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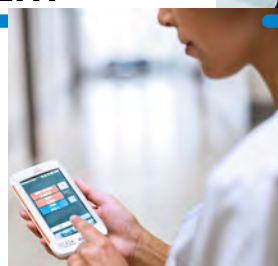
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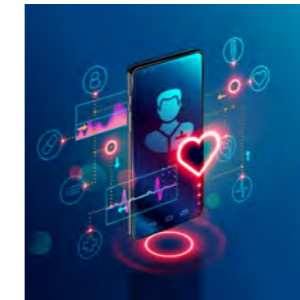## The Intelligence Platform for Health Technologies

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In This Issue

Technology is transforming our cultural narrative around health from one where doctors treat patients once they have a problem, to one where patients and doctors are equal partners in a constant conversation about patient health, with the ultimate aim of maintaining good health and preventing illnesses from ever arising.

Industry News

In Depth with the Global Digital Health 100

Our 2020 Global Digital Health 100 received huge interest when we announced it in January. In this edition we look closer at the final 100 and ask what it means to them to have been recognised for their innovative work in driving healthcare technology forward. **8**

With outpatient capacity limited and demand on the NHS increasingly growing across the board, Dan Worman, Executive Director at Cinos discusses why it's time to reconsider traditional outpatient services and move to digital models of care.

Welcome

Digital is now firmly embedded in healthcare service design. When providers are looking to re-design, or implement, effective services consideration of the technology that will be used to underpin the delivery is critical, and slowly rising up the management agenda.

Digital and technology-led services allow providers to improve efficiency and monitor effectiveness of provision while crucially building additional capacity. In this issue, we look at what it takes to build effective digitally-supported healthcare services and the way that technology is being implemented to support and optimise service provision.

Recent events, following the global spread of the coronavirus (COVID-19), reinforce the growing pressures placed on healthcare systems and illustrate how providers are continually required to grow capacity, often without additional resources.

Often one of the most effective tools available to providers, in these situations, is flexibility. Being able to shuffle staff and resources quickly to deal with changing threats enables healthcare service providers to ensure that resources are applied most effectively. Technology can play a huge role in this equation. Already we are seeing telehealth, mobile messaging, multi-disciplinary team coordination and data-driven solutions being used on a whole new level, as a result of the COVID-19 crisis.

GP surgeries and service providers that are already well versed in remote consultations have been well equipped to manage growing non-emergency workloads and those that haven't been so forward-thinking are rapidly adopting tools to provide these digitally-led services. Digital communication channels are also proving essential in providing the public with reliable, up-to-date information from sources that they can trust.

The impact of the coronavirus continues to be felt across the industry and many of our partner HealthTech events that were due to take place in March, and April, have now either been postponed until later in the year, or cancelled. All our event partners are working hard to ensure continuity and where there have been postponements registered delegates will be able to attend on the new dates.

Please keep an eye on thejournalofmhealth.com/events for all the latest updates and details of rescheduled events.

We also know that this is an extremely stressful time for all our readers involved in the provision of healthcare services and I would like to take this opportunity to thank all of you for your ongoing efforts to keep the general public safe!

Matthew Driver
Editor

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The Future is Bright for Health Tech

Health Tech: Moving Healthcare from Mid-20th Century to Mid-21st Century

Our healthcare systems are still largely the way they were 70 years ago. Our understanding of the human body and disease may have come on in leaps and bounds but the way we treat patients remains reactive and compartmentalised rather than preventative and connected - how it should be. Fortunately, new health care technologies are rapidly changing this.

From AI to mobile apps, to robots and better user interfaces, tech is driving innovation in healthcare. And it's not only revolutionising healthcare processes. It is also transforming our cultural narrative around health from one where doctors treat patients once they have a problem, to one where patients and doctors are equal partners in a constant conversation about patient health, with the ultimate aim of maintaining good health and preventing illnesses from ever arising. In an era where chronic disease and old-age care dominate healthcare spending, this narrative change is essential to empowering people to take control of their own health and that of their close relatives.

Healthtech Leading the Patient-led Healthcare Revolution

The rise of wellness trends and self-care in recent years is not a one-off fad, it is the beginning of a new era of healthcare, one where the patient-doctor relationship is turned on its head. This is not exactly new: the invention of the world wide web by Tim Berners-Lee in 1989 was the beginning of people sharing their healthcare experiences globally. Today, there is a seemingly endless amount of health data online, with literally millions of people exchanging advice - with differing levels of scientific accuracy - on alternative treatments and recommended healthcare providers, among other information. In this context, the rise of remote health monitoring via wearables and smartphone apps was the natural next step and it is only further fuelling patient empowerment.

One great example is the rise of women's reproductive healthcare tracking apps that have emerged in recent years: Clue, Natural Cycles, and Fitbit's Female Health Tracking. Such apps are allowing women to monitor and analyse their reproductive health so that they can address any health issues with their provider from an informed and empowered position. Another example is the rise in home health testing. Apps like Diagnost are increasingly allowing people to carry out their own tests for indicators like hormonal levels and receive the results in the app as well, all from the comfort of their own home. All of this self-testing only helps physicians to do their job, giving them more information with which to make diagnoses and referrals. Here, as with all recent technological disruptions, technology appears to be both producer and produced: both a stimulus for changes in the healthcare system and also a response to peoples' desire for greater control over their own healthcare that the internet was already facilitating. Some national healthcare systems are responding to this patient-led shift in healthcare; for instance, the UK's National Health Service has begun to offer at-home STI testing that you can order online and virtual GP visits via the app Babylon, both in London.

AI, Machine Learning and the Medical Internet of Things Creating Connected, Seamless Healthcare

The current healthcare system is fragmented, inefficient and bureaucratic - both culturally and digitally. What is more, compared to other industries, inefficient health care directly costs lives and significantly lowers quality of life for those with chronic conditions. If you have a hormonal disorder that also affects your brain and heart, for example, you may have to see three different specialists and, potentially, none of them will communicate with each other. This makes treating the human body and its illnesses holistically almost impossible. And this is still the case even after trillions of investment in Electronic Health Records (EHS). Emerging health tech solutions are providing some solutions, however.

Doctors have been gathering data about patients' ailments and histories since the beginning of medicine, but the tools we now have are able to create more connected, holistic and seamless healthcare. The Medical Internet of Things is allowing data from digital health technologies like sensors, wearables, apps and genomic data to be integrated with EHS and other healthcare systems under one roof - both literally (within one hospital, for instance) and figuratively, within one digital platform or interface. Combined with intelligent software powered by AI and machine learning, this Medical Internet of Things is allowing masses of collated healthcare data to be measured, processed and analysed automatically. Using AI and machine learning algorithms to analyse healthcare data will mean that such software can pinpoint the most urgent problems presenting in patients and give real-time insights, helping to guide physicians as to the most effective course of action. For instance, it is likely that AI software will soon be used go through scans, like brain scans, to pick out anomalies, freeing up professionals like radiologists to focus on diagnosis and research instead.

Let me paint a picture of what all of the above could look like: you go to your GP, and they use a portable tablet ultrasound to make a quick scan of your ovaries, the results (if anomalous) are sent to a gynaecologist and an endocrinologist immediately, who can discuss with each other virtually and set up an appointments to arrange a joint care plan then and there. No need for bureaucratic referrals or months waiting for intermediate appointments. This enables your GP to fulfil the role they should be doing: managing your healthcare in the most personalised, holistic, and effective way possible.

Challenges Remain to Healthtech but the Potentiality for Improvement is Huge

Of course, major challenges continue to impede the implementation of breakthrough healthcare technologies. Certain healthcare systems face huge bureaucracy and funding mountains to climb before being able to introduce such new tech across the whole national system, for instance. In some cases, healthcare practitioners themselves resist the deployment of new technologies, like robotics and AI, that they fear may replace them. In others, data standardization and security processes block quick tech deployment; standardising data formats across different healthcare software systems and protecting sensitive healthcare data are incredibly important but also complicated, lengthy and often ongoing processes, after all.

Ultimately, though, it will be impossible to resist the health tech revolution as we move into the 2020s. Patients are simply too hungry for healthcare transformation - and they will make the change themselves if healthcare systems don't do it first. What's more, with ageing populations in most of the developed world already a major burden on public health care budgets and life expectancy only increasing, leveraging new technologies is no longer just a nice extra. It's now an urgent necessity for countries who need to maintain high health care standards while simultaneously lowering costs. The UK is a prominent example but it's far from being alone in facing a health care funding crisis driven by the rising costs of elderly and chronic-disease care.

