

The Journal of mHealth

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DTx The Rise of Digital Therapeutics



TECH

Prescribe Software for Mental Health Treatment



INSIGHT

Is Patient Centred Tech more Important than Ever?

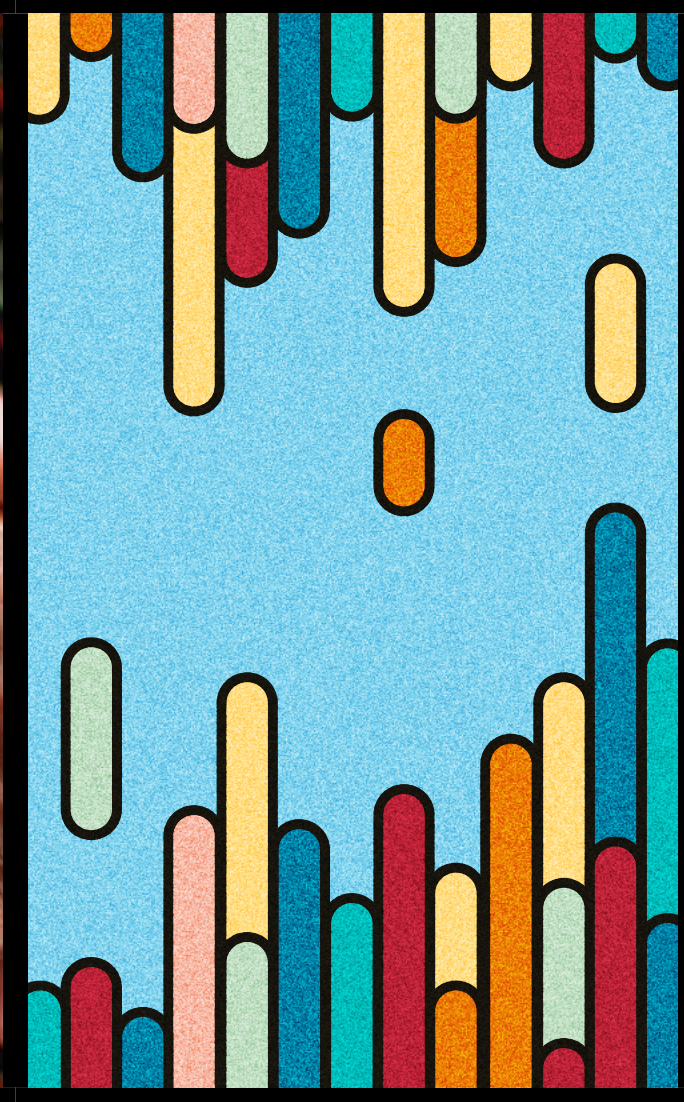


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A Tipping Point for Digital Transformation



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Prescribe Software for Mental Health Treatment

There are incredible breakthroughs being made right now by life sciences companies, which are exploring and developing new compounds with the potential to transform mental health treatment. But new drugs are just part of the solution.

Technology is ubiquitous throughout all of our lives and healthcare is no different. We are currently working on groundbreaking psychedelic medicines that we hope will revolutionise the treatment of a range of mental health conditions, such as depression. But we also believe that the future success of any new compounds coming to the market will depend on the ability to offer personalised care by ensuring technology is part of the compound development programme.

We are moving closer to being able to deliver this. Currently many compounds come to market with companion apps, which support patients during their treatment, offering information on side effects, education on their diagnosis and much more. This is great but we need to deliver more to patients, healthcare professionals and healthcare systems and the rapid development of the digital therapeutics market enables us to do this.

Digital therapeutics in mental health

Software provides the opportunity to deliver truly personalised

medicine in mental health conditions. Capturing passive data through inbuilt sensors in a mobile phone, such as sleep, movement, or even typing speed and active data through user engagement means a patient can be monitored remotely in real time. The data collected can be used to predict how a patient is responding to treatment, and potentially to identify early signals of relapse.

The passive data captured from personal devices, such as phones and wearables, gives patterns of behaviour unique observable traits and enables a digital phenotype to be built for an individual patient. By understanding an individual's digital phenotype, changes to behaviour can be identified and appropriate interventions made. Passive data capture enables healthcare professionals to deliver more personalised care to mental health patients.

It has always been difficult to accurately diagnose, assess and treat mental health conditions. This is because the very act of a patient focusing on how they are feeling can negatively impact their condition. Remote passive data collection removes some of these barriers, improving diagnosis, enabling tailored treatment, early identification of decline and personalised intervention. This is very important in engaging the patient in their treatment programme and optimising outcomes. It also has a significant impact on the value delivered to the healthcare system optimising resource utilisation.

A holistic approach to care

It's not just about digital. We believe a hybrid model, with initial in-person psychedelic assisted psychotherapy followed by ongoing treatment via a digital therapeutic, will deliver the most effective mental health treatment. Prescribing a digital therapeutic, which is focussed on optimising the long-term response to treatment and minimising relapse, will deliver the most value. We believe this approach will help patients to engage better with their treatment plan long-term. In addition to supporting patients with their primary diagnosis, the digital therapeutic offers the opportunity to support patients with other comorbidities from which they are suffering (e.g. diabetes).

Software ultimately enables truly personalised medicine with benefits that extend beyond the individual. Not only can a prescription digital therapeutic be personalised and 'learn' over time to further refine treatment, but the technology can deliver data sets that can help life sciences companies to create better treatments and more holistic care packages, which deliver better outcomes for patients and healthcare systems.

Building better healthcare systems

Prescription digital therapeutics can have positive implications

not just for the individual patient and the future of treatment for one condition, but for the broader healthcare system. By integrating technology, applying software solutions not just to manage mental health conditions but in connection with a range of comorbidities, we can dramatically improve resource utilisation across the healthcare system.

Software enables us to personalise medicine, intervene earlier and more effectively, or identify patients who are relapsing earlier and try a different approach. This can free up the time of medical professionals and potentially reduce the cost of managing a particular illness dramatically over the lifetime of the patient's condition, while delivering better outcomes for the patient.

Ultimately, the successful integration of technology creates value for healthcare systems by enabling them to optimise resources. We believe that prescription digital therapeutics, combined with breakthrough compounds and novel treatments, can revolutionise our approach to mental healthcare. Most importantly, this will not be at the expense of in-person patient care. The hybrid model will enable physicians to devote more time to delivering better care in the areas where it is needed most.

Article by Becky Hutchinson, Commercial Director at Beckley Psytech ■

Telemedicine

A Tipping Point for Healthcare's Digital Transformation

Virtual care methods have become more and more essential to care delivery and healthcare transformation as a result of the COVID-19 pandemic. Telemedicine emerged as an effective tool for preventing infected patients and people with other health issues from congregating and potentially spreading the virus, and virtual interventions overcame barriers to accessing health services caused by geography, transportation, and fragmented care due to overburdened health systems.

Digital transformation has helped healthcare organizations build a better-equipped system to handle public health emergencies and coordinate care with a more holistic view of each patient's health.

Telemedicine's rapid growth during the COVID-19 pandemic has also permanently changed care delivery.

Healthcare as an information-intensive sector needs a platform to store and integrate information across robust networks. To provide the missing link in

healthcare technology, we need a health cloud that unlocks the power of the data and provides a platform on which new digital services and solutions can be built with native interoperability.

A new digital reality

In the new digital health environment, providers must encourage care models that hold clinicians and patients accountable in care journeys and outcomes. Population data organized via an analytics-powered virtual care platform can deliver a comprehensive view of demographics to help healthcare organizations streamline their work and prepare for a surge of incoming patients.

Telemedicine should support—not replace—traditional care delivery. High-quality care is founded on strong relationships. Providers can continue to care for their patients in person, but it's important that remote monitoring remains an option for follow-up visits, check-ups, and the delivery of test results

or educational materials.

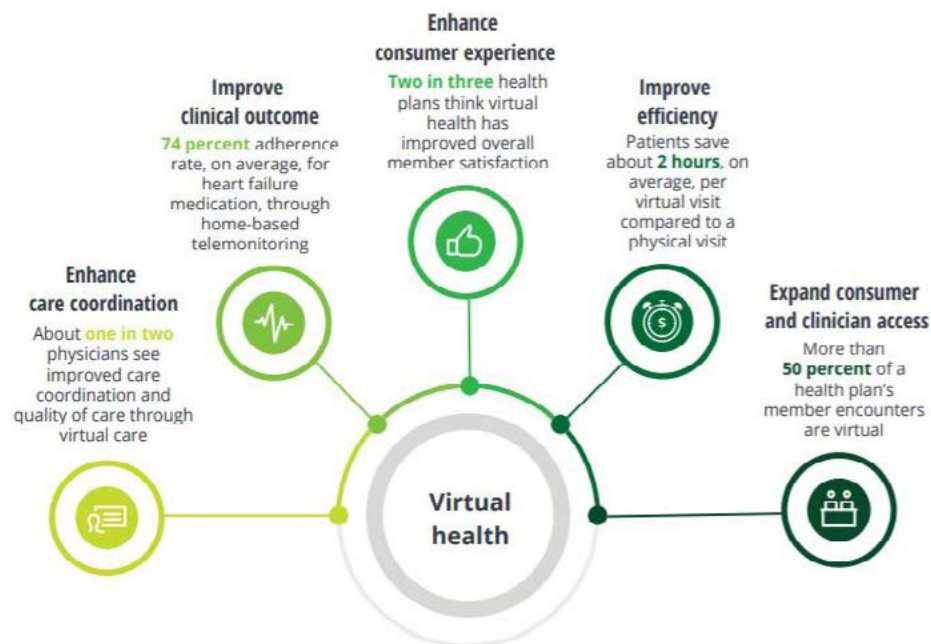
With telemedicine's rapid scale-up in the public health response to the pandemic, we have reached a tipping point, where the patients are unlikely to revert to the previous reality once society recovers from today's outbreak.

The COVID-19 pandemic has changed patient expectations from the virtual care model, raising demands for more coordinated, convenient, and customized care solutions. To offer a personalized care experience, we need a cloud platform to connect the entire healthcare ecosystem across every function, giving a holistic and unified view of every patient.

Value drivers of digital transformation in healthcare

Digital transformation has become essential to staying relevant for every industry—especially since the pandemic.

Healthcare has adopted several tech- ➔



nologies such as AI, cloud computing, data analytics, and IoT to enhance operational efficiency, increase patient satisfaction, and improve health outcomes. Using telehealth technology to address current care needs will help providers and health systems build long-term, connected care strategies. According to a Deloitte survey, virtual health can drive value across five key areas (see image above).

As healthcare is digitalized, caregivers can

move beyond treating illnesses to facilitating proactive care. They will be able to identify diseases earlier, intervene, and ensure that patients have an active role in their health and well-being.

When drafting a virtual care strategy, an organization must identify its overarching goals and objectives befitting its role in the evolving ecosystem. Understanding patient populations helps organizations choose the right technology

to invest in and the metrics to track to increase ROI.

While patient-centric models of care are common, providers' experience—the ones who deliver care—must also be considered in the virtual landscape. A new lens should be applied to patient-provider relationships because the virtual health-care environment changes rapidly. Therefore, collaboration is the future of virtual care. To effectively address the drivers of healthcare transformation, health plans and health networks need to work with community providers, technology companies, employers, payers, retail pharmacists, and others to serve patients.

The road ahead

With telehealth transforming healthcare and shaping the future of care delivery as a new channel to quality care while saving money, a wide spectrum of virtual care offerings unleashes the enormous potential of remote care, and telehealth continues to benefit patients and providers in a multitude of ways.

There will always be challenges in health-care. However, evolving technology will continue to help caregivers overcome those challenges! ■

As COVID-19 assumed priority in healthcare centers nationwide, other health concerns went untreated, resulting in a decrease in availability of mental health resources with 2 million fewer GP appointments booked in 2020 compared to 2019. According to a Lancet study on resource allocation, there was an initial contraction in outreach for mental health issues, with the greatest decrease in depression, self-harm, anxiety, and obsessive-compulsive disorder complaints between March- August 2020. This number steadily rose as the pandemic wore on, resulting in double the number of daily calls to Mind's Infoline in October 2020 compared to 2019. With in-person community resources curtailed, options for receiving mental health support remain scarce in the wake of the pandemic. Compounding this scarcity, as physical health issues went untreated, emotional wellbeing further declined, not to mention post-COVID PTSD, grief, and long COVID.

