stand out.



The way ahead for technology in healthcare - a 10 year view

- Computing will be much more ubiquitous, but much less visible
- Much less time will be spent by staff on administrative tasks and routine communication, as automation, voice recognition and natural language processing become more commonplace
- New roles and competencies will be added to the managerial cadre as the shift to digital healthcare continues – most importantly advanced analytic capabilities
- Organisational and professional boundaries will be far less visible, as integrated information technology systems dissolve many of the current divides between primary, secondary and tertiary care.

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Sequencing Genomes

Genomics England and IQVIA have announced a collaboration to enable Real-World clinical-genomics research by developing a platform that connects Genomics England’s growing database of clinical and genomic data with IQVIA’s experience of data analytics technology and research capabilities.

This will allow medical researchers to access a vast database of genomic information to utilise in medical research, with the aim of speeding the development of medicines for patients. IQVIA is a global leader in human data sciences, with a world-leading healthcare dataset. By adding Genomics England’s extensive database from sequencing over 100,000 genomes it will create a tool available nowhere else in the world. This will not only bring benefits to the patients suffering from genomic diseases, but also to the wider UK economy and it will enhance the UK’s reputation as a location for leading edge collaborations and high-quality healthcare data.

Genomics is one of the fastest growing branches of medical science, and it is already driving a paradigm

shift in how we diagnose and treat illness. Only 15 years on from the first complete sequencing of a human genome, in the United States there are now over 250 medicines approved for treatment based on a person’s genomics.

DNA is the basis for all living organisms, and almost every cell in the body contains a complete copy of the three billion DNA pairs which make up the human genome. 99.8 per cent of our DNA is the same as other human beings, but it is the 0.2 per cent that is different that makes us unique. Much of that variance is perfectly healthy – the difference between blue and brown eyes – but sometimes that variation can cause disease.

Most human illnesses have some basis in our genes. For some diseases – such as Down’s Syndrome



or sickle cell anaemia – the gene has been identified. However, for many diseases, including some rare diseases, the variant gene or genes that causes illness have not been identified. Genomic medicine works by mapping an individual’s DNA and comparing it to a database of DNA maps to identify the genes which maybe causing disease. Considering there are around three billion pairs of letters in an individual’s genome, identifying the single variant which causes disease can be challenging.

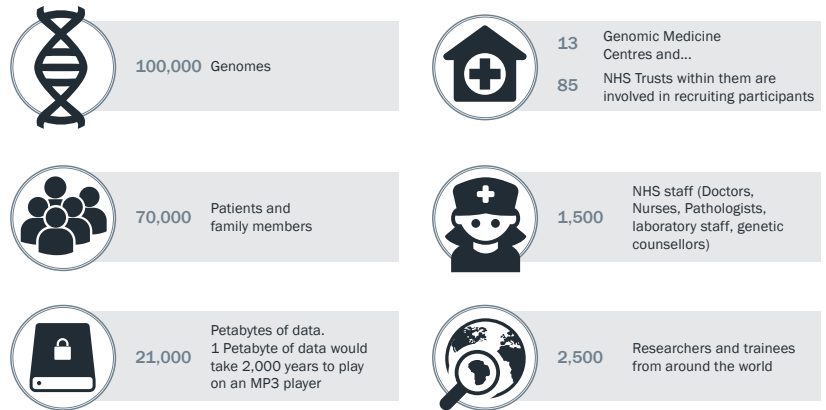
The UK is at the forefront of genomic research

In 2013 the UK Government announced the ambitious goal to sequence 100,000 genomes; a goal achieved by Genomics England in December 2018. The objective is now to take the genomic research into NHS practice, and offer whole genome sequencing to children and adults with rare disease and some forms of cancer. It is hoped the number of whole genomes sequenced will expand to five million.

However, to truly benefit from large-scale whole genome sequencing, the data must be stored, linked to de-identified clinical data and analysed effectively. The 100,000 Genomes Project has generated 21 petabytes of data and continues to generate information at the rate of 10 terabytes of data per day. It is estimated that the information that comes from a single human genome produces enough information to fill a stack of paperback books over sixty metres high.

The Genomics England and IQVIA collaboration will utilise IQVIA’s E360™ platform to allow more researchers than ever – from academia, industry, charities – to access de-identified data and create

Key UK Achievements



custom clinical-genomic datasets to conduct research. This will include studies into the burden of particular illnesses; identification of current treatment pathways; comparative safety or efficacy studies; drug target identification studies; medicine repurposing analysis; pharmacogenomic event detection and health economics and outcome research. All within a secure environment that protects patients’ privacy.

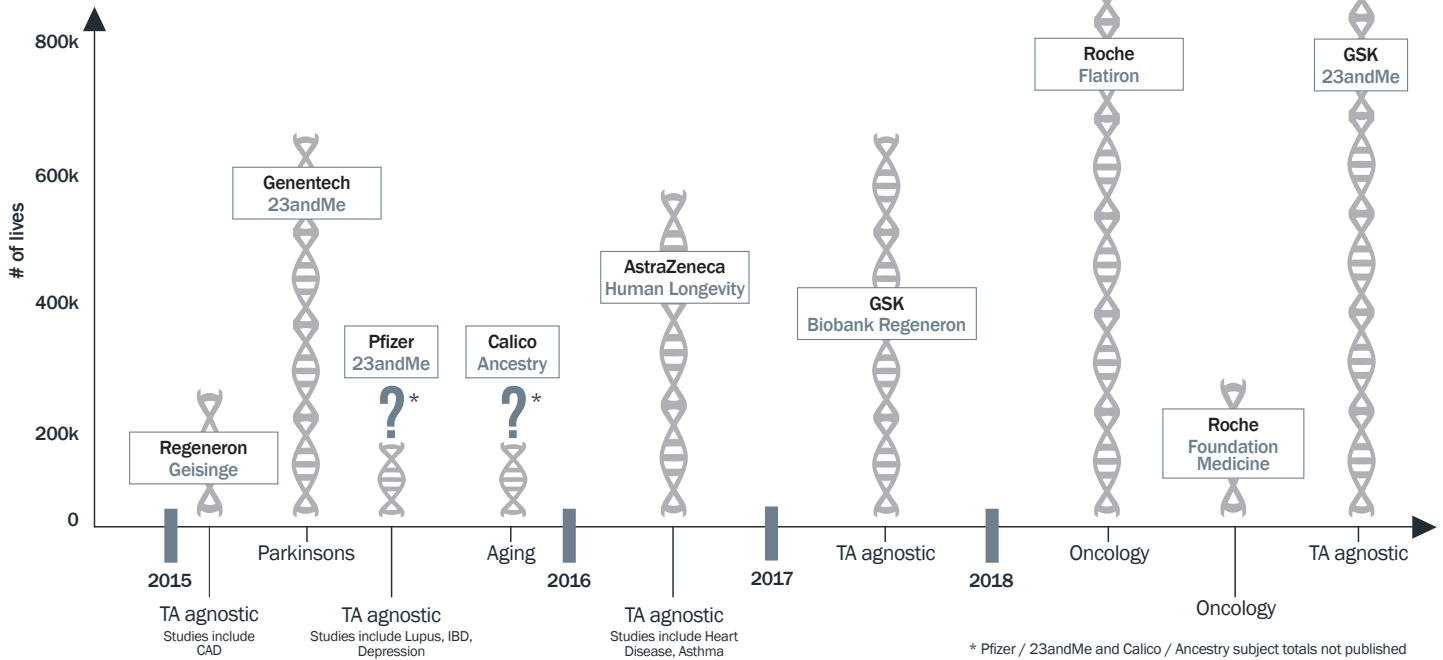
“Drawing insights from clinical-genomics datasets is the future of real-world research, and we are delighted to work alongside Genomics England as a pioneer in this evolving field. Our collaboration advances the analysis of these complex datasets, which could accelerate the discovery of precision therapies, improve access and health outcomes, and deliver upon our Human Data Science vision.”

Jon Resnick
President, IQVIA Real-World and Analytics Solutions

These data interrogations will provide deep insights into both patients and disease, which in turn should speed the development of targeted treatments. Additionally, for those clinical studies which include UK investigator site, there is the option of having a whole genome sequence performed on these patients in parallel to the clinical trial, driving genomically-enabled clinical trials and research. This could be particularly beneficial for rare diseases where patient numbers are small and enrolling enough patients to demonstrate efficacy can be challenging.



High-profile partnerships in pharma industry demonstrate importance of Genomics data



“IQVIA brings together deep healthcare and life sciences domain expertise to manage and curate real-world data with advanced analytical technologies. Working together, we can unlock the potential of these datasets to advance research and benefit patients in the UK as well as those throughout the world.”

Professor Joanne Hackett
Genomics England, Chief Commercial Officer



Life sciences companies are excited about this collaboration which will enhance the attractiveness of the UK as a location for investment. The UK already has a significant data advantage as the NHS is the largest integrated health system in the world, with healthcare records dating back to 1948. Collaborations such as embedding Genomics England data within IQVIA tools will further enhance the UK as a world leader in healthcare data. Companies increasingly recognise the importance of big data – or real-world evidence – not only to support their licensing applications, but also as they explore expansion of the treatment into other diseases. Many of the new genomic therapies, particularly in cancer, are tissue agnostic, and target the specific genomic aberration. They can therefore be used across multiple forms of cancer. This includes pembrolizumab; which was the first medicine approved by the FDA based on tumour genetics rather than tissue type or tumour site.

Using genomic data in research and development

Using de-identified genomic data in research and development can also reduce research costs by predicting failures earlier, and more accurately identifying treatment targets. High quality real-world evidence research allows treatments to be targeted – to the right patient, with the right medicine at the right time – by only giving it to patients known to benefit. This ultimately could prove cost-saving for



the NHS, as it reduces the 40-70 percent of patients who do not benefit from the medicine they receive. Personalised medicine – focused on a particular gene – could also reduce the number and seriousness of side effects from mis-targeted treatments.

Life sciences investment in the UK is not only beneficial for patients, but also the wider UK economy. The sector employs around 233,000 people, generates £64bn in turnover, and is one of the most productive sectors of the economy. Global competition to attract this investment is fierce, with many countries offering financial incentives and tax relief for companies willing to invest. For the UK to flourish there needs to be not only a welcoming fiscal environment, but more importantly, access to the patients and data that can advance medical science.

This is particularly true in a post-Brexit world, where 86 per cent of US life sciences senior leaders agreed that uncertainty over Brexit is affecting global decisions about investment. During this period of transition the UK Government must take every possible action to enhance the life sciences ecosystem, including improving the UK’s reputation for low and slow access to medicines. It would be indefensible if treatments developed using data insights on UK patients were not able to be accessed by UK patients because of the country’s restrictive health technology assessment process.

Data to empower patients

For this healthcare revolution to truly flourish, it must include patients in the conversation. There is often misunderstanding and mistrust amongst patients around how their personal healthcare data will be used. For the benefits of big data to be realised, patients need to give consent, and researchers and providers must take all steps to ensure anonymity and security of information. It is incumbent on all parties to ensure patients and the public continue



to be educated about the importance of genomic research in tackling illness, and the importance of giving consent to the use of data for research via secure and anonymised datasets.

Genomics will be at the heart of healthcare innovation, but it will not be possible to unlock the potential of the science without access to the data the science generates. Customisable, searchable and flexible datasets are the future of the life sciences sector, and the collaboration between Genomics England and IQVIA to make this remarkable dataset available is a significant step. By allowing medical researchers access to this data it will have a role in accelerating the development of medicines to treat disease and ultimately, improve human wellbeing.