Health tech is not only bringing about more personalised, easy-to-use and seamless healthcare systems but actually revolutionising the whole way we perceive healthcare and how we treat our own bodies. How this emerging tech will be used in healthcare - and what kind of new innovations may arise - will be rapidly revealed as we move into the 2020s.

Author bio
Tatiana Bakunina

London School of Economics and Harvard graduate Tatiana has more than 20 years' experience in the field of medical innovations development including high-tech medical equipment, medicines and methods of modern diagnosis and prevention of diseases. She was VP for medical innovation and acquisition of new companies at Johnson & Johnson Medical Corporation in the European Headquarters in Belgium. She founded Quale Vita Group in 2011 and in 2019 she launched the health boutique Aloft and the health tech company Diagnost. ∎

Improving Access to Services Using Digital Channels

Nadine Miles, Director of Market Development, Spirit Health Group, explores how digital technology can play a crucial role in reengineering NHS pathways to improve access to care and support proactive, personalised health management.

Digital innovation is higher than ever before on the UK NHS' agenda, with the unveiling last July of NHSX, the Health Secretary's digital transformation unit that aims 'to give people the technology they need'. The premise is straightforward: digital innovation is key to unlocking better, quicker and more cost-effective care.

It is widely acknowledged that old models of delivering care are at odds with modern needs and possibilities. Patients want better ways of accessing healthcare, and are increasingly demanding a voice and choice in decisions about their care. In parallel, we need to ensure that services and pathways are optimised to support the increasing number of people with long term con- ⇨

– opportunities for innovation go much further. Forward-thinking practices will look to digitally enhance their GP services via partnerships with other healthcare providers. A good example is pharmacy, which is well-placed to offer virtual support to patients to help them manage their health. Specialist distant-selling pharmacies, powered by digital tech, can provide education and advice around disease management, and underpin it with expert telephone and text message support to ensure patients make informed decisions about their care. Such services have huge value in chronic diseases, where education and lifestyle support can mean the difference between a well-managed condition and an expensive relapse. Enhanced digital services unlock access to HCPs, giving patients a 'clinician in their pocket', anytime, anywhere. They're the gateway to timely and efficient patient-centred care, and moreover provide a continuity of service irrespective of where a patient might be in the country.

Regaining Control

Current services don't always do enough to educate patients around their disease – expecting them to take greater responsibility for the management of their conditions simply because technology is there to empower them. However, wide variability in online health information, health literacy levels and the understanding of disease invariably leads to poor self-management and, at times, patient deterioration.

Yet digital solutions, delivered over intuitive tablet devices, which are increasingly being used in LTCs like diabetes, COPD and asthma, give patients greater control in the day-to-day management of their conditions. These solutions can be customised to help patients engage with their health and self-manage their conditions through the daily capture of physiological data and self-reported information about their wellbeing.

Evidence[1] shows these tools are helping to facilitate earlier discharge, prevent readmission and reduce the risk of future exacerbations through better self-management. CCGs and community trusts are leveraging digital solutions to not only engineer more efficient pathways, but also increase these patients' interaction with their local communities through social prescribing – with improved patient engagement and better self-management helping to alleviate the burden on services and lower the cost of care.

Conclusion

As we move through 2020, the adoption of digital technology will be key to bring the NHS into the 21st Century. But much headway can be made by local health and care organisations building sensibly on what is already there to help existing services work better and more efficiently.

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ditions (LTCs) and multimorbidity. The good news is that there are a number of ways in which NHS organisations can, today, build on their existing infrastructure to improve digital maturity.

Proactive, Personalised Health Management

Digital technology can be used – quickly and easily – to tackle the macro challenges of ageing populations, chronic disease growth and co-morbidity. The NHS typically provides reactive care, only intervening when patients present with disease. These models can be expensive and, in patients with LTCs, often lead to costly and avoidable emergency exacerbations. Digital technology can reduce the risk and give patients (and doctors) tools that allow more proactive, personalised care.

Simple digital solutions – often delivered via familiar, everyday devices – enable the remote monitoring of at-risk patients and provide a turnkey platform for education, information and engagement between user and HCP. Increasingly rich data sets - including, for example, air quality data - are linked to personalised care plans and evidence-based algorithms that automatically trigger HCPs at the point of, if not before, patient deterioration – allowing them to intervene proactively and, where possible, avoid acute admission.

The downstream impact on services is significant. As the NHS moves towards more personalised models of preventative care, digital innovation can give doctors 'remote control' of at-risk patients, reducing queues in the waiting room and increasing GP access.

These solutions are very much in line with NHS Operational Planning and Contractual Guidance for 2020/21, which urges organisations to take a more proactive approach to the prevention of ill-health and maximise digital tech to develop personalised services in areas like smoking cessation, alcohol care and diabetes prevention/reversal.

Online Access to GP Services

We are on the brink of a major shift in how people access their GP. Though this will likely mean an increase in online consultations – as millennials favour less traditional routes to doctors

Why the Emotional Impact of Cancer is just as Important as the Physical

By John Muolo, founder of NatiaCares.com

Cancer is a growing global issue, with 18.1 million new cases and 9.6 million deaths in 2018, and one in five men and one in six women now predicted to develop cancer during their lifetime.[1] Although a diagnosis is devastating for the individual in question, it is important to recognise that the true impact of cancer is not limited to the individual and often extends to friends, family, caregivers, and even healthcare professionals. The impact of cancer also doesn't end when treatment finishes; often there are lasting physical effects, and prolonged psychological effects associated with the fear of recurrence.

THE GROWING DEMAND FOR PSYCHOLOGICAL SUPPORT

As the number of cancer-diagnoses worldwide increases, so too does the number of people surviving cancer and living longer with cancer than ever before. The number of cancer survivors in the UK is predicted to rise by approximately 1 million per decade until 2040,[2] and in the US the number of cancer survivors increased by 1.4 million in the past 3 years.[3] These statistics are positive and show how far we have come, with cancer now much more manageable than it was in the past. However, it's important to remember that the impact of cancer is not only physical, but also affects our emotional and psychological state.

This is a topic particularly close to my heart. I have had cancer, and, more importantly, I have also seen, and felt, the impact of a loved one caring for another diagnosed with cancer. I watched my wife and her three sisters care for their mother who was diagnosed with lung cancer and who, unfortunately, passed away from the cancer. I saw first-hand the emotional and psychological toll that cancer can take, recognising that the rest of your life doesn't stop while you are caring for someone else.

COMPLEMENTARY THERAPIES

There are many supportive tools available to those affected by cancer: Macmillan Cancer Support provide free support through their helpline, and Maggie's Centres have centres around the UK where you can find practical, emotional and social support – even offering yoga and meditation courses. Mindfulness interventions are also being used increasingly in various aspects of cancer management.[4] Mindfulness techniques can include yoga and meditation practices, which can help with some of the physical side effects of treatment, but also to cope with anxiety, stress, worry and depression. Used alongside conventional treatments to address the physical condition, mindfulness techniques can be a powerful tool in improving quality of life for those with cancer. They can also be used by friends of loved ones to help them process difficult thoughts and emotions that confront them.

Yet, accessing these services for some people can still prove difficult; people work, travel, and in some cases are just not aware of the tools available to support them. High demand has even prompted Macmillan to expand its helpline service recently so that they can be available to as many people as possible.

It is in this space that app-based digital health solutions like NatiaCares have real strength. Digital therapeutic apps can be used to provide support anywhere, at any time. Though they are not always a perfect replication of a meditation or yoga class, they provide an accessible solution which can help support people during dark times, or for some be their first foray to discover mindfulness techniques for themselves.

WHY NATIACARES?

I created NatiaCares specifically to address this problem of accessibility, I want to provide a bespoke app-based solution designed for people affected by cancer. The app currently has four programmes; Yoga, Meditation, Music and Conversation, each designed to improve the user's wellbeing. It is supported by Maggie's Centres, and several hospital and charity-based feasibility and pilot studies will soon be underway.
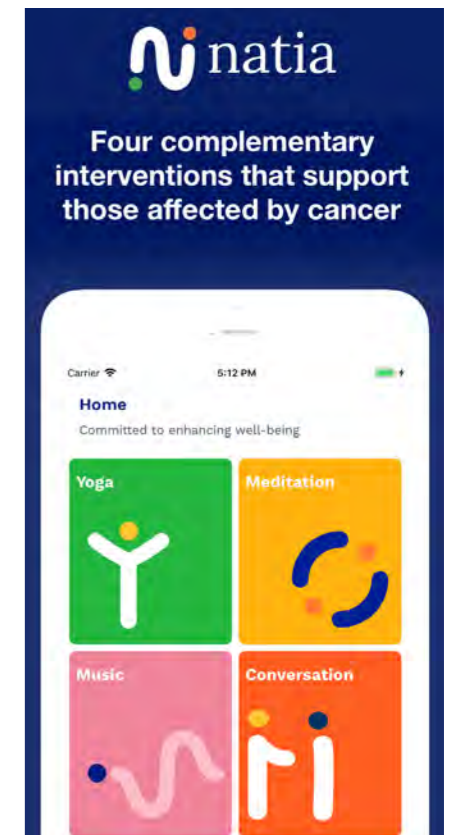
NatiaCares was designed by experts in yoga, meditation and music, who have experience using these techniques in clinical practice, and by patients and caregivers who have significant lived experience with cancer. This co-creation approach to development has helped ensure that NatiaCares meets the needs of the individuals it aims to support and provides a truly unique service which can complement conventional cancer treatments.

