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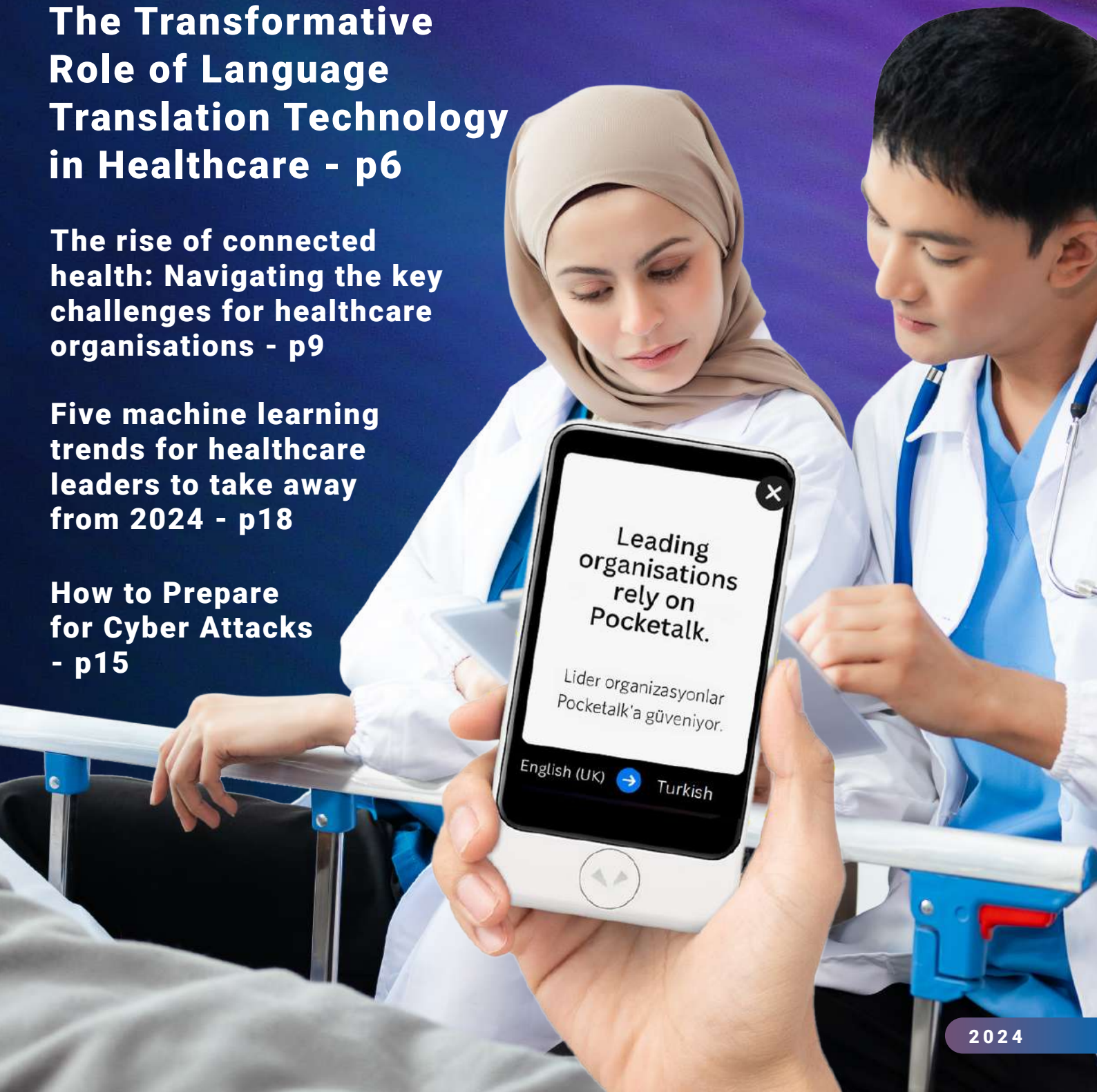

2024

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TECHNOLOGY IN THE SPOTLIGHT

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Healthcare under siege: Strategies for safeguarding services in the face of evolving cyber threats

Healthcare providers are grappling with a series of interconnected challenges that are reshaping the delivery of care. The pursuit of equitable access to healthcare is more crucial than ever, yet it faces significant obstacles due to persistent staff shortages, constrained budgets and evolving cyber threats.

In June, the NHS confronted one of its most severe crises to date after Synnovis, a leading pathology testing organisation, fell victim to a devastating cyberattack.

Orchestrated by the Qilin Group, the breach compromised 300 million NHS patient records, including highly sensitive blood test results for conditions like HIV and cancer. The attackers leveraged the stolen data to demand a £40 million ransom, causing substantial disruption affecting more than 3,000 outpatient appointments across King's College and Guy's and St Thomas' hospital trusts in the weeks that followed.

It's not the first time that the NHS has suffered at the hands of cybercriminals.

In August 2022, a breach at a healthcare IT service provider – Advanced – led to the theft of personal data for 83,000 individuals, including phone numbers and medical records. This breach exposed sensitive information on how to gain physical access to the homes of 890 people receiving care. And, in May 2017, the WannaCry ransomware attack disrupted NHS operations, affecting 80 hospital trusts and 595 GP practices across England.

What makes healthcare providers so attractive to cybercriminals?

Unfortunately, there are several unique characteristics that make the healthcare industry highly attractive to threat actors. So much so that the World Economic Forum reports that 14.2% of all attacks on critical infrastructure now target healthcare.

Critically, industry providers hold enormous amounts of sensitive information that can be used as a potent weapon in malicious hands, helping financially motivated cybercriminals to put immense pressure on patients and healthcare entities alike.

Cybercriminals understand the damage they can inflict by targeting healthcare systems. If systems are not available all day, every day of the year, there can be life or death consequences. This makes their cybersecurity exceptionally important.

Unfortunately, organisations like the NHS face significant constraints in their capacity to tackle cybercrime due to limited resources. Critically, the NHS depends on public funding, which can only stretch so far. Consequently, it has historically continued to grapple with IT challenges, with a recent report from the British Medical Association estimating that the NHS loses 13.5 million hours annually – equivalent to the time of 8,000 full-time doctors.

This is a serious problem. Not only does outdated IT infrastructure impede productivity, but it can also cause critical gaps in cybersecurity defences to arise.

The situation is further complicated by the intricate nature of the NHS's workforce. With a sprawling digital ecosystem involving a wide range of patients, healthcare professionals and external partners, maintaining secure access to confidential data becomes a formidable task. In 2020, the NHS itself underscored the scale of this challenge, revealing that NHSmail required 64,000 user account updates each month across over 13,000 health and care organisations in England and Scotland.

Then, there's also the fact that the NHS is limited in how demanding its security measures can be. Its primary responsibility is the care and safety of its patients – a priority that must not be undermined by extensive or overly complicated security protocols. For example, it cannot demand that all appointments be booked via a patient portal requiring multi-factor authentication. Doing so could hinder the ability of less technologically savvy patients to access crucial services.

Core strategies for improved cyber resilience in healthcare

Given the unique vulnerabilities healthcare organisations face – and the escalating efforts of cybercriminals to exploit these weaknesses – it is imperative that industry players strengthen their security protocols as a priority. Indeed, doing so is essential to fend off the rising tide of attacks, protect sensitive patient data and sustain the integrity of healthcare services.

While achieving this can be challenging, particularly with limited budgets and resources, there are several areas where the NHS and other healthcare providers can strategically focus their efforts.

First and foremost, healthcare providers must align with established standards and compliance frameworks such as GDPR, NIST, and NIS2 that have been specifically designed to offer critical guidance on best practices for key security fundamentals.

Here, firms should also focus on establishing clearly defined processes and playbooks that outline the necessary actions at every stage of a cyberattack. In doing so, firms can be confident in their ability to respond to breaches in a swift, precise and effective manner, with clearly outlined responsibilities guiding a coordinated response in critical situations.