Contact Information

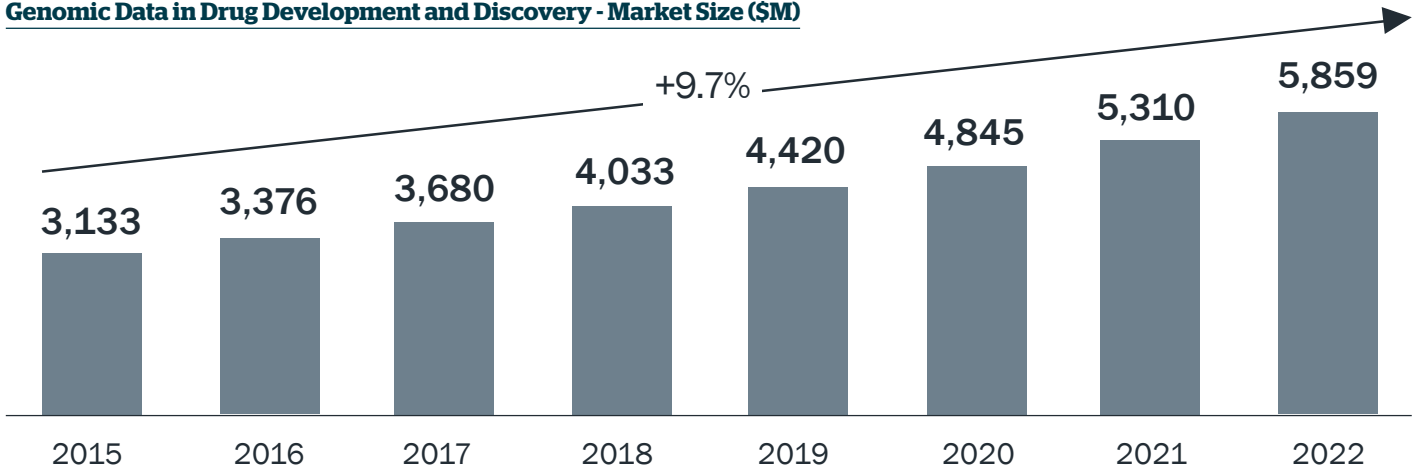


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Genomic Data in Drug Development and Discovery - Market Size (\$M)





Universal health coverage - The ultimate prize

The pace with which the world's major emerging economies are getting behind the drive towards universal health coverage (UHC) is breathtaking, says Dr Anuschka Coovadia, Head of Healthcare for Africa, KPMG Center for Universal Health Coverage

2018 saw another wave of countries announce major reforms to achieve 'health for all': India's Ayushman Bharat scheme to cover some 500m of the poorest citizens, Egypt's passing of a social health insurance bill and Mexico's new president's announcement to unify the existing patchwork of insurers under a single payer. This comes on top of major reforms already underway in Indonesia, Kenya and China among others. Smaller countries are making similar moves, as documented by KPMG's recent report Islands of Progress on the remarkable changes underway across the Caribbean region.

As the turbulent progress of my own nation of South Africa's National Health Insurance (NHI) reforms show, however, realising these grand ambitions is an enormous political and technical challenge. The design and implementation of a country's UHC model involves some of the most complex, contested and momentous decisions that any nation may ever make. A plethora of difficult and inter-connected choices face civil servants, politicians, business leaders and communities.

The scale of change required can lead to paralysis, but through our work implementing UHC reforms in countries from the small (NHI Bahamas) to the large (Ayushman Bharat for five states in

India), KPMG have learned that success is more than possible. Three lessons in particular stand out from our experience and research.

On the financing side, from our global review of UHC models, One Place Many Paths, it is clear that the role of the state is critical. Mandatory (i.e. non-voluntary) coverage has been essential to every global example of rapid progress towards UHC, and

Key questions on the road to UHC

How will the system be financed?	What is the role of the State?	What is the role of the Private Health Insurance?
How will the system be regulated?	Will there be a single fund or multiple funds?	How will the funds be administered?
What will the benefit package comprise of?	How much will the package cost?	Who will be covered? Or not?
Will services be free at the point of access?	Will there be a cap on the Out-of-pocket expenditure?	Will any risk-sharing arrangements be used?
How will vulnerable populations be protected?	How will the services be delivered?	How will the system be governed?
Will patients have an element of choice?	Will the population need to register?	Will the General Practitioner be the Gate-keeper?
How will the doctors be paid and managed?	What is the role of private and public hospitals under the new system?	How will the provision of care be monitored and evaluated?



some public mechanism – either through a single dominant public payer, a public option alongside private insurers or a powerful public regulator of insurance – is likewise critical. Countries that have pursued a ‘breadth then depth’ strategy have seen much greater success than the reverse –this means starting with a shallow layer of coverage for everyone and improving it, rather than trying to get full UHC for a particular group or community then spreading it out.

On the care delivery side, the second lesson is the vital role of private sector provision and investment. With up to 70 per cent of outpatient and 50 per cent of inpatient care provided by private providers in low and middle income countries, partnerships with governments can create significant short-cuts on the journey to UHC, while opening up huge commercial opportunities for well-placed businesses. KPMG’s recent global survey of 20 of the largest provider chains in emerging markets for our report ‘Healthy Returns’ showed that many large chains do not currently understand the scale of threat or promise posed by UHC. However, the research also revealed considerable interest among international investors to pivot their investments towards ‘UHC-ready’ private providers.

Finally, just as important as any of these technical policy questions is to focus on generating and maintaining political will and momentum. Skillful politicians such as Presidents Kenyatta in Kenya and Jokowi in Indonesia have successfully converted commitments to UHC into powerful electoral mandates. But UHC is a 10 year journey at best, and political determination cannot be allowed to wane



“Skillful politicians such as Presidents Kenyatta in Kenya and Jokowi in Indonesia have successfully converted commitments to UHC into powerful electoral mandates”

Dr Anuschka Coovadia
KPMG

KPMG’s Center for Universal Health Coverage

KPMG’s Center for Universal Health Coverage is committed to help governments and businesses to navigate the difficult journey to UHC. On this issue, history is on the side of the bold. To find out more, visit kpmg.com/uhc

over this time. One route towards this is to focus on UHC as a value, and not a cost to society. There are important arguments for UHC around the human right to health, but just as powerful is the language of poverty alleviation and economic growth. In many countries, such as India, healthcare spending is the leading cause of families falling back into poverty and reforms are as much framed as a form of financial protection than public health. Likewise in the Bahamas, the government commissioned KPMG to project the economic benefits of universal access to primary care, which concluded that the policy would have wide-ranging positive economic multipliers - producing seven times its costs in additional GDP over the long run.

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Bringing regulation into the 21st Century

How Fortesium's Regulator Online was a game changer for the Nursing and Midwifery Council

With 30-40 years' combined experience of delivering successful IT solutions to large institutions, Fortesium's founders have a history of delivering on time and on cost. Focusing on large scale programmes with a broad reach, this SME delivers on a huge scale.

Its most successful product is the development of Regulator Online™ for the Nursing and Midwifery Council, designed to ease the administrative task of maintaining the register for the UK's 700,000 nurses. Previously all done by paper and post, Regulator Online™ has transformed the NMC, reducing costs and tightening procedures with an extremely resilient system.

"Our unique selling point is that we understand the regulatory industry, which is the same whether it's for chiropodists or dentists," says co-founder Julian Khan. "We look at it from the IT consultants' point of view with a knowledge of the clients and the regulatory requirements."

With 9 years' experience with the NMC, Fortesium has revolutionised the organisation's business. "We handle huge amounts of data on a par with easyJet and Ebay," says Rob. "We pump out nearly three million emails a year and up to six million data messages in September and March when the nursing



"We handle huge amounts of data on a par with easyJet and Ebay"

Rob Hawkins
Co-founder,
Fortesium

courses finish, and take at least £50m per annum in card payments.

"From a nurse's point of view, we have enabled them to register on the same day they qualify instead of the process taking 2-4 weeks via post. Verification of registrants' right to work is also transferable to other countries via a recently deployed system, so if an overseas regulator signs in to another NMC portal they can see a nurse's qualification and status on the register in real time. It's bringing regulation into the 21st century."

Revalidation and fitness to practise

Built around the client requirements Regulator Online™ provides complete, flexible, modular applications which manage and interact with the register and with key client stakeholders both internal and external. With nine separate components, the system comprehensively manages all aspects of regulation in any sector.

Having worked with EDS, AIG, Norwich Union / Aviva, the experience of Fortesium's directors with complex systems is comprehensive. "The solution we have provided for the NMC is what we call an 'enterprise solution' because it is huge," Julian says. "These days, clients have the same problems – huge amounts of data that needs ordering to streamline processes.

"With the NMC it's really important to remember we have regulation in healthcare for safety because there are situations where people have fallen through the gaps. There have been quite serious issues with people being unsafe to practise. Having a system with this level of data and this complexity with the security that



this level of data and this complexity with the security that sits behind it means that we can all feel a lot safer.”

Once a complaint has been filed on the website, it triggers a case for fitness to practise. As in medicine the complaint is triaged, information is gathered via the system and legal support is accessed via a separate portal which leads to either a final hearing or an exoneration.

“Different regulators have different procedures, so the great thing about Regulator Online™ is that you have a set of modules that can be easily customised to match the problems of the individual regulation. With fitness to practise, it is an individual’s career on the line so there is a huge amount of work and some cases can take a long time due to the in depth nature of the investigation and conclusion. This involves the regulator interacting with barristers, witnesses etc. But we’ve built a customisable work flow that can be adjusted and we are always adding new features to it,” adds Rob.

Cutting-edge technology can now be added allowing passport photos to be uploaded to the site, double checking with KYC (Know Your Customer) providers so that the registrant is indeed who they say they are. This can also be used at registration and testing centres instead of relying on passports that are brought on the day. “This means that as soon as a registrant arrives through the door we know who they are,” says Julian.

Taking Registration Online internationally

Fortesium has just signed a contract with the NMC that allows them to sell the products internationally, so all the regulation already in place will sit behind any system that is bought overseas. “For example, in Dubai there is no concept of revalidation for nurses coming in to the country, so the Dubai Health Authority is really interested in Regulator Online™ because it resolves this issue easily for them,” Julian says.

“The NMC is the largest healthcare regulator in the world, so the opportunity to have their system is a huge plus point. We are also working with international consultancies to design bespoke regulatory systems in certain geographies, adapting the NMC system to a particular market and installing an entire regulatory system from scratch.”

Built on Microsoft products, even the most unreliable of national infrastructure can be assured of fidelity of data. “In developing health economies where insurance or self-pay models are more prevalent, being able to advertise that your nurses are regulated to UK standard is a huge competitive advantage,” says Rob. “You can also create an entire social network for that group of people, as well as selling training and courses at the same time. It’s a huge benefit for any healthcare system in the world.”



“It’s really important to remember we have regulation in healthcare for safety”

Julian Khan
Co-founder,
Fortesium



How it works

Administrator is a management and reporting module that allows a full search of the register with cross referencing facilities, document uploading, case histories, managing diaries and tracking and managing tasks. **The Fitness to Practise Procedure** allows complaints to be submitted, triaged and processed online, while **Identity Checker** uses combines reading of government issued ID documents with webcam live image validation for complete security for the register. **The Payment Manager** facilitates annual subscriptions and other payments, and **Register Search** allows detailed search and reporting functions from the database. It is also a form generator, diary and communication tool too, particularly important for reminding registrants when they need to revalidate.

Members can create an **E-Portfolio** that also highlights training gaps and recommends courses, while **HEI Portal** enables newly qualified professionals to be registered as soon as they qualify, validating data during processing. The portal allows registrants to apply for inclusion in the register and to enter their details and documents.

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Teletriage - Leading the way

A 111-style service can improve clinical outcomes and provide efficiency within a healthcare system, says Capita's Senior Medical Officer Dr Charles Young

Around the world, healthcare systems are facing similar challenges presented by ageing populations. As we live longer, these systems face greater demand from patients with increasingly complex conditions. Across the Gulf Cooperation Council (GCC) region, sedentary lifestyles and consumption of sugary foods has led to a prevalence of non-communicable diseases (NCDs), particularly diabetes.

Overuse of costly emergency care services is also a pressing issue. In the UAE, for example, despite a large number of primary healthcare centres, emergency departments are faced with high numbers of minor complaints. In Abu Dhabi, data from 2012 illustrated that more than 75 per cent of cases in emergency departments (Eds) were non-urgent. These cases represent huge savings



Dr Charles Young
BSc, MBBS, MRCP

Dr Charles Young is Senior Medical Officer for Capita plc., and Chief Medical Officer for Healthcare Decisions. Charles trained in medicine in London and continues to practice as an emergency physician at St Thomas' hospital. For the last 15 years he has also worked in a range of clinical governance, evidence-based medicine, clinical decision support, and healthcare IT strategic leadership roles. Charles lectures internationally and is passionate about clinical governance and the interface between clinical information, healthcare technology and clinical workflows. Charles is also a long-standing member of the UK's National Institute for Health and Care Excellence (NICE) external accreditation committee, and The Cochrane Collaboration editorial overview committee. Charles' role at Capita involves leading the clinical strategy and clinical governance program for all Capita health businesses and leading the clinical and decision support strategies for Healthcare Decisions.



that can be made to healthcare organisations if over reliance on emergency services is reduced.

Across the GCC there is also a large discrepancy in accessibility to healthcare, with many people living in remote locations. Going forward, if the pressure on healthcare organisations is to be alleviated, it is important that people can access healthcare that enables them to manage their chronic conditions at home, without continued readmission to hospital. Technology will be a key asset in tackling these problems.

