

Speech: Building a digitally enabled NHS

Good morning. It's great to be here today.

This my second time round in this job and when I was reappointed in January it was great to see just how much momentum there is now in health data and healthtech policy.

As some of you may have noticed, our Health Secretary has made sure this is core business at the Department of Health and Social Care (DHSC).

With his [Tech Vision](#), the Health Secretary set out the road map for digital standards, interoperability and much more. The [Long Term Plan](#) filled in more details and finally we have [launched NHSX](#) – a digital transformation team worthy of the task at hand.

I have found the twittersphere's reaction to this important. The techies – predictably – love it. Their reaction can be summed up more or less in 3 words “about bloody time”. The wider public though (even some in the NHS if we're honest) too often still see investment in healthtech as a zero sum game.

On one level, this is understandable frustration born out of painful experiences we could all name.

But digital solutions today are light years on from the clunky offerings of the past that gave us the National Programme for IT, and it is time we move on from that now.

On another more fundamental level I think this attitude is contrary to the very foundations of research, development and innovation on which modern medicine is built.

Since before the establishment of the NHS in 1948 we have sought more and better ways to record, analyse, share and structure health and population data for patient benefit.

John Snow, for example, is hero to many of us. Not just exploits in Game of Thrones, but in his earlier incarnation as the father of epidemiology – a physician whose use of dot maps and statistical analysis of the link between water quality, pump locations and cholera cases in 1849 was the beginning of the end for miasma theory and literally life-saving for those at risk from contaminated water supplies across the world.

Next year is the 200th anniversary of the birth of Florence Nightingale. Few will think of her as an early data scientist but she pioneered analysis of large amounts of statistical data, using graphs and tables, regarding the condition of thousands of patients in the Crimean War to evaluate the efficacy of hospital services. And her methods proved convincing enough to

reform services in military and civilian hospitals saving countless lives.

During the US Civil War, the Sanitary Commission collected enormous amounts of statistical data and reported some very 21st century problems of storing information for fast access and analysis. So a resourceful surgeon, John Shaw Billings, built the Library of the Surgeon General's Office and figured out how to mechanically analyse medical and demographic data by turning facts into numbers and punching the numbers onto cardboard cards that could be sorted and counted by machine.

The applications were developed by his assistant Herman Hollerith who invented the punch card and counter-sorter system that dominated statistical data manipulation until the 1970s. Hollerith's company became IBM in 1911.

In other words, it has never been possible to make progress in medical research without getting health data right – the difference today is we have the tools to deliver at scale, ethical and affordable digital solutions to health data problems that these unsung heroes of medical statistics could never have dreamed of.

Now there are, of course, barriers in the NHS of which we are all aware:

1. We need a consistent understanding across the NHS, regulators, industry and the public about what good evidence for health tech looks like – a lot of work is going into this and I know you will be hearing about this later from Indra Joshi
2. We need to gain and retain public trust in health data sharing – this is why we established the [National Data Guardian](#) and put her on a statutory footing and why we will continue to work on patient engagement so that #DataSavesMoreLives
3. We need to train, challenge and win over the NHS workforce to digital from boards to wards – the NHS Digital Academy is part of this, as are Topol's Review and Dido Harding's workforce strategy, of course

A digitally enabled NHS will:

- be the cornerstone upon which sustainable, high-quality services, fit to face the challenges of another 70 years, will be built
- turbocharge our life sciences and health research ecosystem
- empower patients in a way never possible until now

Building the digitally enabled NHS

Now anyone with a digitally enabled friend or relative in their 70s will know that it is an unpredictable business. The iPhone – no problem, Netflix – bring it on. But mobile banking, perhaps – a complete mental block.

And so it is for our NHS, as it approaches its 71st birthday. We are seeing pockets of simply brilliant digital innovation but, let's be honest, some remaining pockets of reluctance.

Make no mistake, though, things are changing:

Take primary care. Research by the King's Fund, Health Foundation, Nuffield Trust and Institute for Fiscal Studies showed that well over half of all patients, no matter their age, want to access online GP services.

So in the NHS Long Term Plan, we made the commitment that in the coming years every NHS patient will be able to access digital primary care services. Through our new GP contract and the GP IT Futures Programme, we are stripping out barriers to innovation and experimentation that will allow new service models to flourish.

In acute care, we want to give patients the opportunity to access services digitally – and thus avoid the daily, weekly, or monthly trudge that many of us must make to our nearest hospital.

I want to see transformation akin to that provided in Tower Hamlets by e-clinics for those with chronic kidney disease. These e-clinics provide a single patient pathway, with rapid access to specialist advice by consultants. Since the e-clinic began in 2015, 50% of referrals are managed without the need for a hospital appointment, and the average waiting time for a renal clinic appointment has fallen from 64 days to 5.

Inspired by the Secretary of State's Tech Vision, I also want to gut the internal wiring of the NHS, and deliver real interoperability of health data and technology.

Our new unit, NHSX, which 'goes live' in 12 days, will play a vital role in driving forward this agenda, and bringing together partners from across the health and care system to radically improve the digital provision and organisation of services.

By working together to get this right, I genuinely believe it will be:

- good for quality of care
- good for efficiency of services
- and good for staff and patients

Turbocharging and life sciences and research

ecosystem

But we all know that digital is also an essential driver to progress our life sciences and research ecosystem.

Everyone in this room understands the UK has unimpeachable life sciences credentials: 25 of the 100 most used medicines globally were developed here using a public and philanthropic research infrastructure, which is, pound for pound, more effective than anywhere else in the world.

But to maintain this kind of record in an ever more competitive global environment, we must fully exploit the opportunities offered by digital.

