

[NHS England](#)

[Department  
of Health &  
Social Care](#)

Policy paper

# A plan for digital health and social care

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## Applies to England

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# Foreword by Sajid Javid, Secretary of State for Health and Social Care

We are now embarking on a transformative programme of reforms that will make sure the NHS is set up to meet the challenges of 2048, not of 1948, when it was first established, and also to make the vital changes that are so urgently required in social care.

The long-term sustainability of health and social care is dependent on having the right digital foundations in place, and so digital transformation must be the linchpin upon which all of these reforms are based.

This landmark document shows how we will take forward the brilliant advances that we have made during the pandemic, along with our acquired learning from decades of attempts at digital transformation before COVID-19.

We've already made huge progress. Over 28 million people now have the NHS App in their pocket, over 40 million people have an NHS login, and most NHS trusts have an electronic patient record system in place. This is on top of unprecedented investment in the digitisation of adult social care, including £150 million of funding for digital adoption that we announced in our recent white paper.

This plan sets out that health and social care will be delivered in a fundamentally different way, taking forward what we have learned from the pandemic, and from tech pioneers across the world. The aim is something that we can all get behind: a health and social care system that will be much faster and more effective, and deliver more personalised care.

The NHS App will be at the heart of these plans. We saw during the pandemic how people grasped the opportunity to have healthcare at their fingertips.

I am determined to make this app the front door to NHS services, and this plan shows how we will add an array of new features over the coming years, with new functionality and more value for patients every single month. My vision is one in which the app is an assistant in your pocket.

That plan includes a raft of other initiatives – £2 billion of funding to support electronic patient records to be in all NHS trusts, and help over 500,000 people to use digital tools to manage their long-term health conditions in their own homes.

Just as we are putting the right technology in place, we also need to make sure that people are confident and supported in using it. The plan also shows how we will relentlessly focus on digital skills and leadership and culture, at all levels, so we can make transformation durable right across the board.

The opportunities offered by digital transformation are huge, with benefits over the next decade running to billions of pounds in efficiencies, economic growth and private investment.

This agenda matters more than it did when this pandemic began. I am determined to use the power of technology and the skills, leadership and culture that underpins it, to drive a new era of digital transformation. So our health and care system, and our country, will thrive long into the future, delivering vast benefits for patients.

## **Foreword by Dr Timothy Ferris, National Director of Transformation**

If it wasn't the case before, COVID-19 has shown us that having the right digital and data tools at the NHS' disposal can be as important as having the right medicines in our formularies.

Whether through underpinning the initial operational planning, clinical research into treatments, and then the rapid, highly targeted NHS COVID vaccine roll-out, data and digital technology has played a central, but largely hidden, role in how the health service has responded to the biggest public health threat in a century.

The same must also now be true of how we tackle the wider challenges of the coming years: recovering our services, reducing health inequalities and building resilience for the future.

While it will often be true that much of the important work the NHS does in this space won't ever be noticed by people and their families – especially if it's working well – there is also a huge opportunity in the coming years to provide vastly improved and more integrated health and social care services, building on the progress already made over the last few years.

At-home monitoring, virtual wards and outpatient video consultations have already brought more services into people's homes over the course of the pandemic. And through expansion and improvement of the NHS App and NHS.UK over the coming years, services will increasingly be in people's pockets too.

The NHS has always been, and will always be, a people business.

But it is also the case that the NHS has always been at the forefront of innovation and utilising new technology to improve outcomes and experience for patients – whether through pioneering new surgeries or rolling out new drug therapies.

Putting digital technology to work for people and their families – making more information accessible at their fingertips, enhancing access to the services they need, and giving them more power and control over their own care – should be seen as a continuation of that history.

This plan sets out both a vision that is ambitious for those we serve, and a credible roadmap for how the health service – working with our partners in social care, the life sciences and MedTech industries – can achieve it.

## **Summary**

Digital transformation of health and social care is a top priority for the Department of Health and Social Care (DHSC) and NHS England (NHSE). The system's long-term sustainability depends on it. We are directing this document at leaders in the health, social care and technology sectors so that together we can succeed in laying the foundations of a brighter digital future by 2025 and beyond.

Taking the right national and local decisions on digital now will put the health and social care system in a position to deliver the 4 goals of reform identified by the Secretary of State. The system will be equipped to:

- prevent people's health and social care needs from escalating
- personalise health and social care and reduce health disparities
- improve the experience and impact of people providing services
- transform performance

This document consolidates the different national digital goals and investments detailed in separate sector strategies and guidance into one single action plan for achieving these goals on 4 complementary fronts.

## **1. Equipping the system digitally for better care**

Strong digital foundations are a platform for long-term transformation and they need investment. Our priorities are:

- digitising health and social care records – all integrated care systems (ICSs) and their NHS trusts are aiming to have core digital capabilities, including electronic health records, in place by March 2025. In social care, the aim is for 80% of Care Quality Commission (CQC) registered providers to have digital social care records by March 2024. This won't be the end point for digital maturity, but a marker of progress. The reality is that digital maturity will need to continue to evolve so we fully realise the benefits of digital technology. Success will allow frontline health and social care staff to spend less time on administrative tasks and more time delivering personalised care
- a life-long, joined up health and social care record – by March 2025, all clinical teams in an ICS will have appropriate access to a complete view of a person's health and social care record that they can contribute to. Non-clinical staff in social care settings will also be able to access appropriate information and input data into digital records in real time
- digitally-supported diagnoses – new diagnostics capacity is being developed to enable image-sharing and clinical decision support based on artificial intelligence (AI). These technologies support testing at or close to home, streamlining of pathways, triaging of waiting lists, faster diagnoses and levelling up under-served areas

## **2. Supporting independent healthy lives**

Enhanced national digital channels will give people more control over their lives. They will be able to interact easily with different health and social care providers,

and access more resources for meeting their health and care needs when and where they choose.

Digital transformation that focuses on building trust with people and their families will enhance but not entirely replace the health and social care system's offer. For those who cannot or prefer not to access digital services, traditional services will remain.

We are:

- putting NHS services in people's pockets through digital channels – over the next 3 years we will increase the functionality of the NHS App and website to offer features that help people stay well, get well and manage their health
- scaling digital health self-help, diagnostics and therapies – we are supporting rapid uptake across the health and social care sectors of proven, easy-to-use and safe digital products

### **3. Accelerating adoption of proven tech**

A brighter future depends on a stream of transformative technologies being developed and spreading fast through the health and social care system.

We are:

- systematising tech research and development (R&D) partnerships – good technology spreads faster through the system when innovators and frontline teams collaborate on its development. We are supporting best practice partnerships between tech innovators and frontline teams. We are also helping NHS organisations in commercial negotiations with industry and funders to align interests behind products that make a real difference to people's health, staff workload and system productivity
- buying tech better across health and social care – NHS and social care tech buyers need to be sure they buy products that meet both their needs and the people they serve, as well as standards for interoperability, usability, clinical safety, cyber security and sustainability. Tech sellers need to know the standards their products must demonstrate to gain NHS and social care accreditation. We are setting and enforcing clear standards. To contain system-wide tech costs, we are also doing more to leverage the system's purchasing scale

### **4. Aligning oversight with accelerating digital transformation**

To guide all ICSs towards required levels of digital maturity by 2025 and help them go further, digital transformation needs to be embedded in oversight arrangements.

We are:

- using our regulatory levers – we are exploring oversight options with NHSE and the CQC. Any changes in the regulations will aim to signal to the health and

social care sectors that digitisation is a priority, identify the essential, non-negotiable standards of digital capability and explain how we will monitor and support compliance where appropriate

- enforcing standards – we are clarifying which technical and data standards are ‘musts’ for the sector and its tech product suppliers, how we plan to support organisations to achieve them and how we plan to enforce them
- supporting social care – over the next 3 years, we are investing at least £150 million to make sure care providers have the right foundations in place to enable digital transformation, including high-speed connectivity, digital skills and cyber resilience

## Our starting point

There have been many attempts to digitally transform the health and social care system over the last 20 years, from which we have a wealth of learning. This – combined with the glimpse of the future we have witnessed through the health and social care sector’s extraordinary deployment of digital technologies during the pandemic – gives us a great foundation for change. We fully understand technology’s potential to transform health and social care in applications ranging from virtual wards to vaccine records on a smartphone.

New and emerging technologies can support flexible, tailored services that promote people’s health, wellbeing and independence. They can tackle the huge challenges the sector faces by offering people timely access to physical and mental health services, helping them manage their own health and care. Digital technologies can reduce pressure on our overstretched workforce, giving them more time for the treatment and caring that only people can do, and help target disparities in access and outcomes. They can help to shrink the sector’s carbon footprint and improve its resilience to the effects of climate change and future pandemics.

For all these reasons, achieving digital transformation of the health and social care sector is a top priority for DHSC and NHSE. Our main tools for driving progress to date have been published guidance and investment.

Our digital goals are spread across a large number of existing strategies and guidance publications. Recently we have also defined digital maturity for ICSs in [What good looks like \(https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/). We have reviewed the integration of primary care through the [Fuller stocktake report \(https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/\)](https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/). There will be more digital elements in forthcoming strategies and 10-year plans – in particular those covering dementia, health disparities, mental health, cancer, urgent and emergency care, and women’s health – as well as in the updated NHS Long Term Plan and the Secretary of State’s ambitions for health and social care.

And alongside this document, we have published a strategy for data-enabling the health and social care sector, [Data saves lives \(https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data\)](https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data), which draws on lessons learned about the power of data from the response to the coronavirus (COVID-19) pandemic. This data strategy includes a range of commitments that will help connect systems, and details how we will use data flowing through the digitised health and social care system to continually improve services while maintaining the highest standards of privacy and ethics.

We are making investment in the digital underpinnings needed for a sector-wide digital transformation, in particular:

- £2 billion to digitise the NHS, and at least £150 million to support digital transformation in social care, including laying crucial cyber and connectivity foundations. This is the first time we have provided central investment on this scale for digitising social care
- to connect data and enable secure, transformative data-sharing, including investment in data infrastructure at national, sub-national and ICS levels to support day-to-day care, population health, planning and research
- to transform pathways, especially to support the recovery of services post-pandemic and make the NHS App a front door to the NHS

However, for digital technology to reach its vast potential to help people lead a good life, the health and social care sectors need to make progress towards digital transformation together, as a connected system.

There are 3 main barriers in the way:

- we have heard from decision-makers in the health and social care sectors that our guidance is too disparate and it is not clear how it fits together. In short, it does not add up to ‘a clear steer’ for your digital decisions. You need to know what you are being asked to deliver and what we will deliver, and when
- we have heard from industry innovators that we need to make it simpler for you to collaborate with your partners in the health and care system on developing digital solutions that are readily adoptable across the system
- we have heard from finance leaders in the health and social care sector that you want more control of decisions on digital investment, and a longer-term view of funding for strategic investment. This barrier we have now tackled in [Who pays for what \(https://www.nhsx.nhs.uk/digitise-connect-transform/who-pays-for-what/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/who-pays-for-what/), which describes how we will delegate more digital funding to ICSs over time. We began doing so at the start of this financial year

To speed system-wide progress to digital transformation, this document therefore addresses the first 2 barriers. Its purpose is to inform the decisions that ICSs, their constituent members in local health and social care systems, and their tech industry partners are taking now.

