The digital front door

Reducing National Health Service (NHS) workforce pressures and transforming patient experiences through Amazon Web Services (AWS) services.

AWS in healthcare

The Amazon Web Services (AWS) healthcare mission is to enable access and delivery of person-centred care in order to improve outcomes and lower costs by accelerating the digitisation and utilisation of healthcare data. Our aim is to help the National Health Service (NHS) and its partners develop cloud strategies to achieve more with less, modernise technology, and digitally transform back office and clinical services.

The healthcare sector is striving to reduce demand on the workforce and improve the patient experience using a digital front door.

A digital front door refers to any digital service which seeks to replace or supplement existing interactions that patients currently have with healthcare providers. This includes administrative tasks, such as booking appointments or requesting repeat prescriptions, accessing healthcare information, personal data and guidance all the way through to complete digital therapies that can be delivered at the patient's convenience.

Implementing a digital front door is an opportunity to relieve the pressure on overworked healthcare staff by allowing patients to self-serve for a wide range of administrative and clinical. Many other industries, such as travel, banking and retail, have increased productivity and reduced demand on their workforce and services by implementing similar digital engagement options. It also allows those industries to scale up and down in response to changes in demand.

Design patient experiences like companies design customer experiences.

There will be those patients that cannot or choose not to use digital services; but with over 88 percent of the UK population (including 78 percent of over 55-year olds)
owning a smartphone there is a substantial opportunity to resolve some of the demand related issues.

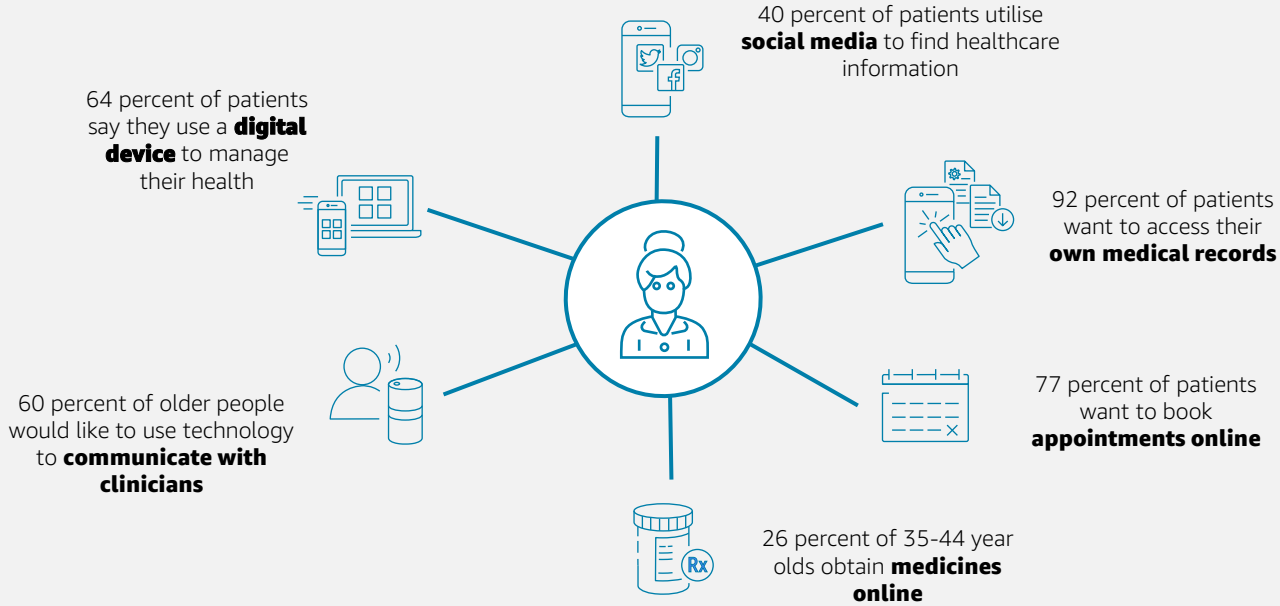
Health systems, and the professionals that work within them, are under increasing pressure as demand for. The rise has been driven by several factors, most notably the demographic trend to a older adult population and an associated increase in chronic disease and long-term conditions. The pandemic added to these pressures by disrupting normal care for several years which has further resulted in large backlogs for elective care and the under diagnosis of conditions such as cancer, which are now presenting to the system.

