

ABHI

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**HOW CAN HEALTHTECH  
IMPROVE OUTCOMES  
ACROSS THE WHOLE  
PATIENT PATHWAY?**

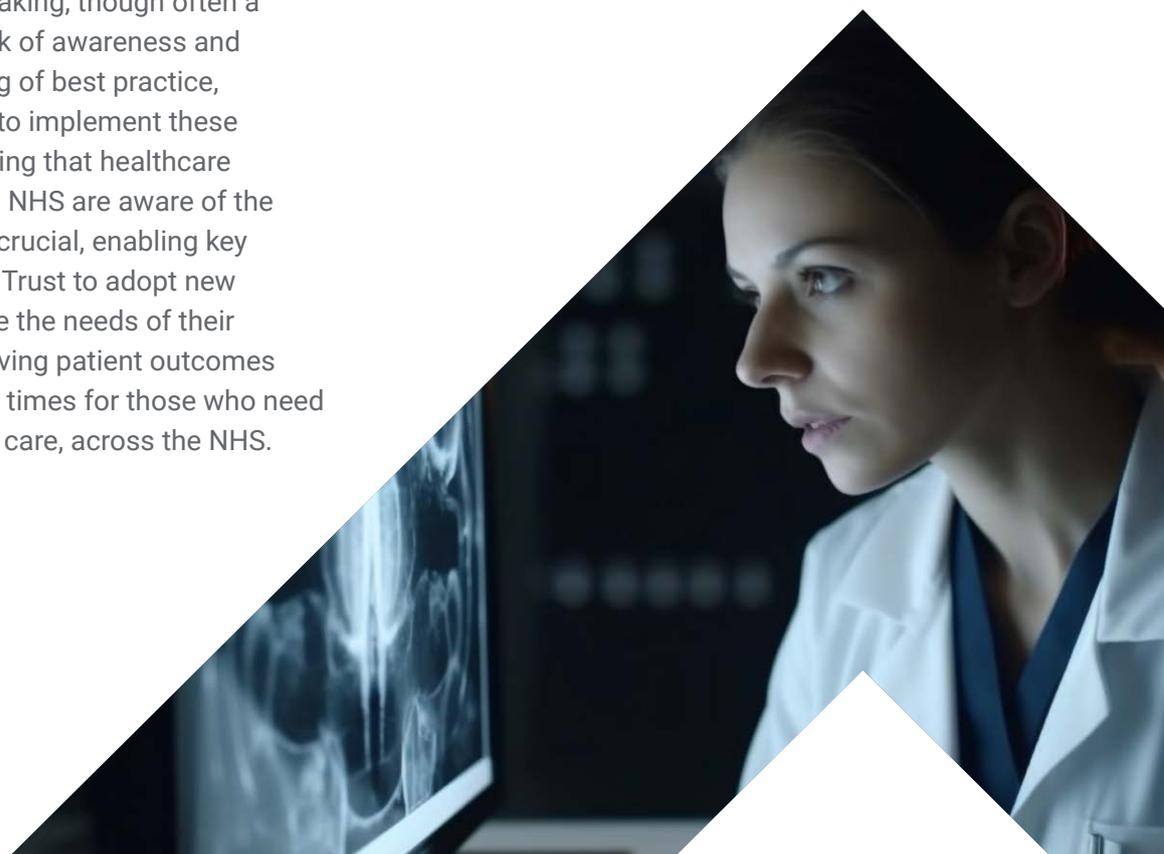
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# INTRODUCTION

HealthTech offers valuable solutions to current National Health Service (NHS) pressures across the entire patient pathway, spanning from diagnosis and primary, community, and secondary care, to surgery, patient management and recovery. From syringes and wound dressings to surgical robots, diagnostics and digitally enhanced technologies HealthTech is improving outcomes by streamlining diagnosis and treatment processes, saving clinician time, reducing treatment costs, improving access to care, and maximising available healthcare resources. HealthTech also provides important solutions to addressing healthcare disparities by enhancing care coordination.

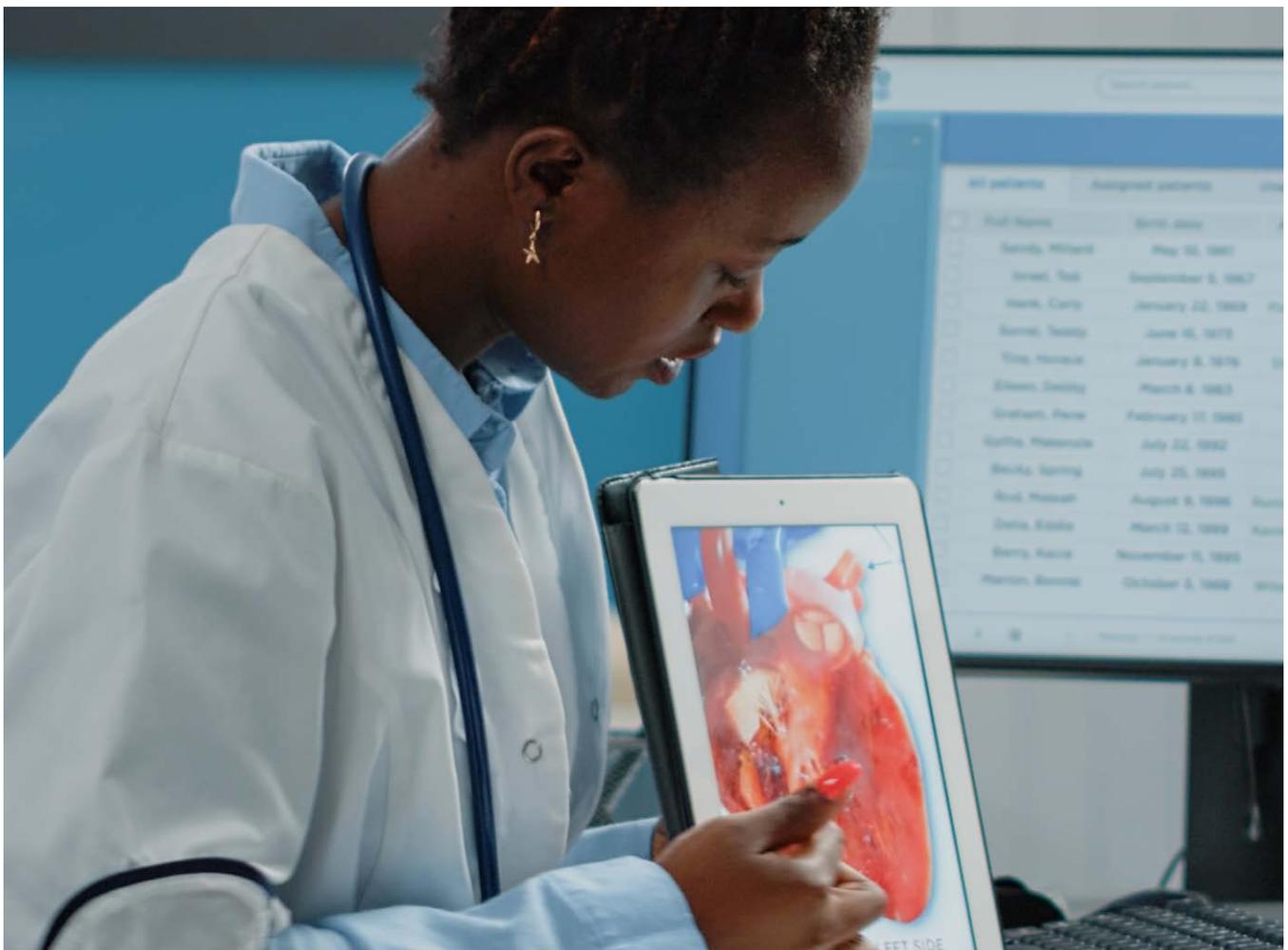
Despite examples of innovation achieving successful local adoption, it is often difficult for new technologies to be scaled and utilised nationally. This is due to many factors, including procurement decision making, though often a primary obstacle is a lack of awareness and a platform for the sharing of best practice, rather than a reluctance to implement these new technologies. Ensuring that healthcare professionals across the NHS are aware of the innovations that exist is crucial, enabling key decision makers in each Trust to adopt new technologies which serve the needs of their population, in turn improving patient outcomes and reducing the waiting times for those who need access to treatment and care, across the NHS.



