DIGITAL ECOSYSTEMS AND THE CHANGING HEALTH LANDSCAPE

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Welcome

As 2021 draws to a close we would like to take this opportunity to thank all our readers for another year of incredible support!

The audience of the Journal of mHealth has grown considerably over the past few years as the shift towards digital healthcare transformation accelerates and we are very pleased to have become one of the leading resources for insights, trends, and practical support for navigating the changing digital healthcare landscape. As we look forward to 2022, we will be looking to provide new and exciting resources designed to help our readers stay at the forefront of the digital health revolution.

In this final edition or the year, we bring together a range of content that analyses the ways that Digital Ecosystems are Changing the Health Landscape. We consider the impact that these ecosystems are having on different aspects of healthcare provision, from radiology to diagnostics and drug development to training, and discuss the implications for the industry going forward.

Managing these intersecting digital ecosystems is becoming the new challenge for healthcare. With the implementation of technology-led care at an all-time high, technology and data are rapidly becoming the foundation of healthcare delivery. There is therefore a growing need to strategically manage the way that these technologies interact and ensure that data flows between different aspects of care delivery in intelligent and efficient ways.

Knowing the pressure that healthcare professionals have faced over the past couple of years, we would also like to take this opportunity to recognize the amazing commitment that so many have provided. Those within the healthcare community continue to face what must seem like never-ending challenges, leading to significant stresses for all, and for that we wish to express our heartfelt thanks!

From all the team at The Journal of mHealth we wish our readers all the very best for the New Year and hope that 2022 will prove to be a year of hope and fulfilment!

Matthew Driver
Editor
The Next Frontier: How Integrated Digital Ecosystems will Drive the Future of Healthcare

How Integrated Digital Ecosystems will Drive the Future of Healthcare

Building mature, fully integrated digital ecosystems, with cutting-edge technologies at their centre, will lay the foundations for world-leading and efficient care that makes a real difference for patients, writes Hani Abou-balka, Company Group Chairman, Johnson & Johnson Medical Devices Companies, EMEA.

The COVID-19 pandemic will leave many legacies for the healthcare industry. Many are obvious, such as the increased prominence of health in the public mindset, or the close co-operation between healthcare systems, industry, academia, and Governments to deliver game-changing solutions when needed, most obviously with the vaccine development and roll-out.

A more surprising legacy, however, is the rapid acceleration in uptake of digital technologies in healthcare. For example, right now, we know close to 50% of physicians and diagnostic specialists are using telehealth to treat patients, compared to just 10% pre COVID [1]. To me, this demonstrates that healthcare systems have the ingenuity and drive to innovate and utilise digital technologies - and that industry has the ability and willingness to meet these needs.

The trends underlying this shift were already there. Think of value-based healthcare, which links cost efficiency with the ability and willingness to meet these needs.

What’s clear however is that COVID-19 has been a catalyst for the accelerated use of such technology. Now, as we tentatively emerge from the pandemic, thanks in a large part to successful vaccination programmes, the question remains: with ever increasing elective surgery backlogs, how can we maintain this momentum with digital technologies and future-proof our healthcare systems to deliver the triple aim of improving outcomes, lowering cost, and increasing access? The answer, I believe, lies in building integrated ecosystems that connect the care pathway: pre-operative, in the OR, and post-operative care.

We know the vital benefits that technology can bring, particularly in limiting variation whilst improving patient outcomes. But too often we can focus on the individual pieces of technology, for example, the cutting-edge robots used in surgery. These are of course amazing innovations, but digital therapeutics is not just about individual solutions and technologies; no matter how eye-catching and exciting they might be. It is also about the vital framework around these solutions with policies for data, data ownership, and data privacy. By looking at the whole pathway, and ensuring as much connectivity as possible, healthcare systems can lay the groundwork to capitalise on the full benefits that digital technology has to offer.

We need to imagine an integrated digital ecosystem that can connect all digital products and services. This will mean that anonymised data can be analysed, shared, and used to enhance existing solutions, and develop new modules that meet existing and future trends. Such a system also benefits patients by making the care pathway smoother, simpler and less stressful. It would reduce delays, allow patients to access care quicker and easily through remote connectivity, remove hospital system pain points, and improve efficiency.

At Johnson & Johnson, we are reimagining the future of health today by working to make such an ecosystem a reality. Our combined pharmaceutical, consumer health and medical technology expertise, alongside our global footprint, uniquely positions us to innovate next generation digital solutions.