With that said, in a rapidly evolving threat landscape, these processes and playbooks will need to be reviewed and updated on a continuous basis.

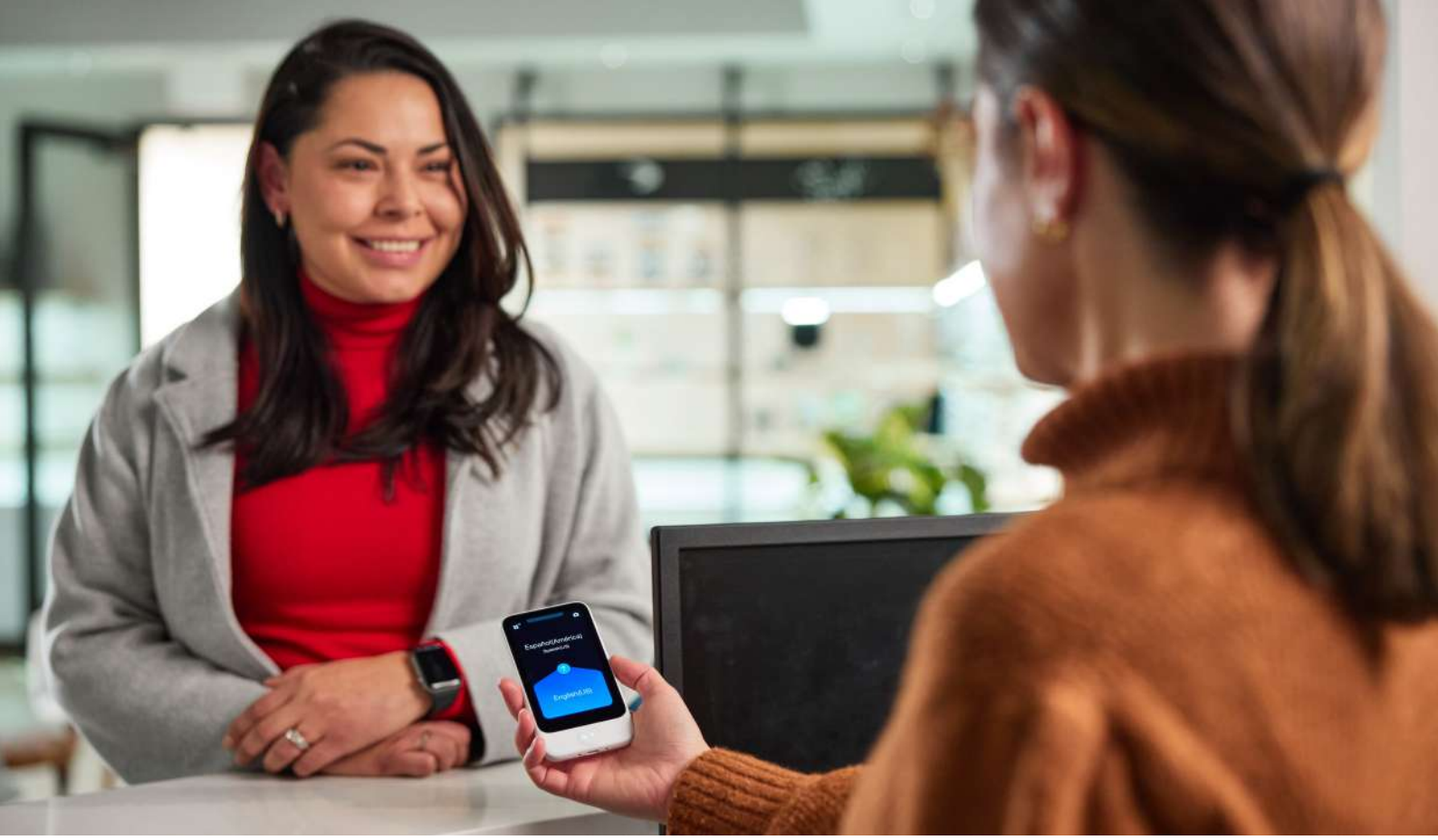
An effective security strategy today may be rendered inadequate by emerging threats or vulnerabilities tomorrow. Therefore, healthcare providers should collaborate with cybersecurity experts to conduct regular vulnerability scans and penetration tests. This proactive approach helps ensure that any new security gaps can be identified and addressed promptly, maintaining robust protection against evolving risks.

In addition to all these efforts, healthcare providers must not overlook the value of education and training in enhancing their security efforts. Roughly nine in 10 cyberattacks begin with phishing as criminals attempt to deceive individuals into divulging sensitive information or login credentials.

Combatting these attempts is vital, and it's imperative to equip staff with the knowledge, awareness and tools to identify and mitigate such attacks.

With the right combination of tactics that align with compliance requirements and work to enhance defences on an ongoing basis, healthcare providers can boost their ability to sustain continuous, secure patient care in the face of ongoing cyber challenges.

The foundation of success lies in mastering fundamental cybersecurity practices and building robust defences that can adapt to evolving threats.



The Transformative Role of Language Translation Technology in Healthcare

Jess O'Dwyer, General Manager Europe, Pocketalk

In healthcare across the UK, every second counts. This is especially true in departments like A&E, maternity, radiology, sexual health clinics and GP surgeries where patients often arrive unannounced with urgent needs. In these high-pressure environments, effective communication is critical—not just for delivering quality care but for ensuring patient safety.

As the UK becomes increasingly diverse, language barrier challenges are becoming more common and posing significant challenges.

With over a million adults in England and Wales unable to speak English well or at all, the healthcare system frequently grapples with delays and inefficiencies caused by communication breakdowns. The cost of interpreters—both financial and logistical—is immense. Meanwhile, reliance on informal methods like family members, bilingual staff, or non-compliant digital tools can compromise accuracy, confidentiality, safety and care quality.

Technology offers a way forward and the recent UK government budget announcement committed to improving technology for greater efficiency, which is a step in the right direction. At Pocketalk, we're working within the healthcare sector to introduce portable translation devices that provide immediate, accurate communication across a broad spectrum of languages. By empowering healthcare workers, porters, admin and catering staff with these tools, we're seeing how a small device can create big ripples of change—not just in clinical settings but throughout the patient journey.

Pocketalk offers a cost effective, secure solution. Our handheld device instantly translates over 84 languages in both audio and text. In addition, our Ventana management provides tailored device management, empowering healthcare providers to monitor and analyse translation activity to make more informed operational decisions. This valuable insight, which is only accessible to personnel who need to understand the context, helps to identify areas that may need additional translation support and highlights the most commonly required languages for effective communication.

Ventana prioritises the security of information and ensures it is protected with above industry standards through robust product features, stringent policies, and rigorous procedures. Users can have peace of mind, knowing their data is in safe hands while it is used to drive meaningful change within the organisation and improve efficiencies and patient care

In departments like A&E, time is a luxury that often doesn't exist. Portable translation devices can work alongside other translation solutions to enable healthcare professionals to conduct initial assessments swiftly and accurately. In maternity wards, where intimate and sensitive discussions are crucial, these tools enable better understanding and trust. Meanwhile, in radiology or sexual health clinics—often dealing with complex instructions or potentially embarrassing conversations—they eliminate the need for an intermediary, preserving confidentiality.

Beyond clinical roles, non-medical staff are also reaping the benefits of more efficient solutions. Hospital porters, caterers, and receptionists use translation devices to ensure that every interaction, no matter how brief, adds to a seamless and inclusive patient experience. This holistic approach maximises efficiency while minimising the risk of errors across the board.

As it's widely publicised, public sector funding in the NHS is complex and the truth is, the financial burden of interpreters on the NHS is significant. Technology reduces this dependency, providing cost-effective alternatives while ensuring immediate access to communication.