One sector that rose in prominence during this past year has been online therapy. As the rest of the world transitioned from in-person to virtual service offerings, psychological therapy was able to join this trend and similarly expand within existing technological capabilities. With the advent of more online therapy, patients in growing need were able to access practical solutions.

Google trends shows a 400% increase in "online therapy" searches from the start of 2020, and one smart phone based therapy app estimates a 500% increase in companies interested in providing mental health care for their employees. Further to this increase in digital demand, one Dutch study found that over 80% of practitioners made use of digital tools since May 2020. As such, it makes sense that more online therapy companies are entering the market, aiming to provide much needed relief for strained resources.

As with any new frontier, the limitations of virtual therapy are still largely in question. The new entrants in this market have been of varying quality, with several publications outlining concerns about whether clients are being exploited by unaccredited online counselling. As traditional providers create an online presence, they may be hindered by poor technological infrastructure, leading to a disjointed patient-provider relationship and confusing service navigation. For example, recently trying to access a free CBT online therapy service led to a "page not found" message. These providers may struggle to adapt to an online format, and are competing in an unregulated marketplace that further obscures the ability to discern quality.

Non-professional enterprising individuals may also sense an opportunity, leading them to create virtual therapy companies. These founders may create online profiles while having little to no personal experience in clinical psychology, capitalising on a gap in the market but not fully understanding the landscape. These virtual therapy matching services can use the pressing demand for therapists to their advantage, charging unclear fees, advertising therapists with unknown or overstated credentials.

In addition to unclear quality controls, these private services may offer services by therapists at various levels of training, perhaps unclear to the user. For example, a "psychologist" is not a legally protected term in the UK, so can be used by individuals with a variety of levels of experience and training. Psychologists then require further training and a doctorate degree, as well as registration with the Health and Care Professions Council



(HCPC), to use restricted titles such as "clinical" or "counseling" psychologist. This legal protection is different to psychotherapists, which is not a legally protected title. Psychotherapists who are registered or accredited with a professional body are verified to have completed substantial training, often specialising in a particular type of therapy - such as psychodynamic or cognitive behavioural. Finally, counsellors are not a legally protected title and users must do their own research to verify the counsellor's credentials.

Aside from logistical hurdles, there are inherent adaptations necessary to engage in virtual face to face therapy. These considerations include patient privacy, decreased engagement, and the loss of disinhibition that occurs in a dedicated therapeutic space. Some individuals do not have dedicated space at home for therapy, and many a session has taken place from parked vehicles. Therapists are learning to adapt to tracking nonverbal cues over screens, and patients are more involved in creating their own therapy environment. Finally, connectivity issues can interrupt a therapy session or limit patient access.

Offsetting these considerations are the upsides to an increase in online therapy options: increased access, particularly to regions and individuals who have historically and/or continue to struggle to attend in-person appointments, increased flexibility in the patient-therapist relationship, and increased reach as providers are no longer limited to their geographical region. Furthermore, a 2018 study published in the Journal of Affective Disorders found that cognitive behavioural therapy (CBT), a mainstay treatment in mental disorders, was just as effective online as in-person for major depressive disorder and generalised anxiety disorder, among others. In addition to the added possible benefit of speaking from the home environment, unofficial reports have stated that family pets have been assisting with therapy. In an evermore virtual world, the trend is here to stay - albeit as an evolving service modality.

While it is clear that online therapy is here to stay, the balance between in-person and online is still in flux. The nature of therapy delivery will pan out over the coming months as the world slowly wakes up from the virtual realm. One option is a dominance of new blended therapy models, offering integrated online and in-person therapy sessions with self-improvement tools, ➔

Virtual Mental Health in Our Post-Pandemic World

As demand for mental health resources increases in the wake of the COVID-19 pandemic, supply is increasing in the form of virtual face to face therapy appointments. This growing sector has the benefits of accessibility and flexibility but misses out on the human connection and therapeutic space of in-person sessions. The balance between online and in-person may come in the form of blended virtual/in-person therapy models, providing providers and patients with a more integrated approach to therapy.

Though the COVID-19 pandemic is not yet over, there's a "second pandemic" already looming large in the form of a mental health crisis. The Centre for Mental Health predicts 500,000 more people in the UK will experience mental health problems post-pandemic, with depression anticipated to be the most common diagnosis, disproportionately affecting high-risk groups. This unequal distribution will exacerbate existing healthcare inequalities, including access to care. Several groups have already been affected, such as healthcare workers, pregnant women, those with addiction problems and eating disorders.

Using the ONS and Mind's estimate of 5.34 million Britons already struggling with depression, a hike of 500,000 individuals with mental health challenges translates to close to a 10% surge. During the course of the COVID-19 pandemic, a Mind survey found that a staggering 22% of mental health patients had their appointments cancelled and 25% could not access help. These statistics showcase a crippling increase in demand for services in an already strained system of mental support resources. Moreover, the burden of this need would largely fall on the young, with 80,226 more under-18 year olds making 999 calls in 2020 than 2019.

Previously, the BMA had documented a lack of adequate resources in mental health care across the UK. While the NHS has earmarked £2.3 billion in additional mental health spend by 2023/2024, at best this incentive still represents a 3 year lag between supply and demand. Underscoring the immediacy of this need, the BMA found an increase in suicide rates across previous public health crises, documented in the 2003 SARS pandemic in Hong Kong.

transparent pricing and flexibility in insurance versus self-pay.

Companies such as My Therapy Assistant (MTA) or Private Therapy Clinic in this online therapy space can be viewed as part of this new sector creating blended virtual/in-person mental health clinics. These companies' extensive services and in-house software platforms create an ecosystem for the patient, transitioning care from in-person to virtual and blurring the personal with interpersonal. As virtual mental health appointments gain popularity, it is critical to establish reputable brands that keep therapy delivery outcomes in mind while maximising ease of access.

One step at a time, virtual mental health services are stepping up to fill the need gap left by the COVID-19 pandemic. After all, if we could provide more people with mental health resources, we can all ride out the rest of this pandemic with a little bit more ease.

About the Author

Yvette Dzumaga is an MD/MBA specialising in psychiatry, who focuses on behavioural health and characterising market trends.

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Is Patient Centred Tech More Important Than Ever?

Phrases like 'patient centric' have been around for a long time in the health tech community. But do technologies deployed to support patients always work for user needs? It's a question suppliers should continually ask.

The national Data Saves Lives draft strategy released in June 2021 contained multiple references to how remote monitoring has helped to keep people safe at home during the coronavirus emergency. And in the same month updated guidance from NHS England suggested that trusts and integrated care systems might consider "expanding the use of telemedicine" as they develop net zero green plans.

Rationale behind this momentum for remote care also extends beyond a means to respond to public health and environmental emergencies.

Being able to access professional care support from home can be liberating for

patients who want to live independent lives or who don't want to attend hospital when they can avoid it.

Travelling to hospital can be a stressful experience. Our own customers, who use our remote care platform, have told us about the distress caused for care home residents, for example, who are sometimes hoisted from beds to ambulances. Once in hospital patients can also be at risk of hospital acquired illnesses. And in the case of elderly patients, hospital stays can lead to further loss of independence – for example, it is believed 10 days in a hospital bed can lead to 10 years' worth of muscle loss for people aged over 80.

Ultimately, technologies that can enable remote care provision, reduce the need for hospital admissions, and promote independence have the potential to be a very good thing for patients. But realising that potential means doing more than using words like 'patient centric', it

requires technology providers to embrace the concept more fully.

Treating patients as more than an illness

Dignio has been working with a growing number of health and care organisations in the UK, where clinical teams and patients use our remote care platform, along with connected devices in the home, to closely monitor a patient's status. That might mean using technology to review vital signs, or other important factors related to the individual, which inform professionals when early clinical interventions might be needed.

An important factor in making this work for patients has been to ensure that the platform, which takes the form of an app, can work for the patient across multiple pathways – and that it can be easily adapted to any new pathways by the health or care provider.

This means that if a patient using our system has diabetes and goes on to develop cardiovascular disease, mental ill health, or any number of conditions, then the individual doesn't need to think about using lots of different applications to help to manage each illness.

A person is not a disease unit or a single diagnosis and they shouldn't be thought of as such by technology providers; they should be treated as travelling across care, encountering different diagnoses as they do so.

If suppliers are truly interested in person centred care then, with the exception of providing any new devices for the patient, expanding the use of the technology shouldn't come at extra cost. In other words, suppliers of remote platforms shouldn't charge more per pathway. Technology enabled services should be built around a person, regardless of the illnesses they develop.

Ensuring that no patient gets left behind

It's also important to get the integration of pathways right. The biggest danger when setting up a technology supported service, especially where multiple organisations interact with the patient, is the risk of gaps where responsibilities meet, gaps where nobody picks up that something is out of the ordinary for the patient.

When our customers work with us to create digital pathways we map out details of existing care delivery, and their ideal scenarios. Only then should we look at how technology can support the patient, and how the technology will be used in practice, before walking through the digital pathway to ensure nothing, or no one, has been missed.

Usability and listening to patients

Actively listening to our customers in this way is important to ensuring services work; almost as important to listening to patients.

Technology suppliers need to make sure whatever they put in front of patients is designed to meet their needs, and useable.

We have found that connectivity between our platform and devices removes the need for patients to manually input information, and in some cases they might only need to press a single button.

Making technology easy and intuitive can make a big difference, and patients well into their 80s and 90s regularly use the platform.

But we don't want to be complacent. Too often ideas like co-design are misinterpreted as a tick box exercise. We believe it is important to work with patients on an ongoing basis. When we work with our clients we ask them to tell us what users think, with regular calls in which we elicit patient feedback. It's no good for clinicians to have tools that patients don't want to use.

We want our customers to actively be obtaining feedback from patients on an ongoing basis. If you only do this once in the early stages of a project, you risk creating a false sample of people who are actively interested. We want to know about real users, people who don't speak English, people who find things difficult and who wouldn't necessarily come to a

panel. They are the people using the technology and we want to know if and how they are using it. We continue to evolve the product in response to that feedback.

Impactful for patients

When services like this become genuinely patient centred, the impact can be significant. Our customers have measured very significant reduced hospital admissions for patients in their care. But more than that, they have measured a positive impact on people's lives – people who feel safe, cared for at home and connected to their care team. One programme in the North West monitoring patients with a wide range of conditions recently reported 100% positive feedback, whilst an Academic Health Science Network recently reported that 99% of patients would recommend an oximetry at home service in which our platform supported Covid-19 patients.

One patient said: "I never felt alone. There was always a friendly voice at the end of the phone. I would recommend the service to anyone. The staff involved with my care replied to messages straight away. This is a service the community needs. The app is so easy to use. So is the equipment. Most importantly the service kept me out of hospital and in my own surroundings."

This type of feedback from our users is heartening, and we will continue to collect it as we try to deepen our understanding of patient technology interaction. ■



INDUSTRY NEWS

News and Information for
Digital Health Professionals



First Open Global Blockchain Telehealth Network Launches in 20 Countries

Solve.Care, the blockchain healthcare platform that is redefining the way healthcare is administered, has announced the launch of the first blockchain-enabled tele-consultation network, Global Telehealth Exchange (GTHE), in 20 countries across Europe, Americas, Asia, Africa, Middle East, and Oceania with plans for further global expansion to cover almost all other countries.

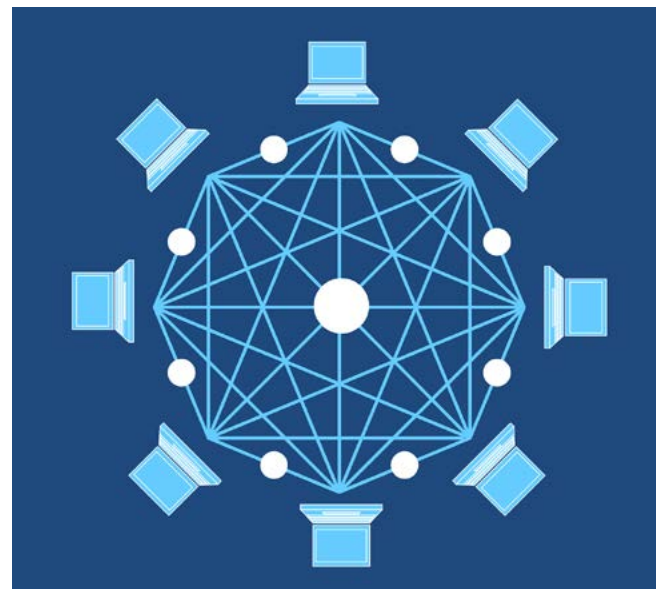
GTHE is a secure, peer-to-peer, decentralized network that facilitates teleconsultation services between patients and physicians, across geographical boundaries, and features instant search, availability, and digital payments.