We are developing a connected ecosystem of digital products and solutions that reimagines the entire patient journey - building an integrated digital ecosystem that will connect all digital products and services, leveraging data science capabilities to generate deep insights powered by predictive analytics, machine learning and artificial intelligence.

We envision that this digital ecosystem can be embedded and accessed within existing hospital IT infrastructure so customers can focus on improving patient pathways, digital surgery and OR management. They will be able to gain insights and download apps and modules within different healthcare settings to manage the complete end-to-end patient pathway. Such an interconnected digital platform will allow us to continue developing next generation robotics, best-in-class surgical instruments, advanced visualisation and imaging tools, and digital solutions with AI and machine learning capabilities to drive the industry forward.

But industry cannot do this alone, and we need strong partnerships with healthcare systems, just like the ones forged during the midst of the pandemic, to implement and embed these ecosystems. The benefits of such partnership for healthcare systems are clear: delivering improved patient experience through faster diagnosis, better pre-operative planning, more precise surgery, and better post-operative care; more insights and learnings for physicians who can also treat more patients (even remotely in overseas settings); overall greater efficiency in hospital and clinical settings; and reduced costs.

The foundations for this within healthcare systems are already there. 70% of European HCPs consider themselves digital natives [2,3] and we’ve seen through the pandemic how quickly healthcare systems can adopt innovation.

I believe the time is now, when the world is finally able to start thinking about life after COVID, that industry and healthcare systems must capitalise on existing expertise and momentum. It is only by working together that we can build the mature digital ecosystems of the future – the kind of ecosystems that we need to fully embrace the revolution in medical technologies, and to ensure we deliver world-leading and efficient care.

Global Macro Trends in Radiology

Philip Bennnall, Product Strategy Manager and Clinical Lead at Wellbeing Software, discusses the five trends we can expect to see in 2022.

It is widely acknowledged that 2020 and 2021 have been two of the toughest years on record for the healthcare sector. With cancellation lists growing by the day and millions of patients still waiting for consultations, scans, or operations, the pressure on staff and infrastructure has been considerable.

Even before the COVID-19 pandemic, experts identified that 45% of radiologists experienced some form of burnout, mainly due to being overwhelmed by the administrative burden of the job and the substantial number of images that needed to be checked manually.

Adding to the pressure is the worldwide shortage of radiologists, significantly impacting screening services. The Clinical Radiology UK Workforce Census 2020 suggests that by 2025 there will be a 44% shortfall in the clinical radiology workforce, further burdening the existing radiology cohort.

Outdated infrastructure is also an issue. In the US there has been a huge drive to encourage healthcare facilities to adopt electronic health records, as there is no centralised system for patient data. So much so, the government has created a $27 billion incentive program to drive home the benefits of digital systems.

On the upside, the impact of the pandemic has given medical institutions an insight into the future of healthcare through an accelerated adoption of technology. In this article we will look in more detail at five trends we are expecting to see in radiology for 2022.

Artificial Intelligence

The adoption of innovative technologies can create significant benefits for individual workloads. Tools such as Artificial Intelligence (AI) and the infrastructure that supports it enable radiology
departments to share information accurately, rapidly, and securely between multiple users and organisations.

AI can also help address the shortfall in radiologists. Through machine learning, the software has the potential to review and score scans much faster than the human eye. This is not to say it is physically replacing people but working alongside them to reduce the time necessary for certain tasks and improve overall efficiency.

For example, The Royal Australian and New Zealand College of Radiologists (RANZCR) recently reported a 27% increase in breast cancer detection rates as a result of using AI. It also found that by using artificial intelligence-based computer aid detection software, false marks fell by a remarkable 69%.

One element of artificial intelligence that has seen a sharp increase in demand is deep learning. This subset of AI has proven to be more adept when it comes to ingesting medical data and extracting valuable insights. Experts believe that the use of AI and deep learning will only continue to rise, with the expectation that the global AI radiology market value will exceed £180 million by 2025.

**Connected Radiology**

A report published in 2015 suggested radiologists needed to review an image every 3-4 seconds to keep up with their workloads, which has further highlighted the value of AI and connected systems.

Allowing radiology departments to share resources, improve workflow and reduce the impact of backlogs can add immense value. For this reason, we are seeing more healthcare facilities shifting toward shared imaging networks, as seen in the South West of England.

Pivoting to connected solutions not only helps mitigate burnout but should also be seen as an investment that enables ongoing improvements to diagnostics and patient care. With such main on radiologists, a connected approach enables radiology departments to analyse complex data, reduce errors and increase efficiency.