Pocketalk research, that we conducted earlier this year, highlighted just how much time is lost due to language barriers - emergency workers, for example, lose over a working week each year navigating these challenges. This equates to over 45 hours annually spent on overcoming obstacles instead of delivering care.

Moreover, our study revealed the serious risks posed by language gaps. Over half of emergency service workers report that these barriers have led to delays or complications, with 47% stating they've made situations more dangerous. In a hospital setting, the stakes are equally high. By integrating portable translation tools into workflows, healthcare providers can significantly reduce these risks while improving patient outcomes.

It's important to recognise that language barriers don't just affect hospitals. In primary care settings, such as GP practices and walk-in clinics, communication difficulties can slow down consultations and exacerbate patient anxieties. By extending the use of translation technology across primary and secondary care, we can create a system where language is no longer a barrier to timely and effective treatment.

As we look to the future, Pocketalk is committed to evidence-based innovation. We're working with several healthcare settings on a research project to measure the impact of translation devices on care delivery. The results, due to be published soon, promise to provide valuable insights into how technology can transform patient communication across the NHS.

By reducing costs, saving time, and improving patient safety, translation tools are empowering healthcare professionals to focus on what they do best: delivering exceptional care. It's time to embrace this innovation across the board and ensure that every patient's voice is heard—loud and clear.

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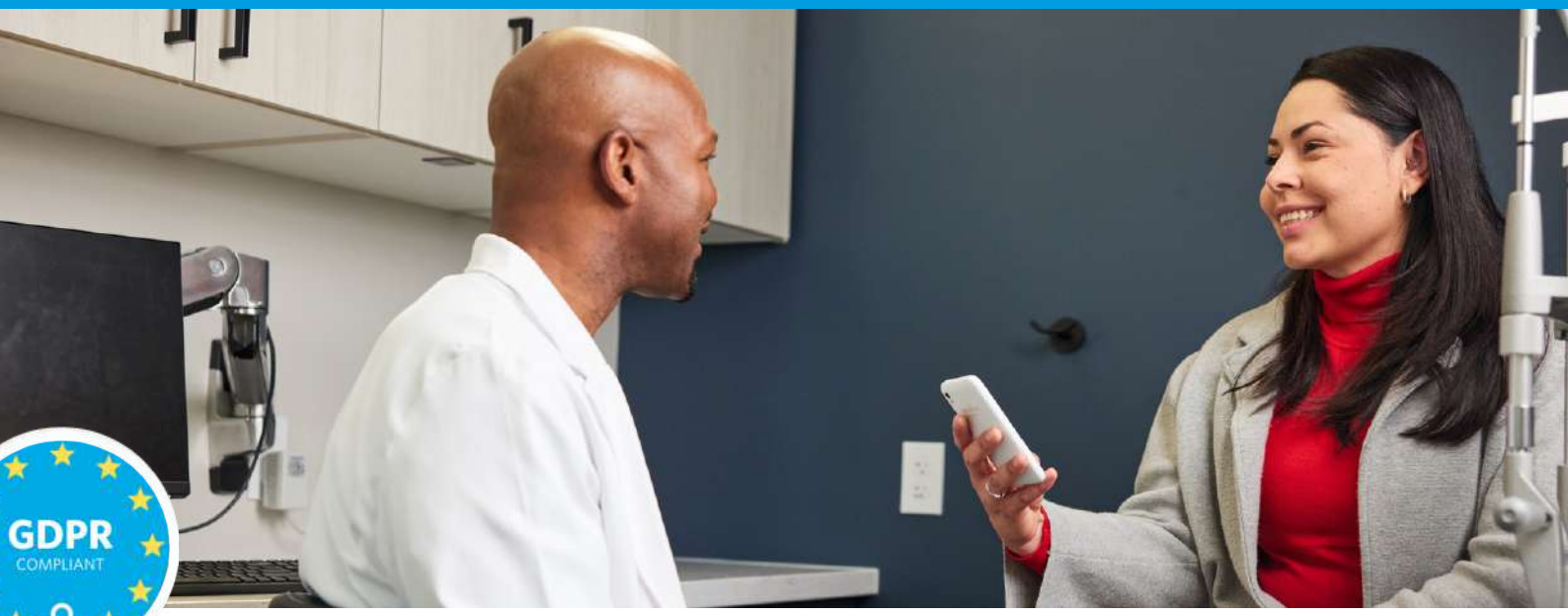

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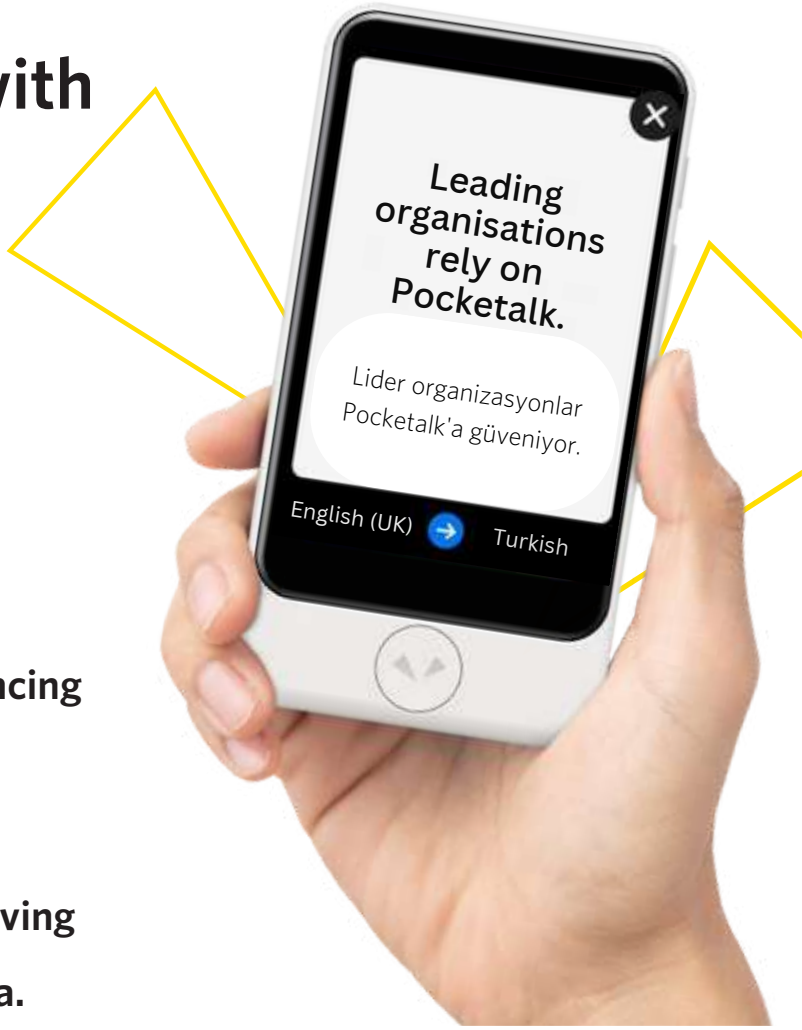


For more information, please send us an email to: info@pocketalk.com

POCKETALK™

The rise of connected health: Navigating the key challenges for healthcare organisations

The COVID-19 pandemic rapidly accelerated the adoption of digital technologies particularly in healthcare. With the strain on NHS resources, healthcare providers turned to digital technologies to help ease the burden on their staff and boost productivity.

Connected health refers to a broad concept that encompasses health-related systems, services, and devices, often connected through the Internet. This can include everything from telemedicine and wearable health devices to digital health records.

According to Capgemini's recent research, the global connected health market is projected to grow at a compound annual growth rate (CAGR) of 25%, reaching around $520 billion by 2032 from $58.2 billion in 2022. This growth is also driven by increasing consumer adoption. Currently, 1 in 3 consumers already own a wearable device, and 29% are likely to purchase one in the next 12 months.

