Conference Key Note

The Importance of an Innovation Culture in the NHS

It is just 18 days since we celebrated the 75th anniversary of the founding of the NHS. In 1942 Sir William Beveridge published his seminal report. In it, he envisaged that there would be a national health service free at the point of delivery. This was picked up by Nye Bevan, the Labour politician who, after much debate and controversy, turned Beveridge's vision into reality on 5th July 1948. It was a historic moment, the NHS was born, and the result was that everyone could access free healthcare at the point of use, irrespective of their means.

Looking back over the past 75 years, I argue that the NHS has been characterised by change and innovation driven by advances in science, technology, pharmacy and engineering. Amanda Pritchard made these changes in her recent speech to the NHS Confederation Conference. Vaccines for childhood illnesses such as polio and diphtheria and, more latterly, for AIDS/HIV and covid; CT scans, transplant surgery, IVF, genomic science, and robotic surgery are just some of the services built by innovation.

The diseases that drove demand for health care and were killed in the middle of the 20th century have largely been eradicated.

New Challenges

As we look forward, the challenges as we move into the middle of the 21st century are different to those of the middle of the 20th century. Today the challenges are posed by the **burden of** obesity, cancer and coronary health disease.

Demography is also responsible for increased demand. We are living longer, but healthy life expectancy is not keeping pace with life expectancy. In the next 15 years, the number of people aged over 85 years is set to increase by 55% Demand, and needs are changing with rising levels of multimorbidity and complexity with significant implications for service delivery. By 2037 unless demand can be moderated, two-thirds of over 65 yr. olds will have multiple co-morbid health conditions, and a third will have mental health needs.

As an important aside, the biggest driver of the healthcare system alongside demography is the cost of labour. Whilst we have around 122,000 vacancies today, the workforce has increased by 25% since 2010. However, the number of staff needs to catch up with demographic demand. Compared to other OECD countries, the UK sits below the average for the number of doctors and nurses per head of the population and also for investment in capital and infrastructure, with the consequence that we do not compare well on measures such as scanners and beds per head of population. Whist demography is changing the demand for health services, and innovations in research, science, technology, digital, and data are progressing.

Genomics and artificial intelligence (AI) will transform our ability to prevent, diagnose, treat and manage disease, supporting a shift towards better disease prevention and more personalised care outside the hospital.

Advances in precision medicine, machine learning can help with routine administrative tasks; ambient technology can help with recording in real-time; decision-making support tools will become much more commonplace; remote surveillance and support through wearable and monitoring apps such as are used in virtual wards will become more commonplace; remote consultations will also help whether via video or apps such as the NHS app.

What technology has also aided is the democratisation of health knowledge. It is not uncommon for patients to present themselves to a clinician after consulting Google; many patients with long-term conditions may know as much about the science of their situation as the clinician they are consulting. This access to knowledge changes the relationship between the person receiving care and the person providing it; it changes the power dynamic. Patients are much more empowered today than ever, and this trend is set to continue. This advancement of technology is causing changes to the role of professions.

Eric Topol and Sir John Tooke have reviewed the impact of science, technology, digital and data in the past few years and concluded that AI could help the clinician by releasing the 'gift of time' or 'time to care' augmenting rather than replacing clinicians.

Implications for Education & Training

It also has implications for the education and training of the future workforce, and I will return to this later.

What is also true is that the pace of change we see in technology, knowledge and data is set to accelerate.

Our ability to keep up with these changes will be tested. Experts argue that digital change is rapid our ability to keep up is increasingly difficult. The gap between digital technology's opportunities and our ability to convert those opportunities into practice is getting wider.

The global healthcare crisis is also affected by broader influences beyond traditional thinking about healthcare. Accelerated by the pandemic, the WHO set out the importance of the relationship between planetary, animal and human health in their One Health strategy. The war in Ukraine demonstrates that complex geopolitics will continue to shape the political and economic choices facing governments.

Where does this line of argument lead? The NHS has a remarkable track record of innovation, as the last 75 years demonstrate. However, the adoption and spread of that innovation have been more challenging. How innovation is taken to scale and standardised. Just a tiny example -when I was CEO of CQC, I could never understand why all hospitals that undertook surgery did not use the WHO-approved 'surgical checklist', which was proven safe and effective. Why is there such unwarranted variation in practice and outcomes when simple tools have proven effective? When we compare the NHS to other sectors and industries, we do not compare how innovation is adopted well.

The challenge for the future is not developing a culture of innovation but a culture of adoption and spread alongside innovation. In many respects, this is more challenging.