**Integrated Diagnostics**

A clear focus for the NHS in 2022 will be addressing the vast backlog of outpatient appointments. In the 12 months to March 2021 over 20 million patients received cancellations due to the knock-on effects of COVID-19, so embracing products and services that drive improvements across departments will be key.

For example, the right technology provides healthcare facilities and medical professionals with access to vast amounts of data to inform patient prognosis and reduce the backlog of cancellations. There is no doubt the pandemic has accelerated the use of integrated diagnostics in hospitals. By integrating data and systems across diagnostic services, we can reduce the time and expense spent on processes and provide clinicians with faster access to complete result sets, speeding up clinical decisions and the commencement of treatment.

As a result, the Industrial Strategy Challenge Fund is providing over £200 million to support the development of precision medicine to improve early diagnosis and treatment. The aim of the fund is to encourage academics and professionals to increase their use of health and research data.

**RIS Reporting**

With increasing demand for integrated information systems, the lines between PACS and RIS are becoming less defined. However, there are fundamental differences and limitations that dictate the role each plays in radiology.

While PACS has its strengths in radiology imaging systems - storing and retrieving medical images - a RIS streamlines department workflow and manages critical functions such as reporting, order entry, tracking and inventory. It is important that a PACS and RIS integrate seamlessly to ensure patients move through the radiology department quickly and safely.

Moving forward there is a clear need for a more comprehensive and integrated system able to process vast volumes of imagery and reduce manual workloads. This places radiology at the forefront of professions able to drive and make the most of digital acceleration in 2022 and beyond.

**Virtual Working**

The pandemic has forced the world to adapt to remote working and radiologists are no different. In fact, COVID-19 has accelerated a shift from manual processes to digital platforms in the healthcare sector. AI can be integrated into any Picture Archiving and Communications System (PACS), which not only reduces the administrative burden on individuals but also enables them to work from home in an environment that allows complete focus on reviewing imagery.

With social distancing measures in place and a greater emphasis on remote working, radiologists need to be able to access reports, even when they are away from the original scan site. By bringing data together, radiologists across the country can always have instant access to the same centralised patient record. This helps them share resources and access scans remotely to make faster and better-informed decisions, enabling patients to move more seamlessly between sites and services.

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**The new age of virtual clinical trials**

When the WHO first announced that COVID-19 was a pandemic, governments all over the world took drastic steps to keep people from catching the disease, starting with lockdowns, travel restrictions and social distancing measures. Whilst this limited the spread of the virus, it also completely speeded up the traditional model of clinical trials, with patients coming into clinical sites for their regular visits suddenly becoming a major safety concern.

The pandemic emphasised that the tools and technologies the industry traditionally relied on for clinical trials were simply not fit for purpose in a digital-first world. New technologies and digital tools have been around for years, but the systematic adoption has been slow. In a report surveying senior leaders in the life sciences industry, many were amazed that the sector managed to develop, test and approve so many vaccines in such a short time. 76% of companies admitted that the processes they relied on at the start of the pandemic were outdated, and this was preventing them from working remotely and collaboratively. More challenging still, 62% struggled to even access valuable COVID-19 research due to these outdated processes.

As a result, 84% of life sciences companies in the UK have accelerated their adoption of digital tools for clinical trials as a direct response to the pandemic.

**Driving adoption of virtual trials**

In response to the pandemic and global lockdowns the industry rapidly and universally pivoted to embrace virtual, or decentralised, clinical trials with the support of digital tools. This shifted traditionally site-based tasks into the safety and, ultimately, convenience, of patients’ own home - conducting visits via telemedicine solutions, capturing key endpoint data with tools like eCOA (electronic clinical outcome assessments) on smartphones, and engaging with patients remotely. This foundational shift supported the development of vaccines against COVID-19 in record timeframes to treat millions of patients across the globe. The Moderna vaccine trial, for example, is one of the largest trials to incorporate data capture directly from participants using their own smartphones, simplifying participation and decreasing the need for site visits.

By adopting this decentralised approach to clinical trials, the life sciences sector has shown that it can operate at a much faster rate, whilst also reducing margins for errors and improving the testing process for both researchers and patients. This also effectively solves one of the biggest challenges in the pharmaceutical industry – patient recruitment and retention. Research teams are no longer able to reach patients across the world and, more importantly, patients tend to have a better experience in the trial. As a result, companies have been implementing more digital tools in the hopes of getting new drugs and treatments to patients faster.
Reinventing Clinical Trials with Virtual Technology

Beyond the immediate impact embracing digital tools has universally had on clinical research, there are even greater revolutions on the horizon. Through the use of big data, artificial intelligence and digital simulation tools, researchers are beginning to build virtual models of organs to study and test on. For example, The Living Heart Project is already well underway to serve as a common technology base for education and training, medical device design, testing and clinical diagnosis. Additionally, tools like a Synthetic Control Arm™, where historic patient data is used to mimic a control arm in a clinical trial, minimizes the need to put patients on placebo.