This is so that, by 2025:



- the local digital foundations needed to transform services are embedded across the whole of the health and social care system, and digital transformation of services is well under way in places that have laid those foundations earlier
- the entire system is equipped to deliver the benefits of digital transformation to all

‘Section 1: embedding digital technologies’, summarises central actions underway to ensure that digital technologies are integral to the whole of the health and social care system by 2025.

‘Section 2: our vision for a digital future’, is a vision of what the digitally transformed health and social care sector means in practice. It follows the care journeys of 3 people in 2028 to illustrate the control that a digitised, connected system gives them to meet their care needs. We hope this shared vision will help you to shape local plans for digitally transformed services tailored to your population’s particular health, care, support and wellbeing needs.

Appendix A consolidates the different digital goals and investments detailed in separate sector strategies and guidance for the health and social care system into one single action plan for achieving the vision. The digital content woven through all these planning documents forms the entire content of this consolidated plan: it makes no ‘new asks’ of the health and social care sectors.

Appendix B sets out in more detail the plan for our national digital channels – the NHS App and NHS.uk website.

The main goals the action plans are designed to achieve are shown below.

## Digitise

By March 2025, constituent organisations of an ICS have:

- met a minimum level of digital maturity as set out in [What good looks like \(https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/). Interim milestones are:
  - 90% of NHS trusts with electronic health records by December 2023, and 100% by March 2025
  - 80% of CQC-registered adult social care providers with digital care records by March 2024
- increased cyber security capabilities, resilience, clinical safety and accessibility
- established digital, data and technology talent pipelines, and improved digital literacy among leaders and the workforce
- ensured all health and social care settings have the right infrastructure and connectivity to work digitally

## Connect

Our goal is:

- constituent organisations of an ICS are connected to an integrated life-long health and care record by 2024, enabled by core national capabilities, local health records and shared care records, giving individuals, their approved caregivers and their care team the ability to view and contribute to the record
- every ICS has implemented a population health and planning data platform, and business intelligence tools by 2023
- data for research and development is available through a federated network of trusted research environments (TREs) by March 2025

## **Transform**

Our goal is:

- the NHS App will be a front door for interacting with the NHS and receiving personalised services, with 75% of adults registered for the NHS App by March 2024 and benefitting from an array of new features
- prevention and detection technologies are used to protect the 20% of care home residents who are identified as at high risk of falls by 2024
- the right assurance and commercial foundations are put in place by 2025 to stimulate a thriving innovation ecosystem that fosters collaboration between the health and social care sectors and the tech industry

This document provides a vision for the future of health and care while summarising the commitments that will help both systems digitise, connect and transform.

## **Section 1: embedding digital technologies**

Digital services give people more control over their lives. They allow people to decide when and where they connect with their health and social care providers. They also give people access to resources for managing more of their own health and care when and where they choose.

At the same time, a range of digital technologies working in the background can help health and social care systems to improve the quality of all their care and prevention services, online and otherwise. Together, these developments free up staff to spend more time with those most in need of human care. In short, they create a virtuous cycle.

Scaling and sustaining that cycle is essential if health and social care services are to manage capacity and continue to provide high-quality care, given our workforce challenges. Along with learning lessons from the past and building trust with people, it is the key to making health and social care services sustainable. For the cycle to gain momentum, there needs to be a faster flow of approved, high-quality digital solutions from industry into services; and regulatory mechanisms need to enable its acceleration.

Below, we describe actions we are taking to drive digital transformation across the health and social care system.

## **Equipping the system digitally for better care**

We are furthering the uptake of digital technologies that ensure people have access to the right data at the right time. Our plans for key technologies are outlined below.

### **Digitising health and social care records**

We have already invested significantly in supporting the adoption of electronic patient records (EPRs), primary care records (GPIT) and shared care records (ShCRs), and more recently digital social care records. In secondary care, EPRs are a critical attribute of digital maturity. We know that digitally mature providers operate with approximately 10% improved efficiency compared with their less digitally mature peers.

At present, only 20% of NHS organisations are digitally mature, although 86% have a form of EPR in place. Only 45% of social care providers have any form of digital care records.

Our goal is for all ICSs and their constituent organisations to have all the attributes of digital maturity, including electronic records and other critical systems, by March 2025. We have set this out in [What good looks like \(https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/). We are also exploring how to converge on fewer EPR products, which will make it simpler for staff and service users to interact with them.

Meanwhile, increasing the spread of digital social care records, with the aim of achieving 80% coverage for CQC-registered providers by March 2024, will allow carers to spend less time on administrative tasks and more time with the people they care for.

We are also providing national support, including funding, for locally led digitisation of frontline health and social care services. This includes defining the baseline systems providers should aim for in [What good looks like \(https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/) as well as providing funding, advice and guidance for local oversight and specific funding to support uptake of digital social care records.

Details are in Appendix A.

### **A life-long, joined-up health and care record**

Digitising separate health and social care records will help create a functionally single, life-long digital health and care record for each person. Digitising and connecting records provides access to the right information at the right time, which can improve the quality, safety and productivity of care.

When all the people involved in meeting a person's health and social care needs – including that person, their family and unpaid carers – can see what each of them has done and is doing, in real time, they can co-ordinate as one team to meet that person's needs and preferences.

Our expectation is that, by March 2025, all clinical teams in an ICS will have appropriate and secure access to a complete view of a person's health record, including their medications and key aspects of their history. Non-clinical staff in social care settings will also be able to safely access appropriate information and input data into digital records in real time.

To address clinical needs, record-sharing through EPRs should be available to relevant staff in all settings, including community midwives and health visitors. In particular, primary care networks (PCNs), including their partners in third-sector organisations, pharmacies, high-street optometrists and community diagnostic centres (CDCs), will benefit from the seamless flow of data between frontline teams.

Details are in Appendix A.

### **Digitally supported diagnoses**

Current constraints on sharing diagnostic images and pathology records mean diagnostic tests and images are often repeated. Digitally enabling diagnostic services avoids this needless repetition. It can also:

- improve the accuracy of a diagnosis
- bring tests closer to home
- reduce the person's wait for a confirmed diagnosis
- avoid unnecessary referrals

Our planned investment in new diagnostics capacity, especially in CDCs, aims to deliver these benefits, in particular through image-sharing and clinical decision support based on AI. This investment will also help to streamline planned urgent and emergency pathways, and support elective recovery.

AI also has great potential to help with waiting lists, productivity and levelling up under-served areas, as shown by the NHS AI Lab's [AI Health and Care Award](https://www.nhs.uk/ai-lab/ai-lab-programmes/ai-health-and-care-award/) (<https://www.nhs.uk/ai-lab/ai-lab-programmes/ai-health-and-care-award/>) recipients. With its ability to analyse large data sets, AI can support health and care professionals to make better informed decisions, especially in NHS screening services where the technology could speed up the diagnosis and treatment of conditions including cancer, stroke and eye disease.

The NHS AI lab is already helping to determine the areas where AI has the most potential to be deployed and scaled. The lab is setting up the regulatory frameworks and ethical assurances to help ensure it can be adopted safely and effectively, including ensuring data sets used to train AI reflect the diversity of the UK's population to avoid bias in decision-making, and appropriate quality control and transparency of algorithms to avoid bias and unintended consequences.

We will continue to explore how AI and machine learning can supplement the decision support systems already used for triaging patients on urgent and emergency care pathways. Details are in Appendix A.

We are also using [robotic process automation \(RPA\)](https://www.nhsx.nhs.uk/key-tools-and-info/guidance-for-designing-delivering-and-sustaining-rpa-within-the-nhs/understanding-rpa/) (<https://www.nhsx.nhs.uk/key-tools-and-info/guidance-for-designing-delivering-and-sustaining-rpa-within-the-nhs/understanding-rpa/>) to emulate human actions and interact with digital systems. As we automate basic manual and repetitive tasks to save time for staff, we will ensure that the way and reason automated decisions are made are understood by humans.

Many clinical and non-clinical roles within the health and social care workforce will evolve as AI and other digital technologies permeate clinical disciplines, such as radiology, pathology, cancer, surgery and also administrative functions. Emerging examples in mental health demonstrate how digitally enabled interventions can be used to augment care pathways to provide productivities to release clinician time for care, while enabling a more personalised and responsive care offering in between traditional care contacts.

We will ensure our health and social care workforce have the right skills to apply these technologies successfully and our organisations have cultures that foster innovation. This is happening through a number of initiatives, including a long-term workforce plan as well as short-term measures to expand the supply of specialist digital skills in the workforce.

Details are in Appendix A.

## **Supporting independent healthy lives**

We are doing this by expanding and improving the 2 national digital health channels and through measures to increase the uptake of proven, high-quality, easy-to-use and safe digital products.

### **Putting NHS services in people's pockets through digital channels**

We have 2 principal national digital channels (NDCs), the [NHS App](https://www.nhs.uk/nhs-app/) (<https://www.nhs.uk/nhs-app/>) and [NHS.uk](https://www.nhs.uk/) (<https://www.nhs.uk/>), the NHS.uk website.

The NHS.uk website now has an average of 80 million views a month and is the largest source of health information in Europe. The NHS App, through which people can interact conveniently with the services they need, now has over 28 million sign-ups, with the app being used by people an average of 2.7 million times a week. It is poised to become a 'front door' to health and care services generally.

Our vision is to use our national digital channels (NHS App and NHS.uk website) to help people stay well, get well and manage their health. Over time we would also expect to make key social care information viewable via the app for people and their carers. Over the next 3 years, we will increase the functionality of both these channels so they become platforms through which people, their families and unpaid carers can:

- access more services and resources proactively
- have more control over their care
- benefit from more personalised and preventative offers

Our initial focus this summer and autumn is going to be on helping people manage their health – giving users access to their health record, the ability to manage their hospital appointments, receive notifications and messages, and amend their contact details and preferences.

Looking beyond the management of NHS interactions, our ambition is to support people throughout their life, providing an ongoing connection to their health and care. We will move towards a holistic and inclusive offer – starting with giving parents or legal guardians access to their child’s record from birth, through to tailored prompts for early mental health support, the opportunity to participate in relevant clinical trials, and accessing support following a new diagnosis such as stroke or dementia.

If we get the offer right, informed by what users tell us they want and embedding best practices, our national channels can prevent needs from arising or escalating, and provide access to tailored advice and care when they do. Our initial prevention priorities focus on blood pressure management and vaccine bookings and reminders, and this will be followed by targeted digital health checks. We expect our prevention offer, over time, to reduce demand for traditional NHS services and allow for a more efficient use of estates. Full details of the action plan for the NHS App and NHS.uk website are in Appendix B.

Enhancing access to digital health channels raises the risk of excluding people who can’t afford a digital device or mobile data, don’t have ready access to WiFi or who lack confidence in using digital tools. Lack of trust in the security and reliability of digital technologies is another barrier to digital uptake. The risk of digital exclusion is particularly high among those who already face health inequalities and have difficulty accessing traditional health and care services.

We will continue to work with the Department for Digital Culture Media and Sport (DCMS) and other partners to lower the barriers to digital uptake, especially for those most at risk of exclusion. Digital services will always be part of a multi-channel offer that includes in person, phone and online services.