One such technology solution is the adoption of computerised decision support algorithms and teletriage software. These digital tools enable clinicians and non-clinicians to quickly and accurately assess the urgency and severity of a patient's symptoms. The result of this triage could be the provision of self-care advice, referral to local health services, or the dispatch of emergency personnel.

The adoption of computerised decision support algorithms and teletriage software also foster a proactive approach to care, allowing people to access advice instantly, which may prevent a condition worsening to the point where emergency care is needed. In diverting people away from the emergency department, beds are made available for more serious cases, pressure on physicians is reduced, waiting times in emergency departments decrease, and healthcare costs are reduced.

Since computerised decision support algorithms and teletriage software have been introduced, they have been developed and improved to meet the needs of a wide range of health triage scenarios, from snake bite to heat stroke. Using a validated teletriage system also offers consistency in the assessment and prioritisation of care across the service.

Healthcare providers focused on delivering patient-focused care should be able to integrate patient data from multiple systems to provide truly individualised care, ensuring any assessment and advice given are specific to the patient and not just the condition.

Assessment via telephone is also an effective way of providing care to people with NCDs, either at home or a nearby facility, reducing the need for patients to use high-cost hospital care where possible. Patients with chronic conditions can be monitored remotely, and when all information relating to a patient is stored in a single record, a better continuity and consistency to co-ordinating their care can be achieved.

In addition, by using technology commonplace in everyday life, the health service removes socio-economic barriers that might otherwise prevent someone accessing care, such as lack of transportation.

Teletriage enables populations to gain access to the right care advice at the time they need it, in turn improving clinical outcomes for patients, increasing the efficiency of healthcare organisations, and

“Teletriage has the potential to radically transform care delivery and improve public health”



empowering people to look after their own health. In essence, teletriage has the potential to radically transform care delivery and improve public health.

Teletriage in action

Globally, organisations using Capita's Healthcare Decisions (CHD) teletriage solution have carried out over 100 million patient assessments.

CHD's decision management software enables the creation and deployment of end-to-end technology solutions in remote patient assessment and triage. The combination of TeleGuides (telephone triage), and WebGuides, (patient self-triage over the web, mobile app, or SMS), provides a robust, efficient and intuitive solution helping to relieve the burden placed on emergency services.

In an existing UK national triage service underpinned by CHD's technology, CHD have created a significant change in the way the population accesses healthcare. CHD software combines a patient record and relationship management solution with sophisticated clinical decision support protocols. Instead of dialling the national number for the emergency services, people with an urgent but non-life threatening medical concern can dial an alternative national number and get help from a fully trained advisor 24 hours a day, seven days a week.

Looking for a robust, safe way of allowing patients to self-triage and where appropriate self-care, in combination with the free telephone helpline, the Australian state governments wanted to deploy a web triage system. The Healthdirect web self-triage service and national triage service, powered by CHD's software, are now an important integral part of the Australian health system helping to alleviate pressure on GPs, emergency departments and ambulance services, especially in the after-hours periods.

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Transforming the lives of parents-to-be

Sarah Cartledge discovers how the Genesis Research Trust is improving the chance of life through its pioneering work

As populations begin to fall in some areas of the globe, a British charitable trust is at the forefront of research into reproductive health. Based at Imperial College London, the Genesis Research Trust is the only charity of its kind investigating why and how things can go wrong with conception, pregnancy and birth, delivering real evidence-based results for medical treatments and outcomes of worldwide significance.

More than 130 scientists and doctors contribute to Genesis' work under the chairmanship of Professor Lord Robert Winston, who developed and refined gynaecological surgical techniques to improve fertility treatments in the early 1970s. The team investigates the causes of infertility, miscarriage, stillbirth, and premature birth and finds better ways to diagnose and treat them.

Other medical advances pioneered by the Trust include hormonal cures for infertility, treatments that help reduce the chances of miscarriage, a revolutionary treatment for womb cancer, and ways to screen embryos for fatal genes. The Trust also funds science and has donated £27m to Imperial College.

The importance of bacteria

"Understanding the causes of miscarriage, the causes and management of growth problems in babies and preventing preterm birth are the main areas the charity funds," says Professor Phil Bennett who also runs the obstetrics unit at both Hammersmith and Queen Charlotte's Hospitals

"We have identified that certain bacteria which are not conducive to preventing the growth of pathogenic bacteria increase the risk of preterm birth"

Professor Phillip Bennett
Genesis Research Trust

in London. "Much of our research focuses on the relationship between a pregnant woman and her so-called microbiome of the reproductive tract which can affect whether or not she can become pregnant."

Until the 21st century bacteria were viewed negatively in medicine, but now it's understood they are important for normal physiological function to the extent that colonisation with healthy bacteria is vital. "Mothers in the Middle East can be prone to polycystic ovary syndrome which is a cause of infertility and is associated with the metabolic syndrome which encompasses people at risk of diabetes," says Professor Bennett. "We have identified that certain bacteria which are not conducive to



Professor Phillip Bennett

Phillip Bennet trained at St George's Hospital in London. In 2014 he became Imperial College Healthcare NHS Trusts Research Director for Women's and Children's Health, a clinical division which includes laboratory sciences and medical imaging. He has worked extensively over 25 years with industry undertaking basic science and preclinical studies to identify new targets in preterm labour, and developing novel drugs from discovery through to phase three trials and clinical application.



Professor Lord Robert Winston

Robert Winston is Professor of Science and Society and Emeritus Professor of Fertility Studies at Imperial College London.

In the 1970s Robert Winston developed gynaecological surgical techniques that improved fertility treatments. He later pioneered new treatments to improve in vitro fertilisation (IVF) and developed pre-implantation diagnosis. He now runs a research programme at the Institute of Reproductive and Developmental Biology at Imperial College that aims to improve human transplantation.

preventing the growth of pathogenic bacteria increase the risk of preterm birth. Patients are more likely to have such abnormal bacteria if they are overweight or if they have the metabolic syndrome because they change the nature of natural microbiomes.”

There is growing evidence that there is a significant ethnic and genetic aspect to the research, understanding why different ethnicities have different microbiomes. Another key area of research is focused on glycan biology, looking at the sugar molecules on the surface of the cells of women who are at risk of preterm birth and on the surface of the bacterial cells to understand the relationship and interaction between them.

Unexplained infertility and IVF

There are a wide variety of reasons why a couple may not achieve a pregnancy, including blocked fallopian tubes, low sperm count, problems releasing eggs in the first place – common in women with polycystic ovary syndrome and metabolic disease – and also the question of whether the womb is receptive to the pregnancy which is affected by bacteria.

“Unexplained fertility is not a diagnosis,” says Professor Winston. “In some cases this simply means the clinic or healthcare facility has not investigated the issue properly. IVF is explained as a treatment for infertility, but without any investigation the chances for pregnancy are actually lower because the treatment each time is inadequate. So the diagnosis of unexplained fertility is a failure, not a success, in my opinion.”

Professor Winston developed and refined gynaecological surgical techniques to improve fertility treatments in the early 1970s. Later he revolutionised many treatments to improve in vitro fertilisation, and subsequently developed pre-implantation diagnosis which allows the diagnosis of fatal genetic disorders

“Genesis is the only unit I know of that looks purely at research into all aspects of women’s diseases and reproductive disorders”

**Professor Lord
Robert Winston**
Chairman, Genesis
Research Trust

in embryos. This work enabled many families to have a child free of fatal illnesses, including those with sex linked disorders, single gene defects such as cystic fibrosis and chromosomal abnormalities. Chromosomal abnormality is an important cause of miscarriage so this work has had a wide impact.

“If you look at the HFEA (Human Fertilisation & Embryology Authority) website you would get the impression that your chances of getting pregnant with IVF are really very high but the mathematics are much worse than that,” he says. “If you have 6 treatment cycles at a £5000 cost each time your overall success rate from the start of the cycle to live birth is just about 20 per cent in Britain, 20 per cent in Australia and about 20 per cent in America. I don’t think that’s ever explained to any patient anywhere. In my mind that is a criminal lack of information.”

To date there are an estimated 5m babies born from IVF, but the rounds of failed IVF treatments are thought to be more than 20m. As a result, the research work undertaken by the Genesis Research Trust is vital to help couples become pregnant. The Trust raised £13m to establish the Institute of Reproductive and Developmental Biology which not only conducts research into women’s health and babies, but also aims to improve human transplantation.

“Phil Bennett’s work is regarded as being some of the best science on prematurity, and given that it is the single biggest cause of babies’ deaths and brain damage it’s a very big issue,” says Professor Winston. “Professor Steve Franks is one of the world’s leading experts on ovarian physiology so his work on ovulation is very important, and Catherine Williamson’s work is on obstetric disease. Genesis is the only unit I know of that looks purely at research into all aspects of women’s diseases and reproductive disorders, and working at Imperial College which is Britain’s largest research university is key to our success.”



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Eyes ahead

Moorfields clinicians are world-renowned for the contributions they have made to the research and development of new ophthalmology treatments, says Jackie Brinicombe Head of Marketing and Business Development

The UK's National Health Service is highly regarded globally, having a reputation for delivering exceptional research-based treatment and care, especially in its specialist centres. Commonly, it's the consultants that have been involved in the research that deliver the care – especially in its specialist centres.

Moorfields Eye Hospital NHS Foundation Trust has a network of over 30 NHS sites in London and the south east of England. It is the leading provider of eye health services in the UK and a world-class centre of excellence for ophthalmic research and education. Moorfields' reputation for providing the highest quality of ophthalmic care has developed over 200 years and it has more than 2,000 staff committed to sustaining and building on its pioneering history, ensuring it remains at the cutting edge of developments in ophthalmology.

Moorfields provides a wide range of ophthalmic services, caring for patients with routine medical needs as well as those with rare and complex conditions. It serves the NHS and private sectors in the UK, and delivers care through its international facilities in Dubai and Abu Dhabi. 2017/18 saw the 10th anniversary of operations in Dubai and the first year of operations in Moorfields Eye Hospital Centre in Abu Dhabi. Moorfields Eye Hospital Dubai has seen around 160,000 patients and performed over 13,000 surgeries in the last decade. Both sites undertake general ophthalmology and refractive laser services.

Moorfields plays a leading role in the training and education of eye care clinicians, integrating with strategic partners. Along with its partners





at University College London's Institute of Ophthalmology, Moorfields is recognised as one of the world's leading centres of excellence in eye and vision research and provides private services both in the UK and internationally.

Pioneering research

Moorfields and their research partners at the UCL Institute of Ophthalmology form one of the largest ophthalmic research sites in the world, with the largest patient population in Europe and the USA. Moorfields and the UCL Institute of Ophthalmology publish more scientific papers than any other eye and vision research site in the world and have an extensive joint research portfolio. Together, they published over 600 research papers in 2017/18.

In March, a research team co-led by Professor Lyndon da Cruz, retinal surgeon at Moorfields Private, announced a major step towards curing the most common form of blindness in the UK – age-related macular degeneration. The successful trial on patients using the new stem cell based treatment was a world first and those who received the treatment regained enough vision to be able to read again. The team says that further research could lead to an 'off-the-shelf' treatment within five years.

“In March, a research team announced a major step towards curing the most common form of blindness in the UK – age-related macular degeneration”



Moorfields' ongoing medical research partnership with DeepMind Health, one of the world's leading artificial intelligence (AI) companies, has made great progress with its research programme. In August, the team co-led by Pearse Keane, consultant ophthalmologist at Moorfields Private, announced they had developed an AI system that can recommend the correct referral decision for over 50 eye diseases as accurately as world-leading experts. The system could soon help doctors and other eye health professionals spot serious conditions earlier and prioritise patients who urgently need treatment.

Working with overseas markets

Moorfields' impressive reputation is why overseas organisations regularly choose to send their patients to Moorfields Private, (the private patient division of Moorfields Eye Hospital) and other specialist NHS hospitals – demonstrated by the 6.5% growth in overseas activity in 2017 (London Private Patient Units) compared to the independent sector, which has seen a decline in overseas activity (according to LaingBuisson's Acute Private Healthcare report, 2017).

Moorfields Private in central London comprises the Moorfields Private Outpatient Centre and the Admission and Refractive Suite, providing consulting, diagnostic and admission facilities for both general ophthalmology and refractive laser services. Moorfields Private also has private consulting rooms at Upper Wimpole Street in London's West End. In 2017/18, it saw more than 35,000 outpatients and admitted approximately 5,500 patients for surgical procedures making a considerable financial surplus which is invested back into the Moorfields NHS services.

Potential overseas partners who wish to secure private treatment for their patients in the UK, such as embassies, corporate and referral organisations, are identified and managed through Moorfields Private's own business development activities.