GROUNDED IN SCIENCE

There is an increasing amount of evidence to support the efficacy of mindfulness interventions in people with cancer. Yoga has been shown to reduce self-reported depression and anxiety in people during and post treatment,[5] and holds promising benefits as an additional supportive treatment.[6] Research has shown that meditation interventions can be effective in reducing stress and mood disturbances in people with cancer, and can help to improve sleep.[7,8] Accumulating evidence

In Depth with the Global Digital Health 100

In January, we announced our 2020 Global Digital Health 100 recognising the most innovative health technology companies from around the world. With this year's cohort including new entrants from all sides of the technology spectrum, targeting just about every corner of healthcare, we take a look at some of the companies from this year's awards and discover what being featured in the final 100 means to those innovators.

One of biggest trends from this year's 100 is the growing adoption of data-led services across nearly all facets of healthcare. From automating critical, but repetitive, tasks for clinicians to speeding up disease diagnosis, the growing application of artificial intelligence and machine learning techniques across healthcare represents a maturing industry. Increasingly, these technologies are seen as go-to tools for supporting care provision and for automating common and high value administrative functions.

Delivering care, getting paid, and finding and engaging patients are all complicated propositions in today's challenging healthcare environment. Kareo is a US-based provider that supports physicians by making the business of running an independent practice easier through the automation of many essential tasks. By providing doctors with a solution that extends across all aspects of the practice the company enables a streamlined transition to digital working methods.

Dan Rodrigues, CEO of Kareo, said, "We're so honoured to be included in the Global Digital Health 100. Our cloud-based technology platform is the industry's leading solution designed to help physicians manage all major functions of their practices. We understand the daily challenges and struggles that these practices face as they navigate through the changing landscape of regulatory and reporting requirements, shifting payment and reimbursement processes, market consolidation and increasing competition. We are committed to solving these challenges and it is our mission to provide solutions that help practices provide better care, engage with patients, run a smarter business, and get paid faster. The independent practice is a vital, but often neglected segment of the healthcare arena, a segment that really makes up the backbone of the American healthcare system, and we are so proud to help them succeed and thrive."

EQL is another of our 2020 cohort applying AI as a strong alternative for telephone-based and remote physiotherapy services. The company's AI-driven chatbot, Phio, uses machine learning to adapt its behaviour to each user, giving it a 'personality' and the ability to absorb knowledge. It is designed to improve patient outcomes via an app and reduce the need for human intervention, thereby increasing efficiency and fast-tracking patient care.

Peter Grinbergs, of EQL commented, "We are absolutely thrilled to have been recognised in the 2020 Global Digital Health 100. To be listed amongst so many inspirational businesses is a real privilege. There aren't many sectors where the sole purpose is to improve health outcomes and better the quality of someone's life. We are incredibly passionate about what we do and our continued success is a testament to the drive and commitment of our exceptional team."

Diagnostic support and clinical guidance are other areas of growth in this year's list. Improvements to health data access is fuelling a growing cohort of providers looking to tackle disease recognition and identify improved treatment opportunities through data-driven techniques.

Paige.ai is a great example of how new models of technology-enabled decision making are driving faster and more accurate diagnoses. The company is developing novel deep learning algorithms based on convolutional and recurrent neural networks as well as generative models that are able to learn efficiently from an unprecedented wealth of visual and clinical data.

On being included in this year's Global Digital Health 100 Leo Grady, Paige CEO said; "We are honoured that Paige has received recognition on the Global Digital Health 100 as one of the top innovators in healthcare together with other leading-edge organizations. Our team, dedicated to innovation, creativity and quality, works tirelessly to understand and bring new insights to cancer diagnostics and treatment through proprietary artificial intelligence. Our powerful, clinical-grade computational technologies stand to transform the diagnosis and treatment of disease. We will continue to work to empower pathologists and oncologists, as well as pharmaceutical development teams to improve outcomes for cancer patients worldwide."

AI also has great potential to personalise care and coordinate digital resources to deliver more effective care at scale. NeuroFlow have had huge success applying these techniques to mental healthcare. The company's solution allows clinicians to see data from wearable devices, assign tasks for patients to complete at home and send automated motivational emails. NeuroFlow's platform aggregates mental health data and builds comprehensive patient profiles, which care teams can use to identify patterns and treatment decisions.

NeuroFlow's CEO and co-founder Chris Molaro said: "NeuroFlow is proud to be on the leading edge of companies using artificial intelligence to transform the way behavioural health is measured and managed. Recognitions like this continue to validate the need for technology that enables data-driven, measurement-based behavioural health in all care settings."

Aseptika is working on similar data-led patient management solutions for asthma. Dr Kevin Auton, Managing Director of Aseptika, commented, "We are delighted to have received this accolade again this year. Our most recent digital health initiative, Asthma+me, increases the knowledge and confidence of families with children that have moderate-to-severe asthma to self-manage. Improving skills, building expertise and having tools to forewarn of an asthma attack, all leading to better health outcomes, fewer hospital admissions and outpatient clinics means more time for children to attend school."

"Current development and integration of AI components during our RCT will significantly enhance the solution allowing disease status reporting to the specialist clinic, less clinician time and in-built expertise for patients and parents. The Asthma+me App is the first remote monitoring self-management solution in paediatric clinical trials, that allows risk stratification on need, a personalised-care approach, thereby reducing emergency admissions, improving patient safety and quality-of-life."

Technologies that underpin care coordination and provide accurate methods to monitor and assess patients are also growing in terms of use and effectiveness. Advanced ICU Care is a technology-enabled clinical services provider, featured in this year's Global Digital Health 100, that employs cutting edge tele-technology, experienced US board-certified intensivists, multiple dedicated tele-care delivery centres, and a proven implementation and client service approach to the benefit of patients, families, providers.

Lou Silverman, CEO of Advanced ICU Care, said; "Advanced ICU Care is honoured to be recognised for our innovation by inclusion in the Journal of mHealth Global Digital Health 100. Opportunities to positively impact critically ill patients, their families, hospitals, hospital systems, bedside teams, and the overall healthcare ecosystem don't come around very often. We have embraced the opportunity to lead the way in building a next generation healthcare delivery system, as we cared for 95,000 patients at nearly 100 partner hospitals in 2019. We continuously enhance the state of our technology and our technology-enabled clinical practice, and we will not rest until each patient in every ICU and telemetry unit across the country receives the most effective and efficient care possible. We are amazed daily at the consistently positive outcomes that are driven by this fusion of enlightened technology and dedicated, highly skilled clinical teams working collaboratively with partners at the bedside."

EarlySense, are also improving patient care through contact-free, continuous patient monitoring. Their innovative range of products gives clinicians constant, contact-free access to a patient's level of motion, heart rate and respiratory rate, and as a result improves operational efficiency and quality of care.

EarlySense's CEO Matt Johnson commented: "We are honoured to be recognised as one of the most innovative companies by The Journal of mHealth. At EarlySense, all of our team members strive to make contact-free continuous monitoring a standard of patient care. Recognition like the Global Digital Health 100 confirms our belief that our innovative solutions are making a difference in the care of patients worldwide."

To find out more go to *www.thejournalofmhealth.com/digital-health-100* ∎

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also indicates that music helps to reduce anxiety and fatigue, can help to alleviate pain,9 and can be an effective form of support for people undergoing treatment.[10]

Holistic care is vitally important for people with cancer; we need a management approach that treats the physical condition but also manages the emotional and psychological side effects. It is my hope that NatiaCares can provide this whole-person emotional and psychological support to as many people affected by cancer as possible.

ABOUT THE AUTHOR

John Muolo, founder of NatiaCares, was diagnosed with cancer in 1997 and has experienced the effects of cancer first-hand. John has practiced yoga and meditation for nearly 20 years, and had the idea for NatiaCares when reading research from a leading US cancer hospital reporting the benefits of Yoga for breast cancer patients. It is John's mission, through NatiaCares, to provide simple, kind and compassionate support to everyone who has been affected by cancer.