These statistics solidify connected health as a transformative force and trend within the healthcare industry. By offering more personalised and efficient services, connected health is poised to reshape the healthcare landscape, providing new opportunities for improving patient care, reducing costs, and enhancing overall health outcomes.

Connected health is set to play a pivotal role in the future of healthcare. However, as the adoption of these technologies increases, so do the challenges, such as ensuring data security, maintaining regulatory compliance, and integrating these tools into existing systems.

Data Security and Privacy Concerns

Of the more significant challenges in effective connected health solutions is ensuring data security and with it, patient privacy. Organisations operating in this unique environment also face complex regulatory requirements. Additional security concerns also encompass data breaches, misuse or mishandling of patient data and ransomware attacks. This heightens the need for organisations to implement robust cybersecurity measures to protect patient data. Encryption, secure authentication processes and regular audits to identify and address vulnerabilities are all ways in which organisations can overcome these technical challenges. Not to mention a clear communication and education strategy for both suppliers and consumers of the services.

Data Management and Infrastructure

Securing sensitive data is one part of the challenge. The other issue is handling the vast amounts of data that connected health technologies produce. Addressing this challenge will require robust data management infrastructure, such as secure storage, data analytics, encryption and access control in order to protect privacy and ensure compliance with regulations. Additionally, organisations must consider the need for scalable systems capable of processing and analysing real-time data from various sources, including wearable devices, telemedicine platforms, and electronic health records. Effective data management also involves integrating these diverse data streams into a cohesive framework for seamless access and sharing across different departments and/or external partners. This integration is critical not only for maintaining data integrity and accuracy but also for enabling advanced analytics, which can drive insights and improve decision-making in patient care and operational efficiency.

Regulatory compliance

The healthcare industry is highly regulated with companies needing to navigate a complex regulatory landscape when adopting connected health solutions. Regulations relating to data protection and telemedicine practices, for example, are constantly evolving. Healthcare providers and organisations must stay up to date with these regulations to ensure compliance and avoid potential legal issues. Additionally, there is a need for clear guidelines and standards for the use of connected health technologies, which can help streamline the adoption process and ensure patient safety and care quality.

Skills Gap and Talent Development

The adoption of connected health technologies necessitates a workforce that is trained and skilled in

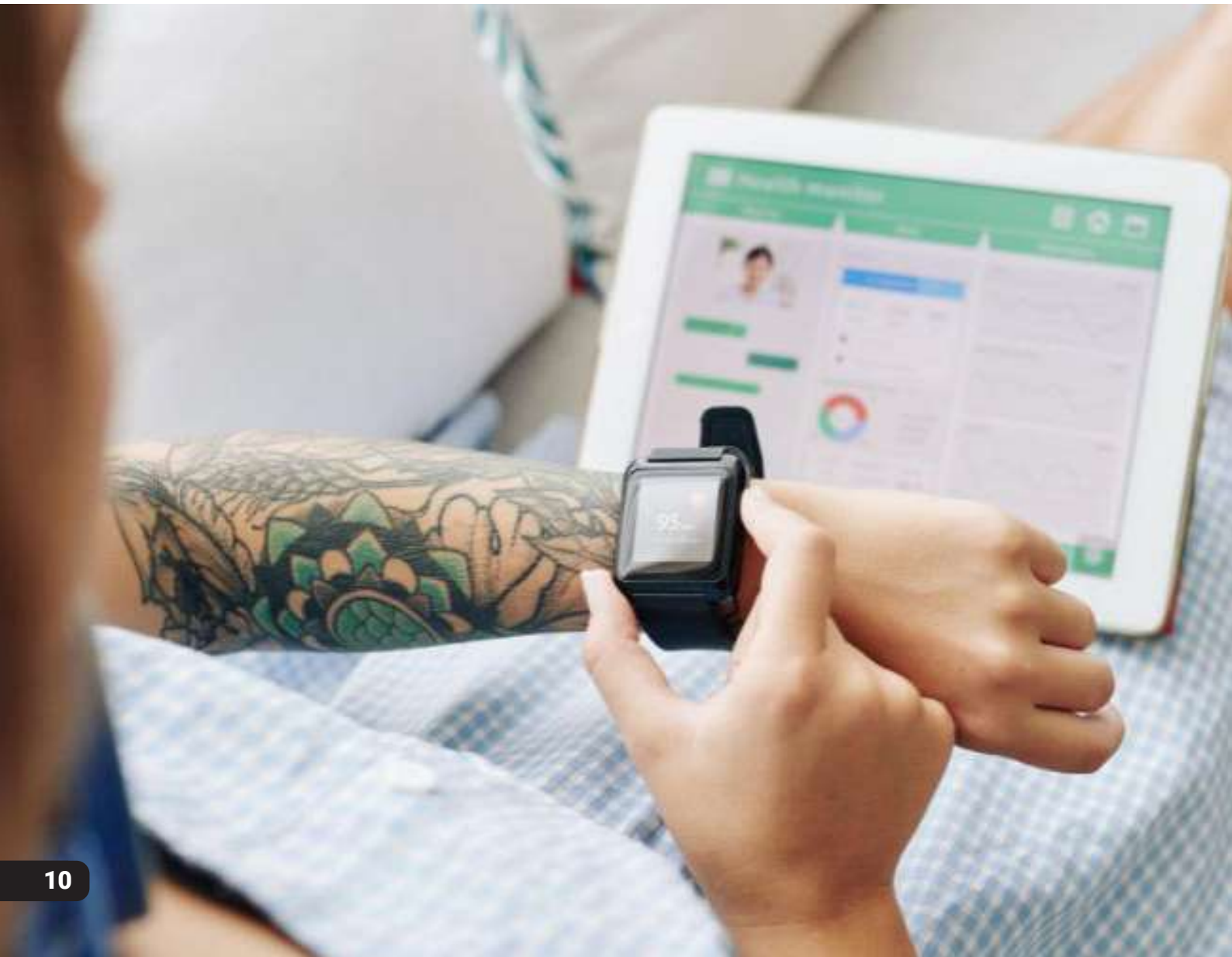
using these new tools. This includes not only medical professionals but also administrative personnel, and even patients. Our research found that only a minority of organisations have an adequate supply of technical skills in AR/VR (19%) and generative AI (21%). In order to overcome this barrier, healthcare organisations need to cultivate a culture that embraces technological innovation and encourages ongoing learning and adoption.

Integration and Interoperability

Whilst integration of these technologies is hugely promising to enhance patient support and operational efficiency, it also presents a major challenge. Many healthcare and biopharma organisations use a variety of different software systems and devices that may not be compatible with each other. This can lead to inefficiencies or fragmented care. Standards such as Fast Healthcare Interoperability Resources (FHIR), Health Level Seven (HL7) and Digital Imaging and Communications in Medicine (DICOM®) can support integration and interoperability.

Looking ahead

The rise of connected health offers exciting opportunities for transforming healthcare delivery. However, healthcare organisations must carefully navigate the challenges associated with data security, integration, workforce development, and regulatory compliance. By addressing these challenges, healthcare providers can harness the full potential of connected health technologies to improve patient outcomes, enhance care delivery, and achieve greater efficiencies. As the healthcare landscape continues to evolve, organisations that successfully adopt and integrate these technologies will be better positioned to meet the needs of their patients and thrive in a rapidly changing environment.



Leeds becomes the first hospital in the UK to benefit from revolutionary technology for patients with brain tumours

Leeds Hospitals Charity has invested £150,000 to fund state-of-the-art equipment at Leeds Teaching Hospitals NHS Trust that can more effectively diagnose and operate on brain tumours.

The Zeiss Convivo Pathology Suite allows surgeons to use innovative new technology to produce high quality images of tumours in real-time. This means that pathologists can make a quicker and more accurate diagnosis during surgery and surgeons can remove as much of the tumour as possible with minimal damage to healthy cells surrounding it.