Secured by blockchain, GTHE is the first digital network of its kind, with high levels of privacy, and a global payment facility based on the SOLVE token. GTHE allows any physician who wishes to practice telemedicine to publish their rates, qualifications, and availability, and is instantly accessible to patients on their mobile phones via the Care.Wallet™ application.

Pradeep Goel, CEO of Solve.Care, said, “We firmly believe that blockchain has the power to revolutionize healthcare. We are making GTHE available in five continents. Our innovative use of blockchain and digital assets addresses the real challenges patients and physicians are facing today when trying to find, access, and pay for healthcare services. The need for secure and efficient patient centric healthcare has never been more pronounced, and we are proud that GTHE is now available to many who need it to take better care of themselves and their loved ones.”

He continued, “It is a significant milestone for the blockchain, digital assets and digital healthcare industries. Using blockchain, we are able to enforce the sovereignty of both physicians and patients, while providing unparalleled data security and instant payments.”

“GTHE uses blockchain and digital currency to dramatically



improve access, transparency, and auditability of all consultations, always maintaining rights and privacy of patients and physicians. GTHE tracks data ownership and data use, where patients consent drives record sharing, treatment plans, billing, and payment, doing away with repeated and unnecessary forms, and greatly streamlining the delivery of healthcare.”

Physicians around the world are signing up for GTHE to help minimize administrative work, leaving more time to practice medicine. The solution provides users with seamless medical records sharing and facilitation of continuity of care.

Solve.Care has also announced the creation of an ambassador network in over 30 countries, made up of qualified and respected clinicians who are actively engaged in helping GTHE become more physician friendly. ■

Digital Exclusion: New Research Reveals how Touchscreen Future Leaves 5.6 million Elderly Behind

New research from health technology company No Isolation has found that there are still barriers in place that prevent elderly people from accessing technology.

In the last decade there has been an increase in the number of seniors who use touchscreen devices and technology, as a way to help cover their social needs. However, in 2019, there were still 2.8 million people aged 75+, 1.1 million people aged 65-74; and 0.5 million people aged 55-64 in the UK who did not use the internet.

Only 9% of people aged 65-74 made video calls regularly in 2018, with only 7% of people older than 75 doing the same. Over 79% of all digital exclusion was among those aged 65 and over.

Two-fifths (39%) of people aged 50 plus in England say they are using the internet more since the coronavirus outbreak. However, usage has increased most among groups already using the internet regularly and so far, there is little evidence that the pandemic has led to significant numbers of those previously digitally excluded getting online.

The Problems with Touchscreens

It is often believed that the use of touchscreens is one way to reduce this barrier to entry. Touchscreens are considered as natural and easy to use, and therefore they are often used in products designed to assist the elderly. However, the particular way touchscreens work and are used; could mean that thousands of seniors still aren't able to use them.

It is a common misconception that when a touchscreen doesn't respond to your finger, it is because your finger isn't warm enough. But in fact, touchscreens aren't detecting the heat of your finger, but its ability to conduct electricity. Capacitive touchscreens (almost all screens used by the average user) generate a small electrical field and it is the disturbance



in the electrical field, when your finger conducts the electricity from it, that is sensed by the screen.

Certain characteristics of the fingers can reduce the electrical conductivity of the skin, such as calluses or dry skin; as the thick skin of calluses impedes electricity flow, and dry skin lacks the moisture needed for the electricity to travel.

When we age we naturally lose moisture from our skin, as the skin loses some of its 'lipid' content - essentially fats in the skin - that are essential in forming a barrier to hold moisture in. It has been found that we can lose as much as 65% of our skin lipid content over time. Likewise, as we age, we lose sweat glands that can provide vital external moisture when interacting with touchscreens. Dry skin is associated with other skin conditions in the elderly that cause abnormal thickening of the skin.

This issue is common in the elderly: it has been found that, in multiple studies, that 60% of seniors have dry skin. One study even showed that 99.1% of care home residents develop dry skin. It is therefore not surprising that it has been observed in studies that elderly people with dry or wrinkled fingertips have significant difficulty with getting tablets to

recognise their touch.

11.8 million people are 65 years or older, therefore, being conservative and applying the 60% statistic, this would suggest that 7.08 million people would have dry skin in the UK alone. One study has reported that dry skin meant that touchscreens didn't recognise the touch of 25% of the participants, with another study reporting the same with 28% of the participants. Therefore it is possible that up to 1.98 million people with dry skin find touchscreens difficult to use as a result.

According to the report commissioned by digital health company No Isolation it is not surprising that with these additional health concerns that the elderly experience, they have difficulty in engaging with technology independently.

Their research found that 1.98, 3.07, and 2.95 million people may have difficulties in using touchscreen technology due to dry skin, physical impairments and subjective cognitive decline (SCD) respectively. 30-40% of these people will have both physical impairments and SCD30; accounting for this, we believe that in total 5.6 million unique people over the age of 65 in the UK find touchscreens difficult to use due to health barriers. ■

Digital-first NHS Could Clear 20m Appointments Backlog in 8 months Rather Than 4 Years

NHS healthcare providers are using DrDoctor to cut unnecessary appointments, releasing clinical capacity to tackle the pandemic-driven backlog

The NHS could clear the huge backlog of appointments in 8 months rather than 4 years if it used digital-first patient engagement, according to industry experts.

According to the BMA and other sources, more than 20m outpatient appointments did not take place due to Covid-19 over the 12 months to March 2021. It could take the NHS as much as four and a half years – 235 weeks – to clear this using current capacity, which is why the NHS has made it a clear focus of its latest planning guidance.

Now data from a supplier of technology widely used across the NHS shows that a quarter of outpatient appointments scheduled every week could be removed by taking a digital-first approach.

Using technology to ask patients if they need to be seen, and to check whether a patient's symptoms are getting worse remotely, could release much-needed clinical and administrative capacity. This extra headroom could help the NHS clear the appointments backlog in 35 weeks, just 8 months.

Digital patient engagement specialist DrDoctor supports over 30 NHS organisations with services including appointments management, patient engagement and virtual consultation. It

has seen NHS organisations increase clinical capacity by using its patient-centred software suite to help release staff to address the waiting list challenge.

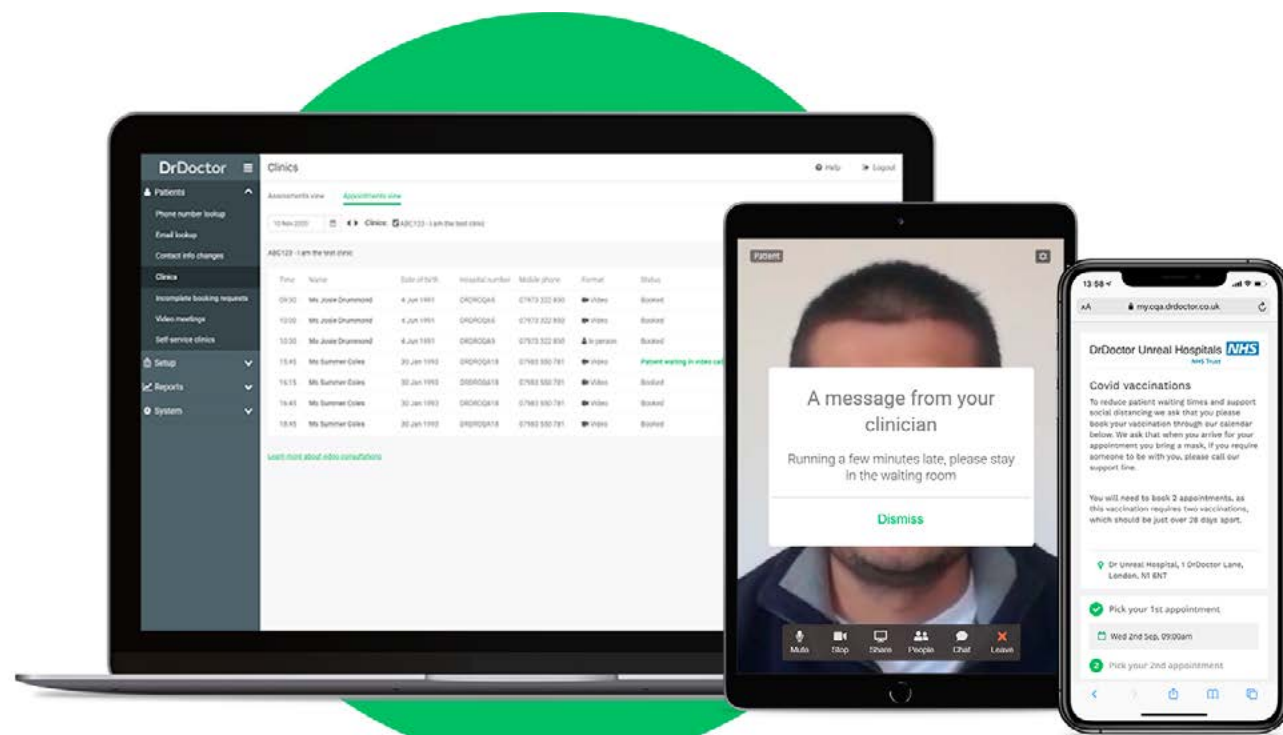
“DrDoctor is showing how the NHS is embracing a digital-first approach to provide staff with the support and breathing space they need to clear the appointments backlog,” said DrDoctor CEO Tom Whicher. “If this was done across the NHS, it would release additional capacity - of 516,805 appointments per week.”

National data suggests that 2.4m outpatient appointments are scheduled to take place each week. Of those, around 1.8m usually take place, after removing those that would have been cancelled or where patients did not attend.

Once these have taken place, DrDoctor estimates that staff – already exhausted after months of dealing with Covid - might have an extra 5% headroom to clear the backlog.

Such a productivity increase would be far and above average growth rates for healthcare. The extra effort would also have to be found from every single doctor and nurse and booking clerk.

Even with this extra effort, DrDoctor suggests that the NHS only has capacity for an extra 85,062 appointments per week. With up to 20m appointments that need to be processed, this means it could take up to 235 weeks – four and a half years – to clear the backlog.



However, DrDoctor's experience with leading healthcare providers shows that technology-driven approaches could release the capacity for staff to cut the backlog in a matter of weeks, and without the additional burden on staff.

One such example is waiting list validation, which sees the NHS send digital letters, texts and emails to check that people still need or want to be seen.

DrDoctor customers have used this approach to help cut the waiting list by 3% to 27% in some cases. Taking an average of 10% across all specialities, using digitally-driven waiting list validation means the NHS could clear the backlog in 212 weeks.

Checking that patients need a follow up appointment using digital means has an even bigger impact. This is usually done manually by nurses or booking clerks calling patients during office hours.

Taking a digital-first approach can massively extend this activity without putting an additional burden on staff. This would help provide the NHS the capacity it needs to slash appointments.

For certain conditions and treatments, such as immunotherapy, 'patient initiated follow ups' (PIFU) are only needed when an individual's symptoms require this. That's not always the case, and often it is down to nurses or booking clerks to check with

the patient if they need such an appointment.

With digital patient engagement and remote monitoring technology, patients can let their doctors know continuously if their symptoms get worse and if they need or want to be seen. Doctors too can keep a closer eye on patients who might be at risk, without the need for an in-person appointment.

As a result, the NHS could release an extra 24% of capacity, which could be used to further help reduce the appointment waiting list. This could release an extra 431,743 appointments per week.

Together with waiting list validation, this digital-first approach means the NHS could clear the backlog in 35 weeks – just eight months, rather than the four-plus years it could take.