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INDUSTRY NEWS

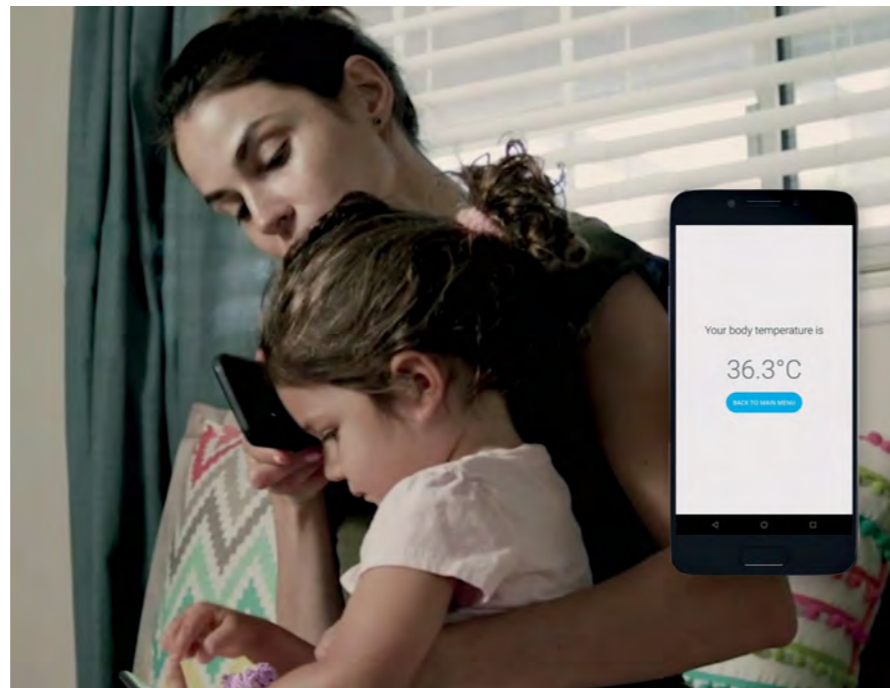## News and Information for Digital Health Professionals

Smartphones can Detect Symptoms of Infection

Global travel has led to rapid country-to-country spread of this latest virus and the need for accurate and rapid detection to minimize and contain the threat is on the top of every government's agenda. Mass screening is in place at many major airports inside and outside China to detect individuals who have a high temperature, a primary symptom. Thermal cameras enable observers to identify visually which people are hotter than others and need to be individually tested. This method demands the installation of devices and operators, backed up by medical personnel with thermometers. It's a huge logistical and budgetary headache, causes queues and is time-consuming. How much easier would it be if each person's temperature could be read with medical accuracy using only a smartphone?

LMD, the developer of regulated consumer healthcare products that is backed by major players within the mobile device industry, announces that its e-Checkup™ and V-Sensor technology is at an advanced stage of development and being trialled by phone companies in parallel with preparations for regulatory approval. The world's first medical device integrated into a smartphone that can measure five vital signs to medical accuracy, the company's V-Sensor and e-Checkup app measures body temperature in around 10 seconds.

Using only an e-Checkup-enabled smartphone, which has a thermopile built into its V-Sensor, a body temperature reading can be obtained in seconds with quick scan over the forehead. The accurate temperature result shows on the phone screen, no body contact is necessary; it's a quick, one-stage process. Individuals can easily check their own temperature as well as that of others and self-quarantine if it is too high, keeping them away from the hospital or doctor's surgery. With an e-Checkup-enabled phone, and a medically accurate temperature measurement no matter where the person may be at the time, he or she can simply call a physician or helpline for advice, a vital means of infection control. In addition to body temperature, LMD's V-Sensor and e-Checkup app can

also measure blood pressure (cuffless and calibration-free), blood oxygen level, pulse rate and respiration rate.

Mark-Eric Jones, CEO, comments: "e-Checkup is designed to meet all of the stringent requirements of NMPA as well as FDA and CE for safety, accuracy and reliability – no one is helped by an unreliable solution that has not been certified by regulators. The answer to better daily personal health monitoring, as well as during periods of widespread health concern such as the current Coronavirus outbreak, is about to be put into our hands, built into the smartphones we already carry every day." ■

Pioneering Algorithms to offer NHS Organisations AI Support for Lung Condition Imaging
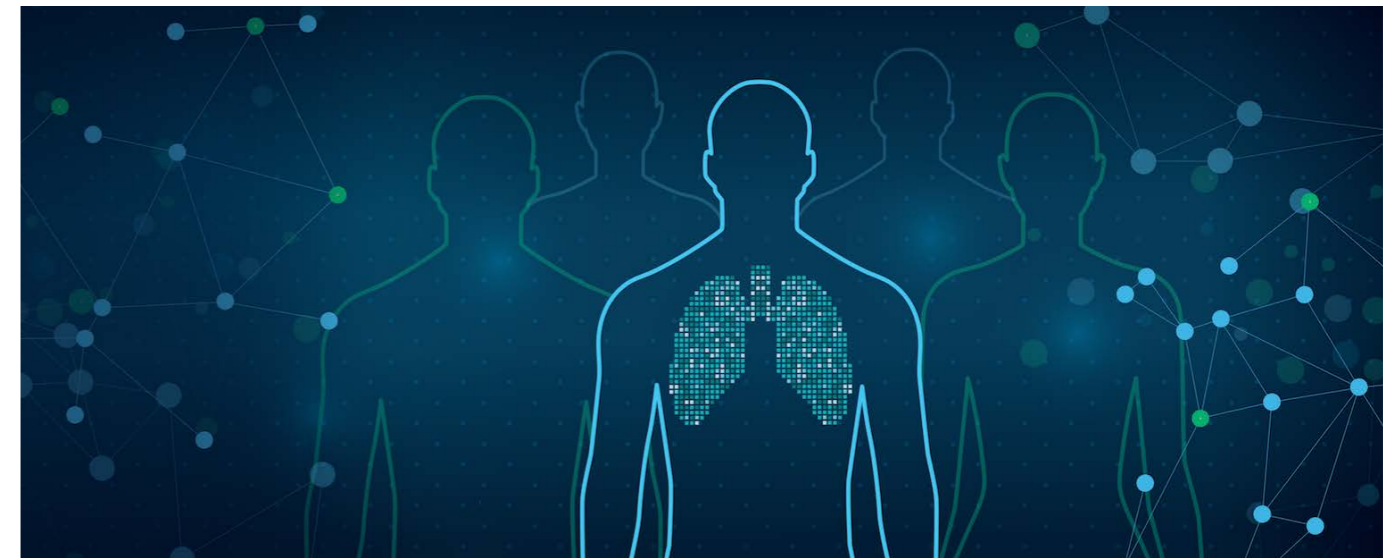
Connected healthcare specialist Wellbeing Software has announced a partnership with US-based artificial intelligence (AI) provider Imbio. The two companies will work together to provide a simple way for NHS organisations, in the UK, to use AI to support the diagnosis of patients with chronic lung and thoracic conditions.

Algorithms developed by Imbio, which has offices in the states of Minnesota and Wisconsin, enable clinicians to quickly analyse a patient's lung density and texture. This includes using advanced computer vision to transform a standard chest CT into a detailed map of lung textures in order to identify cases of interstitial lung disease (ILD) and other fibrotic conditions.

The company also has a range of additional algorithms currently at research stage, as well as partnerships with a number of leading clinics and universities, including the University of Michigan, Oregon Health & Science University and the prestigious Mayo Clinic, a US academic medical centre based in Rochester, Minnesota.

Imbio is the latest provider to make its technology available through Wellbeing Software's AI Connect platform, which enables hospitals to embed their chosen algorithms into their radiology workflow, no matter what RIS or PACS they're running.

As the leading provider of Radiology Information Systems to the NHS, Wellbeing's expertise in radiology workflow has already enabled trusts and organisations to speed up their adoption of AI. This has included the deployment of AI at Dartford & Gravesham NHS Trust, where Wellbeing's AI Connect platform has enabled the introduction of algorithms from AI provider behold.ai that are helping clinicians to triage imaging and prior-

itise workloads. AI Connect also provides a standard framework for the roll-out of multiple algorithms from multiple providers.

David Hannes, COO at Imbio, said: "More than one billion imaging studies are requested in the US and EU alone every year. But this explosion hasn't come with the tools clinicians need to see and interpret all of the information in each patient's images.

"With big data analysis and computer vision, our algorithms are able to turn standard medical images into rich visual maps of a patient's condition and reports that provide detailed data on the type and extent of abnormalities found in the patient images. This enables clinicians to see hidden information in the images and drive data-based, personalised patient care decisions from diagnosis, to therapy tracking, to planning for procedures.