Once private referral agreements are secured, the Moorfields Private Referrer Engagement team acts as a single point of contact to manage the whole patient pathway, from sourcing the right consultants for the patients' clinical needs, to booking the outpatient and inpatient treatment and providing the medical reports for onward treatment and care back in country. The team also facilitates the payment process for private treatment in line with Moorfields Private's and consultants' own tariffs, enabling overseas patients to access the outstanding private care at Moorfields easily and quickly.

Contact Information


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For international referrals to Moorfields Private contact the Referrer Engagement Team at moorfields.privateinternational@nhs.net

For general enquiries relating to this article and private treatment at Moorfields Private contact Jackie Brinicombe, Head of Marketing and Business Development at jbrinicombe@nhs.net



Transitional Care

The Royal Bucks aims to build a specialist rehabilitation network across the globe, says Chris Campbell, Business Development Director

The Royal Buckinghamshire Hospital in Aylesbury is a privately owned specialist UK centre for complex, high intensity rehabilitation. With an array of highly trained specialists and innovation of both method and technology, Royal Bucks provides rehabilitation to patients with a wide variety of highly complex injuries and neurological conditions. Owing part of its original building design to Florence Nightingale in 1862, the cutting-edge treatment which defines the Royal Bucks today is steeped in rich tradition and history.



Chris Campbell, Business Development Director at Royal Bucks, has worked extensively with the highly motivated and dedicated team at Royal Bucks to develop the hospital's model of care, into one that can be used on a national and international basis. "We are up there with the best rehabilitation centres in the world and offer what we call 'transitional, step forward care.'"

Based on the 'Keiro Model', a transitional model of care is one which harnesses the benefits of integration of community and health services to provide a patient pathway that is both financially efficient and effective. Chris envisages that this model can be used to establish Royal Bucks as a national rehabilitation hub within the UK, enabling acute hospitals to free up their beds.

The Royal Bucks overseas model

According to Chris, this approach is not simply orientated for UK rehabilitation but can be universal in its application and adapted to fit the nuances of different countries. As such, Royal Bucks is looking to export its intellectual property and expertise in the form of specialist training and develop a series of long term relationships with overseas partners. This will enable the hospital to establish a global rehabilitation network, based around the principal transitional care.



“We want to join hands with overseas governments and organisations to operate a robust collaborative model,” says Chris. In the short term, patients would come from across the world with their own treating team, but as the years go by those physicians would be able to treat ever increasingly complex cases in their own country, thanks to their training at Royal Bucks.

Even after returning to their country of origin, patients and specialists would still receive ongoing support from the team at Royal Bucks. “The technology available enables us to monitor patients remotely via reports that tell us whether we need to interject, either because there is an opportunity for further improvement or there has been a deterioration in the patient’s condition.” A combination of online interaction and physical visits will allow Royal Bucks to continuously upskill and train rehabilitation specialists across the globe.

Chris is keen to ensure that any provision of Royal Bucks’ intellectual property, whether through specialist training or consultation, is used in a way that will facilitate a mutually beneficial long-term partnership. “It’s not about sending clients overseas a price list,” he says. “It’s about wanting to do business by developing strategic relationships.”



Innovation in culture before technology

According to Chris, despite patient access to any level of technology, without the proper culture, skill and the ability to motivate them, results will not be optimised. “Let’s take the example of the exoskeleton which can be a massive help to many patients. Assuming it is appropriate, unless a patient is in the right state of mind, it would be money wasted. At Royal Bucks we have the skills that put patients into the appropriate mindset,” says Chris.

Royal Bucks was the first centre in the UK to purchase an exoskeleton when the device came onto the market from the manufacturer, Ekso Bionics, which had their device FDA approved in 2016. With access now to all available variants, the hospital has become



“We have the skill to help patients understand how their new life can be just as successful and fulfilling”

Chris Campbell
Business Development Director
Royal Bucks



a leader and expert in this type of robotics. The aim of all variants is similar, to enable the patient to stand and walk utilising advanced robotics.

“We have the skill to help patients understand that their life will be different, reveal the light at the end of the tunnel and show how their new life can be just as a successful and fulfilling.”

It is this culture of rehabilitation that sets Royal Bucks apart from other organisations, even within the UK, and it is why they are the first organisation in the world to train a patient to use an exoskeleton in their own home.

The future of this care model

“Royal Bucks is a learning institution, with a theoretical-based operation that helps develop new techniques and ways of working,” says Chris. “Over time, this speeds up the patient pathway, so that time spent in the facility is less and outcomes are better, with the aim that patients return to their community and back to their lives quicker and better. Given the authority and responsibility to develop the service in a way that is believed will benefit patients, coupled with very clear vision, a consistent process is developed. Then, individual country idiosyncrasies can be applied to this process.”

The common denominator is the intellectual property that is needed to facilitate this change, and the Royal Bucks Hospital can offer this knowledge to clients across the globe.

“Our job is to keep improving what we do by measuring real life outcomes – do they allow patients to go back to work and live their life? We are constantly striving to make that happen quicker, through whatever mechanism is required, and it is this focus that separates our business from others.” ●

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Serco Cares

The impact of the non clinical workforce on patient experience enables patients to recover more quickly, says Andrew Wells Client Director Middle East

Most patients, due to their limited time in hospitals, don't know how to evaluate good clinical service so they rely on their evaluation of their customer service experience. Our focus is the people delivering those services and the impact they can have.

Serco's research shows that of the 1.2m people working in the UK's National Health Service (NHS), 590,000 of them work in non-clinical services, so nearly 50% and that, by-and-large, this body of staff don't feel valued. A major focus on this area of work has been overly commercial and focused on efficiency and cost cutting. This is also reflected in the way that these services are outsourced and delivered by the majority of service providers.

Serco's interest and experience is in the services which support and enable the delivery of excellent clinical services and patient care. Serco enables clinical staff to focus on prioritising the best clinical care to the patient, while we take care of the other areas of hospital operations that support the patient in having the best service. Some of these

include processing and validation of insurance and appointment booking and scheduling, patient movements, cleanliness and food.

These services, when performed well, contribute towards an efficient operating environment that can help relieve the stresses of patients, the clinicians who care for them, and hospital management who want their hospital to be the best it can be. Creating a calm and efficient environment, "that works," has a major effect on how a patient perceives service delivery quality.

We believe there is something more our staff can do to impact a patient's experience and well-being, beyond delivering excellent services

Serco Cares Research

Serco launched some internal research through Experience Lab, Serco's customer experience design organisation, which has since been validated by the University of Oxford Said Business School. This research began with a literature review to identify findings from existing worldwide hospital research. We identified three areas:

1. "It has been clinically proven that a positive mental attitude helps a patient recover more quickly."
2. "A lack of social interaction is as damaging to patients' well-being as obesity."



3. “Pressure on clinicians has reduced the time they can spend with patients, causing them unhappiness and stress.”

We then launched in-hospital research to determine the most important influences in cultivating a positive mental attitude. This research was carried out in six hospitals, interviewing staff, clinicians, patients and visitors, with many hours of observation, shadowing front-line staff and assisting them in their duties.

There were three key insights:

1. We identified six key influences for a positive mental attitude in patients to be:
 - A sense of retaining some control over their life
 - Regular social interaction no matter how brief
 - Regular distractions from their condition
 - Responsive and engaging staff interactions
 - Feeling part of the wider ward community
 - Being able to discuss their progress with anyone
2. The most staggering learning was that facilities management staff interact with patients nearly 3 times more often than clinical staff (14 times / day vs. 5 times / day)
3. Throughout our research we observed instances of Serco staff already acting and interacting with patients and clinicians in a way that was kind, warm and positive and we have examples of them doing it without impacting operational efficiency.

The next challenge was to create an environment where all staff feel comfortable adopting such a positive approach.

“We observed instances of Serco staff already acting and interacting with patients and clinicians in a way that was kind, warm and positive”

Andrew Wells
Client Director,
SERCO

Changing mindsets with emotional engagement

Changing mindsets could only happen if staff were not solely motivated to perform their operational tasks. To do this we looked to change the attitude of staff towards the role they play and understand the ‘power in their hands,’ taking them beyond seeing themselves as ‘just a cleaner’ to a mindset where ‘I can help people get better quicker’. To achieve this, we upskilled our staff with soft communication skills, training unusual for staff at this level:

- Active listening
- Confidence in social interaction
- Analytical observation
- Boundaries

It turned out that some of our staff were already doing this, so we sought to celebrate and recognise what they do, giving them confidence and pride through providing a platform to share experience and best practice.

Evaluation and validation of the Serco Cares programme with Professor Steve New:

We sought external evaluation and validation of the Serco Cares programme with the University of Oxford and Professor Steve New who has a special academic interest in operational and process efficiency and has worked extensively in healthcare.

We asked him to provide some validation to the process and go on the Serco Cares journey, which he did so, in two of our hospitals. We are now working with him to develop a long-term academic research study to look at the impact of the way our staff fulfil their support roles in hospitals.

“Serco Cares is impressive because it really focused on human dignity and respect,” Professor New says. “It is about treating the workers and patients as human beings. It is not perfect but it is brilliant. It resonates with a strategy that puts process excellence, public service and human dignity at the heart of Serco’s business. It stands in stark contrast with a model of public service outsourcing which is about outwitting clients and squeezing the workforce.”



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Data governance: Driving value in healthcare

Healthcare organisations and systems need to be agile to respond to constant change, says Paul Henderson, Head of Public Sector Data and Analytics at KPMG in the UK

As a key pillar of a data and analytics strategy, data governance defines how an organisation manages its data assets. A data governance strategy should reflect an organisation's strategic goals, risk appetite, culture, economic and regulatory environment. Data governance can help organisations drive value in the services they provide.

Analytics will be one of the most valuable tools for transforming healthcare in the coming decade and will enable leaders and decision makers to manage the massive changes they are facing. Understanding and harnessing analytics will enable these leaders to become innovators and, at the same time, mitigate the risks associated with change. Yet, despite the huge potential of analytics to help improve care quality, make services more efficient and reduce costs, healthcare organisations around the world find it hard to use data to its full potential.

When healthcare organisations implement new technologies to support business and clinical transformation, my experience is that they typically focus on two levels of impact: the immediate tactical benefit of the technology on workflow and related key performance metrics; and the strategic benefit from taking newly available data and integrating it with existing data sets to create new value. Most tend to focus on the first set of benefits and neglect the substantial opportunities presented by the latter.

For healthcare organisations to truly realise the potential of data's analytical power, they have to shift their approach to address both these levels of change.

Demystifying data governance

Data governance is a foundational element of digital transformation and any data and analytics strategy. Without a rigorous, sustainable data governance program, healthcare organisations and systems will struggle to advance their analytics capabilities into key emerging areas such as artificial intelligence and machine learning, personalised healthcare and population health management. Many healthcare leaders that I have worked with understand the

How data governance can help healthcare organizations and systems:

Define, approve and communicate data strategies, policies, standards, architecture, procedures, and metrics – this is vital in new emerging models of care where "trust" is a key element of working collaboratively

Enable conformance to data policies, standards, architecture and procedures – have a shared taxonomy and ensure compliance

Use a consistent framework to help organizations sponsor, track and oversee the delivery of data management projects and services in an increasingly complex environment

Manage and resolve data related issues – ensure users that the data they use is accurate





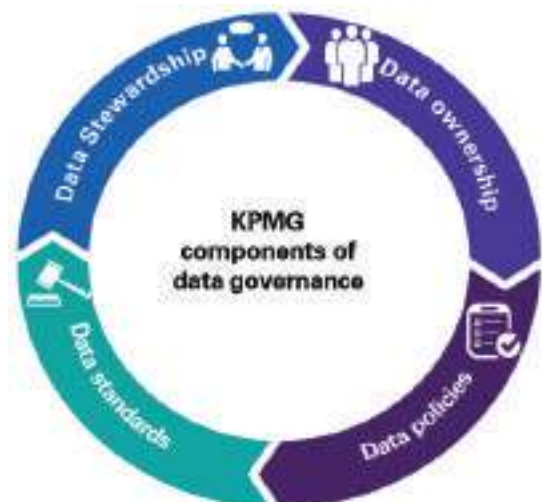
importance of data governance, but have initially struggled to:

- Understand where their data lives and how to access it;
- Put in place effective processes to protect data from threats of inappropriate release and access; and
- Acquire and develop the right resources and skill sets to manage healthcare data.

Often my first step is to demystify data governance, and to help clients understand how improving it will realise value for patients and carers and their organisations. The common questions they initially ask are:

- How does the development of a strong data governance function help to improve health outcomes?
- How important is it to have robust data governance regulations in place?
- Can we devise a governance strategy which safeguards privacy while also enabling clinicians and researchers to access the information they need to improve outcomes?
- Can and should we share data across organisations in order to help improve healthcare outcomes? What are the challenges and issues of this?
- Can healthcare data be used as an asset which can be monetised in order to assist with funding?