### **Scaling digital health self-help, diagnostics and therapies**

We are supporting the rapid uptake across the health and social care sectors of proven, high-quality, easy-to-use, safe and effective digital products that offer value for money. To speed progress, working with the Medicines and Healthcare products Regulatory Agency (MHRA), National Institute for Health and Care Excellence (NICE) and the tech industry, we are devising clearer policies for accrediting digital health technologies (DHTs) that are likely to be adopted nationally by the NHS.

NICE will pilot a new early value assessment (EVA) through summer and autumn of 2022, initially focused on cardiovascular and mental health products. This process will streamline evaluation of evidence for the clinical and cost-

effectiveness of products that address NHS priorities. NICE will conditionally recommend promising products to be available to the NHS, enabling their developers to collect more data before submitting them for full NICE assessment. These products will be available for local procurement via a single national framework. Products that pass the bar at the full assessment stage may be approved for wider use in the NHS.

The EVA builds on a project to assess digitally enabled therapies (DETs) used in IAPT services (NHS talking therapies), which will continue to run through summer 2022. We will extend access to DETs to more people, widen the choice of therapies, and offer more personalised treatment and opportunities for people to manage their own care better, all of which will improve service productivity, experience, safety and outcomes.

Following our departure from the EU, the MHRA is also developing new regulations for medical devices, including software and artificial intelligence as medical devices. The MHRA's future regime for medical devices is aimed at increasing patient and public safety, transparency of regulatory decision-making, and alignment with international best practice. Importantly, the MHRA hopes to achieve more flexible, responsive and proportionate regulation of medical devices. The new regulations will come into effect in July 2023.

While these initiatives primarily address digital health technologies, others support adoption of transformative technology in the social care sector.

Details are in Appendix A.

## **Accelerating adoption of proven tech**

We are spreading good tech through the health and social care system faster by supporting research and development partnerships and better tech procurement.

### **Systematising tech research and development partnerships**

The UK has a vibrant health tech innovation sector, with many teams working to solve prevention, diagnosis, treatment and operational challenges faced by the NHS. However, we know innovators still find the NHS a hard market in which to scale. This is partly because of a disconnect between innovators and those frontline teams well placed to identify the most promising technologies.

That said, a few NHS trusts and primary care groups have developed strong processes for partnering with innovators and venture builders on developing and configuring sustainable solutions, and generating the high-quality evidence needed to demonstrate their impact. This evidence is crucial for rapid uptake of these technologies.

We are committed to supporting and systematising this good partnership practice. We are also working with regulators to speed the spread of well-evidenced technologies across the NHS. And we are supporting NHS organisations in their commercial negotiations with industry and funders to align the interests of all

concerned behind products that make a real difference to people, staff workload and system productivity.

Similarly, we are making it easier for NHS organisations to collaborate with industry on researching, developing and mainstreaming tech-enabled service innovations that improve health and care outcomes, reduce staff workload and mitigate health inequalities.

In these collaborations, we will ensure data shared, accessed or hosted by researchers or industry partners will only be used for clinical, research, managerial and planning needs to deliver better patient care and prevention.

Details are in Appendix A.

### **Buying tech better across health and social care**

NHS and social care buyers of digital technologies need to be sure they buy products that meet technical standards that ensure:

- interoperability
- usability
- clinical safety
- cyber security
- sustainability

Tech sellers need to know the technical standards their products must demonstrate to win NHS accreditation. We are setting and enforcing clear technical standards (see the section 'Enforcing standards' below), including open standards to avoid challenges in changing suppliers. We are also working with suppliers to champion climate-resilient and low-carbon standards, as well as business models with a 'circular economy' approach.

In line with the government's priority to buy once and use many times, and also to contain system-wide tech costs, we are leveraging the system's purchasing scale more often, as we have done recently with the N365 deal and do routinely in medicines.

Building on guidance for trusts in [Procurement Framework Strategy Recommendations](https://www.nhs.uk/procurement-frameworks/procurement-framework-strategy-recommendations/) (<https://www.nhs.uk/procurement-frameworks/procurement-framework-strategy-recommendations/>), which we will keep updated, we will consolidate digital and IT procurement frameworks. Our aim is to:

- simplify procurement processes
- improve quality
- remove duplication
- reduce costs

Currently, similar products or services are often covered by multiple framework agreements, which has disadvantages for both buyers and vendors because:



- buyers may not know the right framework to use for their requirement
- vendors find they must apply to several framework agreements for the same things
- buyers cannot always tell if the vendors on framework agreements meet the minimum standards that they expect

We are equally committed to helping adult social care providers buy appropriate technology for social care records and other priorities, and to scale technologies that have proven benefits. We have already published a [list of assured suppliers \(https://www.digitalsocialcare.co.uk/social-care-technology/digital-social-care-records-dynamic-purchasing-system/\)](https://www.digitalsocialcare.co.uk/social-care-technology/digital-social-care-records-dynamic-purchasing-system/) and [draft standards and capabilities \(https://gpitbjss.atlassian.net/wiki/spaces/DSCR/overview?homepageld=11971330147\)](https://gpitbjss.atlassian.net/wiki/spaces/DSCR/overview?homepageld=11971330147) for digital social care records, which we will expand to cover other technologies. We will also work with sector partners to help local authority commissioners become confident and capable purchasers of care technology.

Details are in Appendix A.

## **Aligning oversight with accelerating digital transformation**

As noted above, current levels of digital maturity vary widely and no ICS is yet making full use of the transformational potential of digital technologies.

To make and sustain the progress we expect over the next 3 years, we need to include our expectations of digital transformation in oversight arrangements for trusts and ICSs.

We also need to define and communicate how we will support compliance and intervene where compliance proves difficult to achieve.

### **Using our regulatory levers**

At present, there are limited formal mechanisms for overseeing delivery of NHS digital priorities. Digital does not yet feature in the provider licence, System Oversight Framework, or CQC assessments. We are exploring options for filling this gap in discussions between NHSE and the CQC, and through a review and consultation with system leaders and frontline staff.

We need to use our regulatory levers to:

- signal that digitisation is a priority
- identify the non-negotiable standards of digital capability
- explain how we will monitor and support compliance

For social care, we will support the sector in understanding and meeting defined standards of digitisation, and explore how we can use incentives and levers to encourage providers to accelerate digital adoption.

This work will build on [What good looks like \(https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/\)](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/) and planned digital maturity assessments (from autumn 2022) to help ICSs prioritise actions in their local digital plans, and make sure those plans are robust.

In particular, we are helping ICSs to understand their levels of digital debt, the consequence of not addressing or investing in digital properly, and help them quantify expected benefits from digital investments by providing examples.

Details are in Appendix A.

## **Enforcing standards**

Getting health and social care providers and their tech suppliers to adopt the same technical standards will ensure useable data can flow between IT systems in different organisations. It is the key to making systems interoperable.

We have been developing and publishing the necessary standards, and in social care we have published a [standards and capabilities roadmap for digital social care record solutions \(https://gpitbjss.atlassian.net/wiki/spaces/DSCR/pages/11971821569/Additional+requirements+for+Digital+Social+Care+Records\)](https://gpitbjss.atlassian.net/wiki/spaces/DSCR/pages/11971821569/Additional+requirements+for+Digital+Social+Care+Records) that assured digital social care records suppliers will need to comply with.

In the NHS, we are currently working on how to make clear which standards are 'musts' for the sector and how we plan to enforce them.

Our legal powers to enforce technical standards among healthcare providers were originally set out in [Section 250 of the Health and Social Care Act 2012 \(https://www.legislation.gov.uk/ukpga/2012/7/section/250\)](https://www.legislation.gov.uk/ukpga/2012/7/section/250). These powers have been strengthened in the [Health and Care Act 2022 \(https://www.legislation.gov.uk/ukpga/2022/31/contents/enacted\)](https://www.legislation.gov.uk/ukpga/2022/31/contents/enacted) to ensure that all health and adult social care providers comply with any standards that we publish as information standards notices (ISNs). Their compliance with ISNs is mandatory.

These changes will result in data being in a standard form, both readable by and consistently meaningful to any reader anywhere in the health and social care system.

Service providers' ability to meet mandatory standards is partly a function of their IT suppliers' conformity to the standards. We are therefore working with the DCMS to include in the forthcoming Data Reform Bill further changes to Section 250 of the Health and Social Care Act 2012.

These will include a power to apply technical standards to suppliers of IT systems and services equivalent to those applied to health and social care providers. They will provide a power to enforce these standards through compliance notices and financial penalties, along with a power to establish and operate an accreditation scheme.

Details are in Appendix A.

## Supporting social care

We know from engagement with the social care sector that some of the biggest barriers remaining to digital transformation in social care are the levels of digital skills and basic digital foundations, including connectivity. Over 60% of care homes are still using internet connections that will not support full digital transformation.

The adult social care reform white paper, [People at the heart of care](https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper/people-at-the-heart-of-care-adult-social-care-reform) (<https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper/people-at-the-heart-of-care-adult-social-care-reform>), announced an investment of at least £150 million over the next 3 years to support digital transformation. We will ensure that all care providers can:

- access high-speed connections
- increase workforce digital skills and confidence
- build their cyber resilience

With these enablers in place, we will support 80% of social care providers to adopt a digital social care record, and ensure the 20% of care home residents who are identified as at high risk of falls are protected by sensor-based falls prevention and detection technologies by March 2024. These are important in tackling some of the most common and avoidable causes of admissions to acute care. For example, [sensor-based falls prevention technologies are projected to significantly reduce the impact of falls, which cost an estimated £4.4 billion a year](https://www.gov.uk/government/publications/falls-applying-all-our-health/falls-applying-all-our-health#:~:text=unaddressed%20fall%20hazards%20in%20the,2%20billion%20of%20this%20sum) (<https://www.gov.uk/government/publications/falls-applying-all-our-health/falls-applying-all-our-health#:~:text=unaddressed%20fall%20hazards%20in%20the,2%20billion%20of%20this%20sum>).

Details are in Appendix A.

## Section 2: our vision for a digital future

This section presents a vision of the digitally transformed health and social care system in practice. This vision is informed by engagement with over 1,000 people working across the health and social care sectors, people with lived experience of health and social care services, and health and social care specialists in the technology industry. Our expectation is that local versions of this vision will be realised everywhere by March 2028 – 3 years after the health and social care system will be digitised and connected (March 2025).

The vision is illustrated by the care journeys of 3 people, Abdul, Sarah and Kris. Their experiences show how, by 2028, we will have moved from fragmented health and social care services that vary significantly across the country to a seamlessly joined-up system that allows people who use it to continue living as they wish.

A vast amount of technology-enabled, largely automated activity will happen ‘in the background’, allowing the staff working in the system to spend more time treating and caring for the people they serve. Groups and individuals who find accessing digital services challenging will particularly need their support. Some people may

always need or prefer face-to-face engagement with health and social care professionals and the future system must continue to meet their needs.

## **How this will make a difference**

It is 2028. Abdul, Sarah and Kris live in neighbouring communities covered by the same PCN. By 2025, their local ICS, like all others, had succeeded in digitising and connecting systems, upskilling their workforce and developing a strong data, digital and technical team. Since then, their ICS has focused on transforming health and social care services.

This is how Abdul, Sarah, Kris and their local system feel the difference...

### **Meet Abdul**

Abdul is an 85-year-old man supported by his daughter, home care, and voluntary and community sector support that he pays for with his personal budget.