"Wellbeing Software's understanding of radiology workflow within the NHS is unrivalled and their AI Connect platform will provide a quick way for trusts and organisations to see the benefits of our technology in action."

Graham Ridgway, CEO at Wellbeing Software, added: "We're committed to giving NHS organisations the best choice when it comes to the adoption of AI and are pleased to welcome Imbio and its pioneering algorithms to the AI Connect Programme and our newly launched AI Market Place, which highlights the different applications of AI we are making available.

"Algorithms, such as those created by Imbio, have the ability to drastically improve clinical workloads and patient care, but this only becomes a reality when the technology is matched with existing workflows and practices. By enabling this we hope to make the roll-out of AI as simple as possible." ■

Oviva Raises $21m to Roll out Digital Diabetes Treatment in Europe

Oviva, the leading digital provider of Type 2 diabetes treatment in Europe, has raised $21m in Series B funding. MTIP led the round, joined by Earlybird as new investors. Existing investors AlbionVC, F-Prime Capital, Eight Roads Ventures and Partech all participated.

The new capital will be used to further develop Oviva's technology and expand in Europe to serve the millions of patients not accessing treatment today. It brings the total amount raised by Oviva to date to $34m.

Oviva offers an evidence-based digital solution to stop the progression of and reverse Type 2 diabetes and obesity-related conditions. Patients receive tailored nutrition advice and personalised coaching via their phone. Oviva's technology-supported treatment has consistently demonstrated higher patient uptake, retention and outcomes at lower costs compared to face-to-face therapy. Oviva has treated 90,000 patients to-date across the UK, Germany, France, Switzerland and the UAE, consistently doubling each year for the last 3 years.

Lucy Jones, Clinical Director of Oviva commented: "Behaviour change is the safest and most cost-effective way of preventing and managing diet related health conditions including Type 2 diabetes. Our technology, empowers patients to take a leading role in managing their health, improves compliance and outcomes."

Kai Eberhardt, CEO and Co-founder of Oviva added: "The new financing allows us roll out our uniquely effective solution to large patient populations rapidly across Europe and further develop the underlying technology to better address patients' unmet needs."

Christoph Kausch, CEO of MTIP commented: "Oviva is a superb example of a digital health company with the potential to transform the lives of millions of people across the globe for the better. We're excited to become partners in their mission to improve access to effective diabetes- and obesity-management solutions in this next phase of the Company's growth."

Christoph Ruedig, Partner at AlbionVC stated: "Despite compelling evidence that digital treatments improve patient access and outcomes significantly while reducing costs for health systems, Europe is investing a fraction compared to the US in this area. We're excited to continue to support Oviva's accelerated roll out across Europe."

Christoph Kausch from MTIP and Rainer Christine from Earlybird will be joining Oviva's Board of Directors. ■

Dubai to Host 45th World Hospital Congress in 2021

Dubai will kick off the 45th edition of the World Hospital Congress (WHC) in 2021, under the theme 'Achieving Sustainability and How Should We Look in 2030?'. Organized by the Dubai Health Authority (DHA) in collaboration with the International Hospital Federation (IHF) and INDEX Conferences and Exhibitions, the 4-day annual World Hospital Congress, will be held from the 5th to the 8th of December, 2021.

IHF 2021-World Hospital Congress will gather world renowned hospitals, leading healthcare institutions, specialist doctors and industry professionals from across the globe, with the aim of addressing the most important healthcare challenges facing hospitals around the globe, how to cope up with ever increasing burden of diseases, facilitate superior services and

deliver excellence in healthcare for communities, societies and its people.

Commenting on the summit, Dr. Eric

Roodenbeke, CEO at IHF, said, "Dubai is an international hub that is highly attractive for premier world congresses for many reasons including access to seamless connectivity for travelers and guests, a pleasant and safe environment for visitors and participants and an excellent healthcare system that is continuously pursuing innovation. Additionally, for the IHF, our presence in the Middle East is highly important as we work closely with the East Mediterranean WHO regional office supporting hospital reforms and the professionalization of health service management. Moreover, I would like to underscore the role of DHA that has been for decades an active member of the IHF and stress the important role played by Dr. Abdul Salam Al Madani, IHF Advisor for the Middle East region, for many years in supporting IHF in Dubai and the region."

Dr. Muna Tahlak, Chief Executive Officer (CEO) of Latifa Women and Children Hospital of the Dubai Health Authority, member of the International Hospital Federation (IHF) and its Treasurer, said, "IHF is one of the most important international organizations whose history extends to 90 years, with members from across various hospital and healthcare organizations in the world. IHF is concerned with providing consultations, promoting the transfer and exchange of experiences, and supporting hospitals in the field of research and studies, and other matters related to health."

She pointed out that, "The IHF 2021 World Hospital Congress is aiming to achieve the goals and follow the directives of the federation, stressing that selecting the UAE for hosting this unique event is a success on its own as well as an important guarantee to achieve the desired objectives and aspirations of the country, which witnesses the presence and participation of a number of distinguished officials, experts, doctors and managers of health institutions from across the world."

The Congress will feature discussions on a number of topics addressing the most pressing global healthcare industry such as 'How do Hospitals, Clinics and Organizations continue to work and plan for sustainable infrastructures?' while other topics addressed during the conference include a session on 'Business Art Through Leadership', where experts will share their successful concepts and innovations in the healthcare industry, while another topic titled 'When to Build and When not to Build', features a discussion on the availability of hospital beds and who should make a final call about this decision.

In other sessions, 'The Technology Effect' session will focus on what will change and ways to seeing the blind spots in identifying challenges, while 'Predicting the Workforce Makeup in 2030' session will highlight who will be the workforce and what skills will be required to overcome future challenges. Meanwhile, a session titled 'Driving Prevention – Everyone's a Winner?' will speak about the obvious benefits of disease prevention and its impact on various healthcare institutions financially and strategically and 'Private vs Public -Business Models Shared', session will address how business models objectively differ. Additionally, 'Doing the Math's session will stress on the application of the smartest financial concepts and exploring the way forward.

IHF Dubai 2021 – World Hospital Congress will run from the 5th to the 8th of December, 2021 ■

Vezeeta Announces US$ 40 Million Series D Round

Vezeeta, Middle East and Africa's leading digital healthcare platform secured US$ 40 Million in its Series D round led by Gulf Capital, the Middle East's largest and most active alternative asset management firm. The round had strong support from existing investor, Saudi Technology Ventures (STV), who led Vezeeta's Series C round in September 2018.

The fundraising supports Vezeeta's mission to empower patients in Middle Eastern and African markets with its integrated digital healthcare platform. Vezeeta has grown to become a mainstream digital leader of health-tech solutions, enabling patients to search, book and review the best doctors and medical services in just one minute. Currently operating in 50 cities across Egypt, Saudi Arabia, Jordan and Lebanon, the platform generates 4 Million annual appointments, tripling year over year.

"Building a global healthcare powerhouse requires a strong investor base to support and drive continuous innovation and disruptive solutions. Gulf Capital provides us the perfect synergy for our future plans to diversify and expand our product portfolio on a global scale," said Amir Barsoum, Founder and CEO of Vezeeta.

With the support of STV in 2018, Vezeeta was able to bol-

ster its expansion plans primarily in Saudi Arabia. "Leveraging our technology, we have helped patients tap into the power of choice, and the power of information, to access the kind of healthcare that our users deserve. We will continue to cater to local health-related pains while expanding our product portfolio to many more markets," added Barsoum.

"Empowering patients and their families through technol- ➯

ogy to give them better access to healthcare services and more meaningful and manageable relationships with their healthcare providers has never been more important. We were impressed with the work that Amir and his team were doing and are excited to be working with Vezeeta on its next phase of growth. We believe that, with the right financial and operational support provided by the exceptional set of investors around the table, Amir and his team can scale up Vezeeta rapidly and position the Company as the undisputed leader in the healthcare technology sector in the region. This latest growth capital funding is Gulf Capital's sixth investment in the technology sector and highlights our commitment to capitalize on the fast growing New Economy in the Middle East," stated Dr Karim El Solh, Chief Executive Officer of Gulf Capital.

Raising more than US$63 Million in funds since its founding in 2012, Vezeeta's cohort of other high-profile investors also includes BECO Capital, Silicon Badia, Vostok New Ventures, Crescent Enterprises' CE-Ventures and Endeavour Catalyst.

Alvaro Abella, Director at Gulf Capital, who will be joining the Board, added, "Vezeeta is leading the digitization of the health care sector in our region, making it easier to book and confirm doctor appointments in real-time. We look forward to working closely with Vezeeta and to supporting the management's growth plans with the aim of continued digitization of other parts of the health care value chain."