Thanks to donations, Leeds is pioneering the use of this technology in the UK, which could benefit up to 300 patients across Leeds Children's Hospital and Leeds Teaching Hospitals NHS Trust every year.

55-year-old Michelle Hicks, from Horsforth, had surgery using this new technology in January 2024, she said:
"The 7th September 2023, is a date that I will never forget. What started off as an ordinary day working from home, ended with me waking up in a hospital bed, dazed and confused about what had happened to me. A CT scan revealed a large tumour on my brain, I needed to start treatment right away and spent the next couple of weeks in hospital. I couldn't really process it, I hadn't experienced any symptoms until that day.

"My life-saving surgery took place around five months ago, I spent 15 hours undergoing awake surgery, it was surreal. After the operation, our surgeon told my husband Martin and I about the new technology they had used to perform the surgery, explaining the equipment was charity funded. Martin remembers being told that ordinarily, around 70% of a tumour could be removed in surgery, but this equipment meant that over 95% of my tumour was removed, reducing the risk of it growing back.

"I'm slowly regaining my independence, and my long-term aspirations are to drive again and go out by myself. The staff told me, that if all goes well, I should make a full recovery within 12 months post-surgery. I'm so grateful to have this opportunity to rebuild my future."

Previously, samples removed from the head required a biopsy that was transported to a lab at a different hospital for analysis which proved a much more time-consuming process, with results sometimes coming back as inconclusive.

Ryan Mathew, Honorary Consultant Neurosurgeon at Leeds Teaching Hospitals NHS Trust and his team treat patients with a range of neurological conditions, including cancerous, non-cancerous and benign brain tumours, which can be life-threatening if left untouched.

Mr Mathew said:
"We are so grateful that Leeds is the first hospital in the UK to benefit from this revolutionary technology, which allows us to work more accurately and efficiently and in turn reduce risks to patients, so they can recover much quicker, with as little disruption to their life as possible."
There are hopes that the results from the images and data captured using this advanced technology will enable better education for trainee neurosurgeons and well as bringing opportunities to develop research focusing on the use of AI in brain surgery.

Government must support innovation to deliver on NHS promises, says Health Tech Leader

Following the announcement yesterday, health tech leader Andrew Whiteley calls for more support for innovation, in order to deliver the productivity and efficiency ambitions of the Autumn Budget.

Andrew comments: "If this Government is serious about moving the NHS from analogue to digital, the tax system — including R&D tax credits — should be the mechanism for enabling and incentivising the health tech sector to invest in transformative solutions, especially with artificial intelligence at our fingertips.

"Those with ambitions to alleviate pressures across primary, secondary, and tertiary care cannot achieve this on goodwill alone. R&D tax credits have been instrumental in driving innovation, especially for smaller firms without substantial investors. However, the recent reduction in relief rates for SMEs, introduced in then-Chancellor Jeremy Hunt's Autumn Statement of 2022, coupled with necessary anti-abuse measures to prevent misuse by the few, risks discouraging investment in R&D and stifling innovation across the entire health tech sector.

"To truly realise the potential of digital healthcare, we need a system that not only maintains these tax reliefs [as in Rachel Reeves' Autumn Budget] but enhances them to support start-ups and established firms alike. By ensuring these incentives remain accessible and meaningful, the government can help put patient care and technological progress at the centre of the health tech agenda, empowering the UK sector to meet the challenges of modern healthcare."

CEO of Lexacom, Andrew Whiteley, developed his company because he was frustrated with slow NHS innovation. He has witnessed eight prime ministers and countless budgets, and this time he's hoping for more than just empty promises to health tech organisations like his.

With 60% of GPs in England using Lexacom's technology, Andrew is a sector expert. His company saves the NHS 3.5 million hours every year, allowing clinicians to focus more on patient care whilst reducing administrative layers imposed by successive government.

Unlocking the Future of Surgery: How AI and Interoperability Are Transforming Healthcare

Picture this: a surgeon, in the midst of a delicate neurological procedure, works with hands steady while AI algorithms analyze imaging data in real-time, providing insights into nerve fibers and tissue patterns that even the most skilled human eye could miss. This is not some distant future—it's happening now. The convergence of AI-powered medical devices with seamless data integration is revolutionizing surgery and patient care, combining precision with unprecedented data analysis to enhance outcomes and streamline clinical workflows.

AI in Surgery and Data Integration: Precision Meets Connectivity

Navigating the human body safely presents immense challenges in operating rooms worldwide. Surgeons rely on precision tools to avoid damaging critical structures, especially in pulmonology, neurology, and cardiology. AI is transforming this process by enhancing image-guided surgical devices with real-time data analysis from imaging technologies like CT and MRI.

These AI-enhanced systems go beyond augmenting the surgeon's vision—they anticipate and guide surgical actions. By continuously learning from past cases, AI can identify subtle patterns, suggest optimal instrument placements, and even predict complications like blood flow changes or infection risks. For example, the AI system could analyze imaging data mid-surgery in a cardiology procedure and recommend adjustments to avoid arterial damage.

Seamless data integration is critical to making this possible. Modern healthcare relies on multiple disparate systems—imaging, electronic health records (EHRs), and clinical decision platforms—that must communicate in real time. A unified data integration platform ensures that patient histories, diagnostic imaging, and real-time vitals are accessible at every step, reducing risk and enhancing decision-making. Once the surgery is complete, the system logs all AI-driven insights and surgical notes into the patient's health record, improving continuity of care and providing critical data for future reference.

This interconnected approach leads to safer, faster surgeries with fewer complications, empowering surgical teams to deliver better outcomes and more predictable recovery processes.

Remote Monitoring and Chronic Care Management: Proactive, Patient-Centered Care

Beyond the operating room, AI and wearable medical devices are unlocking new ways to manage chronic conditions like diabetes, heart disease, and COPD. These conditions demand constant monitoring, which can overwhelm patients and healthcare providers. AI integrated with wearable devices collects real-time data on vital signs—like glucose levels, heart rhythms, and oxygen saturation—and provides actionable insights.

A wearable sensor might alert a COPD patient and their physician when oxygen levels dip dangerously low, triggering early intervention and preventing a trip to the emergency room. This proactive monitoring allows for personalized care recommendations, making treatment plans dynamic and responsive to changing health conditions.

The seamless data flow between wearables, AI platforms, and hospital EHRs ensures that healthcare providers maintain a 360-degree view of the patient's health—whether they are monitoring remotely or during in-person visits. This integrated care approach reduces hospital admissions and ensures timely interventions, ultimately improving the quality of life for patients and reducing the burden on the healthcare system.

Enhanced Staff Workflows and Empowering Patients

Integrating AI and real-time data platforms isn't just transforming surgery—it's reshaping clinical workflows for nurses and support staff. Often overwhelmed by repetitive tasks such as monitoring vital signs and managing documentation, nurses can now rely on AI-powered systems to automate many of these functions. In settings like the ICU, these platforms monitor patient vitals in real-time, alerting staff to early signs of complications, such as sudden decreases in blood pressure or oxygen levels, allowing for faster intervention.

This shift enables clinical teams to focus more on direct patient care, improving patient experiences and

outcomes. With reduced cognitive load, healthcare providers can be more attentive and proactive in addressing patient needs. Additionally, streamlined data integration ensures that every team member can access up-to-date patient information, eliminating delays caused by fragmented systems and improving care coordination.

These advancements are equally transformative for patients. Real-time monitoring and personalized updates through mobile apps empower patients to take an active role in managing their health. They receive actionable insights and reminders, fostering engagement and adherence to treatment plans. This shift from reactive to proactive care allows patients to feel more in control, improving satisfaction and outcomes.