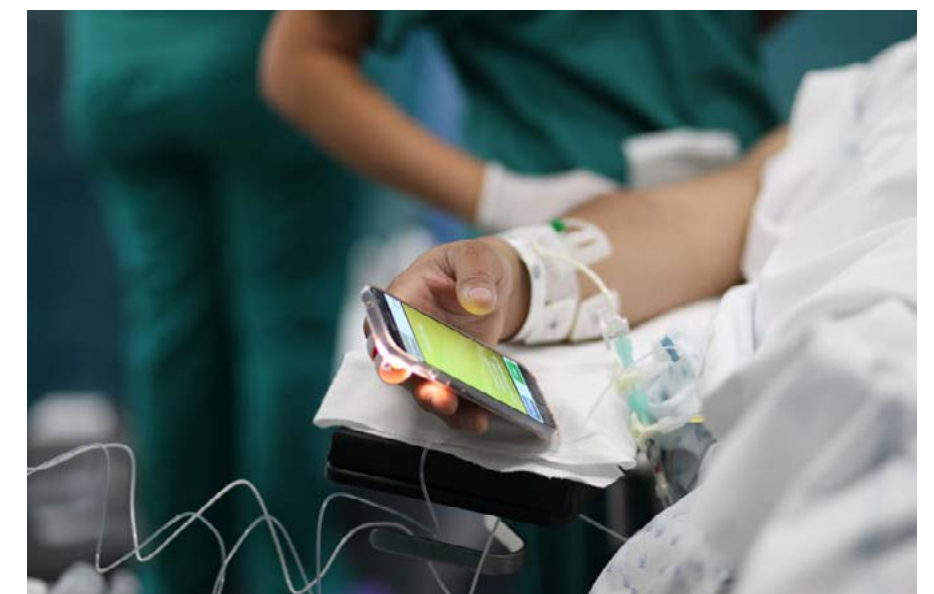
Whicher continued: “Throughout the pandemic, seeing and engaging patients using a digital first approach has been a major part of the NHS response. We believe that this needs to be enhanced and embedded as business as usual to clear the backlog.

“Digital patient engagement helps release capacity to support those who use existing channels. It can also lay a foundation for more personalized care, that will help the NHS tailor care in ways that address health inequalities. It is the platform for a more productive and sustainable NHS.” ■

Global Health Research Studies to Use Ground-breaking Blood Pressure Measurement App from Biospectal

Remote patient monitoring and biosensing software company Biospectal is looking to further its aims of democratizing access to health technology with the launch of two independent research and validation studies using its ground-breaking blood pressure monitoring app Biospectal OptiBP™.

Biospectal OptiBP enables anyone in the world with a smartphone to turn their device into a connected, clinical-grade blood pressure monitor in the time it takes to download and install an app. The OptiBP medical-grade smartphone app uses a smartphone camera's lens to easily measure and record a user's blood pressure flow via their fingertip. Using proprietary algorithms and optical signal capture methods, Biospectal OptiBP then transforms the captured data into blood pressure values in approximately 20 seconds — half the time of a typical blood pressure cuff.



Commitment to Global Health

The two new independent global health

research and validation studies follow the recent publication of a large-scale, third-party research study in Scientific

Reports in *Nature*, which demonstrated Biospectal's ability to measure blood pressure as accurately as a sphygmomanometer, commonly referred to as a standard blood pressure cuff.

Currently underway in four low-resource countries, the studies center on the routine measurement and monitoring of blood pressure, assessment of hypertension during pregnancy, and enable global field testing and validation of Biospectal's OptiBP smartphone app and data platform integration with the WHO's Digital Antenatal Care module, following WHO SMART guidelines and built on the WHO Open Smart Register Platform (OpenSRP).

Both new studies further Biospectal's ability to transform the global network of smartphones into a connected, clinical-grade blood pressure monitoring platform—democratizing access and bringing the power of remote patient monitoring to people and communities worldwide.

Funded by the Bill & Melinda Gates Foundation, the first independent study is underway in three countries — South Africa, Tanzania and Bangladesh — and is concentrated on routine blood pressure measurement and monitoring as well as hypertension disorders during pregnancy.

The second independent study in Indonesia is being conducted with the Summit Institute for Development (SID) in collaboration with Ona Kenya Limited and is funded through Grand Challenges Canada's Saving Lives at Birth

initiative, with additional backing from USAID, the Bill & Melinda Gates Foundation, Norwegian Agency for Development Cooperation (NORAD), the Korean International Cooperation Agency (KOICA) and the HRP Special Programme of Research, Development and Research Training in Human Reproduction. The study centers on hypertension disorders during pregnancy, including chronic hypertension, preeclampsia-eclampsia, preeclampsia superimposed on chronic hypertension and gestational hypertension. Findings from the two studies will be available in the first half of 2022.

“The ability for anyone to assess blood pressure accurately with a readily available device such as a smartphone opens the door to personal monitoring of many acute and chronic medical conditions. It's a massive leap forward in technology toward empowerment for wellness, and crucial in the post Covid-19 world,” said Dr. Anuraj Shankar of University of Oxford, U.K., and Lead Investigator for Community Health at the Eijkman-Oxford Clinical Research Unit, and the Summit Institute for Development in Indonesia. “The synergy with other point-of-care tests and the transition to digital health globally means optimal care for pregnant women experiencing hypertension, and will lead to more healthy mothers and healthy babies.”

Hypertension is a global threat and is the leading cause of death worldwide, according to the WHO. Fewer than one in five of the estimated 1.13 billion people with hypertension have it under

control, and two-thirds live in low- and middle-income countries. Hypertension prevalence rates are on the rise in developing countries with no improvement in awareness or control rates. As the only pure software solution on the market in an easy to use smartphone app, Biospectal is the answer to the major problem of monitoring and measuring blood pressure in developing countries.

“For low and middle-income countries around the globe, this type of technology is a game-changer in the fight against non-communicable diseases, dominated by hypertension and cardiovascular disease,” says Professor Alain Labrique, Director of the Johns Hopkins Global mHealth Initiative and Associate Chair for Research in International Health. “For the billions of people living in remote, rural communities, having access to accurate blood pressure readings will enable early diagnosis and hopefully, treatment — preventing illness and loss of life.”

“Smartphones are the number one device worldwide and someone in Tanzania or Indonesia is more likely to have a smartphone than any other consumer device. Biospectal's pure software and app approach simultaneously democratizes access to blood pressure measurement and monitoring due to the widespread worldwide availability of smartphones,” said Biospectal CEO and co-founder, Elliott Jones. “We can scale our modern, medical-grade, easy-to-use blood pressure measurement and monitoring OptiBP technology globally with extreme efficiency to any country, at any time.” ■

such as HL7 V2, impeding interoperability and the ability to derive full value from their data.

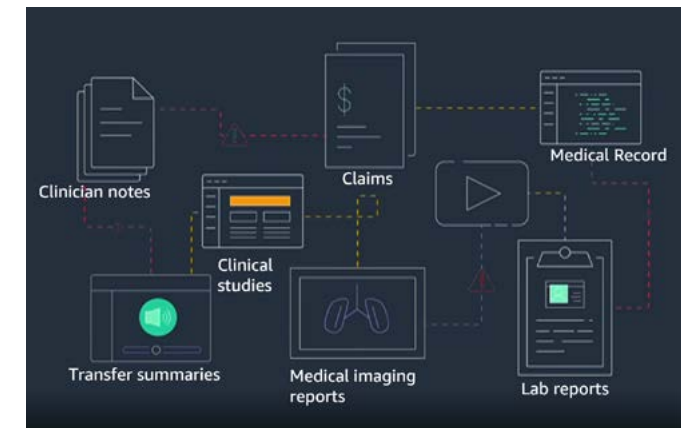
AWS selected InterSystems as one of the Amazon HealthLake Connector Partners to develop and introduce complementary products to coincide with the launch of Amazon HealthLake. Solutions such as InterSystems HealthShare Message Transformation Service, which is part of the InterSystems HealthShare suite of products, enable users to fully leverage products such as Amazon HealthLake to derive meaningful insights from their data, like examining trends such as disease progression at the individual or population health level over time, spotting opportunities for early intervention, and delivering personalized medicine.

“As an Advanced Technology Partner of AWS — and having achieved the AWS Healthcare ISV Competency Designation — InterSystems continues to assert our position as a leader in interoperability and healthcare customer success,” said Don Woodlock, Head of Healthcare Solutions for InterSystems. “We welcome opportunities like these that encourage and enable interoperability for healthcare organizations looking to get the most out of their data.”

“With the use of the HealthShare Message Transformation Service by InterSystems and Amazon HealthLake, we will be able to access and transform molecular profile data from the EHR into FHIR to run advanced analytics and algorithms, providing clinical decision support to assist oncologists with personalized cancer treatment options” said Philippe Faurie, Vice President of Professional Services at CureMatch™, Inc. a San Diego-based digital health company focused on personalized medicine and combination therapy in oncology.

As the first official software-as-a-service offering from InterSystems, HealthShare Message Transformation Service promotes interoperability by making health data conversion more easily and securely accessible. It is delivered in an automated, single interface, making it easy to manage, consume, and scale.

“Healthcare and life sciences organizations are increasingly look-



ing to use health data more effectively to enable better health care outcomes by revealing relationships in data, discovering trends, and making precise predictions. However, the cost and operational complexity of this work is prohibitive to many organizations,” said Dr. Taha Kass-Hout, Director of Machine Learning at AWS. “With InterSystems as an Amazon HealthLake Connector Partner, customers who do not already have data in the FHIR format can leverage their offerings, such as InterSystems HealthShare Message Transformation Service, to translate legacy clinical data (e.g., HL7, CSV, CCA) and move it to Amazon HealthLake as standardized FHIR records. Amazon HealthLake enables customers to easily apply advanced analytics, making it easier for researchers and practitioners to collaborate and accelerate breakthroughs in treatments, discover health trends, and deliver a better experience and care for patients.”

InterSystems HealthShare Message Transformation Service is available via a consumption-based model, allowing organizations of any size or specialization to take advantage of the service and scale their use as needs fluctuate. This collaboration represents a deepening of the relationship between InterSystems and AWS, which includes the availability of InterSystems IRIS data platform on AWS Quick Start. InterSystems is also collaborating with AWS on their AWS for Health initiative, helping accelerate Health IT initiatives and simplify interoperability for healthcare organizations. ■

InterSystems Introduces New Service as Part of the Amazon HealthLake Launch

InterSystems has launched its HealthShare Message Transformation Service. Developed for use with Amazon HealthLake, the on-demand service enables healthcare providers, payers, and pharmaceutical companies to convert their existing data formats to FHIR standards to populate Amazon HealthLake and extract the most value from their data.

Amazon HealthLake is a HIPAA-eligible service designed to store, transform, query, and analyze health data at scale. Using the HealthLake APIs, organizations can easily store health data already in the HL7® FHIR® industry standard to a secure data lake in the cloud. Many healthcare systems, labs, and pharmacies still have most of their data in existing (non-FHIR) formats

OutSense to Transform Human Waste into Lifesaving Medical Insights



Digital health startup OutSense has announced details of a pilot to test its human waste detection technology following an investment from Longevity Venture Partners, an American early-stage venture capital fund specializing in the Silverttech, Healthcare and Wellness sectors.

Longevity will begin piloting OutSense's technology for detecting clinical conditions by analyzing human waste later this year. The funds are being used for product development and preparations for large scale production, which will be followed up by another round of ➡

financing to support the company's commercial activity.

The pilot will run in conjunction with CommuniCare Family of Companies, Longevity's parent company, and major U.S. health care enterprise with more than 90 facilities in the U.S. In addition to this pilot, OutSense is also conducting clinical trials in Israel as well as a pilot in Japan.

OutSense developed an optical IoT device that can be attached to any toilet bowl. The solution includes multi-spectral optical sensors, a light source and an autonomous inspection device that includes a Wi-Fi connection. The device scans the human waste, identifies the optical footprint of the feces and urine components, sends the data for AI cloud-based analysis, and then supplies indications of various diseases at an extremely high proven level of precision.

The device currently enables the identification of blood in the stool, which is often a sign of colorectal cancer, an application that has been granted a patent in the U.S, Japan, Europe, and China. In addition, the company has developed special applications for elderly care institutions that permit continuous monitoring and remote diagnosis of dehydration, urinary tract infections, diarrhea, constipation as well as monitoring and diagnosing the routine use of the toilet.