In 2020, Vezeeta's growth plans include rolling out its new digital capabilities of ePharmacy and Tele-health across its existing footprint and new markets.

"We truly subscribe to the mission of improving healthcare using technology. The progress the company has achieved since our investment, especially in Saudi, is incredible. We are thrilled to double down on our position and to welcome Gulf Capital to the table. The next chapter for Vezeeta holds an even bigger opportunity, and we're excited to see Vezeeta continue its growth in Saudi where it has become the undisputed market leader and to tackle vertical healthcare opportunities head-on," commented Ahmad AlNaimi, Sr. Principal at STV.

These growth plans underline the company's commitment to creating value for patients and healthcare providers in emerging markets, by empowering them with data, ease of access and affordable solutions in healthcare.

"At Vezeeta, our vision is to make healthcare accessible, affordable and of better quality for all patients. This new development reaffirms the strength of our business, which continues to put patients at the heart of what we do," said Mohammad ElMougi, Chief Product Officer, Platform, Vezeeta. "For this very purpose, we are aggressively growing our R&D team to reinvent the patient's end-to-end journey," he added.

"Doctors' consultations and medication deliveries are key points of interests in healthcare. Medications alone account for 47 percent of the private healthcare opportunity, making ePharmacy a very exciting product," explained Maha Melhem, VP of ePharmacy. "By providing a fully digitized pharmaceutical experience, we are able to eliminate the many middlemen that not only slow down the process but also hinder patients' experience. Our multi-service ePharmacy channel is equipped to offer auto-refill services, medication reminders, seamless same-day deliveries and hassle-free secure online payments to all users, among other essential healthcare services," she added. ∎

Australian Hospital Leads the World with Patient Monitoring Trial

An Australian hospital has become the first in the world to use wireless monitoring technology hospital-wide, revolutionising its approach to the most basic process in healthcare – taking and recording patients' vital signs.

The trial of the Patient Status Engine (PSE) continuous patient monitoring platform has the potential to provide more time for nurses to interact and care for their patients and ultimately save lives by providing early warnings of life-threatening events.

Adjunct Professor Adam Scott, Royal Brisbane Women's Hospital Director of Cardiac Sciences, said all patients at the 20-bed Kilcoy hospital in rural

Queensland will be monitored with the technology.

He added: "We're really excited here at Metro North. Kilcoy Hospital is a rural facility but it is the first hospital globally that is implementing continuous wireless vital sign monitoring across the whole of the hospital. This is a massive achievement for a small hospital in a rural town here in Australia."

It is estimated that around 100 million patient vital signs are recorded manually by nurses every year in Australia, taking anywhere between five and ten minutes every bedside check.

"Today, in all parts of the world, resources in healthcare are enormously overstretched. We're thrilled to be able to use the Patient Status Engine to focus on improving the patient experience and giving staff what they want – more time with their patients," Professor Scott said.

A patient will usually have their 'obs' checked every four hours so the capability for vital sign monitoring to be done wirelessly and continuously means that every second their temperature, heart rate, ECG, respiration rate and oxygen saturations can be looked at and assessed so the moment a patient starts to deteriorate an alert can be raised.

Ben Magid, the chief technology officer at WH Tech Pty Ltd, the distributor of the Patient Status Engine in Australia, said: "We're extremely excited to partner with Kilcoy Hospital on this trial. The Patient Status Engine has the potential to be able to provide real time oversight of every patient simultaneously."

Keith Errey, co-founder and Chief Executive Officer of Isansys Lifecare, said: "As an Australian who has lived and worked overseas for many years to develop this technology, I am absolutely delighted to see the Patient Status Engine deployed at Kilcoy Hospital."

If the trial goes well, the technology could be used more widely, even allowing patients to recover at home whilst being monitored by hospital staff and could transform healthcare in rural areas.

"A quick calculation shows that if adopted across the whole country the PSE could provide a potential saving of around 15 million hours, a huge amount of time to give back to nurses to really care for their patients while at the same time, helping to address the looming crisis in nurse shortages in Australia." Mr Errey said. ∎

ADHERO To Be India's First Connected Smart Device for Respiratory Disease

A partnership between Aptar Pharma, a global leader in drug delivery systems, services and active packaging solutions, and Lupin Limited has led to the launch of India's first connected device for metered-dose inhalers (MDI) called ADHERO. This unique add-on smart device is designed to help patients with chronic respiratory diseases track their MDI usage and facilitate improved adherence to their prescribed therapy.

Inhalers are the preferred treatment option for managing the rising incidence of chronic respiratory diseases like asthma and chronic obstructive pulmonary disease (COPD) in India. However, it is estimated that nearly 45 percent of patients do not adhere to their therapy, including the filling and refilling of prescriptions or maintaining the prescribed medication schedule. This inconsistent adherence adversely impacts clinical outcomes and the patient's quality-of-life. This new device, ADHERO, is designed to improve patient adherence to therapy.

ADHERO is a bluetooth-enabled, reusable smart device that attaches to the top of an MDI. With built-in sensors, the device tracks the patient's daily medication usage and consumption patterns. Patients can access this information by connecting their ADHERO device to the "MyAdhero" app on their smartphones. The app is also equipped to send reminders, provide contextual health alerts based on factors like Air Quality Index at the patient's current location and enable visual analytics. Patients can also grant their physician access to their information and medical tracking data through the dashboard portal as well as the app.

Aptar Pharma collaborated with Navia Life Care to develop the

digital ecosystem for the MyAdhero App, which includes the Patient App, Care Provider App and the Doctor Portal.

Speaking about the launch, Rajeev Sibal, Lupin's President India Region Formulations said, "Lupin lays great emphasis on three aspects of respiratory medicine, namely disease awareness, diagnosis and adherence. The launch of ADHERO will be a great help to patients using metered dose inhalers as well as for doctors to track adherence and compliance to therapy, thereby improving clinical outcomes and the quality-of-life of patients."

Added Sai Shankar, Aptar Pharma's Vice President, Global Digital Healthcare Systems, "Aptar Pharma has been building a portfolio of connected devices within the digital medicines ecosystem. We are focused on integrating services across device development and manufacturing, the digital platform experience and implementation with the healthcare stakeholders. We are excited about the first launch of a connected inhaler program for respiratory diseases in India with Lupin Limited." ∎

Patchwork Partners with Wagestream to Help NHS Workers Access Wages Flexibly

Health technology company Patchwork, a workforce pioneer which collaborates with hospitals to solve the NHS staffing crisis, has announced a partnership with the income streaming solution Wagestream. This move will allow clinicians booking shifts through the Patchwork app to track and access their earned wages when they need it - without having to wait for payday.

Patchwork is already used across 30 NHS hospitals by over 10,000 clinicians and the platform has facilitated 1 million shift hours since launch. By integrating Wagesteam's market-leading solution into their offering, healthcare workers booking shifts through the Patchwork app will be able to access their wages as soon as they've been earned and access financial education in real-time, providing additional support to a vital community of clinicians and staff.

This partnership will further Patchwork's mission to bring greater flexibility and empowerment to the NHS workforce. Incorporating Wagestream into the Patchwork platform means clinicians can choose when and how often they get paid, keep track of their earnings in real time, and access budgeting tools. This collaboration aims to bring greater financial empowerment and wellness to thousands of healthcare workers.
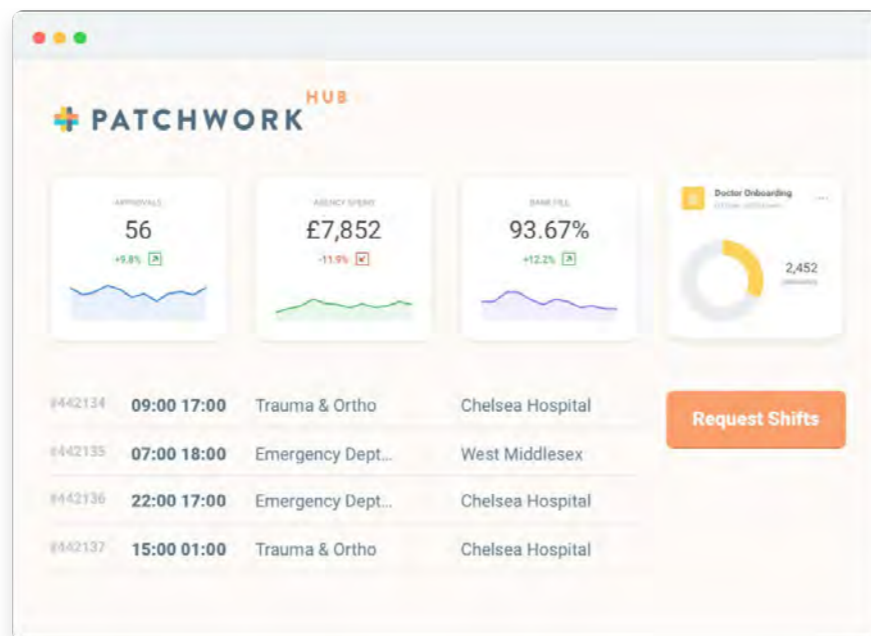
Patchwork CEO, Dr Anas Nader, comments; "Adding the power of Wagestream to our platform is another step towards creating a more flexible, streamlined, and dynamic working reality for NHS clinicians. We are seeing increasing numbers of healthcare workers leave the NHS citing poor work-life balance. Our technology is trying to redress this trend whilst removing the traditional financial burdens that temporary staffing can place on Trusts.