The home care provider and local authority have developed a care plan with Abdul that reflects his preferences and needs, including living independently at home. To support his independence, the local authority has put a digital medication reminder in his home that produces audio alerts, and he also wears a smartwatch that can alert a remote team in the event of a fall. Data from these technologies is visible to care workers and his daughter via his digital social care record. Abdul's daughter's role as an unpaid carer is also recorded in her health and care record.

Abdul falls and fractures his hip. The remote team sends an ambulance to Abdul's home and he is admitted to hospital. Staff access and update his core health and social care information via his shared care record so his daughter and care workers are notified of the changes in his care.

Although care in the home remains an option, after his hospital admission Abdul and his family decide a care home would be the right place for him to go next because of his increased frailty.

His record is updated with a discharge letter and changes to his care plan, so the care home staff have the most up-to-date information to support his transition. Before he arrives, the care home staff install discreet falls prevention and detection technology in his room to give Abdul and his daughter peace of mind and help him stay safe.

### **Meet Sarah**

Sarah is a 32-year-old single mother. She has a 5-year-old son, Kyle, and is pregnant with her second child.

Sarah had a miscarriage before her current pregnancy and is experiencing anxiety, nightmares and loss of interest in daily activities. Sarah has been tracking her mood through an app that links to her ICS's maternity system and it sends a flag to

her midwife. The midwife messages Sarah on the app asking her to book a same-day consultation.

During the appointment, Sarah explains her symptoms and mentions she is also worried because Kyle is not feeling well and has been losing weight. The midwife suspects Sarah is showing early symptoms of perinatal depression. The midwife flags a referral to the mental health midwife, who facilitates an e-referral to the Improving Access to Psychological Therapies (IAPT) service and recommends Sarah book a GP appointment for Kyle.

Sarah can choose a telephone, video or in-person meeting for her first IAPT appointment, during which she will be assessed. During her video assessment, Sarah chooses a clinician-guided digital therapy app that she can log onto in her own time, day or night, and is easy to use as it is interactive. She can also choose to have her sessions in her preferred language via chat, audio or video. The outcomes of Sarah's assessment are securely submitted back to her care-giving team.

Sarah books an in-person GP appointment for Kyle through the NHS App. The GP can see that Kyle's weight loss has been noted on his health record by Sarah and can see data from Kyle's school nurse. After taking a full history and examining Kyle, the GP requests some tests. As Kyle's legal guardian, Sarah will be able to access Kyle's test results via the NHS App ahead of the follow-up appointment with the GP.

## **Meet Kris**

Kris is 56 years old, the only financial provider for their household, and has smoked on and off for the last 35 years. They are worried their health is declining. They are not sleeping and they are getting up frequently at night to urinate.

One weekend, Kris calls 111 about a fever and ear ache. The responder triages Kris using a clinical decision support tool and refers them to a local out-of-hours primary care clinic. At the clinic, Kris is diagnosed with an ear infection. Their other symptoms are recorded, along with their weight, blood pressure, smoking and anxiety levels. This data is automatically added to Kris's record, which they can see on the NHS App.

The advanced nurse practitioner arranges for Kris to have blood tests to check for diabetes. Kris gets a notification through the NHS App that the results are back, requesting they book a follow-up appointment with their GP practice.

Kris chooses to book a video consultation with their GP. Together, they review the results and discuss treatment options. Kris decides to help manage their type-2 diabetes with the support of an app. Their practice's social and digital prescriber helps them choose an accredited app that's right for them.

Kris can also access support for giving up smoking and managing their mental wellbeing, blood pressure and type-2 diabetes through the NHS App. The support tools allow Kris to track changes in their conditions over time. This data is also fed

into Kris's record. Through the NHS App, Kris can continue to check in with their care team via structured questionnaires that can be risk stratified and then responded to in the most appropriate way.

## **A broader view**

The care journeys above show how digitisation and connection transforms the system's capacity to deliver the Secretary of State's priorities for reform:

- prevention
- personalised care
- people providing services
- system performance

How this works more broadly across the digitally transformed health and care system in 2028 is explained below.

### **Anticipatory care that promotes prevention and independence**

In 2028, outcomes for individuals, communities and whole populations are being improved by digital tools including:

- risk-based screening
- digital health checks
- access to online peer support
- virtual consultations
- at-home diagnostics

People are able to live independently and well for longer, supported by technologies chosen to meet their particular needs. Technology is also providing routes of access, as part of multi-channel offers that reflect the needs and preferences of individuals, helping to address health inequalities related to things such as income, geography, specific characteristics such as sex, ethnicity and disability, and social exclusion.

Analysis of data, supported by machine learning plus easy-to-use data visualisation platforms, is identifying population groups who are not accessing health services as readily as they should be able to and whose outcomes are unusually poor.

These technologies also underpin timely, evidence-based decision support for frontline staff, helping them to make sure no opportunity is missed or task accidentally overlooked. They show staff when to take pre-emptive action to prevent care needs arising or escalating, enabling staff to work more efficiently.

National digital channels, the NHS App and NHS.uk website are supporting people to access preventative services such as health checks, vaccinations and screening.

## **Personalising care**

Digital tools help health and social care providers to plan, design and deliver services in a more personalised way while saving time for staff. Services focus on what matters to each person and their families, helping to reduce disparities, and reflecting individual needs and preferences. Using digital tools to access information and services, people can make informed choices and gain greater control over their care.

Similarly, with more granular information and understanding of the populations they serve, health and social care providers are co-designing and delivering services that better respond to people's needs in the right place at the right time, through multiple channels. They offer care closer to or in people's homes, including care homes, and online.

Digitised care pathways developed with the tech industry are inclusive and deliver better quality and efficiency at the same time, as well as lower carbon emissions.

## **Enhancing the impact on people providing services**

Having access to real-time data enables people working in the health and social care system to collaborate better. Their organisations provide everything needed for really useful data and information to flow readily to and between staff:

- the right digital tools
- the right data architecture for secure storage and safe sharing
- clear technical and data governance standards
- training in the right skills
- a learning culture

This has reduced the load for frontline teams. They spend much less time on admin and communication tasks now so many of these are automated. So they are able to spend much more time connecting with and caring for people.

Boards, governance structures and system leaders purchase technology, and make decisions about its use with confidence.

Health and social care staff at all levels have the skills they need to work digitally, making their work more manageable, sustainable and flexible. Using online support tools, they can confidently identify, recommend and use technology that delivers high-quality care tailored to the needs of the people they serve. AI-enabled clinical decision support is cutting the time it takes clinicians to diagnose by up to one third for suspected strokes.

Electronic record systems that meet the required standards are transforming staff experience. Ready access to records for appropriate staff is not only boosting productivity and experience for staff, but also improving the flow of people within and between services. All this is taking a lot of the stress out of providing care.

## **Continuously improving performance**

The joined-up health and social care system is continuously learning and improving to accelerate improvements, including from international examples of best practice. It analyses data to understand variations in key system performance indicators – health outcomes, capacity utilisation, waiting times, financial balance, people and staff experience – and their causes.

Constant tracking of patient-reported outcome measures (PROMS) and patient-reported experiences measures (PREMS) surfaces hidden health disparities and yields real-time feedback and insights that inform targeted action to level up and improve quality, safety, outcomes, service design and planning.

The same comprehensive data tracking and analysis is used to evaluate new digital tools and services. Insights gathered are used to constantly iterate and improve tools and services.

Data captured by digital services is giving organisations deep insights into their operations and impacts. It supports cross-organisational and cross-system collaboration to:

- improve experiences and outcomes for people and their communities, including driving action on health inequalities and wider determinants of health
- increase the efficiency of the health and care system as a whole

Analysis of the carbon footprint of clinical pathways captures their environmental impact as well as their resource efficiency.

## Appendix A: our action plan for delivering a digital future

Our [strategy for digital transformation \(https://www.nhsx.nhs.uk/digitise-connect-transform/nhsx-delivery-plan/#digital-transformation-in-health-and-care\)](https://www.nhsx.nhs.uk/digitise-connect-transform/nhsx-delivery-plan/#digital-transformation-in-health-and-care) over the next 3 years comprises 3 elements:

1. Digitise.
2. Connect.
3. Transform.

In this appendix, we set out the action plan comprising our key actions to support delivery.

This action plan is necessarily high level: there are many detailed actions planned for specific pathways and care settings and we could not include them all. Additional published resources where you can find those details, include:

- [People at the heart of care \(https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper\)](https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper)
- [Health and social care integration \(https://www.gov.uk/government/publications/health-and-social-care-integration-joining-up-care-for-people-places-and-populations\)](https://www.gov.uk/government/publications/health-and-social-care-integration-joining-up-care-for-people-places-and-populations)



- [Enabling the workforce for elective recovery](https://www.england.nhs.uk/coronavirus/publication/delivery-plan-for-tackling-the-covid-19-backlog-of-elective-care/) (<https://www.england.nhs.uk/coronavirus/publication/delivery-plan-for-tackling-the-covid-19-backlog-of-elective-care/>)
- the [Fuller stocktake report](https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/) (<https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/>)

There will be more actions in forthcoming strategies and 10-year plans – in particular those covering dementia, health disparities, mental health, cancer, urgent and emergency, and women’s health – as well as in the updated NHS Long Term Plan and the Secretary of State’s ambitions for health and care. The digital content woven through all these planning documents will be consistent with this vision and action plan.

Many of the actions below still require business cases that require HM Treasury approval.

## Digitise

These actions aim to aid ICSs and providers of social care in achieving the level of core digital capabilities and skills that underpin safe and effective care, and continuing on that upward digital trajectory. We will use our regulatory levers to keep them on track.

### Putting core digital capabilities in place

We expect the constituent organisations of an ICS to have core digital capabilities in place by March 2025. These capabilities include having:

- electronic records and other critical systems
- resilience to cyber attacks
- fast connectivity

The [NHS Long Term Plan](https://www.longtermplan.nhs.uk/) (<https://www.longtermplan.nhs.uk/>) committed all trusts to meet a core level of digitisation and to have an EPR in place by March 2025, reiterated in the [operational planning guidance for 2022 to 2023](https://www.england.nhs.uk/publication/2022-23-priorities-and-operational-planning-guidance/) (<https://www.england.nhs.uk/publication/2022-23-priorities-and-operational-planning-guidance/>) and the Secretary of State’s priorities for transformation in healthcare. [People at the heart of care](https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper) (<https://www.gov.uk/government/publications/people-at-the-heart-of-care-adult-social-care-reform-white-paper>) also committed to 80% of CQC registered social care providers having a digital social care record in place by March 2024.

Annual digital maturity assessments will allow health and care organisations to measure their progress towards the core capabilities set out in [What good looks like](https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/) (<https://www.nhsx.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/>) and identify the areas they need to prioritise. Organisations will be able to access the [What good looks like hub](https://future.nhs.uk/WhatGoodLooksLikeKnowledge) (<https://future.nhs.uk/WhatGoodLooksLikeKnowledge>), which brings together:

- information
- good practice examples
- standards
- guides and policies
- useful tools and templates
- networking information

Working with partners in social care, we will expand [What good looks like](https://www.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/) (<https://www.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/>) to include the social care sector by September 2022.

## **Electronic records and other critical systems**

Our aim is that all NHS trusts will have an EPR system by March 2025 (90% by December 2023 and 100% by 2025). For social care, 80% of CQC registered care providers should have an assured digital social care record system in place by March 2024.