# EXECUTIVE SUMMARY

Given the substantial financial and workforce challenges confronting the NHS, there is a necessity for HealthTech solutions capable of enhancing patient outcomes while simultaneously alleviating the existing burdens on the system. Despite the evidence of their benefits, HealthTech is not always at the forefront of decision making when it comes to improving patient care.

Providers also often struggle to secure widespread adoption of these technologies which are helping to improve patient outcomes locally. This can lead to missed opportunities for realising the positive impact on patients and the associated savings and efficiencies for the NHS.



# WHERE ARE WE NOW?

**The NHS is currently facing significant pressures of an ageing population, a rise in chronic illnesses, and soaring demand for its services, which are compounded by financial constraints, workforce shortages and staff strikes.<sup>1,2</sup>**

Since the COVID-19 pandemic, NHS waiting lists have continued to soar to unprecedented levels, leaving millions of patients awaiting diagnosis and essential treatment for their conditions. For example, waiting lists for diagnostic tests have increased 14-fold since 2020.<sup>3</sup> As of January 2024, 6.32 million individuals have been waiting for treatment, with 3.25 million of these patients waiting over 18 weeks.<sup>4</sup> General practitioners (GPs) are also encountering difficulties in making referrals due to secondary care capacity issues, leading to an 87% increase in unsuccessful referrals since February 2020, which exacerbates pressures on primary care.<sup>5</sup>

The NHS is also facing a growing 'hidden backlog' comprising of patients yet to seek care or who have had referrals cancelled due to the pandemic.<sup>6</sup> Elective and outpatient attendances also remain below pre-pandemic levels, which will likely lead to future challenges.<sup>7</sup> There are also significant pressures in emergency care, with total A&E attendances standing at 2.15 million in February 2024, with 70.9% of people being seen within four hours. This is below the target for 76% of patients to be seen within four hours by March 2024.<sup>8</sup>

In 2019, the Government published the NHS Long-Term Plan (LTP) outlining a vision for the future of healthcare in the UK focussed on prevention, better integration of services, and the implementation of HealthTech to improve efficiencies and patient outcomes.<sup>9</sup> As the UK emerged from the pandemic, the Government introduced several policy initiatives to address the growing backlog of patients waiting for treatment, the workforce shortages and the financial pressures on the NHS. For example, in June 2023, the NHS Long Term Workforce Plan was introduced which aims to address projected staff shortages by expanding medical school capacity, increasing nursing staff, and enhancing workforce flexibility.<sup>10</sup>

In March 2024, the Government published its mandate to the NHS - committing to reduce NHS waiting lists, backed by an additional funding of up to £14.1 billion over the next two years. It also emphasised the need for innovation and digital HealthTech to boost the NHS's capacity to enhance patient outcomes and create operational efficiencies.<sup>11</sup> These initiatives demonstrate recognition from the Government that HealthTech can provide an innovative solution to the current pressures facing the NHS.



## DIAGNOSTICS

### DEFINITION

Diagnostics are the method used to identify and determine the nature or cause of a disease or medical condition through various tests, examinations, and evaluations to help inform an accurate diagnosis and treatment plans. Diagnostics encompass a wide range of HealthTech, including laboratory tests, imaging studies, physical examinations, and patient history assessments.<sup>12</sup>

### IMPACT ON PATIENTS AND THE NHS

Despite approximately 70% of clinical decisions being influenced by in-vitro diagnostics (IVDs), the allocation of resources to IVDs in the NHS is just 1%.<sup>13</sup> As a result, demand for diagnostic services has surpassed the available capacity, placing further strain on healthcare delivery, with the UK lagging behind other European countries when it comes to diagnostic equipment availability.<sup>14</sup> The expansion of key staff groups has also not kept pace with the increasing demands for services. This combination of shortages in equipment and staff has put pressure on waiting lists, with more patients waiting for diagnostic services. As of January 2023, the impact of the pandemic resulted in approximately 1.58 million people waiting for diagnostic tests – a 9% increase from the previous year and a staggering 150% increase over the past decade.<sup>15</sup>