"Offering temporary health workers financial stability is incredibly important and a crucial move towards parity of experience between contracted and flexible staff. We conducted a thorough review of the market and it was clear that Wagestream not only offered the best product, but that they also shared our values. We are both looking to reduce friction, increase empowerment, and create a progressive working world that works for everyone."

The Wagestream feature is now being rolled out nationally and is available to all Trusts who use the Patchwork app to book shifts. ∎

Cegedim UK Announces the Launch of a New Mobile App for Healthcare Professionals

The app showcases Cegedim's powerful clinical decision support web-services which everyday enable over 5,000 pharmacies to dispense and over 4,000 GP's to safely select and prescribe medicines for patients. The app brings together technology and data to demonstrate the novel capabilities of Cegedim's solutions to support clinicians, solutions providers and healthcare providers to provide safe and effective care in a scalable and cost effective package.

The new online application is aimed at GPs, pharmacists and other healthcare professionals and provides access to up to date, unbiased and reliable medical information, for optimum clinical decision-making.

The App references Cegedim's drug database, curated to DM&D NHS standards and offers essential product level data that is regularly updated to ensure accurate healthcare information is readily available to healthcare professionals. With the easy to use interface, users can access a full set of details about specific drugs, including indications, contraindications, side effects, cautions of use and appropriate dosages.

This standalone application is free to use and does not require registration, allowing users to explore the app and its content with ease. The navigation is seamless with a search bar functionality and pages displaying clear and concise medical information across a vast age spectrum; from young children to the elderly with recommendations and risks to be aware of.

Cegedim UK's Group Managing Director, Steve Bradley comments: "Having successfully supported Cegedim's UK solutions for over a decade the technology behind the app is now available for the healthcare technology market to use to deliver innovation to patients, clinicians and providers. Cegedim's solutions provide a compelling alternative to the market allowing healthcare professionals the chance to explore medical information at ease without the need to be in proximity of their clinical system giving them confidence in clinical decision making at any time or place."

With over 25 years of curating clinical data for its own NHS accredited primary care prescribing and dispensing software systems, Cegedim's latest app sees the company becoming a clinical data contributor in the application world, for the first time. The health and medical industry, formulary known as mHealth is now a global term and has been named as one of the top three fields facing growing popularity. Mobile health has the ability to redefine the overall healthcare system by improving efficiency, communication, costs and quality of the healthcare services on offer. ∎

GP Practices to Avoid Hazardous Prescribing with Help from New Tech

More than 4,000 GP practices in England are being better empowered to avoid hazardous prescribing, following a key enhancement to a prescribing decision support technology used widely across the country.

Crucial 'PINCER' prescribing safety indicators, currently being rolled out nationally to avoid errors and hazardous prescribing, will now be flagged directly to thousands of GPs and other primary care prescribers when relevant prescribing decisions are made in the practice for patients.

In practice, FDB's (First Databank) OptimiseRx technology, a medicines management system currently used across two thirds of clinical commissioning groups, will now alert GPs and other primary care prescribers, either at point of prescription or reauthorising of medications, when PINCER safety indicators are relevant for specific patients.

The development complements a national drive for the use of the indicators by specially-trained pharmacists in primary care, which is a key part of the NHS England's strategy for reducing harm from medications in the NHS. In addition, practices in England will be uploading their PINCER results to a national database for analysis purposes.

Research suggests that serious errors are believed to affect one in 550 prescription items, while hazardous prescribing in general practice has been said to contribute to around 1 in 25 hospital admissions.

For the national roll-out, a combination of earlier sets of PINCER indicators in the original research trial, and subsequent programmes of work, are being used which are focused on both prescribing and monitoring aspects of medication safety.

The PINCER intervention helps identify patients at risk of hazardous prescribing. Using the principles of root cause analysis, a pharmacist then works with the practice to draw up action plans to address any immediate risk, and changes to systems and processes required to prevent any error from recurring.

To further mitigate the potential for hazardous prescribing, the indicators are now being made visible to GPs and other primary care prescribers in OptimiseRx. This is through a national partnership between FDB, the leading provider of drug knowledge for healthcare professionals, and the University of Nottingham's PRIMIS team, who are leading on the national roll-out of the PINCER intervention in partnership with the national network of Academic Health Science Networks. FDB is one of the first delivery partners to implement the PINCER Prescribing Safety Indicators through a software solution.

The OptimiseRx technology's overall focus is helping GPs and other prescribers make decisions that comply with local and national prescribing priorities. This includes alerting them when more cost-effective alternatives are available, and by providing patient-specific prescribing recommendations based on the patient's record to ensure safe and effective prescribing.

Kerry Oliver, managing director of PRIMIS, said: "The agreement to embed the PINCER indicators in OptimiseRx provides enormous reach for what will be of vital benefit to key prescribing decisions within thousands of practices throughout England.

"Including them in such a widely used medicines management system will be an important factor for the sustainability ⇨

of the PINCER indicators, emphasising their role in evolving knowledge and processes that help to prevent medication errors from recurring."

Darren Nichols, UK managing director at FDB, said: "Our national partnership with PRIMIS is a crucial development in our providing GP practices with the necessary guidance and support to ensure they are alerted to potentially hazardous prescribing.

"We have listened to clinical commissioners and prescribers across the country who see the inclusion of the latest PINCER indicators within OptimiseRx as an important component of their adoption of national policies for helping to safeguard patients.

"Every day thousands of GP practices already draw on alerts within the technology to help them make the best prescribing decisions for patients, with primary care professionals prompted when best practice might indicate there could be better alternatives for patients. This important upgrade to the system with additional indicators will make those prompts even more comprehensive." ■

Project to Predict Cardiovascular Events Receives Heart Research UK Grant
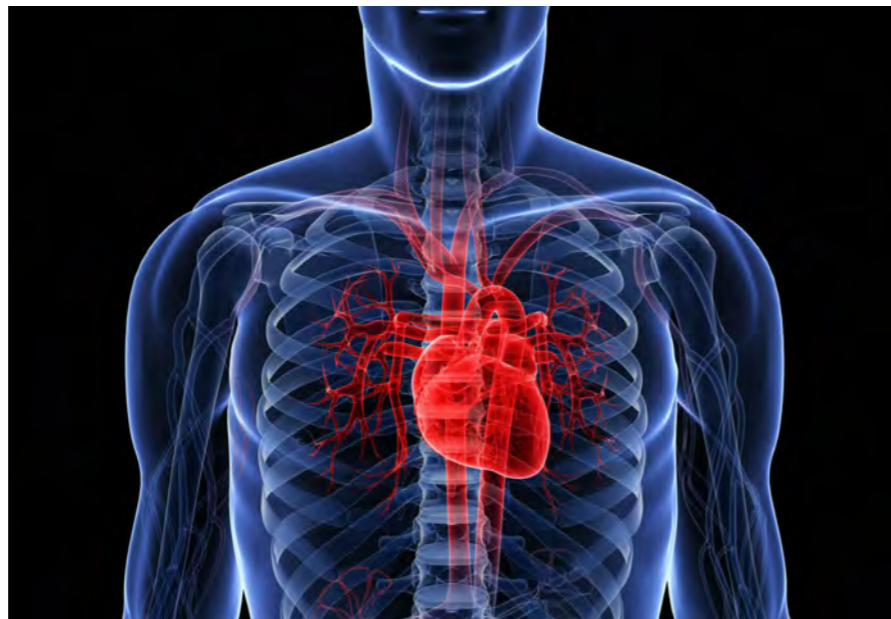
A project at the University of Manchester aiming to develop a new tool for predicting the risk of a cardiovascular event or death in patients who have already suffered a heart attack has received a grant of almost £150,000 from national charity Heart Research UK.

In the UK, around 7 million people are living with cardiovascular disease (CVD), which is responsible for one in four deaths. People with CVD are up to five times more likely to have a stroke, are six times more likely to die compared to those without, and up to half of them suffer a second heart attack.