Working with the Global KPMG Data and Analytics network, and with clients across the world, I have developed a practical approach to data governance. This is based on four main components and is supported by enabling data management services and data quality tools.



“Healthcare executives should be aware that technology alone will not create an effective data governance function”

Paul Henderson
KPMG



Managing data in the future

Healthcare executives should be aware that technology alone will not create an effective data governance function. To truly enable, embed and continuously improve on the key components of data governance, organisations should adopt a capability framework that incorporates people, processes and technology.

The following framework identifies the essential data governance capabilities in these three areas, to achieve a holistic data governance function.



There are many complexities of implementing and sustaining effective data governance and being able to evaluate organisations and systems data governance maturity. In the coming decade there are many strategic considerations that will shape healthcare organisations’ approach to data governance. National or jurisdictional privacy legislation, data sharing practices and certain technologies will challenge healthcare leaders charged with managing data assets. These issues are evolving rapidly and are likely to test the limits of leader’s ability to adapt to the changing environment.

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Controlling Risk

Balancing competing tensions in creating the most effective regulatory framework

There are many different systems in place to regulate the delivery of healthcare services across the globe. In the largest economies, these are invariably complex and can involve a regulatory maze of statutory oversight, licensing, professional standards and structures intended to provide a clear and consistent framework for the delivery of safe quality care.

Most jurisdictions agree that robust regulation of health and care provision, both in terms of provider entities and the healthcare professionals they engage, is essential to protect patients and maintain confidence in the profession. Policy debates on health, therefore, are centred largely not on whether regulatory oversight should exist, but instead on the way it should be best structured.

Most models aim for a balanced and reasonable level of control that aims to avoid any lack of oversight that could put patients at risk, while at the same time discouraging over-regulation or heavy-handed bureaucracy that might risk stifling innovation and/or create regulatory burdens which result in more time being spent on compliance to the detriment of providing safe and high quality healthcare itself.

Middle East healthcare

There has been a marked increase in the past year in new regulation governing healthcare and life sciences in the region. Alongside the relevant primary legislation sits a vast amount of regulatory codes of practice, guidance, and procedural documents to support the ever-increasing range of activities that need to be formally licensed and approved by the regulators.

As the pressure increases on Middle Eastern countries' governments to control and reduce public spending on healthcare services, there are opportunities for the private sector to invest on a bigger scale. To facilitate that, governments are aiming to provide a stable environment to attract investment, as well as a solid regulatory framework that will govern health facilities and practitioners. The region therefore has the benefit of time and precedent to establish, refine and embed an effective regulatory framework that balances the competing tensions between fostering innovation, having the right level of oversight with limited bureaucracy and ensuring safe and high quality patient care.

Emerging regulatory risks

In introducing or revising structures for national health regulation, a number of challenges and issues exist:



“The many models of health regulation around the world are constantly under review because of political, social, economic and technological change”

Vincent Buscemi
Partner,
Bevan Brittan LLP

- **Complexity and Clarity** – in some jurisdictions, over regulation and competing interests of multiple agencies can create inertia, silo working, and regulatory gaps. Clear regulatory structures are therefore essential, not only in terms of efficiency but also promoting safety and quality.
- **The Changing Landscape of Provision** – perhaps the greatest challenge to regulation is the increasing ability of technology to enable new platforms to deliver care via new models, and frequently on a remote and cross-border basis including remote care – patients are gradually moving from being passive recipients of healthcare to active, button-pressing consumers, who research their symptoms, treatment options, risks and benefits – and remote dispensing from internet or international sites.
- **Expertise** – even within traditional models of care, technology is changing the way it is delivered and it is essential that regulators have the knowledge and skills to properly understand and evaluate services.
- **Streamlined Data collection** - inspections of health services are a mainstay of regulatory performance, but factors affecting quality can also be assessed from data. However, multiple definitions and metrics of care quality are often used by different agencies, leading to inconsistencies and inefficiencies for providers in meeting information requests. There is a need to reduce the burden on providers with more

streamlined systems that, for example, make use of shared data sets that address the needs of all stakeholders.

- **Qualitative Data Analysis** - technology has made it easier for people to leave instant feedback about services, and new tools to analyse data are constantly evolving. Regulators need to embrace how best to use this data to inform their own risk-based monitoring of services.
- **System Regulation** – many countries are aiming to break down boundaries between hospital care, primary care, community and other social care to provide more person and place-based services that are increasingly seamless. The challenge for regulators is to properly combine the task of carrying out system-wide reviews whilst ensuring the accountability of the individual players.
- **Staff Engagement** - over regulation can discourage engagement of healthcare professionals. Regulators and providers need to work together towards a shared vision of high-quality care, encouraging their staff to innovate and engage in open, improvement-focused discussions.
- **Informing Choice** – with a wide range of services available, regulation can better inform choice. But reports need to be current, intelligible and user friendly for the patient to properly inform choice.
- **Alignment** – with increased medical tourism and more global centres of expertise, regulators need to be able to work jointly on a cross-jurisdictional basis, sharing best practice and having a consistent approach to issues and emergencies.

Conclusion

The many models of health regulation around the world are constantly under review because of political, social, economic and technological change. Achieving better and more responsive healthcare professional regulation, therefore, will always be ‘work in progress’.

One size or structure doesn’t fit all, and each regulatory model will need to be moulded and legislated for according to national needs and demands. However, all governments will want to ensure sustainable, efficient and effective health service delivery that meets the public’s best interests, whilst protecting patients from harm.

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An inside look at the company which brought high energy Proton Therapy to the UK

Sarah Cartledge talks to Mike Moran, CEO of Proton Partners International

It's hard to believe that Proton Partners International was only founded four years ago on World Cancer Day, 4th February 2015. The company, which started as an idea to deliver high energy proton therapy treatment to cancer patients in the UK, has quickly transformed into the world's leading provider of proton therapy centres, as well as a key player within the diagnostic and research fields.

Mike Moran, the Chief Executive Officer of Proton Partners International, founded the company alongside Professor Karol Sikora, the former Chair of the World Health Organisation's Cancer Programme, as well as a panel of British and international oncology experts.



Mr Moran spoke of his initial vision for the company: "We were aware that Britain was lagging behind other countries such as the United States, Switzerland or Germany, which all had been providing proton therapy for decades, and we felt strongly that this treatment ought to be available in the UK.

"It's no secret that dealing with cancer can be a hugely stressful time for the patient and their family, so we envisioned a network of cancer centres across





the country which placed patient wellbeing at the fore, while ensuring that high energy proton beam therapy would eventually be within driving distance to all who need it.”

The company is planning to build eight Rutherford Cancer Centres across the UK, with the aim that 75 per cent of the population will live within a 90-minute drive of a treatment centre by 2021. Three centres in Newport, Reading and Northumberland are currently open, with the fourth centre in Liverpool under construction. Each centre will offer chemotherapy, radiotherapy and immunotherapy alongside high energy proton therapy.

The Rutherford Cancer Centre South Wales in Newport became the first place in the UK to treat a patient with high energy proton beam therapy in April 2018, and has since treated a variety of patients across cancers such as prostate, breast, head and neck. In December, it was announced that the centre was approved to treat adult patients in Wales on the National Health Service, ensuring that treatment is now available to all eligible patients in Wales regardless of their financial circumstances.

In addition to its UK cancer centres, Proton Partners International is also working with the Gulf International Cancer Centre in order to provide high energy proton beam therapy at its Abu Dhabi Proton Centre – the first of its kind within the Middle East.

However, the Rutherford Cancer Centres are just one branch of Proton Partners International. The company operates three other divisions: Rutherford Estates, Rutherford Diagnostics and Rutherford Innovations.

Rutherford Estates handles the construction and ongoing management of each site such as the cancer centres themselves, while Rutherford Innovations is focused on research and development within oncology. Rutherford Diagnostics works to predict, prevent and detect diseases in their earliest stages, conducting complex diagnostic testing across a wide range of conditions and providing core technologies including CT, PET-CT, MR, ultrasound, endoscopy, genomics and personalised screening.



“We envisioned a network of cancer centres across the country which placed patient wellbeing at the fore”

Mike Moran
CEO, Proton Partners International

Mike Moran explains: “For us, treatment is only part of the solution – we need to be able to research and pursue innovations within oncology while also working to detect issues and diagnose patients at the earliest possible point. In 2016, 828 new cases of cancer were diagnosed each day in the UK alone and we feel strongly that we must work to tackle all aspects of this disease – not only the treatment itself, but also its prevention and early intervention.”

While 2018 might have seemed like a busy year for Proton Partners International, 2019 doesn’t give any indication of a change of pace for the company. The Rutherford Cancer Centre North East in Northumberland and its sister site the Rutherford Cancer Centre Thames Valley in Reading both opened last year for treatments such as chemotherapy and radiotherapy. However, their proton therapy units are set to open in Spring and Autumn 2019 respectively following completion.

The company is also set to open its Rutherford Diagnostics Headquarters in Liverpool later this year, following a ground-breaking ceremony on 8th January, with additional centres planned across the country soon after.

As Mr Moran says, “We never do anything by halves – when we set out to bring high energy proton therapy to the UK, we are committed to providing the best possible service across the board. The last four years have gone at breakneck speed as we’ve worked towards making this happen, and this is just the beginning. We have a brilliant team behind us, and it’s truly inspiring to meet with patients at our centres and realise how important it is that we bring this highly advanced treatment to as many people as possible across the UK.”

Contact Information



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Integrated care

Integrated care, with a focus on primary care, is a key component of building sustainable healthcare systems, says Dr Anna van Poucke, Partner, Netherlands lead, Healthcare, KPMG in the Netherlands

As the Global Care System Redesign (CSR) network lead, my passion is to promote healthier, longer lives, by working with our clients to improve their services and focus on population health outcomes.

Changing demographics, along with the increased prevalence of complex conditions and multimorbidity, are leading to changing patient profiles, which are putting stress and strain on outdated models of care in many countries across the world.

Our global experience at KPMG has shown us that to create a sustainable health system you need to focus on the triple aim of improved health outcomes for a local population, improved quality of care and lower costs. By doing this you can deliver long-term system sustainability (e.g. financial sustainability and efficient use of resources).



“Too often, providers focus on single episodes of treatment, rather than the patient’s overall well-being”

Dr Anna van Poucke
KPMG

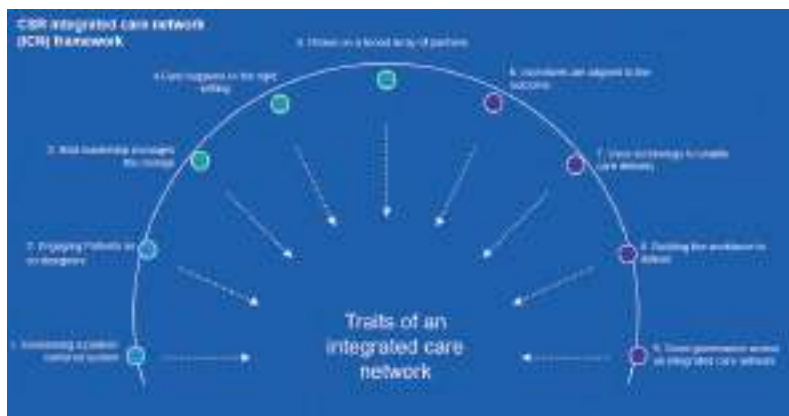
In our approach we help our clients to design new integrated networks and models of care that meet the needs of their local population. We also work with our clients to help them understand how these can be implemented pragmatically and affordably to drive improvement goals and achieve better health, better care, and better value.

From my experience there are nine key traits that describe ‘what good looks like’ for an integrated care network/system. Figure 1: CSR Integrated care networks (ICN network)

Integrated care

Integrated care brings together the different groups involved in patient care so that, from the patient’s perspective, the services delivered are consistent and coordinated. Too often, providers focus on single episodes of treatment, rather than the patient’s overall well-being. By taking a more comprehensive approach, integrated care offers patients higher-quality, more efficient care that better meets their needs. In many cases, the increased efficiency also helps control costs.