For mental health and community trusts, many of which already have an EPR, the focus will be on meeting the minimal digital foundations. We will be working with existing EPR suppliers to ensure their products meet our requirements.

GP practices already have digital records in place. However, to ensure GP services are fit for the future, their digital records need to be based on open standards and use cloud native architecture.

We will:

- provide multi-year funding to ICSs, approximately £2 billion, based on need (starting with those without an EPR) to support all trusts to reach our minimum digital foundations
- provide £25 million of funding this year as part of a 3-year programme to enable ICSs to scale up use of digital social care records, alongside other promising evidence-based technologies such as falls prevention technology, in addition to £3 million of funding each year to fund local hands-on support to enable these objectives
- publish an [assured supplier list](https://www.digitalsocialcare.co.uk/social-care-technology/digital-social-care-records-dynamic-purchasing-system/) (<https://www.digitalsocialcare.co.uk/social-care-technology/digital-social-care-records-dynamic-purchasing-system/>) and [draft set of standards and capabilities](https://gpitbjss.atlassian.net/wiki/spaces/DSCR/overview?homepageId=11971330147) (<https://gpitbjss.atlassian.net/wiki/spaces/DSCR/overview?homepageId=11971330147>) required for social care record suppliers and ongoing assurance. This list is being expanded to include further priority technologies for the care sector (July 2022)
- support local authority commissioners with guidance to enable them to be confident and capable purchasers of technology that will enhance the quality and personalisation of people's care and support (October 2022)
- work with tech industry partners to make sure the clinical EPR systems market offers such systems so that practices can buy with confidence (March 2023)

- publish technical requirements for IT suppliers serving pharmacy, optometry, dentistry, ambulance and community health sectors, alongside an offer of support for ICSs to implement requirements (March 2023)
- ensure that modern, integrated, secure and user-friendly digital systems are available to primary care through the GPIT Operating Model and Digital Care Services catalogue (March 2025). The [Digital Primary Care Maturity Assurance \(https://www.england.nhs.uk/digitaltechnology/digital-primary-care/digital-maturity-assurance/\)](https://www.england.nhs.uk/digitaltechnology/digital-primary-care/digital-maturity-assurance/) will help organisations to review current levels of digital maturity
- support primary care to use technology to streamline routine tasks and processes by better exploiting current functionality, as well as exploring new ways of working and innovation, including piloting automation (March 2025)

## **Resilience to cyber attack**

The health and social care system must be resilient to cyber attacks to safeguard people's private information.

We will:

- publish a Cyber Security Strategy for Health and Social Care to help all parts of the health and social care system build that resilience (winter 2022)
- set out how we will enhance and extend existing national protections available through the NHS Security Operations Centre. These will include security monitoring, threat intelligence and national incident response co-ordination
- In each ICS and NHS region, fund dedicated cyber staff to work alongside local NHS and social care organisations on managing cyber risk and ensuring compliance with nationally mandated cyber standards. Those staff will be supported through a national training programme and peer networks (2025)

## **Fast connectivity**

Working with ICSs, local authorities and DCMS, we will ensure that health and social care providers can benefit from the latest and fastest connectivity. We will also support the health and social care system to move to sustainable cloud services where it makes technical, commercial and business process sense.

We will:

- support NHS trusts, ICSs and arms-length bodies in adopting cloud services, by publishing best practice guidance on funding cloud adoption (July 2022)
- ensure telecare services continue to meet the needs of individuals following the transition to digital lines. Ahead of the telecommunications industry-led transition from analogue to digital telephone lines, completing in 2025, work with the telecare sector to co-ordinate a stakeholder action plan for those who commission, deliver and supply telecare services and equipment (March 2023)
- deliver fibre broadband upgrades to at least 1,000 care homes currently dependent on poor connections (March 2024)

## Building digital skills

To achieve digital transformation, we need to build general digital literacy, expert digital skills, and digital leadership in the health and social care workforce.

This includes leaders across the sector as set out in [Leadership for a collaborative and inclusive future](https://www.gov.uk/government/publications/health-and-social-care-review-leadership-for-a-collaborative-and-inclusive-future) (<https://www.gov.uk/government/publications/health-and-social-care-review-leadership-for-a-collaborative-and-inclusive-future>), an independent report into leadership across health and social care in England.

NHSE and Health Education England (HEE) are producing a long-term workforce plan for the NHS, so the actions below delivered by HEE and NHSE detail only our short-term plans for building and sustaining the NHS workforce's digital skills.

Our short-term actions will expand the supply of specialist digital skills in the workforce by attracting high-potential graduates, apprentices and trainees as well as developing existing and aspirant health and care staff, and digital, data and technology professionals. The aim is to build a culture of digital literacy, expertise and professional information governance across the system to deliver more value more quickly through the use of digital technologies and data.

We will:

- co-create a national digital workforce strategy with the health and care system, setting out a framework for bridging the skills gap and making the NHS an attractive place to work (March 2023)
- enable recruitment, retention and growth of the Digital, Data and Technology (DDaT) workforce to meet challenging projected health and care demand by 2030, through graduates, apprentices and experienced hires, creating posts for an additional 10,500 full-time staff (March 2025)
- create a membership body for DDaT professionals in health and social care that will, over the years, bring cohesiveness between the disparate professions, to set and assure adherence to professional standards, and harmonise the DDaT profession (September 2022)
- establish new and continuation of existing digital learning offerings through the NHS Digital Academy, including the [Digital Health Leadership Programme](https://digital-transformation.hee.nhs.uk/learning-and-development/digital-academy/programmes/digital-health-leadership-programme/) (<https://digital-transformation.hee.nhs.uk/learning-and-development/digital-academy/programmes/digital-health-leadership-programme/>) (via Imperial College and partners), [Digital Futures Programme](https://www.hee.nhs.uk/our-work/digital-futures) (<https://www.hee.nhs.uk/our-work/digital-futures>) (cross-ICS), [Topol Fellowships in Digital Healthcare](https://nshcs.hee.nhs.uk/programmes/topol/#:~:text=The%20Topol%20Programme%20of%20Digital%20Fellowships%20in%20Healthcare%20aims%20to,lead%20digital%20health%20improvements%20and) (<https://nshcs.hee.nhs.uk/programmes/topol/#:~:text=The%20Topol%20Programme%20of%20Digital%20Fellowships%20in%20Healthcare%20aims%20to,lead%20digital%20health%20improvements%20and>) and [Health Innovation Placements](https://www.hee.nhs.uk/our-work/building-digital-senior-leadership/health-innovation-placement) (<https://www.hee.nhs.uk/our-work/building-digital-senior-leadership/health-innovation-placement>), a programme that supports our change leaders to learn directly from exposure with industry (through 2022 and beyond)
- the Chief Nursing Information Officer (CNIO), in partnership with Health Education England, will undertake a review of skills and support required to prepare the nursing and midwifery workforce to deliver the digital future ([the](#)

[Phillips Ives Review \(https://digital-transformation.hee.nhs.uk/building-a-digital-workforce/phillips-ives-review/about-the-phillips-ives-review\)](https://digital-transformation.hee.nhs.uk/building-a-digital-workforce/phillips-ives-review/about-the-phillips-ives-review), concluding May 2023)

- continue to deliver digital boards leadership development for NHS and ICS boards in partnership with NHS Providers (ICS offer from summer 2022)
- work with NHSE's People Directorate and HEE Technology Enhanced Learning and Digital Readiness Education teams to drive uptake of the staff app and [Digital Skills Assessment Tool \(https://www.hee.nhs.uk/our-work/digital-literacy/digital-literacy-self-assessment-diagnostic-tool\)](https://www.hee.nhs.uk/our-work/digital-literacy/digital-literacy-self-assessment-diagnostic-tool) (summer 2022).
- grow and nurture a pipeline of diverse future specialists and leaders through graduate and apprenticeship schemes, starting (June 2022)
- develop a support offer specifically for frontline staff who work with IG, including:
  - an IG transformation plan with practical tools to use in data-sharing situations, professional standards and training materials (December 2022)
  - a new head of profession to lead on developing and executing the transformation plan, including competency frameworks, standards, job families and appropriate professional accreditation (from April 2022)
- continue to support regional Informatics Skills Development Networks to meet regionally specific digital, data and technology training needs
- continue to support the equality, diversity and inclusion agenda, including through continued support of the Shuri network for women from minority ethnic groups in digital health
- embed digital skills development into academic curricula to support our future and incoming workforce (from 2022)

In social care, [recent research showed that 45% of providers express concern that care staff lacked digital skills \(https://www.ipsos.com/en-uk/nhsx-reviews-published-digital-technology-innovation-and-digital-skills-adult-social-care\)](https://www.ipsos.com/en-uk/nhsx-reviews-published-digital-technology-innovation-and-digital-skills-adult-social-care).

To equip the adult social care workforce with the right skills and support to embed digital ways of working, and align with wider workforce ambitions, we:

- will provide a digital learning offer that includes accessible training and online resources over the next 3 years. In March 2022, we published a [digital skills framework \(https://www.digitalsocialcare.co.uk/digital-skills-and-training/digital-skills-framework/\)](https://www.digitalsocialcare.co.uk/digital-skills-and-training/digital-skills-framework/) alongside a collection of [digital skills training resources \(https://www.digitalsocialcare.co.uk/digital-skills-and-training/\)](https://www.digitalsocialcare.co.uk/digital-skills-and-training/) for social care staff. We are finalising the framework and implementing a self-assessment tool to sit alongside. Social care staff will be supported via digital skills training such as the [NHS Digital Academy \(https://digital-transformation.hee.nhs.uk/learning-and-development/digital-academy\)](https://digital-transformation.hee.nhs.uk/learning-and-development/digital-academy)
- working in partnership with Skills for Care, the National Care Forum, Digital Social Care and Cosmic, this year we have delivered 2 free training programmes to support social care professionals to develop their skills and help drive digital transformation and change across the sector. We are now working to formally evaluate the training to help shape a scaled-up future digital learning offer

## Using our NHS regulatory levers

Only a minority of NHS trusts have achieved the core levels of digital maturity that are needed for safe and effective care. All of them need to reach those levels fast and keep going further. ICSs also need to be sure that trusts digitise in a way that makes it simpler for data to flow seamlessly between different records.

Given the urgency of these needs, we are exploring embedding digital into wider NHS oversight arrangements to:

- signal that digitisation is a priority
- communicate the core standards that must be met
- make clear how support will be delivered and compliance achieved

We will:

- implement the recommendations of the Laura Wade-Gery Review, [Putting data, digital and tech at the heart of transforming the NHS](https://www.gov.uk/government/publications/putting-data-digital-and-tech-at-the-heart-of-transforming-the-nhs) (<https://www.gov.uk/government/publications/putting-data-digital-and-tech-at-the-heart-of-transforming-the-nhs>)
- explore how digital could be embedded in the NHS Oversight Framework – shaped with ICSs, clinical leaders and the frontline (March 2023)
- consider adding a condition to the provider licence to help encourage and drive digital maturity (April 2023)
- work with NHSE's regional teams to ensure that digital priorities are understood in all systems and delivery of digital ambitions is routinely discussed
- work with the CQC to agree a process for embedding digital maturity in their assessment framework across health and social care, including implementation of the [GPIT Operating Model](https://www.england.nhs.uk/digitaltechnology/digital-primary-care/securing-excellence-in-primary-care-digital-services/) (<https://www.england.nhs.uk/digitaltechnology/digital-primary-care/securing-excellence-in-primary-care-digital-services/>) (ongoing)

## Connect

Joined-up data is a requirement for joined-up services. These actions comprise what needs doing to enable the ready sharing of information across the health and social care system while maintaining the highest standards of privacy and ethics.