In the future, the ambition of the industry is to run a clinical trial on an individual’s virtual twin – testing all kinds of doses and treatment combinations to identify exactly what will work best for a patient’s genetic profile without having to actually administer any drug to the individual themselves until the most effective solution has been identified.

Beyond the pandemic

COVID-19 has brought many challenges to the industry. More than two thirds of life sciences companies had to put research into other treatments on hold. However, as the vaccine rollout programme continues, the industry needs to start looking at life beyond COVID-19.

Since the pandemic, the life sciences sector has proven that it can adapt to a radical change in operations. There is now a greater need for improved collaboration across teams and organisations to speed up the entire clinical trial process. Luckily, the same tools used by the industry to tackle one of the biggest public health crises of the 21st century can also be used to devise treatments for lesser-known diseases.

Decentralised clinical trials can help aid drug discovery, the launch of new drugs and medical devices and provide the right kind of patient care in any environment. Using better data management tools can help healthcare companies become more diverse and adaptable, opening the clinical trial process to a wider pool of participants that are more representative of the patient population. As we look to the world post-COVID, it is time to start normalising the process of virtual clinical trials for any condition and creating a new era of preventative care for all.

And this is just the beginning – through the eventual use of virtual twins, research and development will reach a whole new horizon.

Make Time to Focus on POCUS

With its potential to facilitate and expedite clinical diagnosis and increase the accuracy of many medical procedures, point-of-care ultrasound (POCUS) is being increasingly adopted throughout hospitals and the wider healthcare system.

POCUS provides patients the opportunity to see their images with their clinicians, helping them to understand their diagnosis, which can lead to greater engagement and compliance. From a healthcare provider’s perspective, the technology offers a way to reduce costs, avoid the need to move a patient across the facility and bring a more collaborative approach to patient care.

However, to truly fulfil its potential, the POCUS solution must offer not only medical functionality and accuracy but also fit seamlessly into the healthcare provider’s wider Imaging IT systems or Picture Archiving and Communications System (PACS). It is only then that healthcare professionals can acquire the complete and accurate medical imaging record they need to ensure quality of outcome and care for each patient.

Overcoming metadata issues

Unfortunately, not all POCUS technology can do what’s described above. Some, for example, don’t possess the worklist features that are typically common to larger departments, for example, radiology. This means that images captured on POCUS devices cannot be easily or automatically incorporated into core enterprise systems, such as the electronic medical record (EMR) or PACS. While PACS, for instance, may be good at managing the flow of DICOM images within departments, it’s much less effective when it comes to assimilating non-DICOM assets.

Any attempt to migrate data manually between systems is time-consuming and likely to lead to errors in transcription, with the consequent inclusion of ‘rough data’ into a patient’s records.

However, this kind of functionality gap can be removed if the POCUS platform has the capability to automatically resolve issues relating to incomplete or incorrect metadata, for example involving order or accession numbers, then index and forward the revised studies to the appropriate destination. Automating the indexing of POCUS images, which often lack a formal radiology order, allows them to be indexed to the patient record in the EMR.

Avoiding clinical blind spots

Having the capacity to do this is a much better solution than being forced to create multiple PACS or siloed imaging systems for different departments, such as radiology and cardiology, ensuring there is no disruption to a healthcare organisation’s approach to referential or interpretive viewing. So once POCUS studies are stored in Hyland’s Aucu VNA, they can be made available enterprise-wide through the web-based NilRead enterprise diagnostic viewer, allowing images from any modality to be accessed and referenced by clinicians on any personal computer or mobile device.

This allows clinicians to retain autonomy over access to an image and its manipulation and sharing, while contributing to cross-disciplinary, patient-centred care.

Scale and flexibility

The use of point-of-care imaging is only going to increase as technology evolves and clinicians become more confident using it. As it is, POCUS images already make up a significant portion of clinically relevant data that needs to be incorporated into wider systems.

So, it’s critical that healthcare organisations recognise the importance of having a common enterprise-wide imaging framework that can be easily expanded and reshaped to changing needs. That requires a degree of interoperability that can’t be achieved without an open, standards based, vendor neutral archive system.