The Future of Proactive, Predictive Healthcare

The impact of AI and interoperability on healthcare extends far beyond today's capabilities—it's shaping the future of medicine. Surgery is no longer confined to reactive interventions, where surgeons act only when absolutely necessary. Instead, the future of healthcare lies in anticipatory medicine, where AI-driven insights enable early detection, intervention, and prevention, making care more effective and less invasive.

This transition is not just about improving patient outcomes or surgical efficiency; it's about transforming our healthcare systems. As technology evolves, healthcare organizations can scale these solutions across multiple departments and specialties, optimizing operations and preparing for future challenges like population growth or pandemics.

As we stand on the brink of a healthcare revolution, one thing is clear: the tools of tomorrow are already here, reshaping not just workflows but also possibilities. Precision, efficiency, and anticipation will soon become the new benchmarks—not luxuries but essentials in a world where technology and care work hand-in-hand to deliver unimagined possibilities.

How to Prepare for Cyber Attacks

Cyber incidents are not a matter of if, but when. Businesses, with vast amounts of data and heavy reliance on systems, are the new banks to rob. Healthcare data is especially attractive to cybercriminals due to its high value. Furthermore, as healthcare organisations are reliant on systems to deliver essential services, they are prime targets. The goal when facing a cyber event is clear: contain the problem, restore operations quickly, and mitigate harm. This article will discuss the people needed to achieve that.

The risks businesses face

Before touching on the critical players in a successful breach response, a reminder of the three principal risks faced from cyber incidents:

- Business operational risk: risk of loss from failure of key systems, processes, or people.
- Reputational risk: risk of loss from damage to an organisation's public image.
- Legal and compliance risk: risk of loss from legal action due to breaches of law or regulations (both regulatory and litigation). This risk lessens when businesses show they are taking all reasonable steps to prevent disaster.

A cyber event does not have to mean the death of your business, but it could, especially in healthcare. A concentration on people does not negate the importance of formulating plans, scenarios and playbooks that focus on protecting what is relevant. However, it is people who bring these to life.

Cyber is a team sport

Cybersecurity is a team effort. When a breach occurs, it's not just the IT, security, or legal department's responsibility—it requires a coordinated response from a pre-assembled team of trusted experts. This team can include both internal and external members, with roles tailored to the business and situation. Clear roles and a structured approach are essential for an effective response.

Key internal roles may include an incident response manager, system administrator, security analyst, IT support, and personnel for business continuity, legal, and communications. External experts, ideally pre- arranged, might include legal counsel, forensic IT specialists, ransom negotiators, cyber insurance providers, and PR agencies.
External experts are not needed every time, but it is important they are lined up and on speed dial. Two critical external roles include:

- SRA-regulated external legal counsel: Ensures compliance with legal and regulatory requirements, manages law enforcement communication, and protects privilege.
- Forensic IT specialist: Collects and documents data for legal admissibility and ensures regulatory compliance.

In most cases, external counsel should oversee the involvement of external parties, including ransom negotiators (discussed below), to protect privilege.

The value of considering the ransom question

Ransom demands lead stakeholders to want involvement and reassurance. This makes considering questions around ransom, including who is involved, critical. A company will have a better outcome during a live ransom demand if they decide in advance how to handle them, whether to engage with threat actors and how, and who in the organisation makes the ultimate decisions. Getting roles right is critical. There is no time for analysis paralysis.

Decisions regarding ransom negotiators require understanding the legalities and logistics of paying

ransom and/or engaging with a threat actor. This includes not confounding engagement with paying; these are two separate actions. Engagement can buy time to secure systems, sort backups, gather crucial information like proof of life or threat attribution (which all make informed decisions possible) and can allow the organisation, not the threat actor, to own the narrative. It can also provide a sense of control in a chaotic situation. A ransom negotiator is an expert in engagement.

Concluding comments

It is ultimately the people—armed with clear plans and responsibilities—who drive the success of breach management. Cybersecurity is a collective effort, and ensuring the right team is in place before an incident occurs is vital to minimise operational disruption, protect the organisation's reputation, and stay compliant with legal and regulatory frameworks. Preparedness is key, and a proactive stance can make all the difference when facing the inevitable.

How can the healthcare industry cope with rising demand?

There has been a lot of coverage in the press recently about the pressures that the NHS is facing. Ageing populations, an increase in chronic diseases and backlogs from COVID-19 have left numerous waiting lists at the highest levels ever.

Hospitals are overflowing and workers are burning out, so changes clearly need to be made. Here are just some adjustments the NHS could make to help with rising demand.

Increase capacity

Space seems to be a continuous issue within healthcare settings. Often, there are stories of patients being left in waiting rooms or corridors because they require treatment and there isn't enough ward space.

Investment, where possible, should be considered for expanding overburdened hospitals. Modular building hire is an efficient and flexible option to quickly increase bed capacity. There is also the potential for collaboration with outpatient clinics and other health centres as a way to divert non-urgent patients away from the worst-hit hospitals.

Where you are increasing bed space, the workforce needs to be increased at the same time. Making sure current staff members have adequate support will prevent further burnout and time off. Offering competitive compensation, training opportunities and better working conditions will also help keep staff turnover low.

Demand management

Given that many patients can and do receive care outside of hospitals, we should look to improve GP and outpatient services.

Start by taking a proactive approach to certain aspects, such as wellness programs and disease prevention. Offering community support will help the wider public to take control and responsibility for their own health. This could include drop-in diabetes clinics, pain management support and services to quit smoking.

By helping to reduce the prevalence of diabetes complications, for example, you are reducing the stress on emergency services, which has a knock-on effect on patients who need immediate help.

Optimise existing resources

To help reduce the strain on hospital resources, the NHS should embrace remote technological advancements such as remote monitoring technology and AI-powered solutions. Hospital stays for relatively minor issues take time and space away from more urgent cases simply due to the need for monitoring. Investing in these remote devices would enable patients to return home much sooner while still allowing their vitals to be checked periodically.

Furthermore, AI-powered tools can automate administrative tasks, such as charting and processing prescriptions, freeing up staff to focus on patient wellbeing and discharges. This could include more personalised patient education and discharge planning.

Five machine learning trends for healthcare leaders to take away from 2024

As artificial intelligence (AI) and machine learning (ML) dominate headlines and reshape everyday practices within healthcare, they are not just buzzwords – they're revolutionising the way we work.

With 2024 drawing to a close, Cambridge Advance Online, the University of Cambridge's online short course provider, taps into the expertise of AI and data science academic lead, Dr Russell Hunter, to uncover the top ML trends healthcare leaders need to know as they navigate this rapidly evolving landscape.

This follows the government's recent commitment to a digital-first NHS, sparking widespread interest in how ML could transform the healthcare sector:

- Prime Minister, Sir Keir Starmer, recently pledged major reforms to the digitalisation of the NHS, following critical concerns raised in the Darzi report.
- Questions about how the healthcare industry applies ML are frequently searched, with common queries including "How is machine learning used in healthcare?" and "Does the NHS use machine learning?".
- IBM's latest global AI adoption index found that 42% of enterprise-scale companies claim to be actively deploying AI in their business – the same amount that were still exploring its use the year prior.

Dr Russell Hunter works within the Department of Engineering at the University of Cambridge and leads Cambridge Advance Online's Leveraging Big Data for Business Intelligence course.

Explainable AI (XAI)

XAI aims to make AI decisions understandable to humans, enhancing trust and regulatory compliance.

"When you build a model to solve a particular problem, it is often more difficult to persuade stakeholders to come on board", Dr Hunter shares. "In fact, in many cases they would prefer a less optimal model that can be visualised and understood more easily than jumping on board with some kind of mysterious model that works for unknown reasons. This is especially important when it comes to healthcare or finance."

In healthcare, XAI provides explanations for diagnostic decisions or treatment recommendations made by AI systems. These explanations are crucial for doctors and patients to trust and act on AI-driven insights, ultimately improving patient outcomes. AI models used for predicting patient risks, such as the likelihood of developing a certain disease, need to be clear and understandable to ensure that healthcare providers can grasp the underlying factors behind the risk assessment.