Figure 1



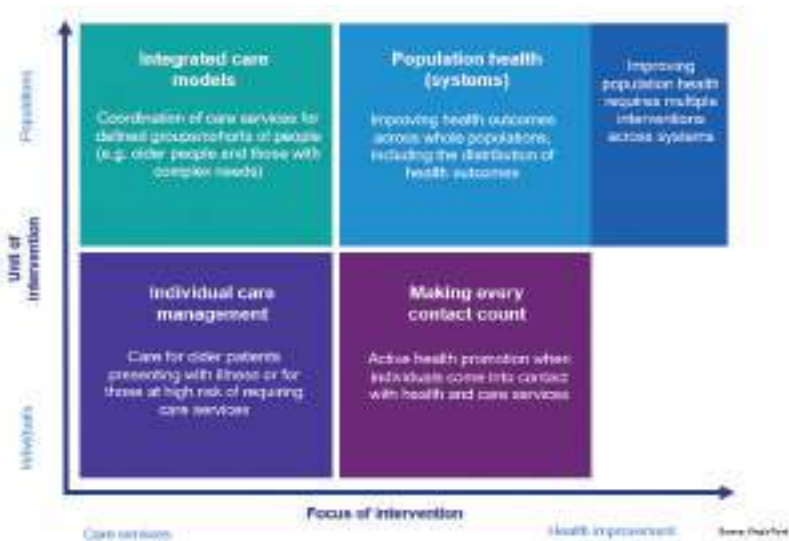


Figure 2: King's Funds Integrated Care Model

Some forms of integrated care involve local authorities (e.g. social care) and the third sector (voluntary and charity sector) in working towards these objectives, alongside healthcare. The most ambitious forms of integrated care networks and models aim to improve population health by tackling the causes of illness and the wider determinants of health.

models of integrated care, is a priority to deliver sustainable health systems for local populations.

Primary health care has a role to play in strategically shaping the rest of the healthcare system by establishing the flows to secondary and tertiary care and guiding what these should look like.

A move towards a primary care focussed system requires a corresponding shift in patient behaviours. Empowering citizens both financially and through the provision of relevant information will help shape the demand for primary care services. Achieving equity in provision is an important consideration.

At the same time, the supply side needs to be designed to ensure the right care is provided. Important considerations include aligning provider incentives, looking at partnerships and investing in technology.

Future entry to the system could be enabled through a digital front door (patient apps, telehealth), helping the patient navigate the system and avoiding unnecessary visits. Policy makers play a crucial role in ensuring the demand and supply sides work coherently. This includes establishing the financing flows through different tiers of care, inter-agency dialogue, a clear plan and strategy and regulation and governance in place to ensure the system is functioning as intended.

Evidence supporting the investment in primary care shows that:

- Treating patients in primary care settings is much cheaper than hospitals
- Primary care is better placed to address chronic health problems early and to prevent minor conditions progressing into serious ones (e.g. diabetes, obesity and CHD)
- Primary care helps to navigate patients through the system, so they are not 'bounced' from one service to the next.

The evidence shows that health systems with a high-performing primary care sector achieve better health outcomes, better equity, lower mortality rates, and lower overall costs of health care. There is a consensus internationally that the transformation of health care systems must be built on a foundation of high-performing primary care. A high performance system is one that is accessible, person-centred, safe, effective, efficient, and equitable. It is also one that is driven by evidence that is coordinated and oriented towards population health.

Currently there is an urgent need for the renovation of old primary care facilities in the Middle East region. Increasing demand on systems means that redesigning current infrastructure as well as new

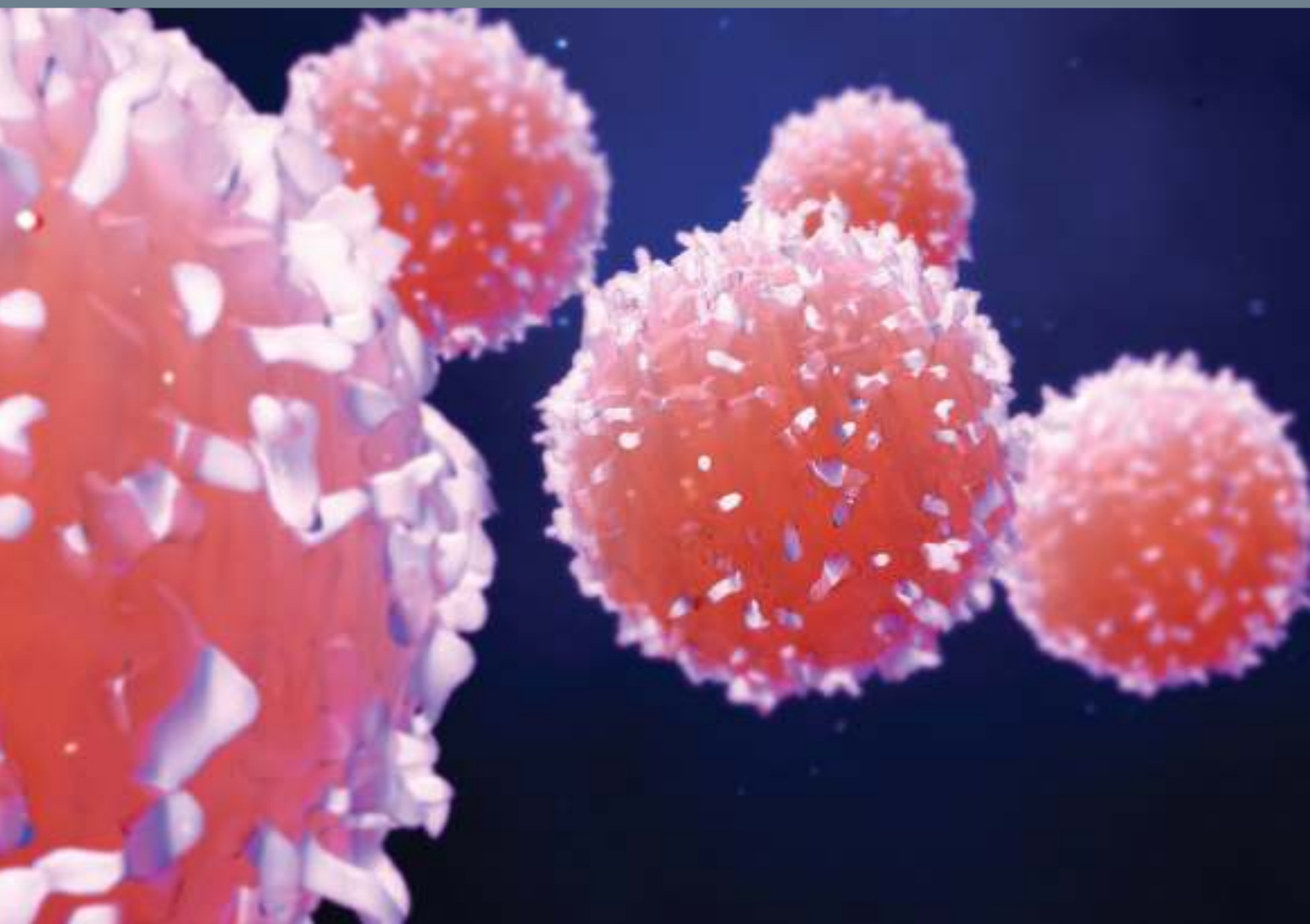


KPMG has supported and delivered primary care redesign work across the globe, from the Philippines (service delivery reform) to the Bahamas (UHC work to create an integrated benefit package which created demand for primary healthcare), from the United States (State wide reform) to the Europe (whole health system redesign).

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Thinking Ahead

Although it is the 6th most common type of cancer, head and neck cancer falls behind others in both awareness and research funding, says Sarah Bender Head of Marketing and Operations at Oracle Cancer Trust

Head and neck cancer is the cause of 380,000 deaths a year, worldwide. Incidence varies from country to country for example, head and neck cancer accounts for 7-8 per cent of all cancers in the UK whereas in Asia the burden is even more significant with around 30-40 per cent of cancers occurring in the head and neck. As well as impacting individuals and their families, head and neck cancer also has a negative impact on a country's economy. In 2010, across India, Pakistan and Bangladesh, economic welfare losses due to head and neck cancer were estimated at US\$16.9bn (2010 USD, PPP), equivalent to 0.26 per cent of their combined gross domestic product (GDP).

A report recently released by The Institute of Cancer Research which analysed access to innovative

cancer drugs found that whilst 19 new drugs were authorised for lung cancer by the European Medicines Association between 2009-2016, none were authorised for head and neck cancer. Despite needing more attention in comparison to other cancers, ongoing research in head and neck cancer has bought about lifechanging advancements in treatments for patients. Oracle Cancer Trust is the UK's leading national charity at the forefront of funding vital early stage research in the UK into head and neck cancer.

Cancer can develop in more than 30 areas within the head and neck, including the lips and mouth, throat (pharynx), voice box (larynx), salivary glands, nose and sinuses and back of the nose and mouth (nasopharynx). Established risk factors of head and neck cancer include tobacco, alcohol and the Human Papilloma Virus (HPV). Whilst more commonly known as a cause of cervical cancer, HPV associated head and neck cancer is on the rise, in particular HPV-positive tonsillar cancer in younger patients.

Early detection can greatly improve outcome for patients therefore awareness is key in the fight against head and neck cancer but with symptoms



differing across the many types, it can be difficult to spot. Standard treatments including chemotherapy, radiotherapy and surgery on such a complex area of the body can really leave their mark on patients.

Research into new ways of improving treatment for head and neck cancers has gone a long way into tackling some of these issues for example, breakthroughs in immunotherapy, treatments which trigger the bodies own immune system to kill cancer cells, avoiding damage to healthy tissue caused by chemotherapy and radiotherapy. Currently licensed for patients with advanced head and neck cancer, the immunotherapy pembrolizumab was shown to increase survival in some patients by as much as three years.

New techniques

We have also seen advancements in surgical techniques including the development of robotic surgery to perform minimally invasive and precise produces inside the mouth. Transoral robotic surgery enables surgeons to access tumours that would normally be difficult, if not impossible to reach. The use of this robot avoids large incisions to the neck and jaw, making it less traumatic for patients and decreasing recovery times. A project currently funded by Oracle Cancer Trust is using this new technique to remove hard to reach tissue from the base of the tongue for testing to help increase detection of tumours in head and neck cancer.

Radiotherapy is also becoming more refined; in 2004, Oracle Cancer Trust funded a clinical research fellow to work under the supervision of Professor Chris Nutting, to design a treatment protocol to test the effect of reducing the dose of radiotherapy delivered to the salivary glands during head and



“Despite needing more attention in comparison to other cancers, ongoing research in head and neck cancer has bought about lifechanging advancements in treatments for patients”

Sarah Bender
Head of Marketing & Operations
Oracle Cancer Trust

neck cancer treatment. The technique used is known as intensity-modulated radiotherapy (IMRT). It was hoped that by doing this, fewer patients would develop the side-effect of permanent dry mouth caused by damage to the salivary glands. This work laid the foundations for a UK-wide clinical trial. The results were stunning. By adapting treatment, after 24 months only 29 per cent of patients reported they were suffering with dry mouth following treatment compared to 83 per cent who received conventional radiotherapy [6]. That means dry mouth was avoided in over half of patients undergoing treatment.

Professor Nutting and his team of researchers have also studied the use of IMRT to reduce damage to swallowing, currently being evaluated in the follow up stage of a phase III clinical trial. As well as dry mouth and swallowing difficulties, change or loss of taste is another common complaint of patients following radiotherapy. Professor Nutting is overseeing a 2-year research project that began in 2018, funded by Oracle Cancer Trust, to determine how damage to taste is caused and importantly for patients, how it can be reduced.

Another exciting advancement in the field of radiotherapy, a technology known as Magnetic Resonance Linear Accelerator (MR Linac) was used to treat a patient with prostate cancer for the first time ever in the UK at The Royal Marsden Hospital in 2018. This treatment allows more accurate delivery of radiotherapy by tracking tumours in real time, accounting for changes over the course of treatment. This helps target radiotherapy to the tumour and avoid damage to healthy tissue. Researchers funded by Oracle Cancer Trust are now looking into how MR Linac could be used to treat head and neck cancer to help physicians plan and deliver radiotherapy. ●

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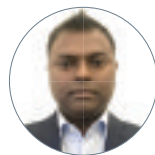




Personal Overview

Knowing your own health is first step towards happy and healthy living says Reddy Sanikommu, Medintu Founder

As digital health makes even greater forays into overall healthcare solutions, patients are rightly confused about how digital fits into their medical history. While it can be helpful to access a doctor via an app



“Early intervention in managing your own health could reduce life risk for you and your loved ones”

Reddy Sanikommu
Founder, Medintu

at any time to suit them, how does the consultation and information fit into their overall story?

The UK has the largest amount of patient data available, dating back to the founding of the NHS more than 70 years ago. But until now patients have not been completely involved in owning their medical history. Now with pressures on healthcare, patients are becoming more involved, and are finding themselves with more choices about how to manage their wellbeing.