OutSense's solution serves as a replacement for the manual collection of human waste and delivery to labs. Many people defer or delay these types of tests, and in too many cases various diseases are discovered too late. Often the difference in the time between tests is lengthy and this can lead to a delay in diagnosing the disease, expensive hospitalizations, and a deterioration in the disease.

The OutSense technology constantly monitors the patient's waste and provides automatic alerts to the control screens of the medical teams at elderly care facilities and medical institutions as well as a cellular app for use by people who use the company's solution at private homes. The tests are conducted in a totally discreet manner and the data allows continuous monitoring of a patient's health situation. The data also enables personalized care at the highest level without impacting daily routine.

OutSense Clinical Trials

OutSense recently launched several clinical trials in Israel, including a trial conducted in conjunction with the gastroenterological department at Tel Aviv's Sourasky Medical Centre (Ichilov Hospital) and involves 50 patients. As part of the research, the OutSense device will be installed in the toilets at the patients' homes to monitor their excretions. The

participants will also be checked for blood in their stool using the existing lab method, and this is to be followed up by a colonoscopy exam. The objective of the research is to validate the clinical efficiency of the OutSense device in a real use environment.

Yfat Scialom, CEO of OutSense noted, "The access to real-use environments that the Longevity's investment brings to the table is invaluable. The ability to partner with a major U.S. health care provider serves as a signal to the market that the rules of the game can be changed. It signals that early detection of more diseases through our technology can save huge amounts in healthcare costs, and more importantly save lives. The pilot tests in the U.S and Japan, as well as the clinical trials in Israel are an important milestone toward our plan to launch production and commercial sales which are planned for Q1 2022."

Dr. Mathew Wayne, chief medical officer for CommuniCare stated, "Our decision to partner with OutSense on this pilot is a win-win for advancing health outcomes forward. As a company we are always seeking innovative ways to transform the way we care for our residents and patients, and the OutSense vision and technology certainly shows enormous promise toward those efforts." ■

Leading Clinical Technology Providers Join Forces to Tackle Key Clinical Trial Pain Point

uMotif and Xperiome, a global healthtech company specializing in rare disease are to collaborate through a partnership that will bring value to both life science companies conducting clinical trials and the patients participating in them, offering a new approach to patient recruitment through a community of motivated, research-ready patients and an industry-leading engagement platform to drive retention.

Clinical trial recruitment can take years and, globally, more than 85% of clinical trials fail to enroll on time. uMotif and Xperiome are joining forces to address the pain points that contribute to these delays, changing the paradigm in clinical trial recruitment by providing sponsors with the capabilities to match the right patients to the right studies, at the right time.

Specifically, the partnership will leverage Xperiome's knowledge bank for the lived experience of rare disease to build a deep understanding of hard-to-reach populations. Xperiome combines these insights with a specialized matching engine, to connect research-ready members to clinical and real-world study opportunities. Then, once enrolled, uMotif's patient-engagement app will capture large volumes of high quality ePRO, eDiary and symptom data in real-time throughout the duration of a clinical study. The easy-to-use uMotif app empowers patients to manage and collect their own data, increasing participants' engagement in clinical research and understanding of their symptoms and behavior among trial sponsors.

Bruce Hellman, uMotif's CEO said, "Having access to reliable



patient data during clinical trials is crucial and it requires effective patient recruitment and engagement strategies. Xperiome

and uMotif share a commitment to eliminating the friction in clinical trial enrollment, reducing the burden on both sites and participating patients. Our partnership is designed with patients in mind, to help sponsors and research professionals capture the best quality data in a way that suits study participants. It's a win-win for all stakeholders and has the potential to aid in accelerating the delivery of vital therapies to patients who need them."

Jeremy Edwards, Xperiome's CEO said, "Finding and retaining eligible patients for trials is a significant challenge for pharma, especially in orphan drug research where populations are hard to reach and participation in research can add significant burdens for patients and their families. We are committed to providing more opportunity for rare disease patients to participate in clinical studies and our partnership with uMotif will deliver a better trial experience once enrolled. By working together, we will provide an end-to-end patient-focused solution that connects patients to research and supports them throughout their clinical journey." ■

Gemserv Health Helps Liverpool Women's to Protect its Network with a Segmentation Approach

Liverpool Women's NHS Foundation Trust has run a successful proof of concept to bolster its network against hackers using the latest in software defined segmentation.

Liverpool Women's, which is the only specialist trust in the country for women and babies, is now deploying the Guardicore Centra Security Platform across servers running legacy operating systems, with the support of cyber security experts from Gemserv Health.

The move will support the trust in retaining its Cyber Essentials Plus accreditation and has inspired other trusts in the Cheshire and Merseyside Health and Care Partnership to adopt the same approach.

Matt Connor, chief information officer at Liverpool Women's and cyber security workstream lead for Cheshire and Merseyside Health and Care Partnership (HCP), said: "The WannaCry cyber-attack in 2017 severely disrupted health care services and exposed the need for additional cyber security investment to enable a strength in depth approach.



"As a Cyber Essentials Plus accredited organisation, cyber security is important and we strive to maintain that standard. We have some residual legacy systems, and placing robust security controls around them is essential. We had been working with Gemserv Health on a number of cyber security initiatives, so when they suggested the Guardicore product to

provide application level segmentation, we agreed to run the proof of concept.

"The Guardicore solution effectively places a secure wall around systems and applications. It provides that extra peace of mind."

Gemserv Health provides profes- ➔

sional services to health and care organisations looking to make the most of technology and data.

It has a respected cyber security practice that is increasingly being asked to work across NHS regions to make sure organisations have good security in place and that they can mount a co-ordinated response if they face a cyber security incident.

In Cheshire and Merseyside, the cyber security team has mounted ethical phishing attacks and ran a simulation to test the HCP's response to a potential ransomware attack with reputational consequences.

When it comes to recommending products to address specific cyber security issues, Gemserv Health is vendor neutral. It recommended the Guardicore product for network segmentation as the best fit for the area's needs.

Jay Miah, Liverpool Women's operations manager and manager of the team that has been working with Gemserv Health on the project, said: "In terms of legacy operation systems, we saw this

as delivering real benefit for retaining Cyber Essentials Plus and for protecting the technology that our clinicians and patients rely on.

"Traditional approaches to network segmentation require the installation of firewalls, or the creation of VPNs. The Guardicore product sends out an agent that monitors traffic to a server or a device and lets you decide whether it's ok or not.

"If it's ok, it's allowed and if it's not ok, it's blocked. It gives you an extra layer of visibility, and because it's all software based, it allows you to set the rules centrally, which is much less complex than attempting to work through the network."

Gemserv Health and Guardicore worked with Liverpool Women's on the proof of concept and the subsequent roll-out, but they have transferred knowledge to the trust so it can manage the product in future.

Philip Moss, trust head of technology, said: "This is like a tablet to make a headache go away. It's another tablet from

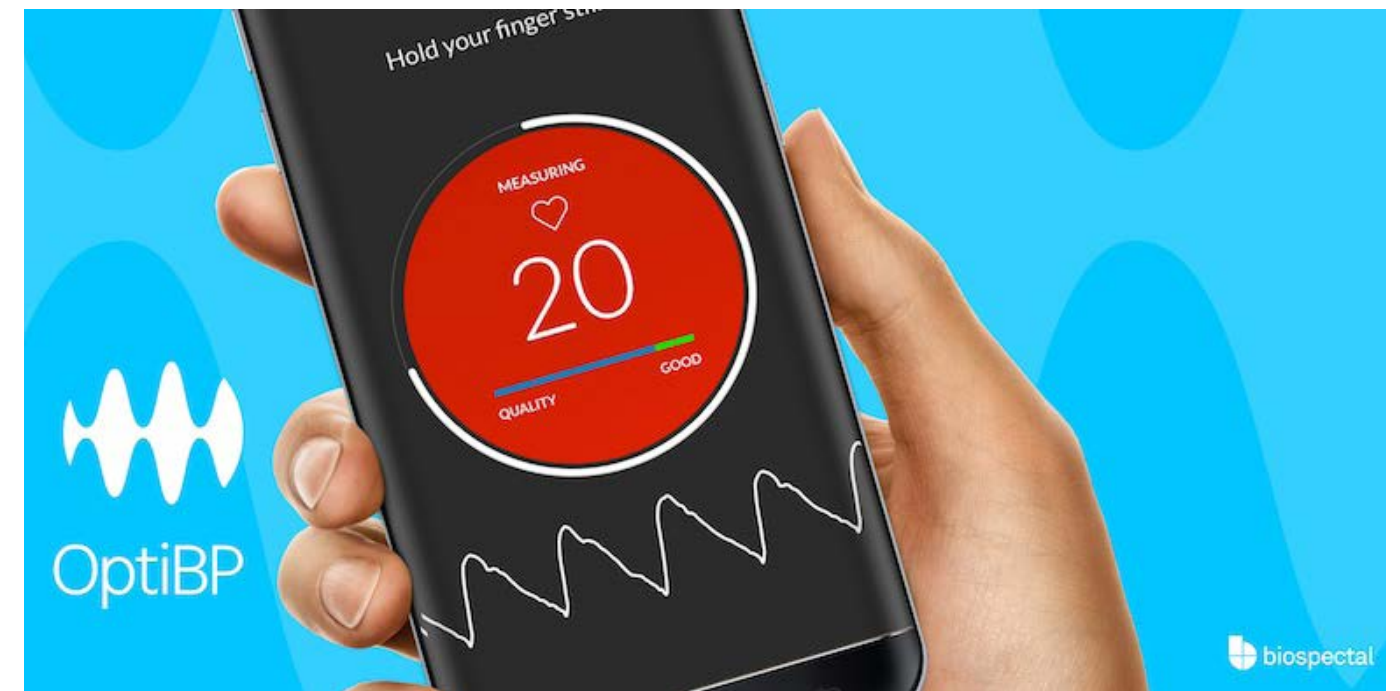
our cyber-security bottle. As a trust, we are committed to a blended approach to cyber-security, but this gives us something extra."

David Newell, Head of Health at Gemserv Health said: "We value our engagement with Cheshire and Merseyside Health and Care Partnership. It is refreshing to see an integrated care system working together on cyber-security issues, and we look forward to more NHS areas taking the same approach.

"It is also exciting to see Liverpool Women's NHS Foundation Trust taking such a proactive stance on network security and being willing to run a proof of concept from which others in the region are already benefitting. There are many broad, flat networks across the NHS that are difficult to segment to reduce the risk of a breach in one area spreading to another.

"The solution adopted by Liverpool Women's is an innovative, next generation product that offers effective protection for a much lower administrative overhead than traditional responses." ■

Biospectal Announces Alpha Launch of OptiBP for iOS



Biospectal's OptiBP smartphone app and data platform empowers people worldwide with medical-grade blood pressure monitoring software integrated directly into their smartphone, enabling instantaneous blood pressure measurement and monitoring, anytime and anywhere. The company has now announced the alpha launch of Biospectal OptiBP™ for iOS at MWC Barcelona 2021.

The Biospectal OptiBP app runs on a typical smartphone and uses the built-in camera to record a user's blood flow via their fingertip quickly and easily. A measurement is rendered in approximately 20 seconds — half the time of a typical blood pressure cuff. Biospectal's proprietary algorithms and optical signal capture methods then transform the captured data into blood pressure values. Additionally, the captured blood pressure data connects seamlessly with a user's clinicians to support treatment regimens that help improve health, longevity and quality of life.

The World Health Organization estimates 1.13Bn people worldwide have hypertension. Dubbed the "silent killer," only one in five people afflicted with hypertension has control over their condition. People need an easy to use means to accurately measure, monitor, track and share their blood pressure data with their doctors; a need that the onset of COVID-19 and demand for telehealth solutions has only amplified. Biospectal's patented OptiBP technology replaces the antiquated traditional blood pressure cuff and provides medical-grade blood pressure measurement and management at the 'point of patient' in the time it takes to download an app.