To get more connected, the system needs to share technical standards and certain capabilities nationwide. The increasingly connected system will support lifetime joined-up health and social care records, with all the improvements in quality, safety and experience of direct care these offer.

Data flowing through the connected system will yield insights into population health disparities and dynamics, supporting targeted population health improvement.

## Maintaining the highest standards of privacy and ethics

[Data saves lives](https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data) (<https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data>) sets out how we will make better use of data to

improve care for patients and people drawing on social care while maintaining the highest standards of privacy and ethics. The strategy contains more than 100 commitments to meet that requirement.

We will:

- deliver the policy and requirements needed to implement secure data environments (SDEs) – TREs are a type of SDE – across the NHS (December 2022)
- develop a standard for public engagement that sets out best practice for engaging appropriately with the public and staff about data to be followed by any organisation using NHS data (December 2022)
- co-develop a data pact setting out mutual expectations for the public and health and care system (December 2022)
- publish an Information Governance Framework for Integrated Health and Care, part 2, and embed the information governance portal as the one-stop shop for help and guidance (December 2022)
- establish a data framework for adult social care, setting out what data the sector needs to collect, the purpose of those collections and the standards governing them, with a move towards client-level data collections and away from aggregate data collections (December 2022).
- develop unified standards for the efficacy and safety testing of AI solutions, working with the MHRA and NICE (December 2023)

### **Joining up lifetime health and social care records**

Our expectation is that, by March 2025, all clinical teams in an ICS will have appropriate access to a complete view of a person's health record, including their medications and key aspects of their history.

Non-clinical staff in care settings will also be able to safely access appropriate information and input data into digital records in real time.

Digital record-sharing should be available to relevant staff in all settings, including community midwives and health visitors.

We will:

- publish 'Who does what' which sets out the respective roles played by NHS Digital, NHSE, regions, ICSs and frontline organisations in delivering a target data architecture that enables data to flow freely and speedily between health and social care providers (December 2022). This will:
  - set out our policy on how we will encourage appropriate convergence of EPRs, especially within an ICS, to ease the interoperability challenge for day-to-day care
  - clarify the required standards and interoperability patterns – both local to local and local to national
  - describe the supporting national technology platforms and services – for example, structured clinical and demographics data, record location,

prescribing, staff and citizen identity, registers, and so on

- enable the transition from a largely heterogeneous current state to a target state underpinned by convergence, standards and APIs, national technology platforms, and federated secure data environments
- provide secure access to appropriate and proportionate information from a person's GP record to more social care professionals, with all assured digital social care record systems having the capability to display appropriate information from the GP record via GP Connect. In addition, provide support to more care homes and home care providers to take up this capability (March 2023)
- ensure that every newborn has a digital record (launched 2023, integrated by 2025)
- ensure that, within 6 months of a care provider implementing a digital social care record, they are able to connect to their local shared care record (March 2024)
- roll out integrated health and care records to all people, providing a functionally single health and care record that people, their carers and care teams can all safely access, enabled by a combination of nationally held summary data and links to locally held records, including shared care records (2024)

## Setting standards for interoperability and architecture

Our vision implies a health and social care system underpinned by technical standards that enable all relevant health data to be accessible by those with a legitimate right to access it at the point of need, no matter where it is held.

Specifying 'must do' standards will help:

- industry partners know what they have to deliver
- ICSs to plan their digital investments

We will:

- enable organisations to plan and future-proof interoperability, and support better information-sharing by regularly updating the [standards roadmap](https://www.nhsx.nhs.uk/key-tools-and-info/standards-and-interoperability/standards-roadmap/) (<https://www.nhsx.nhs.uk/key-tools-and-info/standards-and-interoperability/standards-roadmap/>) and publishing the final standards and interoperability strategy (September 2022), following a consultation on the [draft standards and interoperability strategy](https://facultyofclinicalinformatics.org.uk/blog/faculty-of-clinical-informatics-news-1/post/how-standards-will-support-interoperability-90) (<https://facultyofclinicalinformatics.org.uk/blog/faculty-of-clinical-informatics-news-1/post/how-standards-will-support-interoperability-90>)
- design a new end-to-end process for creating standards, from initiation through to approval and implementation (July 2022)
- publish our Version 1 Open Source Policy through Github and a playbook on how to develop open source systems and products (summer 2022)
- deliver a new digital service that will allow care providers and suppliers to identify which standards related to interoperability they must conform to and where to find the documentation (August 2022)



- consolidate routes to market and strengthen our commercial levers for adopting standards through a new target operating model for procurement. This will include embedding standards as part of procurement frameworks, supporting NHS procurement teams to prioritise adherence to standards. Consolidation of the number of frameworks will encourage market entry and more choice in some markets, incentivising vendors to follow NHS standards (started April 2022)
- consolidate a standard terminology from terms already in use (December 2022), and publish a suite of data standards for adult social care (March 2023)
- work with DCMS to propose changes to Section 250 of the Health and Social Care Act 2012 that include a new enabling power to apply technical standards to suppliers of IT systems and services. The proposed provisions in the Data Reform Bill would also provide a new power to enforce these standards through a system of compliance notices and financial penalties, along with a power to establish and operate an accreditation scheme (summer 2024)

### **Building core national ‘connect’ capabilities**

There are some connecting services and functions that it makes sense to build once, either to benefit from economies of scale or to enable everyone to have a holistic experience of the health and care system no matter where they happen to be in England.

We will:

- enable more frontline staff to access and update health records:
  - roll out a new, more accessible, web-based version of the Summary Care Record (SCR) application (which currently comprises GP record data) that can be used by ambulance and social care staff wherever they are, which we hope to make available without smartcards (December 2022)
  - redevelop the [National Record Locator \(https://digital.nhs.uk/services/national-record-locator\)](https://digital.nhs.uk/services/national-record-locator) (NRLS) and [National Events Management services \(https://digital.nhs.uk/services/national-events-management-service\)](https://digital.nhs.uk/services/national-events-management-service) (NEMS) and move them to the cloud, to support interoperability from a broader range of care settings (March 2024)
  - redevelop the NHS Spine, which supports the IT infrastructure for health and social care in England, joining together IT systems across organisations, by building a more open platform that better adapts to changing user needs and supports the development of new and innovative services using cloud tools and technology, with a view to achieving a 5% increase in connected suppliers (March 2024)
- extend access to electronic prescribing to enable more safe and efficient care:
  - enable people to track their GP prescriptions in the NHS App (December 2022)
  - define the standards to support the flow of medication information to enable a single, real-time, medicines record (March 2023)
  - modernise the Electronic Prescription Service and expand into secondary care (March 2024)

- drive uptake of NHS Number across multiple services to ensure that, regardless of where a person is seen, the care team can locate and access their medical history and have current contact information:
  - improve demographics data quality and reduce burden to staff and people by providing online registration and proactively contacting people when we believe their details may be out of date (March 2024)
  - reduce patient look-up errors in primary and secondary care by providing more options to find patients and linking to [Find your NHS number \(https://www.nhs.uk/nhs-services/online-services/find-nhs-number/\)](https://www.nhs.uk/nhs-services/online-services/find-nhs-number/) (March 2024)
- work towards a unifying staff e-identity for staff across disparate IT systems to reduce the burden of multiple logins and support workforce mobility:
  - deliver new services for staff identity and authentication in the NHS to enable them to speed up registration and create a transferrable identity for logins (March 2025)
  - launch a digital platform in social care with a skills passport function that will identify people working in care and provide a permanent and verifiable record of their training, learning and development. We have already completed discovery for the skills passport element, and a discovery and alpha for the element of the platform that identifies care workers (alpha stage by November 2022, go-live date quarter one 2023)

## Delivering precision population health

During the pandemic, the NHS demonstrated the extent to which data tools and analytics can transform operations, particularly through the [NHS COVID-19 Data Store and Platform \(https://www.england.nhs.uk/contact-us/privacy-notice/how-we-use-your-information/covid-19-response/nhs-covid-19-data-store/\)](https://www.england.nhs.uk/contact-us/privacy-notice/how-we-use-your-information/covid-19-response/nhs-covid-19-data-store/), which helped:

- anticipate virus spread
- protect the most vulnerable
- distribute scarce resources
- co-ordinate vaccination delivery

Building on these successes, the NHS is developing a Federated Data Platform to support population health and capacity planning across the NHS.

We will:

- continue to provide ICSs with new tools that free up clinical time through maximising capacity, reducing waiting lists and co-ordinating care
- specify a system of connected platforms that bring together (July 2022):
  - data and data analytics capability for population health and personal insight
  - healthcare co-ordination
  - elective recovery
  - vaccines and immunisations
  - supply chain management
  - prevention

- tackling health disparities
- undertake a 3-stage procurement of the Federated Data Platform (from autumn 2022)
  - stage 1 will be broken into 2 lots: procuring the platform itself and privacy-enhancing technology to ensure robust data protection
  - stage 2 will involve the procurement of a marketplace that enables application release and management
  - stage 3 will be for training, deployment support, and implementation of the platform for trusts and ICSs

## **Transform**

These are actions to promote the transformative changes that will support the system now and help to realise the vision in section 2, which are made possible by digitising and connecting the health and social care system. They comprise actions to support:

- giving people more independent control over their health and care
- transforming care pathways
- accelerating the large-scale uptake of proven tech
- promoting digitally-enabled research and innovation

Implementing digital enablers will also help to achieve ambitions set out in the [Fuller stocktake report \(https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/\)](https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/) of integrated neighbourhood teams within the ICS and a digitally enabled model of access, navigation or triage and care delivery.

### **Supporting independent healthy lives**

Our ambition to make the NHS App a digital front door to the NHS, helping people to manage their health, stay well and get well, is highlighted in section 1 above.

Combined with enhancements to the NHS website (NHS.uk) and readily available proven digital health technologies, this will enable the NHS to provide more support for people through digital services at home and in care homes, including support for managing long-term conditions.

### **Putting the NHS in people's pockets through national digital channels**

The NHS App and NHS.uk website already offer millions of people in England a fast and convenient way to interact with the NHS – showing their COVID status, ordering repeat prescriptions and accessing their health records.

Our aim is that, by 2024, 75% of adults will have registered for the NHS App with 68% (over 30 million people) having done so by March 2023.

New functionality, such as vaccine booking, appointment management and blood pressure reporting, will ensure that these national digital channels support people

with the tools and information that matter the most to them.

To deliver this, we have developed a wide-ranging action plan for both the NHS App and NHS.uk website, including a full review of how these digital channels must evolve to continue meeting user needs in 2025 and beyond.

Details are in Appendix B.

## **Scaling digital health self-help, diagnostics and therapies**

We need more people to get the benefits of the many proven, easy-to-use, safe and good-value digital health products being developed, such as wearable blood pressure monitors and sensors that can help prevent falls. To that end, we are working with NICE and other partners across the health and care sectors and tech industry.