# 1.58M

people waiting for diagnostic tests in 2023 as a result of the pandemic

### HOW MUCH OF A PRIORITY ARE DIAGNOSTICS FOR THE GOVERNMENT?

In response to these challenges, the Government has recognised the need to prioritise diagnostics within the NHS. As part of the Elective Recovery Plan, they unveiled proposals to establish a network of over 160 Community Diagnostic Centres by 2025.<sup>16</sup> However, the success of these centres is reliant on the availability of essential resources, including the need to recruit an additional 3,500 radiographers, 2,000 radiologists, and 500 advanced practitioners.<sup>17</sup>

The NHS 2019 LTP and the Prevention Green Paper highlighted the need to leverage HealthTech solutions to achieve faster and more accurate diagnoses.<sup>18,19</sup> In line with this vision, the Government invested nearly £16 million in pioneering artificial intelligence (AI) research to enhance diagnostic accuracy and efficiency - enabling earlier diagnoses and more effective treatments for a wide range of conditions.<sup>20</sup>



## DIGITAL HEALTH

### DEFINITION

Digital health technologies comprise a wide range of products used in the health and care system including apps, software and online platforms that are intended to benefit people or the wider health and care system. They may be standalone or combined with other products such as medical devices or diagnostic tests.

### IMPACT ON PATIENTS AND THE NHS

The COVID-19 pandemic has led to the widespread adoption of Digital Health Technologies (DHT), with innovations such as remote consultations and remote patient monitoring changing the way that care is delivered.<sup>22</sup> However, one of the biggest opportunities for DHTs lies in public health and prevention strategies. Risk monitoring facilitated by DHTs can inform screening programmes for at-risk

groups or help monitor conditions to avoid over-medicalisation of treatment. This also supports positive behaviours, such as rehabilitation or appropriate levels of physical exercise after surgery. While these advancements hold immense promise for improving healthcare delivery, there are practical barriers hindering their effective implementation that include a lack of regulatory coordination and ability to keep up with innovation.<sup>23</sup>

### HOW MUCH OF A PRIORITY IS DIGITAL HEALTH FOR THE GOVERNMENT?

Digital Health has emerged as a significant priority for the Government, as evidenced by its 2023 'Plan for Digital Health.' This outlined the transformative potential of better health data, coupled with world-class research and clinical expertise, in informing early intervention, public health, and prevention strategies. The plan's key priorities include the digitisation of health and social care records; the development of new diagnostics capacity by leveraging artificial intelligence for image-sharing and clinical decision support; the scaling of digital health self-help, diagnostics, and therapies; and the enhancement of technology procurement practices across health and social care sectors. In line with these priorities, the Government allocated £2 billion to support the implementation of electronic patient records across all NHS trusts. This investment aims to empower over 500,000 individuals to remotely manage their long-term health conditions using digital tools. The Government has also earmarked £25 million for a three-year programme to enable Integrated Care Systems (ICSs) to scale up the use of digital social care records and other promising evidence-based technologies, such as falls prevention technology.<sup>24</sup>

# £2BN

Allocated by the government to support the implementation of electronic patient records across all NHS trusts



## MUSCULOSKELETAL (MSK)

### DEFINITION

Musculoskeletal (MSK) conditions are a group of conditions that affect the bones, joints, muscles, and spine, and are a common cause of severe long-term pain and physical disability.<sup>25</sup>

### IMPACT ON PATIENTS AND THE NHS

MSK conditions profoundly impact both patients and the NHS, with patients experiencing pain, disability, a lack of independence and an inability to participate in family, social and work life.<sup>26</sup> A significant number of the UK population are living with a MSK condition, approximately 12 million women and 9 million men across all age groups. This means that out of the UK population, over one third of women and just under a third of men have a MSK condition.<sup>27</sup>

MSK conditions represent a substantial burden on the NHS, constituting the third-largest area of expenditure, amounting to approximately £5 billion annually. These conditions contribute significantly to hospital admissions, accounting for 8.3% of the total admissions in England in 2021-22, while 47% of people living with MSK conditions in England require five or more medications. The impact on productivity is also significant, with MSK problems ranking as the second most common cause of sickness absence in 2020, resulting in 28.4 million days lost in work.<sup>28</sup>

### HOW MUCH OF A PRIORITY ARE MUSCULOSKELETAL CONDITIONS FOR THE GOVERNMENT?

Recognising the importance of MSK conditions, the Government in 2019 introduced the 'Musculoskeletal Health: A 5-year strategic framework for prevention across the life course' which aimed to adopt a comprehensive public health approach to MSK health. This was structured around four themes: work and health; evidence into practice; data and intelligence; and workforce development. The report also outlined how Public Health England, NHS England and

Versus Arthritis, along with other collaborators, are committed to prevention strategies - supporting people with MSK conditions to improve their health, while also driving awareness about prevention.<sup>29</sup>



## PATIENT SAFETY

### DEFINITION

Patient Safety refers to the proactive measures taken to prevent unintended harm or adverse events during the delivery of healthcare services. It covers various areas including antimicrobial resistance (AMR), falls, healthcare-associated infections (HAIs), medication errors, and sepsis; all of which can significantly impact patient well-being and healthcare resources.<sup>30</sup>

### IMPACT ON PATIENTS AND THE NHS

Patient safety issues pose a significant burden on the NHS and wider UK economy. For instance, the fall-related incidents are costing the NHS approximately £630 million annually.<sup>31</sup> Patients affected by healthcare-associated infections (HAIs) experience not only lower health status scores but also delayed return to employment and normal activities, highlighting the impact on quality of life and economic productivity.<sup>32</sup> Medical errors are highly prevalent in the UK and costly for the NHS, with 237 million errors occurring in England each year, costing the NHS upwards of £98 million.<sup>33</sup> Sepsis, another critical patient safety concern, accounts for approximately 44,000 annual deaths and imposes a direct cost of £1.5 billion on the NHS.<sup>34</sup>

# 237M

errors occurring in the NHS in England each year, costing upwards of £98 million<sup>33</sup>

### HOW MUCH OF A PRIORITY IS PATIENT SAFETY FOR THE GOVERNMENT?

The Government has taken a proactive approach to address the issues of patient safety through implementing a variety of strategic policy initiatives aimed at identification, prevention, and increased investment in innovations.