First, we must make our world-leading data assets more accessible. That is why, in collaboration with Health Data Research UK, I am driving forward the development of the Digital Innovation Hubs. Through our £37.5 million investment, we will make the NHS's data assets radically more accessible and usable by researchers and innovators.

Health Data Research UK will in May announce a final detailed specification and call for applicants to implement the regional hubs, and through the upcoming Spending Review we will look to secure additional funding to advance our work in this area.

Second, we must accelerate the development of innovative digital products. We have provided over £100 million to support the development and adoption of innovative healthcare products, including £35 million for the digital health technology catalyst.

The catalyst has already supported small and medium-sized enterprises (SMEs) to develop a huge range of innovative digital products, ranging from VR surgical training tools, through to 'gaming' technology to support the rehabilitation of patients in their own home.

Round 4 of the competition is open until 10 April, and I strongly encourage you to get SMEs to apply.

Thirdly, the generation, collection and analysis of real world data has been recognised as a major enabler for the optimal use of digital medical products in clinical practice.

The National Institute for Health Research (NIHR) i4i Programme, therefore, is a new £2 million funding stream designed to evaluate medtech innovations based on the generation of clinical evidence from their use in real world healthcare settings.

Finally, we must ensure that when effective products have been developed, there is rapid uptake. That is why we have established and empowered the Accelerated Access Collaborative, under the chairmanship of Lord Darzi.

The Accelerated Access Collaborative will work as the umbrella organisation for UK health innovation, and serve as the front door for innovators seeking

to access the health system.

It will set the strategy and priorities for a more effective innovation ecosystem: overseeing and co-ordinating funding and support for innovation, and maximising the opportunity provided by the NHS Long Term Plan funding settlement.

I am delighted that the AMRC is now represented on the board of the Accelerated Access Collaborative, and will help us to drive forward progress.

Working in partnership is central to everything we want to do on the digital and wider life sciences and research agenda – the life sciences sector deal is a leading part of the government's [Industrial Strategy](#) and I want us to be restlessly ambitious as we deliver and review and renew it.

Empowering the patient

Finally, I want to discuss the most important part of the digital innovation landscape: the patient.

The lives of patients across the country will be profoundly improved by digital technology. Whether it is:

- the NHS app helping them to keep track of their health record and interactions with the NHS
- wearable technology that helps monitor a patient's health in an ever more sophisticated way
- the Matt Hancock app, helping patients across the country in need of some light relief

But we must be very clear – we do not have a right to patients' data, or their engagement in our digital programmes and activities. We must earn this by gaining and retaining their trust.

Our responsibility as an internationally trusted health and care system is to use all the tools at our disposal to improve the quality and safety of care, including data-driven technologies, in a safe, ethical, evidenced and transparent way. For this reason, we have developed our [10 principles in a code of conduct](#) to enable the development and adoption of safe, ethical and effective data-driven health and care technologies.

The code is designed to recognise that, while data-driven health and care technologies will undoubtedly deliver huge benefits to patients, clinicians, carers, service users and the system as a whole, it is our duty to capitalise on these opportunities responsibly.

If we do not think about issues such as transparency, explicability, and

bias, it is also possible that the increasing use of digital technologies within the health and care system could cause unintended consequences.

That is why the code clearly sets out the behaviours we expect from those developing, deploying and using such technologies, to ensure that all those in this chain abide by the ethical principles for digital initiatives developed by the Nuffield Council on Bioethics:

When used as part of an overarching strategy it will help to create a trusted environment that supports innovation of data-driven technologies.

To help make this easier in the research space, the Be Part of Research website will be launched in May as the new service to help patients and the public find opportunities to take part in research. It will be a 'one stop shop' to promote opportunities across the range of NIHR services (including, for example, the Bioresource, People in Research and Join Dementia Research), as well as charity and other registers and information.

It will provide links to useful health information and background to help members of the public become more research-literate. It has been designed with extensive input from patients and the public.

Join Dementia Research

And just to pull out one of those programmes to show what can be achieved when we work together, 40,000 people have now registered on Join Dementia Research.

11,000 participants have already taken part in research as a result of registering with Join Dementia Research, meaning that it is already linking people up with research and making a valuable contribution to dementia research.

The people choosing to register choose what information to share and which research opportunities they want to take up, and stay in control of managing their accounts.

It is a digital service, working through a website, supported by charity helplines.

This is a fantastic example of what we can achieve together – a collaboration between research charities (including AMRC members Alzheimer's Research UK and Alzheimer's Society as well as Alzheimer Scotland), NIHR and DHSC, researchers, and people living with a condition, their carers and others who simply want to help drive dementia research forward.

This is what we want to see in every area of research. It will only become a reality, however, if we work together to make it happen. With your support we can show patients and the public that if we follow the rules, we deserve their trust and engagement in our health data and healthtech work.

Conclusion

Realising this vision – a fully digitised NHS – is a challenge I know.

But John Snow and Florence Nightingale and John Shaw Billings all faced technical, social and structural barriers to the reforms that they introduced. But they did not let that stop them. Why? Because lives depended on it.

The same is true of us today. We must get this right because #DataSavesMoreLives.

I also know that no health system in the world is more equipped to respond to these challenges.

And I know that because of all of you and the work you have already done.

Today I have referred to a few examples of success we are having in transforming health data and healthtech in the NHS but you will all know of many more examples of outstanding practice from across the country. Clinicians, industry, researchers, charities and government working together to improve patient care, patient safety and NHS services.

To all of you leaders in digital health here today – I want to offer my personal thanks.

I look forward to working with you.

I look forward to working with the AMRC – not only to ensure we keep building trust but also to ensure that data saves more lives.