This increase in demand is coupled with the fact that most patient interactions still involve contact with a healthcare staff. These include phone and postal communications for both administrative and clinical interactions. A significant proportion of this workload is high volume, routine and low value administrative tasks. In fact, 49 percent of doctors' time is spent on such activities. This makes it more difficult for the workforce to scale up when demand increases and particularly so in the face staffing and recruitment challenges.

Additionally, patient follow-up has been associated with meaningful reductions in readmission rates for those with chronic conditions and an elevated risk of readmission. Therefore, hospitals with the digital tools to effectively follow up with patients post-discharge can improve rehabilitation, avoid readmission and identify patients that need further help or intervention.

The digital trend

Currently, there is overwhelming need currently is to increase productivity and reduce pressures on the healthcare workforce using the digital front door. There are also however significant benefits to patients and there is a win-win of delivering new digital experiences that those patients are coming to expect.



Patients access healthcare services at physical facilities and are compelled to communicate with healthcare providers in person or via phone and post. Patients' expectations are changing, however, in line with the digital experiences that they enjoy in other aspects of their lives such as banking, retail and travel.

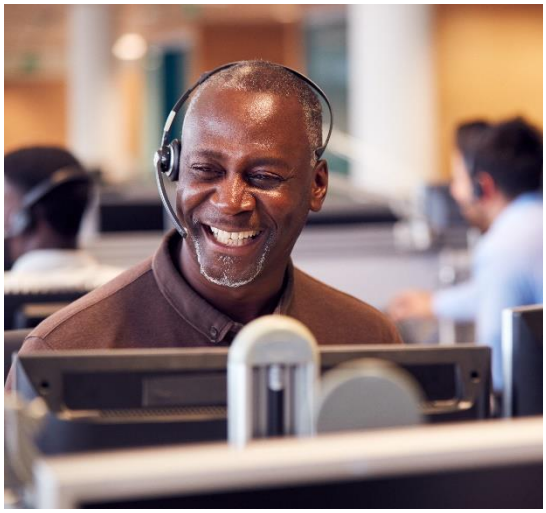
"By supporting our customers and partners to build digital front door applications, we are personalising the citizen healthcare journey from first touchpoint with the system to long-term term condition management – providing more choice and a better experience – whilst relieving pressure on healthcare professionals at the same time. It is a win-win for everyone"

Dr Andrew Jones
AWS Head of Clinical Innovation

40 percent of patients now find health information on social media, 92 percent would like to have access to their own medical records and 64 percent say that they use a digital device to manage their own health. Where as previously the digital divide was assumed to be age-related, now 60 percent of tech savvy seniors are interested in using technology to access, store, or transmit personal health information or records to clinicians.

There is also the potential to improve patients health outcomes. A lack of access to healthcare poorer outcomes due to delayed diagnosis, inadequate follow up and patients presenting with late-stage disease. This increases the cost of care and reduces the likelihood of a positive outcome for the patient. Some digital front door technologies enable earlier diagnosis, often in the patient's home. SkinVision can support the diagnosis of malignant melanoma from smartphone photographs taken by the patient with an accuracy of 92 percent. Huma allows hundreds of patients to be monitored at home for conditions such as COVID-19. This can not only avoid up to 94 percent of related admissions but also identifies those who need intervention more quickly.

AWS technologies and healthcare know-how uniquely position it to help customers create digital front door solutions.



Amazon Web Services (AWS) technologies and healthcare know-how uniquely position it to help customers create digital front door solutions. The key features of a digital front door are that it is multichannel, integrated, proactive, personalised, and capable of learning. Above all, a digital front door should be designed to put the patients at the centre of their own care.