Both the UK's 2019-2024 Strategy and 20-year vision for AMR summarise the scale and challenge of AMR and outline measures aimed at effectively containing and controlling resistance. These approaches focus on reducing the need for antimicrobials and focusing on improving the development of, and access to, good quality old and new antimicrobials.<sup>35,36</sup> Whilst the approaches to AMR are centred on the need to reduce the need for antimicrobials and investing in innovations, the Government's emphasises the importance of early identification and prevention in tackling sepsis. In 2017, it announced measures to improve sepsis identification, tracking, and prevention, including educating healthcare professionals to recognise sepsis symptoms.<sup>37</sup> Similarly, its approach to addressing medication errors is focussed on the need for identification, tracking, and prevention. More specifically, in 2018, it introduced a system that links prescribing data in primary care to hospital admissions to help the NHS monitor and prevent medication errors.<sup>38</sup> In its 2022 guidance on falls, the Government emphasised the need for various preventative approaches aimed at mitigating fall-related injuries by including the National Falls Prevention Coordination Group Falls and fracture consensus statement. This called for a whole system approach to prevention by advocating for risk reduction strategies across the lifespan that encompasses various interventions, including strength and balance exercises, home modifications, and collaborative care services.<sup>39</sup>



## ROBOTIC-ASSISTED SURGERY

### DEFINITION

Robotic-assisted surgery is a form of keyhole surgery using robotic equipment that allows for more delicate and challenging surgery to be performed in a minimally invasive fashion in comparison to more conventional techniques. It enables doctors to perform many types of complex procedures with more precision, flexibility and control than is possible with conventional techniques.<sup>40</sup> Surgeons are also able to remotely use robotics when carrying out procedures.

### IMPACT ON PATIENTS AND THE NHS

In England, Guy's and St Thomas' Trust have the largest robotic programme with four surgical robots in operation. As a result, they are able to carry out the most robotic operations in the UK with around 1,100 cases a year. The inclusion of an extra surgical robot can increase the number of surgical procedures by over 300.<sup>41</sup>

Research from 34,000 independent studies suggest that robotic-assisted surgery can offer demonstrable benefits to patients and the NHS compared to open surgery techniques. These include reduced blood loss; reduced risk of infection; fewer complications; reduced length of stay thanks to improved recovery time; reduced chance of readmission; and less physical stress on surgeons, potentially extending their working life.<sup>42</sup>

# 34K

independent studies suggest that robotic-assisted surgery can offer demonstrable benefits to patients and the NHS compared to open surgery techniques

### HOW MUCH OF A PRIORITY IS ROBOTIC ASSISTED SURGERY FOR THE GOVERNMENT?

In the 2023 NHS Long Term Workforce Plan, it was described how NHS England is collaborating with the Royal College of Surgeons of England, the accrediting surgical body, and the robotic industry providers to build a framework for a robotic curriculum. The aim of this framework is to create a roadmap for implementing the curriculum, which will identify barriers to training and offer solutions to overcome them. This will lead to provision of a fully trained, accredited robotic assisted surgery surgical workforce.<sup>43</sup>



## SURGICAL INSTRUMENTS

### DEFINITION

Surgical instruments are not commodity products, rather they support positive surgical outcomes and shorter hospital stays. Common surgical instruments include scalpels, forceps, scissors, retractors, needle holders, speculums, and probes.<sup>44</sup>

### IMPACT ON PATIENTS AND THE NHS

On average, a hospital operates with 735 beds, 18 theatres, and performs 27,000 surgeries annually, requiring approximately 1,545 surgical instrument sets on-site. A typical reusable instrument set contains 48 instruments, each valued at around £40.00. Consequently, the average hospital manages approximately 75,000 instruments, equating to a considerable asset value of around £3.6 million. As a result, the estimated number of instruments in circulation within the NHS exceeds 17 million, underscoring the scale and complexity of instrument management.<sup>45</sup>

### HOW MUCH OF A PRIORITY ARE SURGICAL INSTRUMENTS FOR THE GOVERNMENT?

Surgical instruments have become a priority for the Government as part of its initiative to support the NHS in achieving carbon neutrality by 2045. Collaborating with suppliers, the NHS Supply Chain

is actively promoting the adoption of sustainable surgical instruments that can be recycled, reused, or repaired, thereby reducing waste sent to landfills.<sup>46</sup>

## WOUND CARE

### DEFINITION

Chronic wounds are not treated as a condition in themselves; rather, they are often seen as a symptom or complication of other conditions, such as diabetes. More specifically, chronic wounds are persistent wounds that fail to heal within a reasonable timeframe, often lasting for weeks, months, or even years and commonly include diabetic ulcers, venous ulcers, pressure ulcers (bedsores), arterial ulcers, and wounds resulting from surgery or trauma that develop complications.<sup>47</sup>

### IMPACT ON PATIENTS AND THE NHS

The impact of chronic wound management on both patients and the NHS is profound, with approximately 3.8 million individuals in the UK living with various types of wounds, ranging from acute injuries to chronic ulcers. This has a significant impact on mental health too, with 46% and 42% of patients experiencing depression and anxiety, respectively.<sup>48</sup>

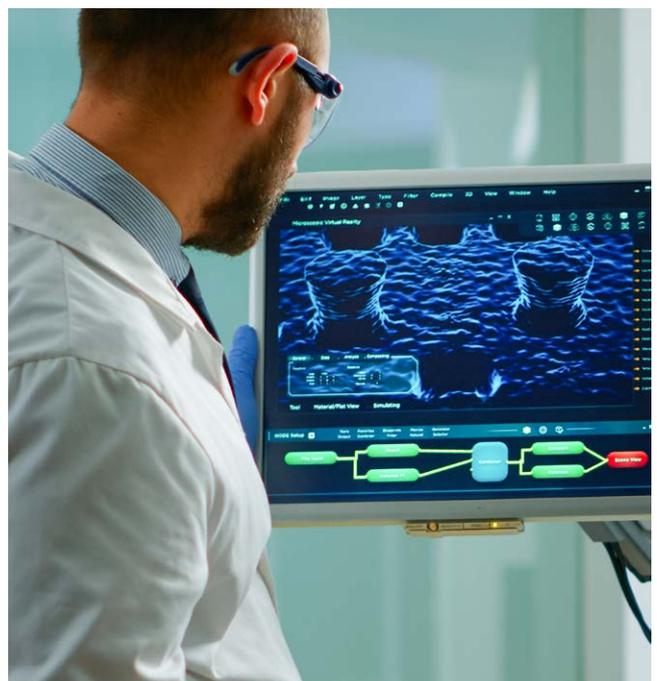
The annual NHS cost for wound management exceeds £8 billion which rivals the combined annual costs of managing osteoarthritis and rheumatoid arthritis. Despite efforts to contain costs, the financial burden of wounds continues to escalate, with a 48% increase in patient management expenses over the last five years, despite a reduction in spending on wound care products from £743 to £531 million in the same period.<sup>49</sup>