However, prioritising health and wellbeing in the modern working world is hard. Time is often pressing and it can be difficult to get in touch with the right specialist. Even if they have managed to find the time to see a healthcare provider, it's not always easy to see the bigger picture..

Medintu was born out of a desire to give people better access to healthcare and a more personalised approach to their wellbeing. “One of the problems is that the user can't maintain their own medical records,” says Reddy who founded the company in Sunderland in the north east of England. “They often know little about the specialist to whom they may have been referred, while the specialist knows little or nothing about the patients.”





How digital technology can help

As an international digital healthcare service, MedIntu is dedicated to making healthcare more personalised and accessible to everyone. “Our key vision is to help people live a better, healthier life in the busy working world,” says Reddy. “So you, as the owner of your medical records, can share it with the specialist, rather than hoping the specialist has a record of your health history. The specialist can access your record online and then understand various other elements like allergies, medical conditions and current medication.”

This approach is particularly relevant in countries without an integrated or advanced healthcare structure. Reddy has found a willing market in India, where the burgeoning middle classes are looking to access the many medical advances in their own country, rather than going abroad to seek treatment.

It’s particularly successful in the tech city of Bangalore where people are already plugged into the benefits of digital tech in general. With 110,000 users already on the system, MedIntu is finding that a business to business approach is more effective at this early stage.

“We found that individuals were enthusiastic about filling out the information forms at first, but then it tailed off. So we now have a service wrapped around a business platform where we do the assessments for individuals and then they can update their information.”

One of MedIntu’s largest clients is the State Police Department of Andrapradesh. Its 65,000 employees are all enrolled in the scheme and can access all aspects of healthcare, from information, GP and consultant appointments, online consultations, private medical tests, a wellbeing profile and counsellor, and events and webinars.

“By simplifying access to health support, the company benefits as well as the employees,”



“We want to give everyone an opportunity to bring their lifestyle, medical and Internet of Things devices information together to get better insights into their own health and seek guidance from specialists at their own convenience via the app”

Eddie Powell
Chairman, Medintu

says Reddy. “Our system enables people to have quick access to resolve their health issues and also focusses on prevention. This reduces sick leave and improves productivity by creating a happier and healthier workforce.”

Holistic approach

From the ever-increasing speed of digital communication to the growing demands of our 24/7 culture, the evidence suggests that employees are getting more stressed, not less. The app-based system creates a wellbeing journey for each individual, including medical health, mental health, healthy diet and exercise, mindfulness, sleep, stress management and financial wellness.

The aim is to create a join-up system of patients, doctors, consultants and medical facilities, subscribing to Medintu, that does not allow patients to fall through the cracks. In addition, it also creates an overall health picture for each company or geographic area, revealing its stresses and pinpointing potential improvements.

The system allows access to specialists in fields such as mental health, nutrition, physiotherapy and fitness conveniently accessible all time from anywhere. As users continue to access services online, the system will automatically build their health record which can be used for better diagnosis in the future.

“We want to give everyone the opportunity to manage their own health information and to access treatment via the app at their own convenience,” Reddy says. “This should improve outcomes for the patient and give them the confidence to proactively manage their own health, rather than waiting too long to seek treatment.”

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Building the right healthcare infrastructure

Planning to ensure the right facilities for populations, in the right places is vital, say Roger Widdowson, Ravi Suri and Dr Anna van Pouke

Health systems in Asia, Africa, Latin America and the Middle East are gearing up for unprecedented expansion in access to healthcare. Governments here and elsewhere around the world are examining how private sector partners can contribute investment and skill to help them achieve it.

One of the attractions of Public Private Partnerships (“PPP”s) is accessing latest “lean” approaches to healthcare service delivery, leveraging current technology and care pathways. This has meant that we have already seen a move away from the traditional hospital construction into much more layered and differentiated infrastructure that ranges from:

- Complex intervention centres, concentrated around ‘hot floors’ where 24/7 acute and complex care takes place; where logistics are focused on optimised patient flows and high levels of efficiency; increasingly, the complex intervention centres will function as a digital signal posts supporting care delivery in the community and at home. Optimisation of this digital model means that expensive infrastructure can be kept to a minimum.



“We have already seen a move away from the traditional hospital construction into much more layered and differentiated infrastructure”

Dr Anna van Poucke
KPMG

- Community Public Health centres where primary care and less acute and complex specialist care are combined, services are focused on population segments and groups with similar clinical need. These facilities can form an integrated network around the complex intervention centre and services can be fine-tuned to the special needs of these populations.
- Care at home: with newer technologies, more and more care will be delivered at home. This does not only mean less need for expensive infrastructure, but also means that digital technology and AI can deliver continuous monitoring of the patient population. Over time, this will improve care and outcomes.
- Lastly, the core of the healthcare infrastructure moves from bricks to clicks. Based both on digital care delivery at home or close to home and on the increased use of data and analytics, and artificial intelligence, care delivery will move from treatment and curation to continuous monitoring, prevention, early detection and early intervention.

Funding and operating healthcare infrastructure

KPMG research last year into the Global PPP market for healthcare highlighted that many countries are expecting to rely heavily on private sector involvement as they work towards the UN Sustainable Development Goal of healthcare access for everyone by 2030. The attraction for governments is achieving maximum benefit for limited public capital. Populations get higher quality healthcare at the same or lower cost, and



the private sector players generate sustainable returns in new and rapidly growing markets. This is a “triple” win.

The scale of infrastructure investment is enormous. Globally, the need for infrastructure investment is forecast to reach \$94tn by 2040.

PPP, or some form of Private Sector Participation, offers capital and expertise, but the models widely used in the West over the last 20 years may not be appropriate for middle-income countries where much of the infrastructure development is required and markets are less mature.

PPPs involve an exchange of risk and responsibility in return for financial reward. A suitable legal framework is a basic requirement for PPPs, covering the use of PPP and also the contracting for services under PPPs. The development a robust business case, which is capable of use by multiple stakeholders across government and the investor and operator communities, is also essential.

In many countries health data is limited, but it's possible to model demand based on data from basic local population data combined with demand and case mix data from other countries. This, with an appropriate framework for paying for healthcare, are key components we use for a feasibility study for each project. This is the pre-cursor to a business case which will be relied on by governments, investors and operators.

There are now multiple sources of development funding, and both domestic and international



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“Good risk mitigation for projects, funding from Export Credit agencies at attractive rates and long tenors would make the value for money calculations look favorable for PPP projects in the healthcare space”

Ravi Suri
KPMG

The critical success factors for PPPs

1. Government must provide the strategy and vision for the health system. Clarity of objectives enables clarity of requirements for potential PPP partners.
2. Be obsessed with detail and allow sufficient time for needs assessment, planning, bidding and checking. Value-for-money analysis and planning for different scenarios to a “base case” are important as operator contracts are long term and things change.
3. Tendering and robust procurement are vital to ensure value for money. The best outcomes require proactive and regular engagement between investors, operators, construction partners, advisors and government to ensure clarity of what the request is, and what sort of solution could work.
4. Develop PPP expertise within government that can advise on suitability of projects, establishing appropriate legal framework, assist with procurement and engaging with stakeholders
5. Ensure that data and assumptions used for planning and VFM are reliable – not just through a Healthcare lens but also the more holistic impact on the local economy, employment and environment.

construction companies with credentials in health infrastructure. There are also many long term healthcare infrastructure owners and funders for operating assets, which have a lower risk profile than a development project so a cheaper cost of capital, so more creative funding structures than those historically used are possible.

Conclusion

Designing, procuring, tendering, contracting and operating PPP projects is complex. When complete they also need integrating into the wider healthcare infrastructure.

“Good risk mitigation for projects, funding from Export Credit agencies at attractive rates and long tenors would make the value for money calculations look favorable for PPP projects in the healthcare space.”

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The drive towards universal health care

**The development of physical infrastructure must support the development of health services, says Barry Francis
Infrastructure Correspondent**

The global need for healthcare investment is well recognised. In 2015, world governments signed up to universal UN sustainable development goals including in healthcare. In April 2018 the World Health Organisation reported that half of the population does not have coverage for essential health services and World Bank commitment is reflected in The Human Capital Project. In richer countries, challenges to healthcare delivery are driven by many changing factors. We are seeing need, commitment and money for improving healthcare across the world.

In all this, the built environment – hospitals and clinics – has an important part to play. It must

be planned in the context of healthcare systems' development and the need to ensure it is staffed, equipped and used effectively to deliver good care. Commercially motivated finance, as well as public finance, aid and philanthropy, has a huge role.

A common feature of infrastructure procurements is the requirement for a more or less integrated solution from the principal contractor/ consortium provider. The main contractor, or the investment arm in its corporate group, will take a major role in pulling together the component parts of an operating hospital. Structures may allow for clinical operation responsibilities to be taken on as well.

A contractor will only rarely be required to provide just the shell of a hospital. Likely, it will be expected to equip the hospital; it may be expected to finance it and it may have ongoing responsibilities to maintain the hospital and to replace equipment and parts (lifecycle), to provide support services such as cleaning and portering, and to provide near clinical services such as laboratory services, or even the whole clinical operation. Picture a spectrum with building at one end, building and delivering clinical services for 20 years at the other, and with a load of variations in between.



“More must be done to join up the various offerings around the world to address the complexity of demand for publicly and privately funded healthcare”

Barry Francis
Barry Francis
Consultancy

However configured, someone has to take responsibility for integrating services. This presents challenges to contractors and service providers developing integrated solutions and deciding whether a project is sufficiently ‘ready’ to warrant investment. It provides opportunities for organisations which have the skills to assess and the skills and financial strength to deliver. Is the regulatory regime robust? Does the procurer have the necessary “skills sets?” Can the healthcare system support the project? What are the risks of not getting paid? ‘Unreadiness’ is no reason to abandon a project. We see many governments engage experts, often through international financial institutions or with the help of other governments on a bilateral basis, to get a project ready. Or the task may be to get a system ready through the development of social insurance arrangements as an early step to the effective delivery of Universal Health Care UHC.

The demand for integrated services encourages globalisation of offerings and increases the complexity. This often leads to the involvement of foreign governments, as well as multilateral institutions, supporting the project and its supply

chain. I will concentrate on UK offerings, because I am more familiar with them, but many countries are providing export and development support and multinational co-operation is to be encouraged. Export Credit support can be vital. In the UK, the Department for International Trade (through Healthcare UK) helps in this analysis of opportunities, working with other parts of DIT (Department for International Trade) and with embassies. Support is given to procurers and potential suppliers in facilitating contact and contract and to see whether suppliers or procurers can benefit UK Export Finance support: support to UK exporters (such as credit insurance) and, to qualifying projects which have sufficient UK content, loan guarantees (thus substantially reducing its overall cost).

Healthcare UK helps those involved in potential projects assess the projects for readiness and to keep track of opportunities as they develop. It helps governments identify consultants and operators in the UK to explore how the UK can add value to healthcare systems and their infrastructure. Skills in designing healthcare systems and managing the patient pathway should be a key aspect of design. A clinic may be a relatively simple building, but it hosts complex equipment and can perhaps better serve its community if designed and operated with the benefit of digital health solutions built into its service model; a managed equipment or laboratory service solution might be better than a simple purchase of kit. Through its Export Catalyst service, Healthcare UK is helping NHS organisations to identify and respond to opportunities, manage risk and ensure that resources are not diverted from NHS primary tasks. Working with UK Export Finance, main contractors headquartered outside the UK are encouraged to access the UK supply chain and are helped to identify suppliers for a wide range of services and goods. Some establish procurement functions in UK. Complementary offerings optimise arrangements for all parties and, by accessing UKEF support, reduce the cost of borrowing and make projects more affordable.

More must be done to join up the various offerings around the world to address the complexity of demand for publicly and privately funded healthcare. The very real complexities of blending finance from different sources would benefit development. Joining up ideas around aid, concessional finance, philanthropy and commerce could help in the drive to UHC. It is a complicated problem to solve and there are loads of barriers. But the prize is huge.

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Standing out from the crowd

Andrew Wells, Serco Client Director Middle East, explains the benefits of working with a strategic partner with international service delivery experience

Healthcare providers are facing increasing pressures in demand due to the impact of ageing and chronic disease. Squaring the circle of improving the quality and safety while reducing costs can prove to be an almost impossible task which requires tough choices to be made.

The focus of transformation for leadership teams is often on high-profile medical services that are provided to patients, including the doctors, nurses and equipment that deliver them. The hospital environment itself, and the services that support it, are often overlooked and underinvested despite their criticality to the smooth-running of the hospital and shaping patient experience.