Autonomous decision-making

These advanced systems are transforming healthcare by accelerating the speed and precision of decision-making, driving greater efficiency and enhancing customer experiences. By automating manual processes, ML technologies can increase businesses' abilities to analyse vast amounts of data quickly while uncovering patterns and making informed decisions.

Dr Hunter explains how autonomous systems can be applied to the healthcare industry, "Sophisticated multimodal AI can analyse genetic data and patient histories to recommend personalised treatment plans. This leads to more effective and individualised health care. Similarly, by leveraging data from electronic health records, these systems can predict patient outcomes or complications, which allows for proactive intervention."

Agenetic AI

"Agentic AI represents a significant advancement beyond classical reactive AI by being designed to proactively set its own goals and take autonomous actions to achieve them", explains Dr Hunter. These proactive systems not only enhance patient care but also have the potential to alleviate the burden on healthcare professionals by automating routine monitoring and treatment adjustments.

"In the realm of personalised healthcare, agentic AI can revolutionise patient care by continuously monitoring patient health metrics and autonomously administering medication as needed. For example, an agentic AI system could monitor a diabetic patient's blood sugar levels in real-time and administer insulin precisely when required, thus maintaining optimal glucose levels and reducing the risk of complications.

"Another application is in personalised treatment plans for chronic diseases," Dr Hunter adds. 'Agentic AI can analyse vast amounts of patient data to predict disease progression and suggest tailored treatment plans. For instance, in oncology, agentic AI can process data from medical records, genetic profiles and treatment responses to recommend personalised chemotherapy protocols, potentially improving outcomes and minimising side effects."

Edge AI

Another cutting-edge development, Edge AI brings an immediate processing capability which is crucial for applications in healthcare monitoring, where time-sensitive tasks require prompt responses. According to Dr Hunter, this is achieved by processing data locally on the device, reducing latency, enabling real-time decision-making and minimising the amount of data that needs to be transmitted to central servers.

By processing sensitive information locally, this also enhances privacy and security, reducing the risk of data breaches during transmission, something specifically important with healthcare data, however, Dr Hunter does point out that "challenges such as hardware limitations, integration complexity, and the need for efficient management and maintenance of numerous edge devices curtail the full effectiveness of edge AI."

Augmented workforces

While there are concerns that AI will replace humans in the workplace, Dr Hunter believes that the latest AI developments can augment rather than undermine human contributions. AI can assist doctors by analysing medical images and patient data, identifying patterns that might be missed by the human eye. This allows doctors to make more accurate diagnoses and develop personalised treatment plans, thereby improving patient outcomes and operational efficiency.

"This collaboration between humans and AI combines the strengths of both, allowing AI to handle repetitive, data-intensive tasks while humans focus on strategic, creative and interpersonal activities that require emotional intelligence and critical thinking", Dr Hunter notes. "Rather than eliminating jobs, AI reshapes them, leading to the creation of new roles that require managing, programming and collaborating with AI systems."

It is crucial to keep an eye on these developments as a healthcare leader, to ensure your organisation is fully equipped to gain an edge by leveraging AI and ML.

For an indepth look at these insights and additional trends across industries, read Dr Hunter's machine learning trend analysis on the CAO blog.

Facial recognition technology improves pain management in local care homes

Innovative facial recognition technology is helping staff at residential and nursing homes in Bedfordshire, Luton and Milton Keynes to provide better care to patients and reduce reliance on medication.

PainChek uses a mobile phone app to assess and manage pain levels, based on its recognition of facial expressions. This is particularly useful for residents who are unable to express themselves verbally, due to illness or disability.

A pilot project in Central Bedfordshire has already demonstrated the benefits of the revolutionary digital tool which assesses pain levels in vulnerable adults, and is now being rolled out across the local area.

Since the pilot was launched by the Digitising Social Care (DiSC) programme team at Bedfordshire, Luton and Milton Keynes Integrated Care System (BLMK ICS), there has been an overwhelming interest from care providers and healthcare staff to expand the offer.

Seven care homes in Central Bedfordshire participated in the pilot, and initial results have been extremely positive. In the first three months, 39 users across six care homes conducted 152 assessments – identifying 124 instances of pain. In the first two months alone, the quantity of pain medication used across four homes fell by 55%. This may indicate more accurate and consistent pain assessments, which allow care staff to make more informed pain management decisions.

Patricia Coker, senior responsible officer on the Digitising Social Care programme and head of integration (health and adult social care), said:

"PainChek supports effective management of pain, and has been shown to improve experience of care and promote better quality of life for our residents. We were keen to assess its viability, scalability and impact for our residents and care providers."

Louise Norris, deputy home manager at Oak Manor Care Home in Shefford said:

"PainChek supports the gathering of information to better support our residents. The information is easy to access and track and it's a good tool to work with, alongside the GP, to manage pain."

Clare Steward, Digitising Social Care Programme Director, said:

"It's already clear that PainChek is helping our care providers to respond more effectively to the needs of their residents, and reducing the use of medication. The pilot has now been extended across BLMK to a further 1,000 residents, and an in-depth evaluation at the end of the 12-month pilot will help us decide whether to roll it out further."

This pilot is a BLMK ICS project being delivered in collaboration with Central Bedfordshire Council. More information is available online about the BLMK Digitising Social Care programme.

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Revolutionizing healthcare with key technology trends transforming medical practices

The medical field is undergoing a groundbreaking technological evolution that is reshaping how healthcare is delivered. Staying informed about these trends is crucial for professionals looking to enhance patient outcomes and streamline medical practices. Understanding these innovations can empower you to make informed decisions in your healthcare environment.

The rapid pace of technological advancements in healthcare is revolutionizing how medical services are provided, improving both efficiency and patient care. This transformation encompasses a wide range of innovations, from digital health tools to advanced robotics, each playing a vital role in modern medical practices. Keeping abreast of these changes is essential for healthcare professionals seeking to remain competitive and provide cutting-edge care. For instance, a Highland Park orthodontist might leverage these advancements to enhance patient experiences and outcomes.

Digital health innovations

Digital health has emerged as a powerful force in the healthcare industry, significantly impacting patient care and operational efficiency. This innovation includes a variety of tools such as mobile health apps, electronic health records, and telemedicine platforms that facilitate seamless communication between patients and providers. These digital solutions not only enhance accessibility but also empower patients with greater control over their health information. The adoption of digital health tools has led to improved patient engagement and satisfaction across numerous healthcare settings. This trend underscores the importance of embracing digital health innovations to meet the evolving demands of today's tech-savvy patients.

Artificial intelligence in healthcare

The integration of artificial intelligence (AI) into healthcare has opened new frontiers in diagnostics and treatment planning. AI technologies are increasingly used for tasks ranging from analyzing medical images to predicting patient outcomes with high accuracy. AI-driven systems can significantly reduce diagnostic errors, thus enhancing patient safety and care quality.

Moreover, AI's ability to process large datasets quickly allows for the development of personalized treatment plans tailored to individual patient needs. This level of customization not only improves clinical outcomes but also optimizes resource allocation within healthcare facilities. As AI continues to evolve, its applications will undoubtedly expand, offering even greater benefits to both practitioners and patients alike.