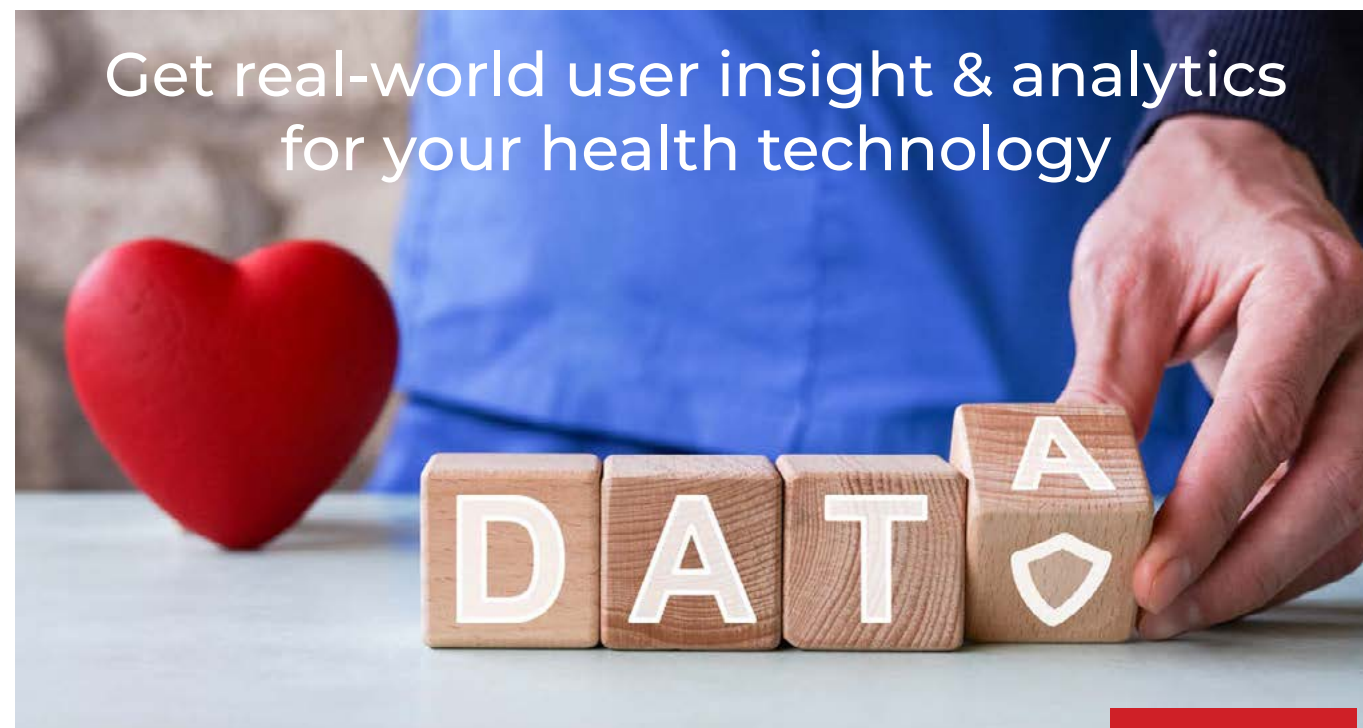
"During the course of developing Biospectal OptiBP and sharing our plans with third parties, we were surprised to find how widespread and intense the need was for a scalable, practical, and convenient way to measure blood pressure," said Elliott Jones,

CEO and co-founder of Biospectal.

"Our early research across the board revealed that the current cuff-based method of measuring blood pressure was both cumbersome for patients (so they didn't use it themselves), and drove a lot of cost across players in the care process around hypertension. Bringing our software-based solution to the iPhone is a major step in our mission to make monitoring readily available and connecting actionable data to clinicians around the world. We have found this to be universally appealing across almost all touchpoints and players involved."

A large-scale, third-party clinical research study published by Scientific Reports in Nature validated the ability of the Biospectal OptiBP smartphone app to accurately measure blood pressure utilizing transdermal optical sensing and a smartphone camera lens. Additionally, in May 2021 two independent global research and validation studies using its Biospectal OptiBP blood pressure measurement app. These studies further Biospectal's ability to transform the global network of smartphones into a connected, clinical-grade blood pressure monitoring platform — democratizing access and bringing the power of remote patient monitoring to people and communities worldwide.

Biospectal trained its software algorithm using over two million resulting invasively acquired blood pressure samples recorded in the operating room of the CHUV in partnership with the Swiss Center for Electronics and Microtechnology (CSEM), and then validated it with outpatients in the hypertension clinic CHUV. The company's patented technology represents 10+ years of non-invasive optical biosensing R&D led by Biospectal Chief Medical Advisor, Dr. Patrick Schoettker, M.D.. ■



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Cutting-edge Motion Data Technology set to Transform Physiotherapy

Physiotherapists, ergonomic consultants and other physical health practitioners can now tap into the full potential of world-leading motion capture technology with ease. Xsens' new Automatic Reporting instantly presents complex movement data in an accessible, easy-to-read report using its online MotionCloud platform.

Until now, completing a complex analysis of human motion required technical expertise in data scripting and reporting, often unavailable to specialists in physical health care due to time. While high-end universities and research facilities require Xsens' full motion capture suit and MVN software to conduct larger research, independent professionals only need specific data and less processing. Xsens' new MotionCloud takes care of the processing, with Automatic reporting designed to display the data in multiple formats tailored to each user's respective industry.

In as little as two minutes, a full report, graphs, and a digital recording of an avatar completing the movements are generated and stored on the cloud platform. All that's required is an internet connection and any computer or laptop, providing access to files from multiple locations

simultaneously. Physical health practitioners can improve their own understanding of a client's physical health with easy-to-read data that informs objective rehabilitation and care.

Ralph Speerstra from Pro-F Performance Center said, "Some of the world's leading sports scientists and research facilities already use Xsens' motion capture technology to track high-quality, full-body motion data, improving the performance of athletes and discovering new insights into human movement. Being able to use the very same technology in my own practice without the need for any technical knowledge or scientific facilities is incredible. My patients can comfortably perform movements while wearing Xsens Awinda sensors and I can provide high-level insight almost instantly. There's also the added benefit of showing the patient the data report and digital avatar, elevating the level of communication and trust between us and further emphasizing the efficacy of my business. The addition of automatic reporting has been transformative."

To ensure each report is presented in a functional and accessible format, Xsens is starting out by releasing two bundles: The RULA Report bundle for ergo-

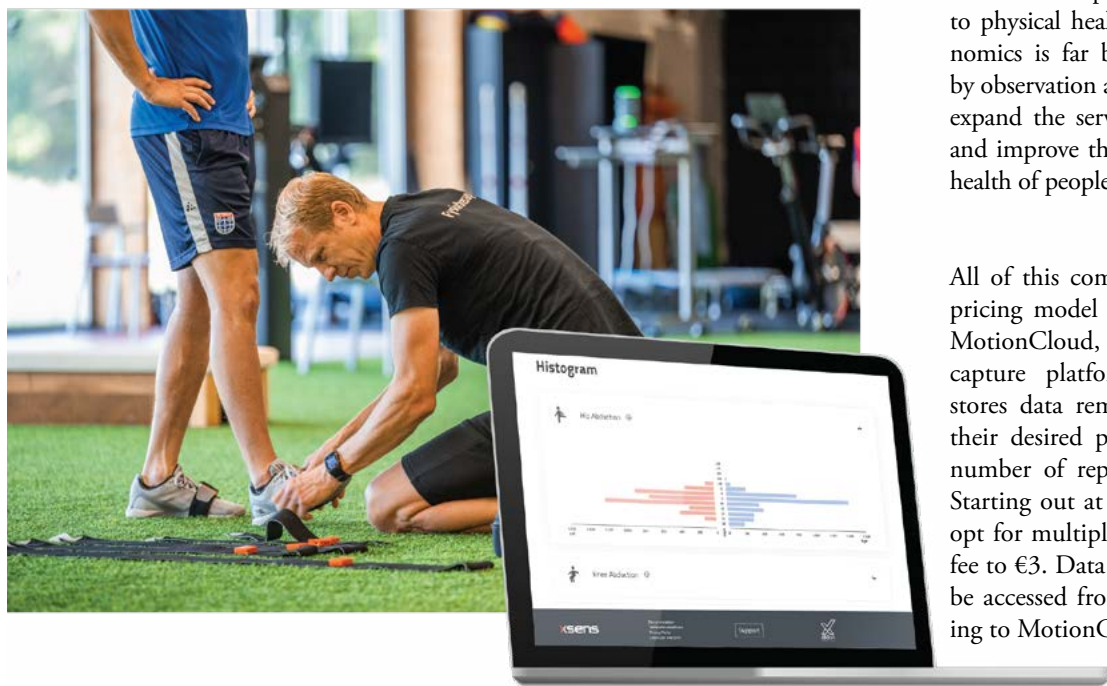
nomics and Gait Analysis bundle for physiotherapists – these bundles will be expanded with multiple relevant reports in the near future.

Both bundles are designed to provide the user with relevant data that's easily readable, bridging the gap between data and analysis. For example, gait analysis – the study of human motion – requires specified data, such as spatial and temporal parameters. Automatic Reporting will instantly display these relevant parameters without any added work required by the user.

Similarly, if a researcher in ergonomics wants to complete an accurate RULA report, instead of relying on the analysis of a 2D video, the user can see all relevant data parameters and a three-dimensional avatar as a visual aid. Users can also estimate joint angles without needing to construct a frame-by-frame analysis.

Peter Hartman, Product Manager at Xsens said: "This is more than a feature launch, we're aiming to connect to an entirely new community of professionals and provide the most precise inertial motion capture technology on the market in a format that is both accessible and functional. The added depth motion capture brings to physical health care, sports and ergonomics is far beyond anything possible by observation alone – it will significantly expand the service offering of our users and improve the well-being and physical health of people everywhere."

All of this comes with an entirely new pricing model made possible by Xsens' MotionCloud, a cloud-based motion capture platform that processes and stores data remotely. Users can choose their desired pricing tier based on the number of reports needed per month. Starting out at €8 per report, users that opt for multiple reports can reduce that fee to €3. Data is stored for free and can be accessed from anywhere by connecting to MotionCloud. ■



Upcoming events

September 2021

- 13-14

ACO & Payer Leadership Summit
Chicago, IL, USA
For more information visit <https://events.marcusevans-events.com/acopayer-summit2021/>
- 20-21

National Healthcare CMO Summit
Chicago, IL, USA
For more information visit <http://www.nhcmo.marcusevans-summits.com/>
- 20-21

National Healthcare CNO Summit
Chicago, IL, USA
For more information visit <https://events.marcusevans-events.com/hccno21/>
- 27-28

AUTOMA+ Health
Zurich, Switzerland
For more information visit <https://automahealth.com>
- 28-29

HETT
London, UK
For more information visit <https://hettshow.co.uk/>

October 2021

- 8

SEHTA International MedTech Expo & Conference
London, UK
For more information visit www.sehtamedtechexpo.co.uk
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Healthcare CIOs Need to Hone their Focus to Accelerate Innovation in the Post-pandemic Environment

It's hard to look back at this recent pandemic without thinking about the profound impact it's had on our healthcare system. But in many ways, in particular with innovations in technology use, the crisis has led to opportunities for the industry. Healthcare has initiated some very positive transformations in services and operations spurred on by macro-level changes related to regulatory policy and shifts in technology paradigms.

In both policy and technology, many of the changes that were supposed to be short-term emergency measures, implemented only for the pandemic, have surprisingly endured into the post-pandemic era. With newfound courage, this has opened up previously unseen opportunities for large-scale innovation using the power of technology.

It's argued here that in order to really seize upon these new, bold opportunities that are continually unfolding, healthcare CIOs have to readjust their primary focus—if they have not already done so in earnest—from the traditional “keep-the-

lights-on” support. Instead, CIOs must now prioritize high-impact, business-valued healthcare software solutions that are adopted at the speed of the business.

Paradigm shifts in healthcare spurred on by the pandemic

Since the pandemic, there have been two key technology-related changes in healthcare regulations, specifically around telemedicine and the sourcing of clinical skills. During the pandemic, for example, the Centers for Medicaid and Medicare Services (CMS) changed payment rules to allow providers “broad flexibilities” to furnish services using remote communications technology.” Most major private insurers followed suit in implementing similar rules for payment. As a result, telemedicine and telehealth services spiked almost overnight. Between 60% to 90% of all physicians were using such remote services during the pandemic, up from a pre-pandemic level of only 28%. And while many private insurers have since begun to roll back telehealth policies (despite rising

demand), the CMS changes became permanent under the previous administration, and have so far remained so under the current one.