We will:

- introduce a NICE EVA to assess evidence for promising products that address major NHS health challenges, allowing for further data collection prior to a full NICE assessment – its initial focus will be on products related to cardiovascular and mental health, and support for system recovery (autumn 2022)
- establish a single national procurement framework for products NICE recommends through its EVA to support their further evaluation, help developers navigate the route to adoption and scale-up, and give professionals a clear understanding of the clinical and cost-effectiveness of different digital health products (September 2022)
- provide further implementation support to organisations adopting recommended products. NICE-endorsed products will be included in regulated frameworks for the NHS. Contract support will be offered in the form of guidance on further scaling. An NHSE commercial team will intervene if any risk of ongoing market failure arises. The team may wish to assess the need for market surveillance to ensure the NHS continues to get good value from innovative products (September 2022)
- clarify the evidence standards and regulatory approvals that developers of digital health products need to meet, such as CE or UKCA, the [Digital Technology Assessment Criteria \(DTAC\)](https://www.nhsx.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/) (<https://www.nhsx.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/>), and the [NICE Evidence Standards Framework for Digital Health Technologies](https://www.nice.org.uk/about/what-we-do/our-programmes/evidence-standards-framework-for-digital-health-technologies) (<https://www.nice.org.uk/about/what-we-do/our-programmes/evidence-standards-framework-for-digital-health-technologies>). Standards will cover clinical and cost-effectiveness, data protection, security, interoperability, clinical safety, accessibility and usability (March 2023)
- develop a clear commercial strategy to support local commissioning and contracting, including establishing a single national procurement framework for products NICE recommends through its EVA to support their further evaluation, help developers navigate the route to adoption and scale-up, and give professionals a clear understanding of the clinical and cost-effectiveness of different digital health products (September 2022)

- launch a multi-agency advice service for AI deployment in the NHS, made up of NICE, the MHRA, CQC and Health Research Authority (HRA), to streamline regulatory advice for AI technologies in health and care. Closed private beta (launched September 2022) with ability to register interest at the end of summer 2022
- where there is strong evidence for products' clinical and cost-effectiveness, and they meet unmet urgent clinical needs, we will consider commissioning them nationally (for example, some digital prevention tools)

We are taking additional measures to extend the uptake and understand the potential impact of digital technologies among people who use social care.

We will:

- help commissioners to identify, evaluate and procure new technologies that best support the needs and aspirations of people drawing on care (from August 2022)
- launch a scheme to use promising care technology to help people live independently in their own homes for longer. Funding will be used to test ideas, scale those that have proven benefit, and raise awareness among people drawing on care, their families, unpaid carers and care providers of the extent to which technology can support independent living (April 2023)
- launch a fund to drive uptake in care homes of sensor-based falls prevention and detection technologies, such as acoustic monitoring, for the 20% of residents identified as being at high risk of falling (March 2024)

### **Connected, supported and personalised care at home**

By increasing digital connection and providing more personalised care, we can support people to monitor and better manage their long-term health conditions in their own homes, enabling them to live well and independently for longer.

We will:

- increase the availability of digital monitoring of vital signs for people in care homes and at home, with the aim of a further 500,000 people being supported by this technology by March 2023
- scale hospital at home and tech-enabled virtual ward services. These will be used as step-down pathways for frailty and respiratory care to reduce length of stay. Our ambition is to have 40 to 50 virtual ward 'beds' per 100,000 of the population (March 2024)
- develop a tech-enabled annual physical check for people with severe mental illness, with roll-out taking place in a selection of ICSs (March 2023)
- define clinical pathways where people are supported to self-monitor and self-manage (March 2024)

### **Re-imagining pathways**

Digitising and connecting the health and social care system creates possibilities to radically redesign pathways and care settings. These actions focus on digitally

transforming:

- screening
- referrals
- diagnostics
- outpatients
- urgent and emergency care

We have published [digital playbooks \(https://www.nhsx.nhs.uk/key-tools-and-info/digital-playbooks/\)](https://www.nhsx.nhs.uk/key-tools-and-info/digital-playbooks/) to support clinical teams to reimagine and redesign care pathways by showcasing tried-and-tested technologies to solve real-world problems.

## **Transformed screening**

Screening services prevent or diagnose conditions early so that people have the best possible chance of living healthier lives for longer. We are working to develop national digital capabilities that will support the transformation of screening programmes for participants and staff.

Improving the invitation processes for participants will improve uptake and help to level up the health status of disadvantaged groups.

We expect advances in medical knowledge will lead to recommendations that more screening programmes should be implemented and that the screening of individuals will be increasingly tailored to their personal risk factors.

We are determined to create digital products that enable us to improve current programmes and to quickly take advantage of medical advances.

We will:

- define the full digital delivery programme for screening transformation, ensuring that services are user-centred, interoperable, built from components that can be reused in different screening programmes, and ensuring that we learn and improve as we go (preliminary results summer 2022)
- test and evaluate AI technologies for screening in crucial areas such as breast and lung cancer, with a view to supporting the adoption of cost-effective technologies. This work is being done through the AI Lab (preliminary results summer 2022)
- develop technical architecture designs for breast screening by June 2022 and for all in-scope national screening services by November 2022

## **Right referrals**

To deliver safe and effective care, we need to direct people to the right place in the most appropriate setting at the right time. To this end, frontline teams need to be able to access timely specialist advice and guidance on the decision whether to refer, and to make referrals accurately and efficiently.

By enhancing and extending our national referral platform, the NHS e-Referral Service, we aim to support ICSs to meet their target of reducing unnecessary outpatient appointments and follow-ups by at least 25% by March 2023.

We will:

- automate appointment management tasks in primary and secondary care, such as telephone-answering, letter-writing and document-scanning, by building the technical architecture to integrate electronic referral systems (eRSs) with primary and secondary care EPRs and supporting adoption. APIs for secondary care to be available (March 2023)
- increase the number of organisations using electronic referral systems (eRS) APIs to reduce an unnecessary burden on the workforce. Our goal is to have 20% of providers accessing APIs (March 2023)
- expand eRS into new settings, including wider primary care and mental health, with First of Type (March 2023)
- increase awareness, uptake and impact of advice and guidance via eRS (March 2023)

### **Digitally supported diagnoses**

Digitally enabled diagnoses can get more comprehensive results to people faster. To this end, we are investing in CDCs to increase capacity for digitally enabled diagnostics across the NHS.

This will:

- aid the flow of clinical data and images from radiology and pathology around the system
- extend deployment of clinical decision support tools and technology that enable clinicians to report remotely

We will:

- create a plan for the delivery of a national data registry, which will also encompass a review of imaging standards and a national architecture review. The National Data Registry will enable a clinician to view a person's history at the point of care (September 2022)
- use clinical decision support systems in diagnostics to improve the provision of the most appropriate test at the right time, improve the safety and quality of care, and reduce the overall cost through the roll-out of iRefer. It is anticipated that it will be rolled out to 50% of trusts (by March 2023)
- roll-out of digital infrastructure that will enable diagnostic networks to make future use of AI to reduce repetitive tasks, increase the throughput speed of diagnostic results reporting and provide enhanced post-processing of imaging data sets (March 2024)

### **Reimagining outpatients**

Digital technology is fundamental to elective recovery, especially because it offers alternatives to face-to-face outpatient appointments. It can also offer people a more tailored elective pathway and release clinical time for other tasks.

We will:

- develop new pathways to clear the backlog of long-waiting patients on non-admitted pathways, for example dermatology, respiratory, cardiovascular, rheumatology, such as at-scale virtual consultations and distributing surgical appointments across geographies (March 2023)
- increase the use of digital pre-assessment to free up capacity in pre-assessment clinics (September 2024)
- assist the evaluation of technologies that could support elective recovery by helping to triage GP patient referrals by urgency (RITA project by Deloitte), or by supporting care in the community with at-home testing to detect early signs of kidney injury (winter 2024 to summer 2025)
- provide more consistent and easier-to-use digital journeys that enable people to receive care and advice from the right services, at the right time and in the right way to meet their needs, and which support delivery of proactive care (March 2025)

### **Intelligent urgent and emergency care services**

Through changing the way a person both perceives and accesses the urgent and emergency care (UEC) system, we will both minimise unnecessary health risks by reducing contact between people and improve services.

We will:

- support collaborative working through PCNs and neighbourhood teams, increasing integration of primary care with UEC, community pharmacy and other services within ICSs, including providing safe and seamless access to patient records within defined roles (March 2025)
- strengthen NHS 111, online and on the phone, as an entry point to the urgent care pathway. We will do this by supporting better integration of primary care and UEC, and investing in clinical decision support and the directory of services, including the use of machine learning, to enable consistent, safe and scalable triage and care navigation by the 111 and 999 services and at urgent care settings (March 2025)
- improve the responsiveness of UEC services through interoperability and workflow agility in increasingly interconnected services. The new Booking and Referrals Standard (June 2022) will be deployed between 111 and emergency departments, between 999 and Clinical Assessment Services, and at other key interfaces in the UEC system (March 2025)
- harness the power of data for real-time management information and to provide insight on the opportunities for higher-quality and more efficient care across the system, with a focus on primary care and UEC. For example, interactive



dashboards enable commissioners and providers to better understand their patients' journeys from initial triage to health outcome (March 2025)

## Digital inclusion

Our actions here aim to mitigate the risk of excluding people unable or unwilling to access digital offers, and to design pathways to include all target users – digital and non-digital.

### Being inclusive

Access to digital solutions can be more challenging for some groups – for example, people on lower incomes who may not have a suitable device or who cannot afford the costs of data or connectivity. Some people may lack the confidence or skills to use digital channels. Others may always prefer face-to-face services.

Lack of trust in the security or reliability of digital technologies can also be a barrier to their uptake.

Mitigating the risk of digital exclusion is one of 5 key priorities that NHSE has asked ICSs to address in its drive to reduce health inequalities.

We will:

- build on the expertise of local authority services to extend access through working with systems to increase the availability of private, accessible community spaces for digital interactions, such as digital kiosks. We will also support local partnerships working to expand affordable connectivity (2025)
- empower individuals through their communities, by encouraging hyperlocal connections and approaches that use community assets to engage and empower people to use digital technology for health. We will work through existing programmes like the [Core20PLUS Connectors](https://www.scwcsu.nhs.uk/work-for-us/early-careers/articles/health-inequalities/core20plus-connectors) (<https://www.scwcsu.nhs.uk/work-for-us/early-careers/articles/health-inequalities/core20plus-connectors>) programme to uncover and address fears about using digital health services (2025)
- target and tailor offers, identifying and targeting groups that face barriers to accessing services and using digital approaches to bring the benefits of the digital transformation to everyone. Population health analysis will inform an inclusive offer that incorporates non-digital options where they are needed to ensure equitable access (2025)

By May 2023, NHSE will produce a framework for NHS action on digital inclusion with our future plans, and will develop further resources to support systems in practical action.

### User-centred design

User centred design is a recognised and effective approach for redesigning services to be more inclusive and meaningfully engaging people in transformation. The [NHS digital service manual](https://service-manual.nhs.uk/) (<https://service-manual.nhs.uk/>) supports consistent, accessible and useable products and services that put people first.