As we’ve seen, there’s an opportunity to do this if a solution is chosen with collaboration among key stakeholders in mind. That way POCUS can make a significant contribution to the enterprise-wide imaging picture that aims to improve patient outcomes, which after all is the whole point of caring.

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Salignostics Set to Commercialize World’s First Rapid Saliva-Based Pregnancy Test Kit

Israeli medical startup Salignostics has begun commercializing Salistick, the world’s first and only saliva-based rapid pregnancy test kit. This cost-effective, quick, and non-invasive method of detecting pregnancy leverages saliva-based hormone detection technology pioneered by Salignostics and delivers accurate results in just 10 minutes.

According to Salignostics, saliva contains over 5,000 identified proteins that mirror and overlap the physiological state of one’s blood. Drawing from the same principles used to develop SalCov, its highly successful rapid antigen saliva test kit to detect COVID-19, Salistick can detect the pregnancy hormone β-hCG in saliva and delivers proven and accurate detection rates for early pregnancy.

Salignostics is in very advanced stages of receiving the European Union’s CE Mark for Salistick and has completed a 510(k) initial Q-submission of the test kit to the FDA in the US. The company has successfully completed clinical trials in Israel on more than 300 women, both pregnant and non-pregnant, and has completed thousands of analytical trials.

“Saliva is the key to rapid diagnostics for a variety of medical reasons. Quintessentially it is the only non-invasive, easy, and hygienic means to detect hormones, viruses, and even diseases,” said Dr. Guy Krief, co-founder, Deputy CEO, and Director of Business Development, Salignostics. “With Salistick, we are leveraging the powerful diagnostics abilities we have been able to create from analyzing saliva. We are delivering a product that completely removes the need for blood and urine samples when testing for pregnancy.”

The annual global market for pregnancy tests is estimated at over $2 billion, with an estimated hundreds of millions of tests sold every year. However, these tests all rely on results derived from blood or urine samples and often need to be conducted by a medical professional. Salistick can be used anywhere, at any time of the day; it is clean, painless, and can detect the β-hCG pregnancy hormone safely on the first day of a missed period without the intervention of medical staff.

Research conducted by Salignostics shows that over 68% of women surveyed would instead opt for a saliva-based test kit over traditional pregnancy detection tests, while 21% said they had no preference. A primary reason cited for this is the overall user experience, convenience, and cleanliness of the product.

A pioneer in saliva-based testing and diagnostics, the company’s SaliCov simple COVID-19 antigen saliva test kit has proven highly effective and received a CE Mark from the European Union for marketing throughout Europe. To date, the company has provided hundreds of thousands of kits to Europe and Africa, and the test kits are the only saliva-based rapid antigen COVID tests which participate in the U.S. National Institute of Health’s (NIH) RADx accelerator program.

Like the SaliCov kit, Salistick comes individually wrapped for hygienic purposes and has a handheld applicator for collecting saliva. Once the sample is collected (about one minute), the applicator is replaced via an intuitive twist and click mechanism into the compact analyzing unit while the results are analyzed, a process that takes no more than 15 minutes. These results are then displayed on results window, where two lines indicate a positive test, and one line means negative.

Results are derived exclusively on saliva analysis and are based on a platform technology. As the technology is not biomarker specific, it can be replicated and used for multiple applications and use cases—for example, COVID-19 and even malaria detection.

“As an industry, medical science must move forward. By cracking the code to saliva, we are helping advance how medical professionals can perform diagnoses and give individuals the power to make informed decisions about their own health and well-being. With Salistick, we hope to empower women by making the discovery of pregnancy more dignified and inclusive,” ended Dr. Krief.
Pilot Study Demonstrates Effectiveness of At-home Skin Cancer Treatment

Researchers have found that a new prototype photodynamic therapy device can be used at home to reduce pain levels during treatment of basal cell carcinoma, while achieving results comparable with a hospital stay. These findings come from a breakthrough pilot study, revealed at the 30th EADV Congress.

The efficacy of photodynamic therapy (PDT), a treatment that involves light-sensitive medicine and a light source to destroy abnormal cancer cells, for low-risk basal cell carcinoma (BCC) has been proven through multiple studies. However, a need to reduce the pain experienced during treatment and the long hospital stay prompted the development of a new device, even before the COVID-19 pandemic. Standard PDT treatment consists of two sessions performed within a hospital environment that usually requires a 1.5–2-hour wait with a one-week interval.