# £8BN

annual NHS cost for wound management

### HOW MUCH OF A PRIORITY IS WOUND CARE FOR THE GOVERNMENT?

The National Wound Care Strategy Programme (NWCSP), highlights the need to address sub-optimal wound care in England and Wales. Evidence indicates significant variation in wound care services underuse of evidence-based practices and overuse of ineffective ones.<sup>50</sup> The NWCSP developed recommendations promoting excellence in preventing, assessing, and treating individuals with wounds – specifically, the NWCSP complements existing programmes such as the Stop the Pressure Programme (STPP) by focusing on preventing pressure ulcers and extending the scope to encompass other wound types. By integrating wound care strategies across various healthcare settings the NWCSP aims to enhance patient outcomes, minimise the burden of wounds for individuals and caregivers, and improve the overall quality of wound care services.<sup>51</sup>



# THE ROLE OF HEALTHTECH ACROSS THE PATIENT PATHWAY

**Even before the COVID-19 pandemic, the NHS grappled with the challenges of an ageing population, a rise in chronic conditions, and an ever-increasing demand for its services. These, coupled with financial constraints and workforce shortages, pose significant obstacles to providing timely and effective care to patients. For example, waiting lists for diagnostic tests increased 14-fold since the start of the COVID-19 pandemic in 2020.<sup>52</sup>**

Primary and community healthcare settings face challenges that stem from insufficient staff and capacity to meet escalating patient needs. In secondary care, the disruptions from COVID-19 have seen the backlog of patients waiting for care surge to approximately 6 million, whilst the number of elective and outpatient attendances carried out are still well below pre-pandemic levels.<sup>53</sup> These pressures extend to the surgical setting as well, where the NHS faces a mounting backlog of elective surgeries, further intensifying the strain on services.<sup>54</sup> These challenges are also impeding clinicians' capacity to proactively manage patients ongoing care post-diagnosis or treatment, putting patients at risk of poor outcomes.<sup>55</sup>

In 2019, these challenges were recognised by the NHS LTP, which highlighted the need for transformative change by emphasising the importance of leveraging HealthTech to improve patient outcomes and enhance NHS efficiencies<sup>56</sup>. There is growing evidence to suggest that a range of innovative HealthTech can provide valuable solutions across the entire patient pathway. Innovations can streamline treatment and care processes, freeing-up clinician time, thus improving access to care whilst also making efficiencies.

Despite the evidence of their benefits, HealthTech is not always at the forefront of decision making when it comes to improving patient care. This has the potential to result in missed opportunities for realising the benefits on patient outcomes, as well as the associated savings and efficiencies that they can bring.

In this report we detail some key areas, however this is not an exhaustive document. There are areas like ophthalmology and respiratory, where HealthTech is key, and emerging areas like genomics offer exciting opportunities. This document contains examples from across the patient journey, but they should not be viewed in isolation. We often see NHS procurement only purchasing HealthTech based on unit cost, however these innovations can save money in other parts of the system - HealthTech's value therefore lies across the whole patient pathway.

# DIAGNOSIS

## INTRODUCTION:

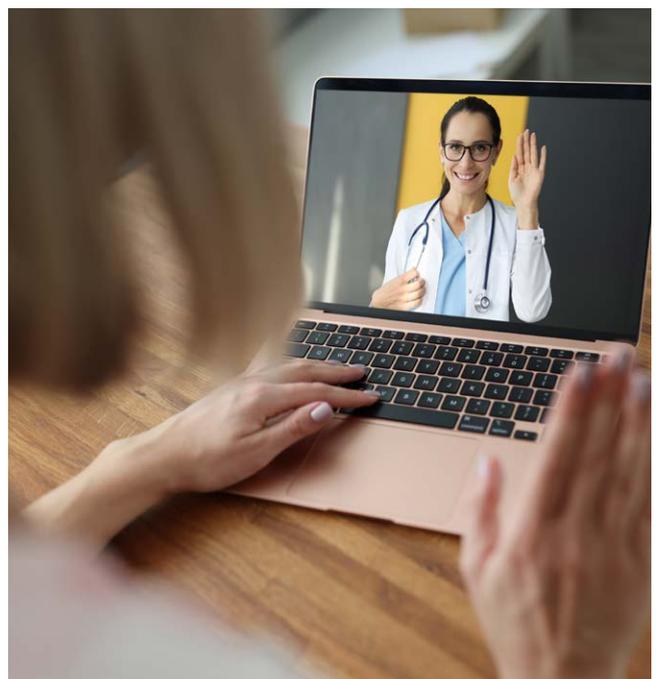
Early and accurate diagnosis of conditions is critical for increasing the likelihood of positive clinical outcomes by expediting individuals towards the correct treatment pathway. Many of the changes recommended by the 2019 NHS LTP and the Prevention Green Paper are underpinned by a need for faster, more accurate diagnosis delivered by the better use of technology.<sup>57</sup>

HealthTech offers an effective solution to these challenges in the diagnostic pathway. For example, it has been shown to improve patient outcomes through earlier and more accurate diagnoses across a broad range of conditions.

Given the importance of timely and accurate diagnosis, it is imperative for clinicians and NHS Trusts across the country to understand the value available HealthTech to them. Raising national awareness of the value HealthTech can ensure equitable access and adoption, thereby improving outcomes for all patients.

## CASE STUDY: DIAGNOSIS/ DIGITAL HEALTH/ PATIENT SAFETY

Since the COVID-19 pandemic, there has been an acceleration in the implementation of novel approaches to diagnostics, with patients able to conduct tests remotely from their homes, with results transmitted directly to clinicians for analysis. For example, a digital diagnostic HealthTech service has been introduced to streamline the identification of kidney disease, allowing patients to conduct urine tests at home using a provided kit and smartphone. After conducting the test, patients receive immediate clinical results, shared in real-time with their GP. By eliminating the need for in-person appointments, this can save clinician time and if adopted nationally, it has the potential to generate significant net savings for the NHS.