Between 2022 and 2025, we will:

- deliver a range of initiatives to ensure design is an established, recognised, and valued approach and profession in the NHS
- build understanding and adoption of design in NHS organisations, facilitating access to design expertise, ensuring NHS organisations can support the professional user-centred design workforce and strengthening the design standards expected of suppliers to the NHS

### **Accelerating adoption of proven tech**

Planned actions here aim to:

- support strong R&D partnerships between the tech industry, and health and social care organisations
- streamline procurement for both buyers and suppliers of relevant digital technologies
- build long-term relationships between them

### **Systematising tech R&D partnerships**

The tech industry has developed a large number of digital technologies with potential to improve people's care. We want the best of these to be adopted and spread across health and social care. But often these technologies are not configured to the needs of the sector, do not integrate with existing systems and only have anecdotal evidence of effectiveness.

However, some providers are very capable at diagnosing the problems that could most benefit from tech, identifying or building good products, configuring them to the needs of the sector and then building the evidence base of effectiveness.

We will:

- convene conversations with venture building and funding experts looking to partner with the NHS. We will set expectations on how to work with the NHS and support relationship-building with NHS organisations that have the capacity and expertise to identify and scale new tech (from June 2022)
- provide funding through ICSs to pilot and build an evidence base for different types of care tech (from July 2022). ICS and social care providers will be supported to purchase and scale these technologies through the development of guidance and good practice as well as the creation of an assured list of suppliers that enables consistent application of standards and interoperability
- provide NHS organisations with guidance on the types of expertise and resources required to become effective at building and scaling new tech (from September 2022)
- encourage NHS organisations to collaborate and partner to be able to improve the scale and breadth of expertise to support new technologies (from September 2022)

- provide commercial support to NHS organisations in their negotiations with funders. We are likely to take hands-on involvement in support of the NHS organisations in these negotiations to ensure that the NHS gets a fair deal (from September 2022)

## **Buying tech better**

In addition to the actions outlined above, buyers of technology need to be sure they are purchasing products that meet their needs, and the needs of the people they serve. They must ensure that digital technologies meet NHS technical standards – for instance, on usability, interoperability, data protection and clinical safety.

Sellers need to know the technical standards they must demonstrate to gain NHS accreditation.

We will:

- clarify the required standards and assurance procedures (ongoing)
- streamline contracting methods both to leverage NHS buying power and simplify the process of selling technology to NHS buyers (ongoing)
- amend and consolidate existing guidance for buyers on appropriate routes-to-market through updates to the [Procurement Framework Strategy Recommendations \(https://www.nhsx.nhs.uk/key-tools-and-info/procurement-frameworks/procurement-framework-strategy-recommendations/\)](https://www.nhsx.nhs.uk/key-tools-and-info/procurement-frameworks/procurement-framework-strategy-recommendations/) (ongoing)

## **Building long-term partnerships with suppliers**

Long-term relationships with suppliers of the digital technologies are critical to transforming health and social care by ensuring those key markets remain active and attractive to small-to-medium-sized enterprises (SMEs), innovators and new entrants.

We will:

- invest time and energy in building long-term partnerships at the national level (September 2022)
- create a central hub to support ICSs and NHS trusts in doing the same, alongside procurement advice (March 2024)

## **Building a national research infrastructure**

The [Life Sciences Vision \(https://www.gov.uk/government/publications/life-sciences-vision\)](https://www.gov.uk/government/publications/life-sciences-vision) highlighted the UK's ambition to be world leading in the development, testing, access, and uptake of new and innovative treatments and technologies. Access to the right data for researchers and innovators is essential to that endeavour.

Through the Data for Research and Development programme we will invest up to £200 million to transform access to and linkage of NHS health and genomic data sets for data-driven innovation and inclusive clinical trials, whose results will be

critical to ensuring public confidence in data access for research and innovation purposes.

We aim to signal our interest in research into new vaccines, early diagnostics and treatments that better answer NHS needs to secure early access to innovations.

We will:

- enhance positive patient and public support through a 3-year programme of activity (from July 2022). Groups include public assemblies, focus groups and regional Citizens' Juries as described in the [Data saves lives](https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data) (<https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data>) engagement commitments
- publish a Value-Sharing Framework to ensure the NHS gets best value from these assets (March 2023)
- accelerate clinical trial set-up, including increasing the capacity of the [NHS DigiTrials](https://digital.nhs.uk/services/nhs-digitrials) (<https://digital.nhs.uk/services/nhs-digitrials>) service to deliver studies by 30% (March 2023)
- develop an England-wide network of TREs to allow researchers access to secure, high-quality, linked data sets to support research using data generated from across the NHS, including genomics, imaging and pathology. This supports a broad range of types of research, including across priority areas such as cancer diagnosis, and development and validation of AI-enabled tools and technologies by:
  - expanding the scope, capacity and capability of the NHS Digital TRE, with a target of 250 users (March 2023)
  - developing a network of sub-national or regional linked TREs (March 2025)
- enable researchers to access linkage-enriched genomics data sets from linked sources (2025)

## **Appendix B: national digital channels roadmap (NHS App and website)**

To fulfil our ambition to make the NHS App a front door to the NHS, extending the functionality and features available through the App and NHS.uk website, we will take an iterative, user-led approach – exploring, testing and refining our offer. Delivery is agile – what we develop depends on what users tell us matters most to them to manage their health, keep them well and get them well.

There is also much we can learn from best practice used in consumer-facing apps, as well as health apps being developed internationally. For example, in the US, Kaiser Permanente uses a multi-channel approach to remind their members to book into routine screening and health checks. In Singapore, the Health Promotion rewards programme incentivises healthy behaviours by offering rewards and vouchers for shopping healthily or exercising. Israel's largest state-backed health provider, Clalit, combines user-generated and electronic patient record data to predict patient risks of developing serious health conditions and enabling early

intervention. The NHS App is already recognised globally as leading the way in terms of uptake – but we will need to innovate constantly to ensure we fulfil its true potential.

To ensure we are fully leveraging the opportunity that the NHS App presents as a mainstream ‘front door’ through which the population can access health information and care – particularly in the face of technological and scientific advancements such as genomics – we are undertaking work this summer to set out a long-term vision and direction, exploring the full potential of the NHS App’s role in:

- pathway management
- prevention
- personalised medicine
- clinical research

We are making sure we have access to more sophisticated data on how the NHS App and NHS.uk website are used, so we can make informed decisions to improve our services and understand the impact they have on people’s health outcomes. We will make this data more accessible through enhanced public-facing dashboards by the end of the financial year.

We will also clarify how third-party apps can be integrated, defining what is both appropriate and technically possible.

## **Delivering our ambition**

Our delivery roadmap for the NHS App and NHS.uk website is organised around our triple vision – together they will help people to:

- manage their health (and social care)
- stay well
- get well

We have a suite of features we are planning now. However, these will be refined, expanded and modified as we conduct more user research, make technical discoveries, and examine usage data to tell us what features really are the most useful and impactful.

Therefore, the roadmap below is an indicative view and will evolve over time.

## **Manage my health**

### **From June 2022**

To manage my health, I can:

- see an enhanced range of services my local pharmacies can offer me

## **From September 2022**

To manage my health, I can:

- start to receive messages sent by my GP in a secure inbox accessed through the NHS App; with in-app notifications to let me know when there is a message to read
- start to view and manage hospital appointments (if my local hospital is participating)

## **From December 2022**

To manage my health, I can:

- start to receive notifications and messages via the NHS App for my COVID-19 vaccine appointments
- start to be alerted by my GP that my prescription has been dispatched to a local pharmacy
- find my way around the NHS App more easily with an improved design
- access my online NHS profile where I can manage my contact details
- see new information in my GP record and request my historical information directly from my practice

## **From March 2023**

To manage my health, I can:

- register with a GP practice online (if my practice is participating)
- find more information online about what sexual health services are nearby and the choices available to me.
- start to access hospital correspondence, including clinic letter and pre-consultation questionnaires (if my local hospital is participating)
- start to receive alerts, messages and notifications regarding secondary care appointments through the NHS App (if my local hospital is participating)
- access my child's health record online, if I'm a parent or legal guardian

## **From March 2024**

To manage my health, I can:

- access my NHS vaccination history online
- start to make enhancements specific to me on my online NHS profile, including the ability to update my postal address
- access the health record of the person I care for, where I have the correct authority
- register with the NHS App, even though I'm not registered with a GP
- give feedback on my experience when accessing NHS services

- share my health and care information with trusted individuals
- access video consultations (where my local GP or hospital is participating)

### **From March 2025 and beyond**

To manage my health, I can:

- view all my test results easily and consistently
- review how my data has been used to plan services and contribute to medical research
- exercise greater control over how my data is used by being able to opt out of specific uses of my data if I choose, once I have been informed of the potential benefits
- access services that are relevant to me

## **Stay well**

### **From June 2022**

To stay well, I can:

- find more information on women's health including new menopause content
- access enhanced mental health information about services for children and young people, parents and carers

### **From September 2022**

To stay well, I can:

- use the online Heart Age tool to calculate my estimated heart age score and get advice and guidance as to how I can improve my score based on managing risk factors such as diet, cholesterol and exercise
- book my COVID-19 vaccine or booster using the NHS App as well as through the NHS website

### **From December 2022**

To stay well, I can:

- access more health services using my NHS login (up to 100 services nationally)
- find enhanced information online about my local dentists and opticians and see what services they can offer me

### **From March 2023**

To stay well, I can:

- access digital tools to help me track my blood pressure and share this with my GP
- access more information and support for new parents

### **From September 2023**

To stay well, I can:

- book a flu vaccination appointment using the NHS App or NHS.uk

### **From March 2024**

To stay well, I can:

- receive alerts and notifications regarding health checks and screening services through the NHS App
- be signposted to NICE approved digital health products that might be relevant to me – for example, to help me stop smoking or manage a long-term condition
- access a digital health check that highlights my risks of getting the biggest preventable conditions, such as cardiovascular disease and type-2 diabetes, and points me to tools, support and actions I can take to reduce my risks

### **From March 2025 and beyond**

To stay well, I can:

- be invited to use novel diagnostics to detect cancer early
- access public health digital tools – and, where I choose to, have this linked back to my online NHS profile
- link my wearable devices and other health-related data to my online NHS profile

## **Get well**

### **From June 2022**

To get well, I can:

- access my GP's online triage and message-based consultation offer (if enabled for my practice)
- find, in one place, information on perinatal mental health services available near me, including those I can use for crisis support
- get support for myself and my partner in the perinatal period to find information on what mental health services are available, how to access them and what to expect

### **From December 2022**

To get well, I can:



- see how long I may have to wait for an appointment at my local hospital and access relevant advice to make healthy choices while I wait (if my local hospital is participating)

### **From March 2023**

To get well, I can:

- see more ratings and reviews of local NHS services

### **From March 2024**

To get well, I can:

- be notified that I might be eligible to take part in a clinical trial and access more information about it
- be supported at critical moments of transition when I might need to start to access social care – for example, following a stroke, bad fall or a dementia diagnosis
- use my NHS login to access NICE-approved digital health products that my GP or care team have recommended to me – for example, to help my anxiety and depression, or to better manage my diabetes or cardiovascular disease

### **From March 2025 and beyond**

To get well, I can:

- book into direct access diagnostic clinics through integration with 111 online
- order an at-home diagnostic for a range of blood or urine tests
- choose to access 111 online through the NHS App, so the clinical triage has a rich picture of my health history -, including my recently uploaded latest health data from my wearable device
- join registers of people willing to participate in clinical trials so I can be contacted proactively
- share my genomic profile so this can be taken into account by my care teams
- have a joined-up view of key health and social care information accessible through a single login

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