Similarly, before the pandemic, most clinical teams for telemedicine services were restricted to being located in a single state. Early in the pandemic, many states relaxed policies that restricted licensed providers from practicing across state lines. As of April 2021, over 30 states joined the Interstate Medical Licensure Compact (IMLC), which enables providers to apply for licenses to practice in other states, and use of the compact spiked during the pandemic. These policy shifts are also reflected at the federal level, with the greater focus on telehealth. Now, clinical teams can combine over technology to address more complex needs in remote areas. This has created a financial model for providers to not only expand their markets but provide more complex services in those underserved markets because of the flexibility in sourcing skilled clinicians from essentially anywhere in the US.

Healthcare providers are starting to see that these technology-enhanced remote service models have demonstrated that they work and are compelling for the business and the clinicians. On the patient side, patients all across the service spectrum are experiencing how convenient and cost-effective it is to just pick up the phone and talk to the doctor and receive basic care. In many cases, patients in rural areas no longer have to travel great distances to get access to care that was not available in their local areas without remote services and the assembly of highly skilled clinicians. Such paradigm shifts are making good sense for patients, clinicians, and businesses and are likely to stay in place and be improved upon with more technology innovations.

This sudden strong tilt towards a technology-focused provision of care paradigm is reflective of the direction healthcare was already headed with digital transformation efforts like the adoption of a comprehensive Electronic Health Record system. However, the crisis was a push (or perhaps a shove) in the right direction to accelerate technological innovation.

Before the shutdowns, healthcare providers were very skeptical and risk-averse about using new technologies. Senior leaders were like ice skaters skirting the edges around a freshly frozen pond, wary of fully venturing onto the ice, no matter how thick and secure that ice was likely to be. That is, they were hesitant to use technologies like telemedicine, cloud computing, and even artificial intelligence. Then, suddenly, the pandemic swooped in like a wind blowing them out onto the pond, and now they see the ice out there is firm. That is, they now see that such long-established technologies and practices like telehealth, remote working, and off-premise solutions are already quite sound and powerful to use strategically and innovate upon.

Just before the pandemic started, for instance, the hospital CIOs were primarily focused on things like on-premise systems and expanding their data centers. When it came to the cloud, they were still pretty risk-averse: What happens if there's down time? What about security? The usual concerns and hesitations. But then the pandemic forced organizations to maintain their systems with remote teams, and it became clearer that they

didn't need a bunch of analysts and engineers sitting in data centers. Companies began to consider the cloud more seriously and to realize they could do it both securely and cheaply.

The services and the solutions that are now in the cloud are just phenomenal. The organizations that haven't been moving in that space are going to get left behind because it's simply going to become way too price-prohibitive, and it's going to become much more challenging to ensure robust security.

C-suite and clinical leaders now better understand the power of technology for their success, are more open to cloud solutions and advanced technologies like artificial intelligence and robotic process automation. As such, they are demanding that CIOs come to the senior management table with innovative solutions that will address the biggest business needs and are aligned to the unfolding of new business strategies.

Leadership advice for the post-pandemic environment

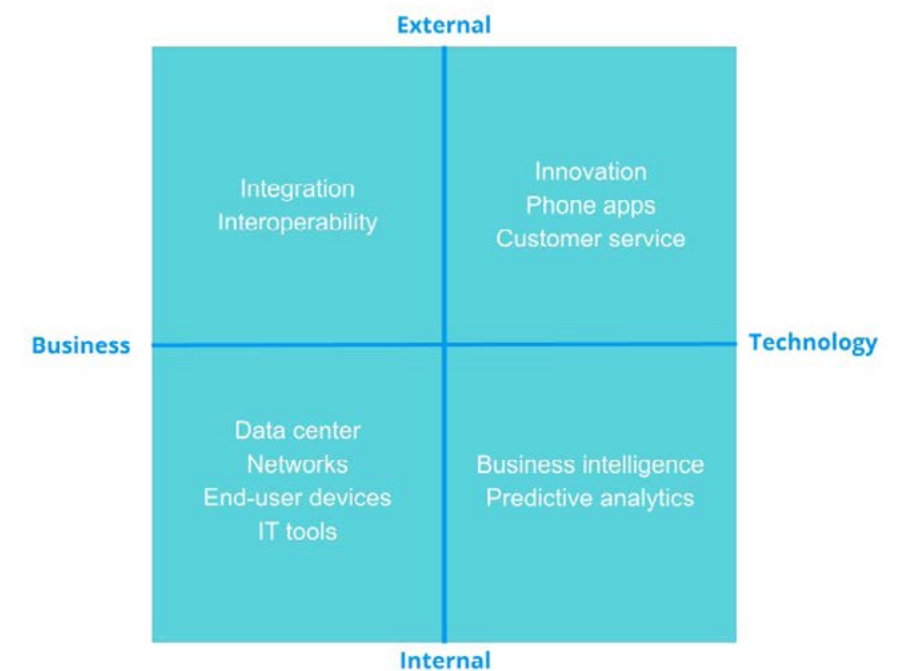
Even with these recent revelations within the C-suite, IT leaders still face organizational challenges in bringing new possibilities to life. The goal is to be recognized as more than a cost center and bring more value to our organizations. We've done enough of the “plumbing” already—that is, laying down the infrastructure to facilitate the five data “rights”: Getting the right information to the right person in

the right format through the right channel at the right time. It's now ever more important to take that foundation and build upwards and outwards, and beyond the “four walls” that we've been used to in order to deliver more value for the business and end-patients.

So what does the acceleration of value-driven innovation mean for the CIO in the post-pandemic era? To help unpack that big question, let's start by framing what CIOs focus on most across two dimensions: Tech and business-focused activities, and internal and external focused activities. What that looks like is the diagram below, with some examples that fit into each of the quadrants.

The lower-left corner is where CIOs traditionally get stuck, focusing on internal and highly technical concerns like data centers and devices—complex maintenance items that are rarely understood outside of the IT department. In order to really be a leader for the business in the post-pandemic environment, you have to also move through the other three quadrants more readily and really focus on the upper-right-hand quadrant the most.

Walking through the other quadrants, we have on the upper left-hand side things like integration and interoperability that are enabling organizations to operate beyond the four walls of the hospital, but still very technical. Then, if we turn our focus to the lower right-hand quadrant, we have things like business intelligence and predictive analytics solutions ➔



that enable and move the business but are still very internally focused.

Now we come to the upper right-hand quadrant where we focus on the external business activities. In healthcare, that means a focus on the patients, the patients' families, local communities, payers, and suppliers. Think telemedicine, phone apps, and customer-based services. It's in this upper right-hand quadrant that I recommend CIOs focus most of their time and money—if they can—in the post-pandemic era. It's in this quadrant where large-scale innovation happens, where we start to bring strategies to life that directly impact customers, patients, and entire communities. This is where we build off of Martha Heller's profound concept in her book, "Be the Business."

Even if we don't have the resources internally and it requires enlisting the help of a healthcare software company, this innovation quadrant needs to be our new focus. It's there that we can truly be the CIO leaders required of us in the post-pandemic era, and make the largest impact for the business.

Purposefully Steering the Adoption of Technology Innovation

It's not just one technology that will bring us the accelerated transformation—the true power will come from the convergence of things like artificial intelligence, machine learning, and blockchain. However, in order for us to start the convergence and create real value for the business, CIOs have to make sure the foundation of the data is there.

Right now, in 2021, I see that we are still in the middle of setting the foundation for the next phase, working towards our highly technology-enabled provisioning of care vision. It is now that we're continuing to do things like expand interoperability with the Electronic Health Record systems and add Internet of Things (IoT) solutions that are hyper-connected inside and outside our organizations. We are also building hyper-automated solutions through technologies like robotic process automation (RPA) with an aim towards better, cheaper, and faster systems. Having these data and process automation building blocks in place is very important and will put us on a clear path to the next phase. But to really accelerate the transformation requires the convergence of existing and new technologies and its success will only come to those CIOs that are purposefully focused on the upper right-hand quadrant of innovation activities and have a keen eye on the horizon for new and emerging solutions.

Over and upward

The pandemic was a catalyst for sustainable change in the healthcare industry as it was in so many aspects of business. Recent macro-level regulatory changes and a renewed belief in technology from non-techies are two major factors in the healthcare industry's transformation. Now, technology has once again become strategic and properly placed in senior leadership discussions. But in order to bring high-impact value to the business table, CIOs need to purposefully steer the adoption of technology innovation by owning the innovation quadrant with the same verve as we have owned the "keep-the-lights-on" quadrant for so long.

The innovation quadrant can no longer be sub-optimized and delegated out to others as we focus on the lower-left quadrant—where the most money and time is being spent, where many of the big issues exist, and where many CIOs often feel the most comfortable. But that well-traveled lower-left quadrant by itself is not keeping up with the business nor providing what the business wants in the post-pandemic environment. We need to gain ground in the upper-right.

At this point, any CIO who's not focused like a laser beam on the innovation quadrant is not only getting left behind but they are getting left behind rapidly. There is a tsunami of challenges that is upon us and we need to take the energy from that tsunami and harness it with innovation, otherwise, we could all just get washed away. So I say let's ride the wave, skate in the middle of the pond with confidence, and "be the business" so that we can continue driving positive change for our industry.

ABOUT THE AUTHOR

Erik Kubinski is the CIO and Head of Technology Management at Encierro Technologies in Austin, Texas. He has over 25 years with hands-on technology implementation and senior IT management. He has run hospital IT departments in large and small hospitals all around the world. His expertise includes eHealth strategy, developing high-performing teams, and big-impact innovation. ■



with healthcare, this provides the perfect opportunity for hospitals and trusts to expand their technological capabilities, further digitally empowering patients while achieving greater value and outcomes.

While now might seem the perfect time for health bodies to advance their digital transformation, there are challenges they face in doing so. The main barriers to technological innovation is that these processes can be difficult, time consuming and also costly.

To meet these challenges, healthcare organisations shouldn't see digitisation as an initiative that they need to take on by themselves and should instead be looking to collaborate with others to drive innovation.

Collaboration between multiple hospitals & providers to identify, test, fund and implement new solutions can bring with it a range of benefits, including increased patient empowerment and digital transformation.

By coming together to develop and implement new digital technologies, healthcare organisations can bring down the costs of implementing new software and platforms. This is because the funding of solutions can be split between each of the bodies involved, rather than taken on by them individually as it would be if they were to go it alone.

Working together in this way can also help reduce design and delivery pressures on healthcare bodies. By collaborating to co-build new solutions, the people power needed to put these in place can be split between everyone involved, with each organisation managing a different part of the project. This means that less strain is put on one organisation and its employees, ensuring that the process is streamlined, efficient and the appropriate time and care is taken.

As well as this, collaboration can ferment innovation in the wider industry. Through open sourcing their projects and innovations, other trusts and hospitals that weren't involved in the collabo-



ration efforts are able to adopt the solutions without needing to start from scratch, digitally benefiting other healthcare organisations and their patients.

The final consideration when embracing collaboration to digitally enhance trusts and patient services is the role digital partners must play. Solution providers need to be taking the lead in demonstrating to their healthcare partners that these options are available, rather than stopping a project in its tracks when a body comes to them and doesn't have the funding to put in place a new platform. When it comes to healthcare, we each have a shared interest in striving for efficient and effective ways to help transform digital services to benefit patients.

Technology, accelerated by the pandemic, is rapidly changing the way patients engage with their healthcare. This change is being embraced by patients as they experience and see how digital solutions can make healthcare more accessible and open to them. Provider bodies should build on this progress and continue to look at new and innovative ways to digitally empower their patients. Through collaboration with fellow organisations and working with their digital partners, they have the perfect avenue to do this, benefiting not just their patients but themselves in the process. ■

Collaboration is Key to Digitally Empowering Patients

By Hazel Jones, Head of Health, Made Tech

COVID-19 has drastically changed the way healthcare organisations operate in order to treat patients and keep the public and staff safe during the pandemic.

One of the biggest changes has been the adoption of new technologies. From virtual visits through to patients being able to declare their vaccine status, digitisation has provided patients and the health service with new and innovative ways to engage with one

another as we navigate our way through this turbulent time.