## CASE STUDY: DIAGNOSTICS/ DIGITAL HEALTH



Identifying and diagnosing a condition in its initial stages, often before symptoms become severe or complications arise, is essential for prompt treatment and management responses - reducing the risk of hospitalisations and emergency interventions. This is necessary for improving outcomes for conditions like suspected preterm preeclampsia (PE). An innovative HealthTech approach that can facilitate timely intervention involves a ratio test designed to diagnose and rule out PE between 20 and 36 weeks of gestation. This type of test not only

offers a quicker and more efficient diagnostic process but also ensures greater accuracy in identifying PE - facilitating better management strategies for affected women. By promptly confirming or ruling out PE, this test minimises the need for unnecessary outpatient follow-up appointments at day assessment units and maternity assessment units, as well as reducing the likelihood of emergency interventions. This eases the burden on the NHS, frees up capacity and enables resources to be re-allocated to other areas of patient care.



# PRIMARY CARE/ COMMUNITY CARE

## INTRODUCTION:

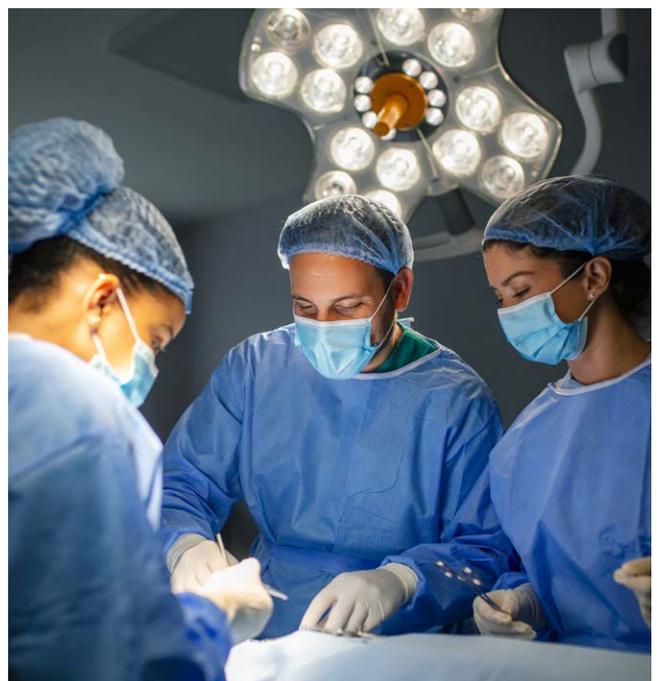
Primary and community care services are an essential part of the patient pathway, often being the first healthcare professional to see people about their health concerns. However, waiting lists are rising, prompting Integrated Care Boards (ICBs) to expand this offer into the community. Pharmacists and community hubs enable people to access primary care to help alleviate pressure on GPs.

Seeing a primary care practitioner early can often prevent or mitigate the progression of illnesses, which will reduce downstream pressure on secondary care and emergency services. Remote monitoring and empowering people to look after their own health are just a couple of examples of how HealthTech can reduce pressure on GPs, and in turn reduce the need for appointments. For healthcare professions to be able to embrace these innovations, they firstly need to be aware that they exist.

## CASE STUDY: WOUND CARE:



A new wound care dressing offers a solution for wound bed preparation, by improving the management of acute and chronic wounds in primary and community care. The dressing is efficient in facilitating the removal of dead tissue, resulting in pain reduction for patients and improved wound healing outcomes. The dressing enhances patient quality of life by minimising frequent dressing changes and reducing additional clinician follow-up and patient appointments. This not only increases clinician capacity but also leads to cost savings for the NHS by reducing dressing expenses.



## CASE STUDY: PATIENT SAFETY



An eco-friendly approach to managing urine output in women has been developed that eliminates the need for traditional catheters, catheter bags, and continence products. Targeted at women with urinary incontinence or frequent urination, as well as those with mobility challenges, this technology improves patient comfort and quality of life by reducing indwelling urinary catheter days - minimising trips to the bathroom. This decreases the risk of associated complications such as falls and urinary tract infections. It therefore reduces the likelihood of patients needing further appointments or care -

helping conserve valuable NHS resources. This technology also leads to long-term treatment cost savings treatments by eliminating the necessity for traditional catheters, catheter bags, and continence products.

In addition to the significant benefits for both patients and the healthcare system, HealthTech is able to contribute to the sustainability goals outlined in the NHS LTP.<sup>58</sup> For example, the eco-friendly approach to managing urine output in women can decrease clinical waste per patient - reducing the overall consumption of paper and plastic-based materials.



# SECONDARY CARE

## INTRODUCTION:

Secondary care is an essential part of the patient pathway, offering specialised services in diagnosis, treatment, and management for complex medical conditions. It's where most people go when they have a health problem that can't be dealt with in primary care because it needs more specialised knowledge, skill or equipment than the GP has. With rising demand and staffing shortages in secondary care, there is a pressing need for innovative solutions to save time and resource across the NHS.

In secondary care, HealthTech is able to speed up the diagnosis process, streamline patient preparation for treatment, reduce medication requirements, and improve how resources are used to help address the challenges of increasing patient backlogs.

## CASE STUDY: DIAGNOSTICS/ PATIENT SAFETY



Digital pathology offers an innovative solution in diagnosing cancer. By digitising slides and employing algorithms to review tissue samples, pathologists and biomedical scientists can streamline their workload, giving them more time to focus on complex cases while speeding up the review process for negative cases. This further helps to alleviate strain caused by staff shortages in the pathology workforce by enabling laboratories to expand their capacity without the need to hire additional staff. Ultimately, the adoption of digital pathology HealthTech enhances the productivity and effectiveness of pathology services, ensures timely and accurate diagnoses for patients while improving how NHS resources are used, without the need for additional staff.

## CASE STUDY: DIGITAL HEALTH/ PATIENT SAFETY



An electronic pre-operative assessment (POA) patient management system helps clinicians keep track of patients' preparation before they are brought in for surgery. This streamlined system helps clinicians to confirm patients' suitability for surgery, enables them to make informed treatment decisions, and helps them to better identify those in need of additional support.

The POA process involves collaboration among various experts, and therefore can integrate electronic patient records. This sharing and access to patient medical records are essential for improving care, as emphasised in the NHS LTP. The platform also includes functionality to communicate with patients and obtain additional information through a specifically designed questionnaire to help clinical teams to place patients into risk categories prior to any face-to-face appointment. This creates a more efficient and streamlined process by enabling an earlier start to prehabilitation programmes.