Ana Gabriela Salvo, lead author of the study commented: “The importance of a portable PDT device is crucial in its country of origin, Brazil, where many patients need to travel more than 300km to receive specialised dermatological treatment. However, the global pandemic accelerated the need to develop this at-home treatment element, which has the potential to impact the treatment of BCC internationally.”

15 patients took part in the pilot study at Amaral Carvalho Hospital – a leading skin cancer oncology centre in the State, Brazil. The first PDT session was performed at the hospital where a 20% methyl aminolevulinate cream was applied to the BCC lesion, which was then illuminated for 20 minutes with a commercial red light LED device.

Immediately after the first illumination, a light layer of cream was applied and the new portable irradiation device – the size of a coin – was fixed to the skin using medical adhesive tape. The patient was then sent home and advised to turn on the illumination after 1.5 hours and turn it off after 2 hours.

Pain was assessed every 3 minutes during the hospital PDT treatment session and self-reported every 20 minutes during home treatment on a numerical scale from 0 to 10. The median score values were compared between hospital and home treatments.

According to histological analysis, the clearance at 30 days after PDT was 86.6%, which is similar to standard PDT treatment, and the pain score was significantly lower for the PDT treatment performed at home (self-reported by the patients as a 1 for the first three measures and a 0 for the four that followed), as compared to 3–4 for the hospital treatment, suggesting that a more comfortable treatment with less pain is possible.

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The pandemic continues to have a severe effect on waiting lists for elective surgery in the UK and preparing materials for scheduled and emergency procedures takes up a lot of clinical time. However, pioneering radio frequency identification (RFiD) theatre kitting technology, which streamlines the management of theatre supplies, could help reduce the elective surgery backlog caused by COVID-19.

RFiD Discovery, the UK’s leading location tracking specialist for healthcare, have introduced a “Gold Standard” management system to track theatre consumables to be delivered to the point of use. The technology allows theatre teams to have the correct equipment at their fingertips, helping to improve efficiency and quality of care.

Traditionally clinical staff in the local theatre areas are responsible for preparing all inventory required for the next day’s operations. On top of being time-consuming, this can dilute the skills and knowledge available in a particular theatre, thus compromising patient safety.

The ‘theatre kitting’ solution allows this process to be centralised so that clinical staff are freed up to spend more time on patient care. It also reduces the risk of picking incorrect products or having insufficient supply of key items readily available. By improving efficiency, the technology can also bring important cost savings to hospitals, as well as helping to reduce waste – ultimately allowing hospitals to be as “lean” as possible.

Simon Dawkins, lead RFID consultant at RFiD Discovery, explains: “Working in an operating theatre can be very stressful during challenging – meeting the needs of patients, the demands of surgeons and facing the limits of time itself.

With the present situation of staff shortages across the NHS, there has never been a more crucial time than now to allow clinical staff to focus on their job, and more importantly, improve patient care and safety. Our transformational service is designed to do just that.”

The RFiD Discovery theatre inventory management system is designed to track items used for operations with passive RFID labels. Clinical staff curate a custom list of required equipment for specific types of operations, which is captured on the system and used to create the procedure kits. The actual packing of equipment is carried out by a central kitting team.

Central kitting staff download the relevant list for each type of operation to a handheld scanning device which indicates which location in the central store each item can be picked from. Items are then scanned and added to a tote box specific for each patient. To reduce waste, kits only include the items that are normally needed during an operation.

Unless all items required have been picked and scanned, the system automatically prevents the completion of the tote. This improves patient safety by ensuring that all the correct items are to hand when needed. Post operation the tote box is received back in the central store where the RFiD labels are then scanned by the inventory team. This means all consumables used can be accounted for, so that an accurate overall material cost of each operation is recorded and stock correctly replenished. Furthermore, any unused items are placed back on the shelves for future use.

The technology has already been successfully implemented at one of the largest hospitals in the UK – where it has been instrumental in freeing up time for clinical staff, optimising stock holding and minimising waste. Theatre kitting processes are now used for all of the trust’s theatres. Due to reducing waste and the number of items used for each operation, the hospital has also been able to reduce the per-case cost.

There are currently over 5.5 million people in England waiting for treatment or non-emergency surgery, with the Institute for Fiscal Studies (IFS) warning it could rise to 14m by the end of 2022.