There are currently no methods to predict the risk in this group of patients, so there is an urgent need for such tools to help assess the risk of future cardiovascular events and deaths in patients who already have CVD.

The project, which will be led by Prof Mamas Mamas, Professor of Cardiology at Keele University and Honorary Professor of Population Health at the University of Manchester, will use medical data to develop a tool that predicts the risk of a future cardiovascular event or death, in people who have already had a heart attack with the aim of improving care of patients with CVD.

The development of such a tool would improve the quality of care for patients with CVD by helping GPs to identify patients at higher risk of future cardiovascular events and death, meaning that lifestyle changes can be made or appropriate medical treat-

ment given to reduce their risk.

Prof Mamas said: "This is an incredibly exciting project that we hope will be able to make a real difference to survivors of heart attacks. If we can accurately predict the likelihood of them suffering another cardiovascular event, then we can intervene early and hopefully reduce their risk.

"This will not only help to improve their quality of life, but could ensure that patients receive care tailored to their condition, increasing its effectiveness and helping to reduce the strain on our health service."

Kate Bratt-Farrar, Chief Executive of Heart Research UK, said: "We are delighted to be supporting the work of Prof Mamas and his team, which has the

potential to have a big impact on how effective we can be at preventing people suffering from a cardiovascular event.

"Our Translational Research Project Grants are all about bridging the gap between laboratory-based scientific research and patient care - they aim to bring the latest developments to patients as soon as possible.

"The dedication we see from UK researchers is both encouraging and impressive and we at Heart Research UK are proud to be part of it."

The £147,816 Translational Research Project grant was awarded to the University of Manchester as part of Heart Research UK's annual awards for research into the prevention, treatment and cure of heart disease. ■

AI Tool Shows Potential to Improve Speed of Lung Cancer Detection

An algorithm developed by UK tech start-up company behold.ai has been found to competently identify potential cancers in the lungs. The work was presented at the British Thoracic Oncology Group (BTOG) annual conference in Dublin on 29 January 2020.

Working with a team at the University Hospitals of Leicester NHS Trust, the software was run on the chest X-rays of 1,513 patients who had a GP direct referral for a chest X-ray over a two-week period in June and July 2019. The algorithm works by delivering an 'instant triage' of each X-ray within seconds.

Although all 1,513 examinations were analysed using the algorithm, the team was specifically interested in cases that were referred by a radiologist or reporting radiographer for a CT scan directly after X-ray, to confirm or rule out cancer.

The hospital radiology team suspected cancer in 39 out of the 1,513 X-rays and referred those 39 patients for a CT scan of the chest. Of the 39 suspected cases, 11 were eventually confirmed histologically to be cancer (through a tissue sample tested in the laboratory).

The algorithm correctly identified the presence and location of 10 out of the 11 histologically confirmed cancers. Therefore had the technology been used to triage cancer patients it could potentially save time to diagnosis on CT scans in most of these patients.

"The AI project is in its early days, but the initial outcomes are very promising. The next steps would be to run clinical trials to create a sound evidence base to demonstrate that it is both safe and beneficial in clinical practice," said Dr Indrajeet Das, a consultant radiologist at University Hospitals of Leicester NHS Trust, who worked on the project.

The National Optimal Lung Cancer Pathway (NOLCP) recommends that all routine or urgent chest X-rays referred by the GP
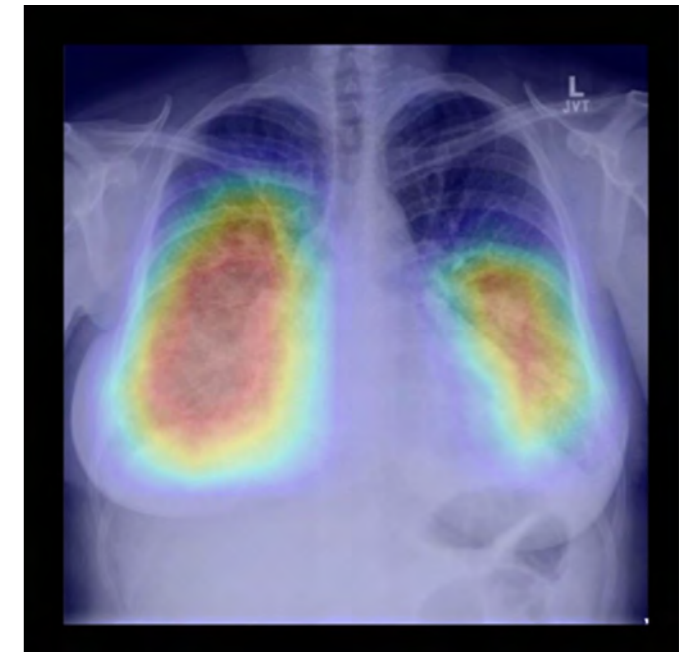
for suspected lung cancer should be reported within 24 hours. According to the latest Radiology Review by the Care Quality Commission, NHS hospitals are faced with increasing numbers of chest X-rays and scans and some trusts have reported backlogs in reporting the results(1). An algorithm which could identify the abnormal radiographs rapidly would quickly enable medical staff to prioritise the most urgent cases first.

"We are working with a number of hospitals in the UK, USA and India," said Dr Thomas Naunton-Morgan, behold.ai's Medical Director. "Radiologists, like those in the team we worked with in Leicester are keen to report the abnormal scans first, shortening the turnaround time for the patients that need the most urgent care. Therefore the potential for our algorithm to support this care pathway is a very exciting prospect." ■

PatchAi Launches Cognitive Platform for Analysis of Clinical Trial Data

PatchAi has announced that it has closed two rounds of fundraising for about 900 thousand euros during 2019, which will help increase the availability of its empathic virtual assistant to patients participating in clinical trials.

In the last 15 months, the Padua based startup, led by CEO Alessandro Monterosso, has emerged victorious in 10 national and international competitions for over 300 thousand euros in prize money and services. The company has been accelerated by Unicredit Startup Lab and the European Institute of Technology (EIT Health) and now collaborates with international players such as IBM and HIT - University of Padua.

In an era of transition to value-based healthcare, where patient centricity and real-time data generation (RWE) play a key role, the implementation of innovative digital solutions can provide double the value in improving patient care and collecting valuable healthcare data, reducing not only distance and time but also the costs of innovative drug trials.

In this scenario, PatchAi presents itself as the first cognitive platform offering an empathic virtual assistant for the collection and predictive analysis of patient reported data in Clinical Trials, opening the doors to a new frontier in patient engagement through the adoption of conversational ePRO1 (Co-PROTM).

The idea was born in the hospital wards across different countries where the 4 founders - Alessandro Monterosso, Filip Ivancic, Kumara Palanivel and Daniele Farro - worked in clinical research covering different roles (doctors, nurses, pharmacologists) and were able to experience first-hand the unexpressed needs of patients, communication barriers and often obsolete data collection practices.

The team then convened at SDA Bocconi School of Management and, thanks to their participation in the Cariplo Factory's BioUpper acceleration program, they began working on the implementation of the idea, acquainting themselves with the main stakeholders in the sector.

The company now offers a Class I medical device, pending authorization, that uses technologies such as Artificial Intelligence and Machine Learning and integrates an empathic virtual assistant built on IBM® Watson. This technological integration makes it possible to assess patient needs, implement personalised strategies to achieve and maintain patient engagement, and collect valuable real world data on symptomatology, adverse events, therapy adherence and quality of life.

"Our next goal - says CEO Alessandro Monterosso - is to invest further in research and product development, continuing to focus on the internationalization of the market outreach and expansion into the B2C segment. All this so that "patient centricity" does not remain merely a concept but is translated into active patient involvement and improvement of their quality of life during clinical trials". ■

Upcoming events

November 2020

9-10
Medical Imaging Convention
Birmingham, UK
For more information visit www.imagingconvention.com

9-10
European Neuro Convention
Birmingham, UK
For more information visit www.neuroconvention.com

9-10
Oncology Convention
Birmingham, UK
For more information visit www.oncologyconvention.com

April 2020

15-16
Emergency Show
London, UK
For more information visit www.emergencyshow.london

May 2020

25-27
The MedTech Forum
Berlin, Germany
For more information visit http://www.themedtechforum.eu/

June 2020

24-25
Digital Healthcare Show
London, UK
For more information visit www.digitalhealthcareshow.com

30-1
MedFIT
Grenoble, France
For more information visit https://www.medfit-event.com

September '20

28
SEHTA International MedTech
London, UK
For more information visit www.sehtamedtechexpo.co.uk

29-30
HETT 2020
London, UK
For more information visit www.hettshow.co.uk

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