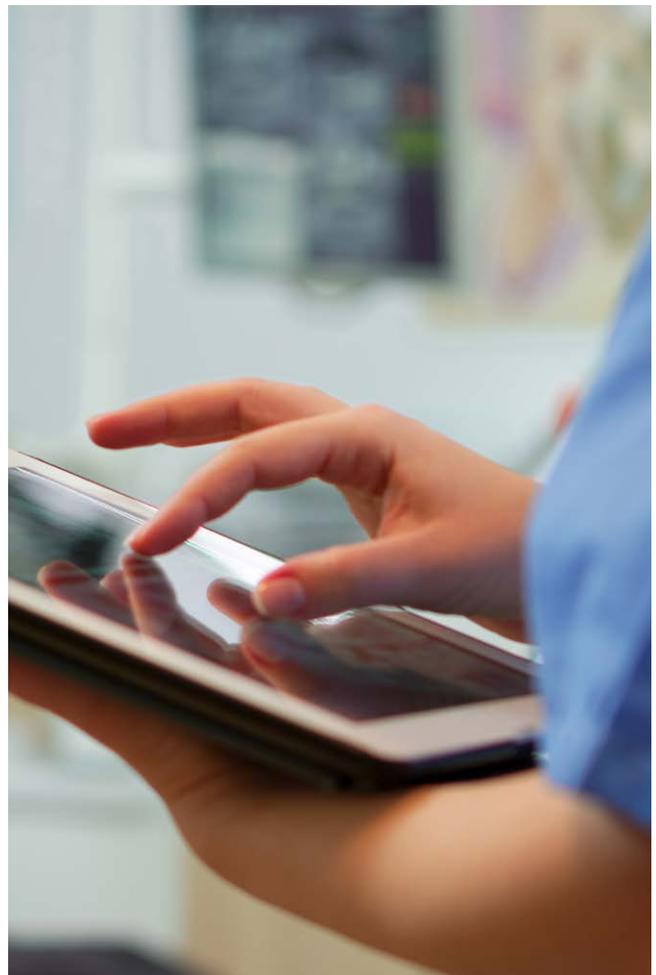
Through text message reminders, this POA system has successfully boosted patient engagement with questionnaires, leading to a significant increase in response rates. This has resulted in improved risk stratification, which has increased clinician and resource capacity by reducing the monthly number of required appointments.

As a result, more POAs are performed, with clinical teams being able to accommodate more patients. Overall, by increasing patient engagement and minimising appointment requirements, it enhances clinician capacity and workflow efficiencies, thereby easing the burden on services and contributing to the reduction of the patient backlog.

## CASE STUDY: WOUND CARE



Innovative HealthTech solutions, such as wound bed preparation gel, speed up wound healing, alleviate pain, and decrease infection risks, leading to fewer necessary clinician appointments, enhancing quality of life, and reducing the need for medications like painkillers and antibiotics. This not only benefits patients but also saves the NHS financial resources by decreasing dressing costs and medication use. With accelerated wound healing and fewer complications, there is a reduced need for additional hospital appointments, freeing up capacity to accommodate more patients in secondary care.



# SURGERY

## INTRODUCTION:

Surgery plays a crucial role in improving patient outcomes by addressing complex health issues, enhancing survival rates, and restoring lost functions, ultimately improving quality of life. However, ongoing challenges with staff recruitment and retention, along with a significant backlog of patients are adding an intense strain to the NHS.

It's crucial for HealthTech to be widely adopted in surgical settings across the country to enhance patient outcomes and improve workforce efficiencies. Raising national awareness about the latest innovations is key to ensuring the uptake of innovations. Educating clinicians through the sharing of best practices and data among healthcare professionals will help increase understanding of different HealthTech innovations so that their benefits are fully realised.

## CASE STUDY: ROBOTIC-ASSISTED SURGERY



Robotic-assisted surgery makes operations more efficient and reduces recovery time, thus freeing-up NHS resources. More specifically, for soft tissue surgery, surgical robots have demonstrated reduced blood loss, lower risk of post-operative complications, and faster recovery times, ultimately leading to shorter hospital stays and decreased readmission rates. Robotic-assisted surgery used for total knee arthroplasty has increased early range of motion and decreasing postoperative pain, while also enhancing surgical efficiencies through reduced procedure times. For spinal prosthesis placement, the utilisation of Mazor Spinal Robots for preoperative planning and has resulted in lower revision surgery rates and reduced radiation exposure for both patients and medical staff.