Technology has been instrumental in tackling the challenges of COVID-19. The government has also pegged the use of new technology and innovative ways of working as a key driving force to help the NHS to tackle growing waiting lists and treat around 30% more patients who need elective care by 2023 to 2024.
Caption Health and Ultronics Partner to Accelerate Heart Disease Detection

Caption Health and Ultronics, leaders in using AI to improve heart ultrasound diagnostics, have partnered in a bid to accelerate cardiovascular disease detection and treatment for more patients in more accessible care settings.

Together, the companies will jointly offer the Caption AI software platform alongside Ultronics’ EchoGo deep ultrasound analytics – allowing a broader set of providers the ability to perform ultrasounds and automatically calculate key indicators of heart function, which drive earlier and more accurate disease diagnosis.

Access to proper cardiac health care is a global problem, leading to countless preventable deaths. A limited number of specialists are available to perform and analyze cardiac ultrasounds – a key diagnostic procedure for identifying the beginning or progression of heart failure, valve disease, and coronary artery disease. According to a recent study, 46% of patients in the US diagnosed with heart failure in acute care settings had potential symptoms at primary care clinic visits in the previous six months – these issues were also more prevalent among women and Black patients. Meanwhile in the UK, the National Health Service announced it is receiving £5.9 billion to clear treatment backlogs and improve diagnostic services, reflecting the great need exacerbated by recent global events.

The platforms have already begun changing this landscape. Caption Guidance, which received Breakthrough Device Designation from the FDA, is the leading AI acquisition and guidance software for cardiac ultrasound. Ultronics’ EchoGo has dramatically raised the burden on experts by delivering automated analysis of left ventricular volumes, ejection fraction, cardiac strain, and diagnostic support of heart failure and coronary artery disease, saving significant time for users and – most importantly – improving outcomes by reducing variability between operators and equipment.

Now, by linking these platforms, images captured using Caption AI can be analyzed through Ultronics’ EchoGo platform, making advanced diagnostic capabilities that had been limited to experts in specialty care settings and expanding their access to more doctors and patients in more places. In the near future, these integrated capabilities are expected to be available on the Butterfly IQx platform, as part of Butterfly Network, Inc. and Caption Health’s strategic partnership.

“More efficiently delivered and robust patient care is a necessity for the health-care system to really improve. This means empowering the entire care team and making diagnostics a key part of care that’s more accessible to patients,” said Steve Cashman, President and CEO of Caption Health. “With the combination of Ultronics’ enhanced analysis and Caption AI, providers will be able to capture images earlier and get more out of those images, maximizing benefits for patients. Together, we’ll help drive the move to earlier detection and diagnosis of cardiac disease in patients – enabling proper management alongside more cost-efficient and timely care.”

“EchoGo is already delivering to experts an expansive set of fully automated, advanced clinical analysis and diagnostic support modules, enabling safer, more efficient care by providing healthcare staff with simple access to data from multiple monitors and devices and digitizing repetitive processes.”

The Medanets app enables nurses to capture vital signs and other nursing data on a smartphone, replacing the cumbersome paper-based approaches that nursing staff often have to carry out. The app comes with a broad range of time-saving tools such as task lists, photo uploads and messaging.

The solution has proven to save thousands of hours of time a year for nursing staff across the Nordic region. A recent customer evaluation found that using the standard features of the app can save at least 70 hours of staff time per month per ward.

Global interoperability leader Enovacom has joined forces with Nordic mobile nursing app specialist Medanets to give frontline nursing staff mobile access to seamless comprehensive patient data. The collaboration will enable safer, more efficient care by providing healthcare staff with simple access to data from multiple monitors and devices and digitizing repetitive processes.

Through the partnership, medical device data is automatically gathered using Enovacom’s Patient Connect interoperability platform. This is fed through to the hospital’s electronic health record (EHR) and to the Medanets mobile nursing app in real-time, giving staff access to comprehensive patient data at the point of care.

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The two organizations are already working together at a new-ly-built development at Central Finland Central Hospital.
Aktiia Raises $17.5M for Expansion of World-first 24-7 Blood Pressure Monitoring System

Aktiia, the health-tech firm, announced a $17.5M Series A round of funding for its revolutionary blood pressure monitoring solution. The company’s automated blood pressure monitoring system enables stress-free readings around the clock, offering the potential to transform the diagnosis and treatment of hypertension. The new investment has been earmarked to accelerate adoption of hypertension. The new investment has been earmarked to accelerate adoption of hypertension.

“After a successful journey gathering data from 4.3 million participating players, Alzheimer’s Research UK is making its groundbreaking citizen science app Sea Hero Quest available to researchers for studies of cognition and spatial navigation,” said Prof Hugo Spires from University College London collaborated in the development and validation of the Sea Hero Quest app.