A key challenge of the adoption and spread of innovation is the culture of the NHS – the human behaviours and attitudes that either embrace or resist change.
Yes, financial investment is vital, but more is needed. Complex problems have more complex, single-answer solutions.

One contribution to that solution is education and training -it has a fundamental role. The NHS Long Term Workforce Plan begins to set out how we can take a much more strategic, multiyear approach to workforce planning. It sets out the importance of investing in the human capital of health and care – the workforce. It argues that we should see the workforce as not a cost but an investment. I am sure that Navina will touch on this in her contribution later today, so I do not wish to steal her thunder. The critical point I wish to make is that as we look to the future, we will need **more** staff and teams working **differently**. Also, given 50% of the current workforce will be working for the NHS in 20 years and given the speed of innovation, we will need to help existing staff re-skill and upskill.

In discussions about the future of the workforce, we often focus, as I have so far today, on the changes taking place in services – the **shape of care**. There are, however, two other areas that need to be considered – the **shape of work** and the **shape of education**.

In preparing the LTWP[1], we explored how education was changing – the **shape of education**. When I visit Universities, I am asked,
"How is the NHS changing, and what will it look like in the future?" - a legitimate question.

In return, I am curious to understand how education is changing. The same drivers of change: technology, science and digital are shaping what Anthony Seldon has called the Fourth Education Revolution.

What are some of those changes?

I have met many younger doctors who argue that their education has been biased towards '**knowledge retention'** and that their role is solving **complex problems**. They can access real-time, up-to-date knowledge using digital technology, and decision-making tools can help them. What is the balance between knowledge retention and problem-solving skills today, and how will that shift in the future?

Virtual and augmented reality, simulation, and group supervision using real-time technology are becoming increasingly common in undergraduate and post-graduate education.

The shelf life of medical knowledge is advancing rapidly and is now measured not in years or months but in days. An essential skill for all professionals in the future is **learning how to learn**. As both Tooke and Topol have concluded, what technology will not replace is the role of clinicians. Where machine learning and precision medicine will provide more accurate and rapid diagnoses in the future, the clinician's role will be to interpret what a diagnosis means and explain the next steps. In the end, there will be a greater emphasis on clinicians' emotional intelligence and interpersonal skills. Paradoxically, we often call these the 'softer skills'. I think that they may be the 'harder skills'.

These 'softer' skills are also essential for multi-disciplinary teams to work together successfully.

There will also be a need for initial training and education and the ongoing CPD to focus on acquiring new skills in digital and analytics.

I also see the emergence of new roles and an expansion of specialist roles such as data analysts, data scientists, bioinformaticians, biostatisticians and engineers and some that have not yet been developed. Complex problems are best served by diverse teams working collaboratively.

The development of the future shape of education is vital as we develop our approach to investing in human capital in a global labour market and ensuring that they have both the knowledge and skills to support the continued evolution of digital solutions.

I have been challenged to think about different generational attitudes towards work- **the shape of work**. As a baby boomer, I compare myself to my children, who are millennials. They work just as hard as I do and care about issues as much as I do, but they have a much more sophisticated, nuanced approach to work-life balance than I ever did. They want the flexibility to work and learn but also to live.

Some commentators argue that the differences between generations are overstated. My view is that the shape of work is changing and that generational attitudes to work are driving that change, and there is a need to adapt. We have made strides in building an inclusive workforce in the NHS, but as the staff survey demonstrates, there is much more to do on race, disability. We need to add intergenerational inclusion to our agenda.

These different generational attitudes provide real opportunities for the future and

create challenges for how best to harness the differences between the generations and create successful multi-generational workplaces.

Conclusion

I hope I have met the brief the organisers have set me in this presentation. Please read the LTWP the story of innovation in health runs through the whole document, and section 4 has an entire section on digital. I am confident that digital technology will profoundly influence how health and care are developed and delivered in the future. We anticipate some of the ways this will occur and others in the next 15 years (the lifetime of the LTWP) that I, for one, cannot envisage. I am less worried about whether a culture of innovation will continue and more concerned about how we create a culture of adoption and spread of that innovation. This is the leadership challenge we face, whatever our roles.

What is my call to action this morning? It is to ask you to argue for a change in the behaviours as we embrace a future that will continue to be shaped by advances in science and technology required by the professions and educators as science and technology. The NHS is built on a culture of innovation we now need to develop a culture of adoption and spread. Help to create that culture; help to make that future.

Thank you.