Amazon Connect is a foundational that allows customers to modernise their existing telephony solutions. It also provides a platform upon which customers can innovate through multiple channels incorporating AI and ML based automations. Services such as Amazon Lex, Comprehend and Polly can all contribute to innovative patient experiences and event based, serverless architectures allow for further automation and responsive solutions.

Moving to modern telephony infrastructure

NHS England has recognised the critical importance of modern advanced telephony systems to support primary care resilience and improve the patient experience. As part of Delivery plan for recovering access to primary care, NHS England have committed to support general practice with the transition from analogue to digital telephony, and will be launching a Cloud Telephony Framework in 2023.

NHS Business Services Authority

NHS Business Services Authority (NHS BSA) used Amazon Connect to leverage AI services such as Lex and Polly, to build an automated system to handle repetitive calls regarding its European Health Card. The system reduced the volume to the call center by 40 percent - a meaningful reduction for a centre that handles nearly 5 billion calls a year. Automation also contributed to a cost savings of over £500,000 and converted the call center from a 9-to-5 operation to a 24/7 resource for consumers.

Screening and Health check programmes

According to NHS Breast Screening Programme Data for England in 2020 – 2021 only 64.2 percent of women took up their invitation for breast screening. There are many examples of customers using AWS to support screening programmes, such as in breast cancer screening services. Other examples include screening programmes for cervical cancer, colon cancer, prostate cancer and diabetes.

Screening programmes are ideal for digital front door solutions. The main applications can be used to help provide patients with information about the service in response to natural language questions, book and rebook appoints and increase the number of citizen's accessing the screening service.

Enabling self service

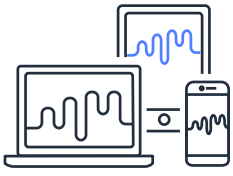
A large proportion of interactions that patients have with healthcare providers pertain to simple and routine tasks. These may include making and rescheduling appointments, requesting repeat prescriptions. In other aspects of their lives patients, as citizens and consumers, have become accustomed to much more direct control and self-service options for similar activities. Patients also want to use the channel of their choice whether that is text, phone, social media or via the web.

Facilitating proactive appointments

Patients who don't attend, otherwise known as Did Not Attend (DNA) events, or appointments not being scheduled following surgery is a significant problem for the NHS. This issue can be solved by applying automation such as phone reminders. When combined with an analysis and identification of those patients most likely to DNA it can be highly efficient as well. Additionally, proactive messages to patients following medical procedures can ensure that they are followed-up appropriately.

Remote monitoring and virtual wards

Traditionally, the majority of care has been delivered one-to-one in healthcare facilities, such as hospitals, clinics and primary care health centres. This results in many patients having to be admitted or seen by a clinician for routine monitoring and surveillance. It also limits the ability of health services to scale quickly at times of high demand or to divert care to lower acuity and self-care options.



Considerable progress was made during the pandemic by AWS partners in creating virtual wards. for example, allowed COVID-19 positive patients to be monitored at home rather than be admitted to hospital. This enabled a single clinician to monitor hundreds of patients simultaneously. It consequently avoided 94 percent of hospital admissions, and those patients who were admitted due to deterioration in their condition did not have inferior outcomes. AWS services also ensured that the Ontario Telehealth Network could scale to handle 3,000 percent more virtual consultations during the pandemic.

The future of healthcare

With digital engagement tools and a strong cloud-based infrastructure, healthcare providers can remove the friction of interacting with the health system and reduce the demands on their workforce.

AWS provides the tools for healthcare organisations including, both providers and health systems, to educate, engage and ultimately empower people to take ownership of their health. Our broad network of partners, solution architects and experts in digital health are ready to help you.

"There's a lot that can be learned through better patient engagement and used to improve treatment in the future, We are passionate about deploying our technology to customers so they can transform healthcare and improve patient outcomes."

Dr Rowland Illing
AWS Medical Director for International Public Sector Health

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To get started contact your AWS account team to learn more on how we can:

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- Understand your technical landscape
- Build your AWS Cloud business case
- Identify the best procurement route for your NHS Trust
- Identify quick wins and initial migration opportunities

AWS resources

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