Prof Spires’ team has led the analysis of the anonymous player data. He said: “Our validation testing showed that performance in the game is strongly correlated with performance in real-world tasks. While data gathered from citizen science projects is inherently noisy compared to lab research, the unprecedented scale of the project so far means that our benchmarking data far exceeds the accuracy of previous research in this area. "The citizen science element of this project has already revealed" "the scale of the project so far means that our benchmarking data far exceeds the accuracy of previous research in this area. "The citizen science element of this project has already revealed"...”

“The award-winning app quickly became a citizen science phenomenon. The new platform creates a bespoke version for researchers...

“After a successful journey gathering data from 4.3 million participating players, Alzheimer’s Research UK is making its groundbreaking citizen science app Sea Hero Quest available to researchers for studies of cognition and spatial navigation. The app is free for researchers in any field, and we have developed a high-quality study administration dashboard, with guidance and support for those looking to use it in their studies.”

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To find out more about how to use Sea Hero Quest for research visit: www.alzheimersresearchuk.org/seaheroquest

Aktiia is now also an official partner of the International Society of Hypertension. Aktiia as a solution for the real-life phenotyping of patients according to individual blood pressure pattern. As night-time blood pressure measurements are the strongest predictor of cardiovascular risk, and Aktiia is the only easy 24/7 solution that enables these measurements without cuff inflation, this is an incredibly exciting moment for hypertension diagnostics.

Hypertension health-tech firm Aktiia today announced a $17.5M Series A round of funding for its revolutionary blood pressure monitoring solution. The company’s automated blood pressure monitoring system enables stress-free reading around the clock, offering the potential to transform the diagnosis and treatment of hypertension. The new investment has been earmarked to accelerate adoption of the technology in the UK’s NHS and health systems across Europe.

Since its launch earlier this year, Aktiia has gained tens of thousands of users, who on average check their blood pressure data over six times a week, with an average of 150 weekly readings performed by the device automatically in the background.

The data is then visualized in a free companion application; with a simple click, a digital summary can be easily shared with a physician or family member.

In contrast, the average hypertensive patient currently measures their blood pressure only once per week due to the inconvenience and discomfort associated with a traditional cuff. Combined with a white coat hypertension, masked hypertension, and other common issues with in-office diagnosis, this sporadic at-home monitoring of blood pressure, cementing a better understanding of our cardiovascular risk, and Aktiia is the only easy 24/7 solution that enables these measurements without cuff inflation, this is an incredibly exciting moment for hypertension diagnostics.

This is delivering huge extra value to our customers,” said Juhà-Martti Ranta, Chief Executive Officer of Medanets.

Medanets and Enovacom – which is now a subsidiary of Orange Business Services – are looking to work more closely across the collective customer base, as nursing staff become a central part of global moves to a mobile-driven, digital-first approach to frontline care.

Supporting the rise of digital nursing and healthcare interoperability

The rise of the digital nurse has been a feature of healthcare’s response to Covid-19. A recent study in the British Medical Journal noted that nurses should embrace technology to maximize the collective customer base, as nursing staff become a central part of global moves to a mobile-driven, digital-first approach to frontline care.

“Medanets provides a user-friendly front-end for e-observations such as recordings using pen and paper,” states Martin Meuris, a nurse at Rotterdam University Hospital.

“By helping nurses with tools that are the most time-saving, such as observations, our app becomes an integral part of their workflow. This is delivering huge extra value to our customers,” said Juhà-Martti Ranta, Chief Executive Officer of Medanets.

A study noted by WHO found that usable health IT systems are putting front-line healthcare staff off technology, just when it is vital it becomes more widely adopted to meet pandemic-driven demand. User-friendly, interoperable solutions can provide an answer. In response, the new COVID-19 recovery programme EU4Health is looking to widen the use of technology across European health systems.

“Our collaboration with Medanets means we can provide the digital nurse and others with an end-to-end digitised healthcare platform of the future,” says Simon. “IT leads can share data from new and existing technology, and have care teams access this at the point of care. This is a clear demonstration of the value of technology in healthcare.”

“Enhanced by our work with Enovacom, Medanets provides the mobile nursing app that can give many hospitals an effective and affordable route to digitisation and data-driven healthcare,” adds Juhà-Martti. “Our partnership means that nurses play a leading role in using data to enhance the quality of care.”

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The Enovacom and Medanets solutions are very complementar...
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