This is not just a question of hospital design, but ensuring the ongoing availability of a calm

and well-maintained building that meets the dynamic demands of patient care to promote a therapeutic environment. This encourages positive interactions between patients and staff and provides a solid base from which to improve care and efficiency.

Serco, as a strategic partner with international service delivery experience, can help healthcare providers transform their services and differentiate themselves from their competitors.

Enhanced Care and Safety

A focus on output and outcome-based measures drives greater accountability and incentivises the pursuit of quality and innovation as well as financial benefits across the hospital estate.





Benefits include:

- Enhanced prevention and control of infection through higher standards of cleanliness, implementation of enhanced disinfection methods such as ultra-violet and hydrogen peroxide vapour systems
- Improved patient satisfaction and faster recovery
- More time for clinical staff to look after patients as they spend less time on support activities which can be undertaken by Serco staff
- Increased bed utilisation and shorter bed turnaround times, allowing more intensive use of hospital assets and equipment

Innovation and technology

New technologies are disrupting all parts of home and work life and the health sector is a particular area of focus and opportunity. However, sound selection and implementation decisions are required to make the most of expensive investments.

- Robotics: Automated Guided Vehicles to transfer waste linen and meals; robotic floor cleaners
- Digitisation: Central capture and management of service tasks via a Computer Aided Facility Management (CAFM) - demand can be monitored, reported and analysed to forecast future resource allocation, reducing reactive tasks and enabling route cause analysis and continuous improvement. Tasks requested through digital portals reduce use of email and phones and allow further automation
- Enhanced cleaning and monitoring systems: To reduce the risk and spread of infection Serco has developed a combination of industry-leading systems and processes
- Internet of Things: sensors and beacons used to track patients, staff, and equipment so they can be easily found and provide data on flows around the hospital
- Artificial Intelligence: predictive alerts and actions following the automatic recognition of patterns

Meeting demand, reducing waste

Traditionally hospital support services have been planned based on 'inputs', with requirements specifying the number of cleaners, porters or engineers required but little capacity to flex up or down to meet peaks or troughs in demand. However, more sophisticated modelling techniques and greater data has increasingly enabled identification of fluctuations in daily, monthly and seasonal demand, to enable better scheduling of resources including centralisation to optimise the response to reactive tasks.

Integration

Despite working in the same physical building, services are often siloed and fragmented within a hospital.



“Maintaining a safe and caring healthcare environment requires constant support and investment”

Andrew Wells
Client Director,
SERCO

Departments and wards are managed separately while key support services are often delivered by different suppliers causing poor communications and inconsistency in quality.

A strategic partner can firstly integrate horizontally across non-clinical services to tease out the synergies between them. This can include initiatives to pool resources, upskilling staff and tackle common problems. A single point of contact makes it easier to respond to emerging issues proactively.

Secondly, a strategic partner presents opportunities for vertical integration with clinical services enabling genuine teamwork on the ward. By identifying key integration points, Serco has developed processes and roles that promote integration.

Motivated People

While health professionals tend to undergo continuous training and development there is often underinvestment in support staff. A strategic partner can therefore provide the career development opportunities for cleaners, porters, catering assistants that would not be ordinarily available to broaden their skills as well as develop management skills.

Multi-skilling is a key approach that adds strings to the staff's bow but also enables operational efficiencies such as those described above. It can also reduce labour costs over time as fewer people are required to carry out the same volume of tasks improving productivity and performance quality as staff gain more experience.

Support staff, especially cleaners and porters, often have more contacts with patients than clinical staff, therefore investment and nurturing of their soft skills can potentially reap huge rewards. By promoting positive interactions and feeding intelligence back to clinicians they can significantly improve patient experience

Conclusion

Maintaining a safe and caring healthcare environment requires constant support and investment. The expertise required to undertake this is not often a core capability of healthcare providers, but is an essential component of the therapeutic process that should be sourced from a trusted partner that can transfer international experience and best practice to maximise outcomes for patients and staff.

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How to develop a 21st Century Health System - Conclusion

Dr Mark Britnell, Global Chairman for Health, KPMG, sums up the findings of their series of articles

Healthcare systems around the world are facing unprecedented challenges that require policy makers, payers, providers and suppliers to rethink how they work. As I outline in my book 'In Search of the Perfect Health System', we wouldn't start from where we are, knowing what we now know. It is difficult to transform institutions, professions and infrastructure that have developed over centuries and absorbed huge amounts of time, money and power.

While it is not desirable to 'lift and shift' healthcare system parts from one country to another, it is possible to stimulate ideas, share possibilities and

encourage local innovation, adaption and adoption. There are more similarities than differences in most countries' health systems and we should do more together to illustrate what works.

The unifying factor in these articles sharing our global learning, from building new universal health coverage systems for whole countries, through to delivering advanced health data and analytics for providers, is that health system and political leadership has never been more important. This is vital to facilitate the culture change needed, yet many leaders underestimate the level of commitment required.

Our global research 'Staying power - success stories in global healthcare' set out to identify key factors for healthcare transformation, interviewing 65 health system leaders across 30 countries in 6 continents. Overwhelmingly healthcare leaders believe fundamental improvement and innovation is required. We identified three features common to those that succeed:

- 1. Long-term vision with sense of urgency**
Although transformation requires a long-term vision and commitment, the immense



“Over-whelmingly healthcare leaders believe fundamental improvement and innovation is required”

Dr Mark Britnell
KPMG

just their own mistakes, but those of other organisations too – particularly in stories of organisational decline.

In the search for a future vision of healthcare, it is all too easy to park the immediate problems of financial constraints and unsatisfied patients. However, a failure to address today’s pressing needs could threaten the very survival of many institutions.

With deep industry experience, KPMG member firms are uniquely positioned to provide guidance and support to clients charged with delivering this vision, helping them successfully navigate this rapidly changing environment and transform the way that healthcare is provided.

KPMG’s Global Healthcare team has more than 4,500 dedicated professionals with skills in strategy development, cost optimisation, financial management, clinical performance improvement, health IT, digital innovation and transformation, market development, tax planning, mergers and acquisitions, commercialisation and organisational development – making it one of the largest, best equipped and most experienced healthcare advisory teams.

I have dedicated my entire professional life to leading healthcare organisations at hospital, regional, national and global levels, and am constantly motivated by the pursuit of excellent healthcare, something I am proud to share with our whole global network. Through supporting clients internationally, from governments through to individual provider organisations, KPMG is making a significant impact to the delivery of healthcare around the world. It would be our privilege to serve you, and we look forward to hearing how we can help.

challenges facing the healthcare sector also call for immediate action. Creating urgency does not mean abandoning principles in favour of short-lived solutions; but it does mean leaders should instil their strategies with a sense of pace.

2. Mastering tools that give them the edge

Information is power, but only when it is the right information. Healthcare’s love affair with data is rooted in a centuries-old tradition of rigorous medical testing and research, plus the need to keep detailed patient records. In recent times, the use of information has extended to the boardroom, as leaders seek to carve out new models of care. Selecting the right data, in the right form, has become a critical task.

3. Curiosity and enthusiasm for innovation

The best examples of healthcare transformation involve organisations that constantly seek to improve, by questioning and critiquing existing practices. Successful organisations often learn from mistakes: not

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KPMG Healthcare Review

KPMG’s Healthcare Review is an online space for leaders who want to think about the common challenges shaping the present and future of healthcare. Updated monthly by our Global Healthcare practice, the content draws on KPMG’s extensive international health network across 45 countries to provide a truly global picture. Mixing topical analysis, commentary, and interviews, Healthcare Review covers the key themes and trends relevant to payers, providers, and patients alike.

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The Digital Conundrum

Digital is only part of the answer to service efficiency, says Mike Hobbs International Correspondent

A digitally-enabled NHS, with patients owning their own healthcare information and clinical practice supported by artificial intelligence, machine learning and data analytics is a vision that few would disagree with. More humble activities including logistics are rightly recognised as being opportunities that can be unlocked through digital innovation. At its core much of healthcare is about getting the right patient, at the right time, to meet with the right clinician, with the necessary information and the right equipment to undertake the clinical activity – a long way of saying logistics.

Yet healthcare providers don't think of themselves as major logistics operators. Over the years, logistics processes have evolved, often to address points of failure. Thus there is significant opportunity for improvement in the patient and staff experience and in delivering improved efficiency. Digital certainly has a part to play, but is not the answer. It is an enabler.

Almost by the day there are new digital options all proclaiming to enable improved quality and reduce cost. Before being able to assess this, it is necessary to understand the fundamental question that is being addressed. There is little point in improving the efficiency of one part of a process only to create larger bottlenecks or disruption elsewhere. The starting point should be to understand workflow, which will benefit from targeted data analytics and subsequently identification of appropriate technology and digital enablement.

The digital revolution needs to be fuelled by in-service data. Data that will initially almost certainly be able to be challenged. It will be the exception to get a perfect dataset that goes unchallenged. A mindset change is needed that recognises when data is sufficient to make informed decisions to improve. Processes that people know are inherently wrong or ineffective.

Healthcare processes are often operationally reactive, correcting processes that are failing, without recognising that the same failures are repeating themselves. Data analytics have a part to play in moving from reactive to a proactive performance culture focused on continuous improvement and celebrating doing more with less. In this context, innovation can be defined as a new idea utilising a more efficient device or process.

There are many opportunities to invest in technology and digital. The Internet of Things (IoT),

for instance, attracts much press. But the IoT relates to devices that capture more data. There is already a world of data produced by existing systems, much of which isn't used because any shortcomings in a data set are used to discredit the whole data set. The opportunity must be taken to identify robust data elements within existing datasets and to use digital analytical tools to maximise the impact of existing data on process improvement and ongoing monitoring to drive continuous improvement.

The IoT becomes relevant when specific business cases are identified, where acquiring timely data to support a business process has the demonstrable potential to reduce or avoid costs.

Embracing and reaping the rewards from digital enablement requires a cultural change. A change that will include the development of new capability and capacity in the workforce. It is a major change programme that needs adopter organisations to recognise it is longer term, and to seek out the quick wins on this journey to digitally-enabled healthcare support services.

It is difficult to find any fault with the UK Secretary of State for Health and Social Care's statement that: "The time is ripe now to bring about this tech revolution in healthcare". The test of success will be measured against another statement from the Secretary of State and Social Care: "The critical part is that it will save money in the medium term and it's abiding by the standards that will allow a system to run better."

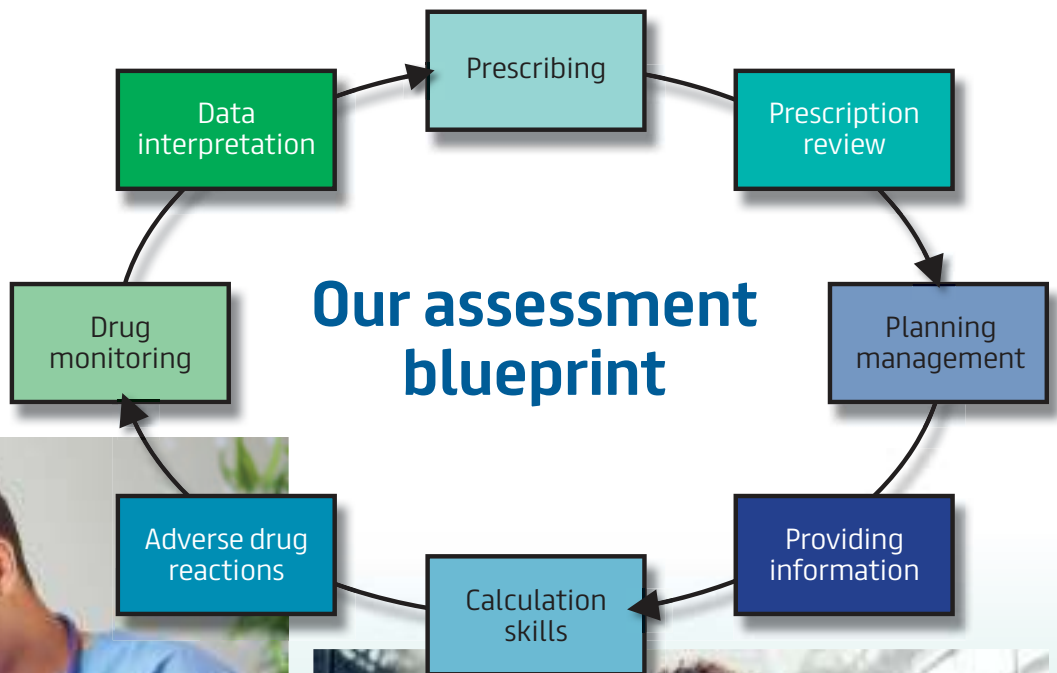
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