To the surprise of some, the rapid digitisation of health services has largely been embraced by patients. This was highlighted in a recent study by the Health Foundation, which found that around three fifths of users increased their use of technology to access care during the first phase of the COVID-19 pandemic, with 83 percent of users viewing their experience positively.

With patients welcoming technology into the way they interact

The Rise of eHealth: How Cellular Connectivity is Reducing the Strain on Healthcare Systems

By Mark Appleby, Business Development Manager at Wireless Logic

eHealth is a steadily growing industry that advanced hand-in-hand with connectivity and digital communication. For years, eHealth solutions have allowed healthcare providers the flexibility and freedom to take care of patients remotely, gradually easing the demand on a strained healthcare system that was under pressure even before COVID-19 took its toll.

When the COVID-19 pandemic began, hospitals and their staff were quickly overwhelmed with priority patients. Struggling healthcare systems needed to allow as many patients as possible to receive medical care from the safety of their own homes, reducing overcrowding and unnecessary contact that could further transmit the virus.

As well as reducing the impact on ongoing healthcare systems cellular-enabled solutions offer a resilient and secure way

to meet the ever-changing requirements of healthcare organisations.

eHealth and cellular

The impact of COVID-19 on an already-strained healthcare system meant there was an urgent need to be able to relieve this, by providing care to patients remotely in a way that wouldn't risk further transmitting the virus. Both patients and care staff needed to stay safe, so by taking advantage of the Internet of



Things (IoT) - enabled by cellular connectivity - people were able to still have their medical needs met remotely.

One of the effects of the pandemic on the eHealth sector was an accelerated need for reliable remote patient monitoring and independent living. For many years, Wi-Fi was predominantly relied upon within hospitals as a means of communicating data. However, as remote patient monitoring and assisted living became more crucial, the need for alternative communication types became clear. Cellular has become a key method for connecting these solutions as it allows quick and secure access to mobile networks without the need to rely on patients' own home network. This development has been particularly significant for those (especially older generations) who may not have Wi-Fi in their homes, meaning they can still access medical support without the additional hassle and expense of having broadband installed.

As we steadily move through and past the pandemic, the healthcare system must continue implementing solutions that can support a growing population who are living longer, and who need medical care and assistance to do that. Crucially, this can be done using resilient, reliable and secure IoT technology in medical devices (whether used by healthcare workers, paramedics or even

patients). Connecting these IoT devices to medical staff and organisations via cellular networks will allow for real-time monitoring of patients' vital signs and the ability to rapidly transmit data back to a central hub.

Additionally, healthcare providers can take advantage of 4G connectivity for higher bandwidth applications that require fast and secure connectivity, or newer LPWAN networks for low latency, high speed applications. This is ideal for devices that require longer battery life, or those that need to send large packets of data in a short space of time: often required for heart monitors, dialysis machines, wearables, or implants with cardiac and biometric sensors. These devices can track vital signs and send an emergency communication in real-time to care providers, or alert the patient to taking a specific action such as an at-home test.

Cellular connectivity has quickly become a key enabler of eHealth and related technologies, providing a controlled and secure method of communication that can work from any location. Managed cellular connectivity offers the potential to add significant levels of security when transferring data (as opposed to Wi-Fi or other connectivity methods), as well as the ability to provide connectivity for a large number of devices simultaneously. Specifically in the age of IoT, having

extremely reliable and low-latency connectivity is paramount, particularly when even the slightest of delays can have the potential to cause severe consequences.

eHealth challenges through COVID-19 pandemic

There is a significant need for existing healthcare systems to adapt in order to meet the challenges of the COVID-19 pandemic and the increase in an ageing population, focusing on meeting patient needs, keeping care-workers safe and ensuring processes are working efficiently. At the same time, new connectivity solutions can be embraced and implemented to address ongoing and upcoming issues for the post-COVID-19 era. The pandemic has further highlighted the need to embrace these solutions and has accelerated the adoption of eHealth technologies.

Smart healthcare systems provide patients and staff with more reliable and safe health services and environments through the use of IoT technology and cellular connectivity. By working with solution providers who can tailor full end-to-end solutions, the healthcare industry will be better equipped to support hospital environments, remote healthcare applications and disaster response units.

As a result of rapid actions of health-

care solution providers, we're now seeing that cellular technology has already been transformative for the healthcare industry during COVID-19, in areas such as remote medical appointments, or by allowing the emergency services to quickly record patient data in the field. Indeed, a recent IEEE study highlighted how cellular-enabled technologies such as IoT have been at the forefront of helping the UK and other countries combat the COVID-19 pandemic and alleviate the strain on the healthcare system, reducing unnecessary human contact.

Security of eHealth

With private health data being transferred between people, locations and devices, the consequences of a data breach would be severe, whether the subject is personal health data, the results of a medical study, or pharmacy records. Wireless communication links are vulnerable to security threats such as eavesdropping, jamming and spoofing. Without secure links, external parties can access critical patient information or even manipulate data, potentially leading to fatalities. In addition, there is a risk of network disruption and reputational damage through loss of customer data and intellectual property.

Healthcare systems must ensure that health data can be shared in a trusted and secure way. Through the use of VPNs or direct interconnects, organisations are able to protect data whilst still communicating effectively with relevant parties. To support their security efforts further, healthcare systems should aim to work with a Managed Service Provider with ISO27001 certification, demonstrating that IoT security is being taken seriously. Ultimately this will create an ecosystem of secure data management and processing.

Hardware security is also increasingly pertinent. Expensive medical devices are being shared with patients, often taken off-premises and used for long periods of time. Healthcare organisations must be able to track and monitor these devices, as well as making sure they are being used for the right purpose. Methods such as IMEI locking can help to minimise financial loss by ensuring the SIM is locked to one particular device, while IP whitelisting can make sure that patients can only access the relevant content for the intended use-case.

Future of eHealth

Cellular connectivity and emerging tech-

nologies have played a significant role in reducing the impact of the COVID-19 pandemic and will continue to support a very strained healthcare system. When properly deployed, cellular connectivity enables secure, rapid and efficient communication between the hospital, remote care staff patients, and disaster response teams.

For healthcare solution providers, working with the right Managed Service Provider will ensure the right connectivity, network, security and hardware are selected to tailor a flexible and scalable solution to meet the requirements of the healthcare organisation, particularly as we see new and enhanced applications being developed.

Finally, with the ongoing development and roll-out of 5G technologies, this will further drive innovation and open up new and more effective ways of working. Once 5G coverage has been significantly improved (current coverage is only focused on major cities), healthcare systems will also benefit from increased speeds, more reliable coverage and crucially, reduced latency.

To find out more, please visit: <https://www.wirelesslogic.com/sectors/health/> ■

EPMA's: How to Implement at Pace During a Global Pandemic

Nurse Stefan Siekerski has implemented five different EPMA systems within six UK hospitals – most recently at Wye Valley NHS Trust (WVT). He shares his learnings, best practice tips and reveals how WVT achieved implementation of Better Meds in just six months.

The decision to switch to electronic prescribing and medicine administration at WVT was easy, as it was a priority within our wider digital strategy to make efficiency savings and reduce the risks associated with paper-based systems. Following a competitive tender, Better Meds scored highest in terms of functionality and received the best score from staff demonstrations for usability, while also being comparable on costs. The hard part was the implementation, with the first wave of COVID-19 pandemic forcing us to pause the project and led to ongoing problems. Even so, we went live on our pilot ward in October 2020 – just six months after the system was made accessible – and, within nine months, Better Meds had been rolled out across 95% of the trust's sites, including three community hospitals.

So, how did we achieve such a fast and effective EPMA roll out? The secret is to plan for the unexpected, be adaptable and reach out to the influencers and networkers.

Plan for bumps in the road

When we began planning our EPMA roll-out, we could never have foreseen the global pandemic which stopped all non-essential work including implementation of new IT systems. But the challenges didn't stop there - there were many. A new hospital building opened, wards merged to increase bed capacity by 50%, and we were unable to launch as planned. All this had the potential to derail our go-live targets and cause costly delays – something that we couldn't afford when dealing with medicine management and prescribing.

Fortunately, we didn't have just one go-live scenario and we were prepared to adapt. For example, when we wanted to start the roll-out, another IT project was due to go live. This meant that we couldn't take nurses off the ward for an hour for EPMA train- ➔



ing, and so we agreed to delay the EPMA rollout by two weeks and shorten them to keep on schedule without impacting other rollouts.

Build your network

I joined the EPMA project with experience of working at five trusts and implementing several different systems, so I had a ready-made network of colleagues that I went to for advice. I also reached out to Taunton and Somerset NHS Foundation Trust and University Hospitals Plymouth NHS Trust, who were both implementing Better systems. Their advice, as well as that from internal networks within the trust, proved invaluable.

As with all digital transformation, resistance to change can be an issue so we involved the end users – our doctors, nurses, pharmacists and anaesthetists – from the start. We asked them what their pain-points were, their day-to-day challenges, and addressed their concerns. By doing so, we fostered a rollout by consent, creating an atmosphere of ownership and partnership. We had a team of people unified against challenges, rather than a battle against internal resistance.

We made sure that we were present and created in-person encounters (as much as Covid procedures allowed), joining ward rounds and giving end-users a laptop so they could practice using the system. We also organised a roadshow in the canteen, where people could ask us anything and stood at the staff entrance from 7am to speak with workers as they arrived to start their shifts.

Just as important is top-level buy-in. At Wye Valley, the project board had been created before I joined the team and fortunately it is one of the best I've worked with. With the clinical director of pharmacy, financial director, medical director, and nursing director all on the board, if we encountered problems within medical or surgical divisions we could go back to them for advice. Even if the board level was unable to help us, the individuals on the board could take those issues up to the next level - the executive board.

Be realistic and stick to deadlines

Two crucial aspects of achieving implementation at pace is sticking to your deadline and being realistic. While it is ill-advised to be inflexible when leading a project, I am not flexible with go-live deadlines because delays can lead to safety concerns if you begin operating with a mixed economy of paper and digital wards. So,

once you have decided on your deadline, you need to figure out the minimum requirements of the go-live so that even in a worst-case scenario, the date doesn't need to be delayed. To do this, you will need to manage the expectations of your end-users. Put simply, your ePMA won't be able to do everything immediately.

At Wye Valley, we didn't go live with VTE assessment; we didn't have full integration with laboratory systems. It would have been brilliant, but a paper chart doesn't have those functionalities either – it has a patient's name, their clinical details, their allergies, and the medication which has been prescribed. And the chart lies beside the bed that the patient is in. For us, having clinical decision-support in the background of the EPMA was already much better than the original piece of paper we had been using. Managing expectations is crucial.

Incentivise

Another COVID-related challenge was that in-person training was not an option, and increased workloads meant that staff had less time to engage. We had to move training online, which gave staff the autonomy and flexibility to learn about the system at a time convenient to them, but reduced the likelihood of them completing the training ahead of implementation on their wards. To tackle this, we incentivised engagement by getting the training course accredited with the Royal College of Nursing, which gave nurses a nudge to complete it as they knew they would have a certificate for revalidation.

In addition, we also paid for a Saturday shift of a junior doctor, who helped with transcriptions and supported the on-call rotation, while on-call doctors did their training. He was then able to show colleagues how to use the system effectively.

Be present and available

During roll-out, as an implementation team, we were on hand to assist with any additional training or troubleshooting. We were available from 7am until 10.30pm – the core hours that the wards needed our support. We were then available outside these hours through an on-call system, which ensured that staff felt supported and reassured that help was available if they needed it. In addition, we put steps in place so that staff from wards that had gone live could support others, particularly if requests were clinical, and we adapted our training based on issues that arose, resulting in fewer support calls as the rollout progressed. To be available 24/7 is tiring, but the trust welcomed the support, which gave them confidence in us, the system and the ability to proceed.

Find success

We wouldn't have been successful in our implementation if we were discouraged by the challenges that came our way. We all work in clinical environments, and unexpected events do happen. So, when they arrive, don't just put your blinders up. Use your team and the skills that you've learned from going to site visits – from having a clear target and stakeholder management and having a good team structure. Look for a workaround to any issues that arise and reach out to your network for advice and whether they have encountered similar challenges. It may require more work, but the satisfaction is so much higher when you hit the targets in the end. ■



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