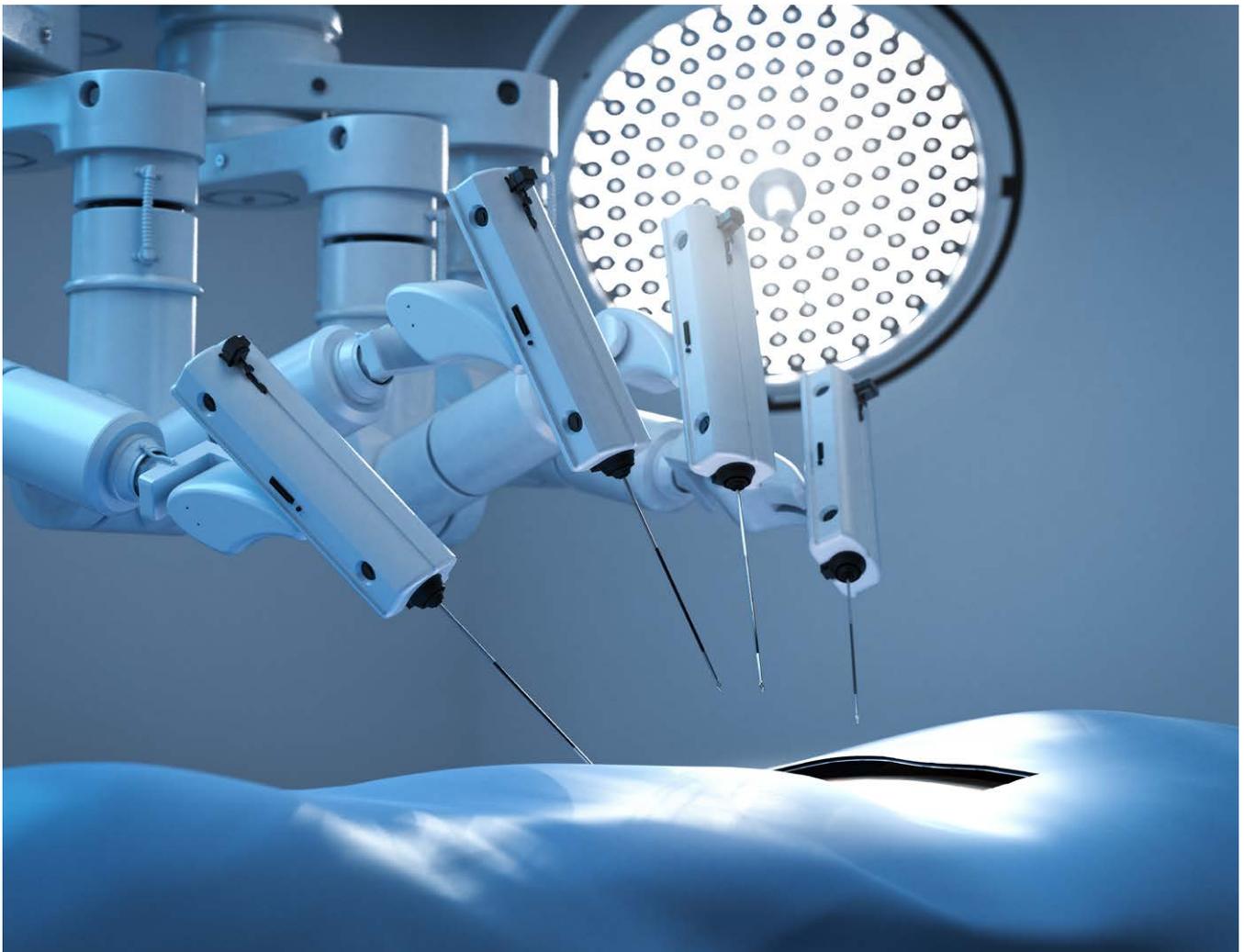
Overall, robotic-assisted surgery offers numerous advantages over traditional surgical methods including reduced patient trauma leading to faster recovery, improved patient experience, shorter hospital stays, and the consequent freeing-up of capacity in Intensive Care Units and High Dependency Units. They can further lead to improved efficiencies in operating theatres and reduced workplace stress by minimising the physical strain on surgeons.<sup>59</sup>

## CASE STUDY: DIGITAL HEALTH/ MUSCULOSKELETAL/ ROBOTIC ASSISTED SURGERY/ SURGICAL INSTRUMENTS/ WOUND CARE:



In surgery, the introduction of an innovative IV administration set tailored for infusion therapy, like antibiotics, has resulted in improved patient safety outcomes and the freeing-up of workforce capacity. The IV administration set not only delivers the full prescribed dose to patients but also incorporates a feature to flush out the residual volume of the drug. This improves safety and treatment effectiveness by ensuring patients get all the required medication safely without risks like

fluid overload or air bubbles, and without needing to open the infusion system. This is crucial for treating medical conditions effectively, avoiding complications or relapses, and reducing the risk of antibiotic resistance. This method requires less nursing time compared to the current alternative methods and alleviates the need for additional healthcare interventions, such as extended hospital stays, further medical consultations, or more aggressive treatment approaches.



# PATIENT MANAGEMENT

## INTRODUCTION

Once a patient has left hospital, it is essential they are kept well, and monitored to make sure any treatment or medication is performing as expected. Patients with well managed conditions are less likely to require additional hospitalisation, appointments and treatment, critical for saving NHS resources.

HealthTech innovations can lead to efficiencies and patient outcomes by streamlining processes, automating tasks, and enhancing communication between healthcare providers and patients without further work. Effective patient management with HealthTech innovations ultimately saves the NHS time and resources, which is essential in addressing current workforce and financial pressures.



## CASE STUDY: DIGITAL HEALTH



A teledermatology platform, which serves as a centralised system for efficiently triaging both inpatient and outpatient referrals remotely, is able to streamline the dermatology service coordination process. By integrating with existing primary care workflows, it automates referrals and enables patients to provide additional information about their skin lesions, facilitating remote triaging towards diagnosis or treatment decisions. High-quality lesion images are captured using a digital dermatoscope and iPad, which are remotely assessed by a Consultant Dermatologist. This innovative service not only addresses the demands of busy dermatology departments, but it can also help to bridge the gap between primary and secondary care and ultimately alleviate long waiting lists in dermatology referrals. By minimising the referral-to-diagnosis times across different socioeconomic areas, this HealthTech is able to reduce health inequalities, an aim outlined in the 2019 NHS LTP.

## CASE STUDY: DIGITAL HEALTH/ PATIENT SAFETY



The introduction of a digital platform offering real-time continuous monitoring of patients' vital signs can replace traditional and outdated wired hospital and ambulatory monitoring methods. This has resulted in a reduction in the risk of sudden unexpected postpartum collapse and unnecessary hospital admissions - minimising

the need for additional treatment and care. Through automation, this platform streamlines manual tasks and enables better prediction of patient deterioration, leading to proactive and effective interventions by clinicians. Overall, this digital HealthTech solution not only enhances monitoring capabilities but also improves workforce efficiencies for NHS staff.



# REPORT CONCLUSION

**This report has highlighted the significant challenges facing the NHS, including financial constraints, workforce shortages, and increasing demands for healthcare services. As outlined in the 2019 NHS LTP, innovative HealthTech can play a pivotal role in overcoming these obstacles. With COVID-19 pandemic causing significant additional pressure on the NHS, there is an urgent need for the health service to adopt innovations that streamline diagnosis and treatment processes, effectively utilise current resources, and ultimately enhance patient care.**

The examples provided in this paper detail how HealthTech offers valuable solutions to both patients and the NHS across the entire treatment pathway, spanning from diagnosis and primary, community, and secondary care to surgery and patient management. However, these benefits are limited to individual Trusts, or ICBS, as providers often struggle to secure widespread adoption of these technologies.

Given the current challenges, there has, arguably, never been a more important time for the NHS to harness the benefits of HealthTech and ensure its widespread adoption. In order to support the implementation of these solutions across the whole of the NHS, ABHI is calling on the government, the NHS, and regulators, to implement the 10-point plan outlined in ABHI's [Plan for HealthTech](#), so that we can ensure our sector's potential is fully realised to benefit patients, clinicians, and our economy.



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