Telehealth and remote monitoring

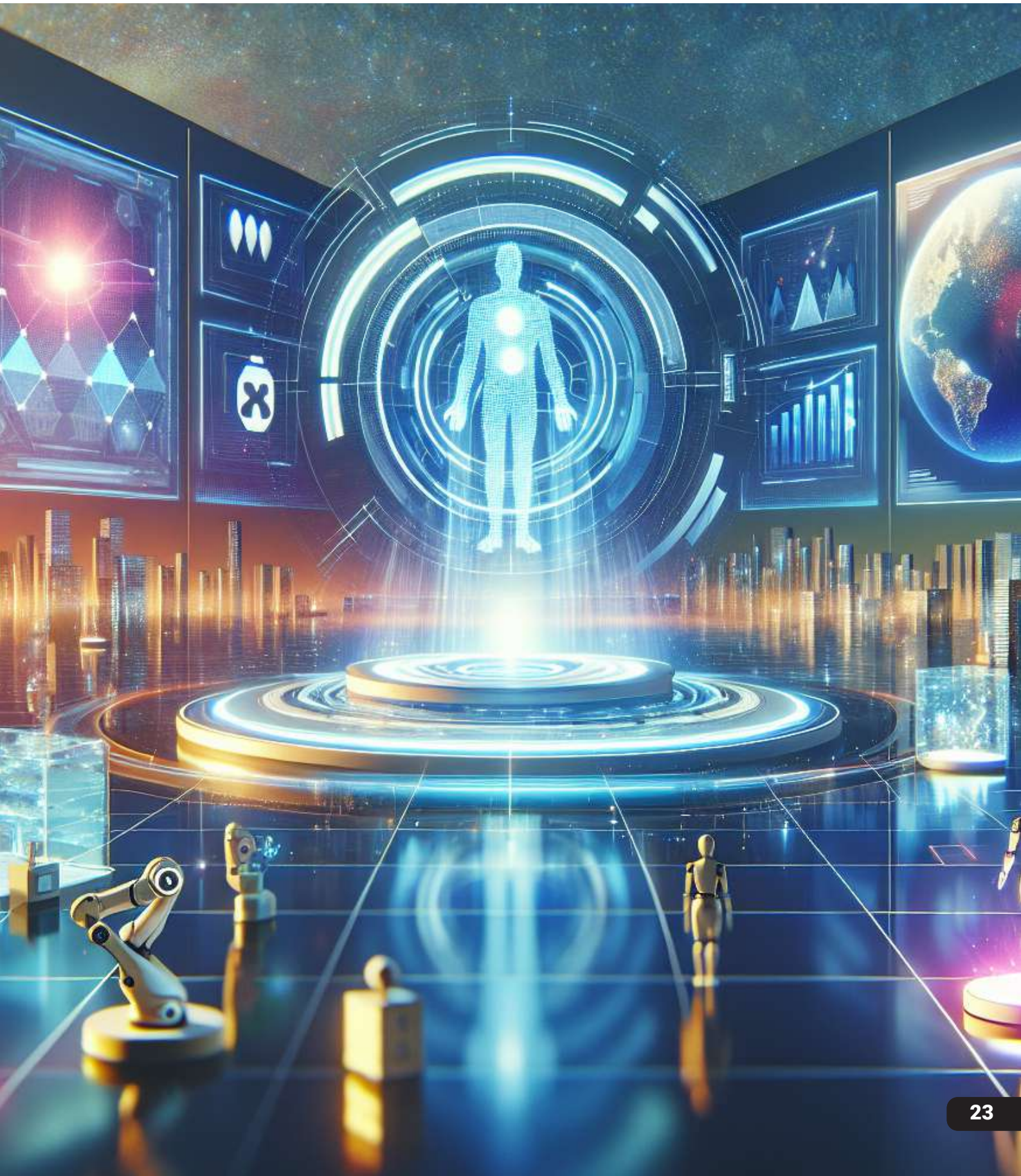
The rise of telehealth services marks a significant shift to more accessible and convenient healthcare delivery models. By enabling virtual consultations, telehealth reduces geographical barriers and makes it easier for patients to access medical expertise regardless of location. Telehealth usage has surged, highlighting its growing acceptance among patients and providers.

Remote monitoring technologies further complement telehealth by allowing continuous tracking of patient health metrics outside traditional clinical settings. These systems provide valuable real-time data that can be used to detect potential health issues early on, thereby preventing complications and hospital readmissions. The combined impact of telehealth and remote monitoring is transforming how care is delivered, making it more proactive and preventive.

Wearable technology and health analytics

Wearable technology has gained immense popularity as a tool for personal health management, offering insights into various aspects of an individual's well-being. Devices like fitness trackers and smartwatches monitor activities such as heart rate, sleep patterns, and physical activity levels, contributing valuable data for both users and healthcare providers. Wearables can improve health outcomes by encouraging healthier lifestyle choices.

The data collected from these devices plays a crucial role in enhancing healthcare strategies through advanced analytics. By analyzing trends over time, healthcare professionals can identify areas where interventions may be necessary or assess the effectiveness of current treatment plans. As wearable technology continues to evolve, its potential to positively impact patient care will likely expand further.



TECHNOLOGY IN THE SPOTLIGHT

DIGITAL HEALTHCARE

Each year we cover healthcare technology that is revolutionising the healthcare sector. This year we cover three intuitive technologies for healthcare: POCKETALK offering instant, accessible translation, giving every patient a chance to be heard and understood and improving the healthcare experience for all, Verto: Empowering Healthcare to deliver better care through transformative outcomes and Mizaic - revolutionising the clinician : patient experience at the point of care, with an Electronic Document Management System built for the NHS, by a team that has worked in the NHS.

POCKETALK

TMI SYSTEMS
Verto

MIZAIC
MediViewer

Setting the MedTech Industry Straight: We Must Always Lead with Patients

MedTech as an industry is ever evolving and requires a delicate balance between innovation, financial incentives, and patients. Putting patients first may not always be direct and easy, but is one of the main drivers that enhances overall quality of care. We, in the industry, must always lead with patients, even if that means sacrificing short-term business goals, so that all stakeholders benefit in the long run.

How MedTech Currently Operates

As Westernized medicine continues to march forward, a significant emphasis in healthcare has been placed on developing cutting-edge technologies and solutions, which has completely changed the landscape of how we care for patients. Patients continue to expect more as they are inundated with information about the newest minimally invasive treatment or more advanced diagnostic system. Unfortunately, however, these news blasts often primarily target patients in order to ultimately provide MedTech shareholders with financial returns. This slippery slope can lead to a focus on the bottom line instead of what truly matters: the patient.

Patients are First Priority

Breaking through the noise of numbers: keeping patients as the priority has trickle down effects for investors:

1. Better Clinical Outcomes

   By ensuring patients, their loved ones, and medical professionals are part of the innovation process from start to finish, companies can gather crucial feedback that will help them in their design process. Medical devices that are designed with a patient-centric approach often lead to better clinical outcomes, achieving important patient goals that may not be readily apparent initially. Collaboration is crucial, not only to minimize patient harm, which can quickly sink a new product introduction, but also allow for a more meaningful patient experience and an increase in overall acceptance.

2. Sustainability that Truly Lasts

   By focusing on patient needs with consistent, positive outcomes, companies can build trust with healthcare providers and patients which leads to long-term sustainability. New products will be adopted faster if customers know what to expect. A good reputation translates into brand loyalty, repeat users, and wider acceptance, which ultimately results in steady revenue streams for companies.

3. Leading with Ethics

   The Hippocratic Oath that all medical doctors pledge states that above all, do no harm. In a multi-billion dollar industry where transactions occur far away from patients, this tenet can sometimes be forgotten. If companies face a difficult decision, remembering this simple adage will not only lead them in the right direction for patients but will also endear them to and build trust with physicians.

The Next Chapter

The MedTech Industry stands at an important crossroads for patient care: new treatments require huge capital investments but even greater returns, while the patients, at the heart of this industry, are insisting on both better and longer lives. The only way for companies to be sustainable in this high stakes environment is to create products that deliver consistent, positive clinical outcomes under the utmost ethical standards. The next chapter in the MedTech industry should be grounded in a patient-first mentality, and with this, we can expect a bright future for the industry as a whole.

What to look forward to in the next issue

In the 2025 issue we will cover the news highlights and predictions for the year and cover more ground-breaking healthcare technology in our spotlight section.

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