

NHS England and NHS Improvement Board meetings held in common

Paper Title: Update on Life Sciences: Future of Life Sciences in the NHS

Agenda item: 6 (Public session)

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Paper type: For discussion

Organisation Objective:

NHS Mandate from Government	<input type="checkbox"/>	Statutory item	<input type="checkbox"/>
NHS Long Term Plan	<input type="checkbox"/>	Governance	<input type="checkbox"/>
NHS People Plan	<input type="checkbox"/>		

Executive summary:

This paper provides an overview of the work we are doing with our partners to embrace the advancements of new technologies in the NHS, as a basis for discussion.

Action required:

The Boards are asked to discuss the contents of this paper and how they will provide continued support to the agenda for change and ambitions set out with the partners invited to attend the board.

Background

1. In common with the vast majority of health systems around the world, the NHS faces major challenges in meeting the future health and care needs of an ageing population. The need for care has been growing consistently and in a 'do nothing' scenario will outstrip NHS services as currently structured, a process that has already started. These challenges are playing out most visibly among the NHS's most costly services: operating theatres, ITUs, and hospital beds. The diseases that contribute most to early mortality, disability, and lost productivity in the UK are well understood, and in many cases their impact on populations is modifiable:
 - Cardiovascular disease (CVD), linked strongly to obesity, causes a quarter of all deaths and the largest cause of premature mortality in deprived areas.
 - Dementia is a leading cause of death, with an economic cost of over £25 billion per year.
 - Cancers kill 166,000 people each year with many found too late for effective treatment.
 - Stroke is the largest cause of complex disability, predicted to increase 50% by 2035.
 - Chronic respiratory disease remains one of the top 5 killers.

- Mental illness is the leading cause of lost work.
2. 'More of the same' will not work; just as it has throughout its almost 74-year history, the NHS will need to continue to adapt, and embrace innovation and transformation to ensure that services best meet the needs of all patients when they need them, but better yet prevent more morbidity and mortality.

The opportunity

3. Over the past four decades the NHS, and the world, has witnessed extraordinary advances in human understanding of biology and information. Adoption of innovations in biotechnology, digital technology and data advances have transformed every aspect of life and profoundly altered most sectors. These trends converge most strongly in healthcare, bringing the potential for radical transformation from treatment to targeted, precision prevention. They enhance our opportunity to focus more on population health; to reimagine a 'health service' rather than a 'sickness service'. Fully embracing these advances means applying the full scope of leading-edge biological sciences and digital technology to the mission of supporting our NHS workforce and health systems to keep people healthy and pre-empt disease, as well as to enhance the treatment of those who are already sick.
4. Innovating our way out of our demographic, capacity and service challenges will require that we capitalise on:
 - a. the ability of new diagnostics to catch disease earlier to prevent illness;
 - b. new therapeutics to relieve suffering and decrease the need for high cost services, and;
 - c. using an individual's health data to personalise their care plan.
5. Our ways of working will require that we improve our processes from the most upstream investment in R&D to the downstream endpoint of service delivery. More specifically we need: increased life sciences investment in our biggest challenges; more rapid and inexpensive testing of innovations; modernised regulatory and procurement approaches that facilitate adoption of effective technology; a data infrastructure that enables both the comprehensive management of NHS assets as well as the personalisation of care; and service delivery models that are structured to adopt and scale innovations as a continuous process.
6. We have begun responding to these challenges. The Life Sciences Vision and follow-on work directly targets the biggest health challenges we face. The [Accelerated Access Collaborative \(AAC\)](#) are monitoring scientific advances and supporting rapid testing and adoption schemes. To reflect commercial challenge and complexity, NHS England has a dedicated Commercial Medicines Directorate which has put in place an [NHS commercial medicines framework](#), setting out the purpose and principles on which NHS commercial medicines activity is based. Similar work is under development for MedTech including diagnostics and information technology. And, as previously presented to the board and recently articulated by the Secretary of State, we have begun

executing on plans for front line digitisation and a secure information architecture that will enable personalised prevention and treatment plans.

7. The COVID pandemic response and vaccine rollout showed how rapid research, evaluation, commercial agreement, and data-driven NHS rollout can work. Nimble, focused partnerships between government, the NHS and life sciences - with the trust of the UK population - delivered vaccines to the NHS in record time. Extensive use of data and analytics then helped deliver both the logistical exercise of getting vaccines to the point of delivery, and the communications, engagement and outreach required to drive uptake, particularly among those groups who are ordinarily less likely to come into contact with health services. Combined, these actions helped prevent well over a hundred thousand deaths and many more hospitalisations from COVID, and enabled the population and the economy to emerge from the worst of the pandemic¹.
8. We are realistic – the challenges the NHS faces now are more complex and multifaceted. We need to replicate our success at developing and adopting innovation in ‘normal times’, in the face of unprecedented pressure and with multiple simultaneous demands.

How we respond

9. To be successful, we need to fully engage the NHS to leverage this opportunity through embedding research and innovation in all our work. This requires us to also:

Rigorously apply a learning health system approach

10. Research and innovation do not follow a single linear path from idea to adoption. Instead, we need to create a research and innovation ecosystem in the NHS where innovation and new ways of working are encouraged, learnt from, and adapted – in short, a learning health system.

¹ <https://committees.parliament.uk/work/657/coronavirus-lessons-learnt/>

NHS Innovation Wheel

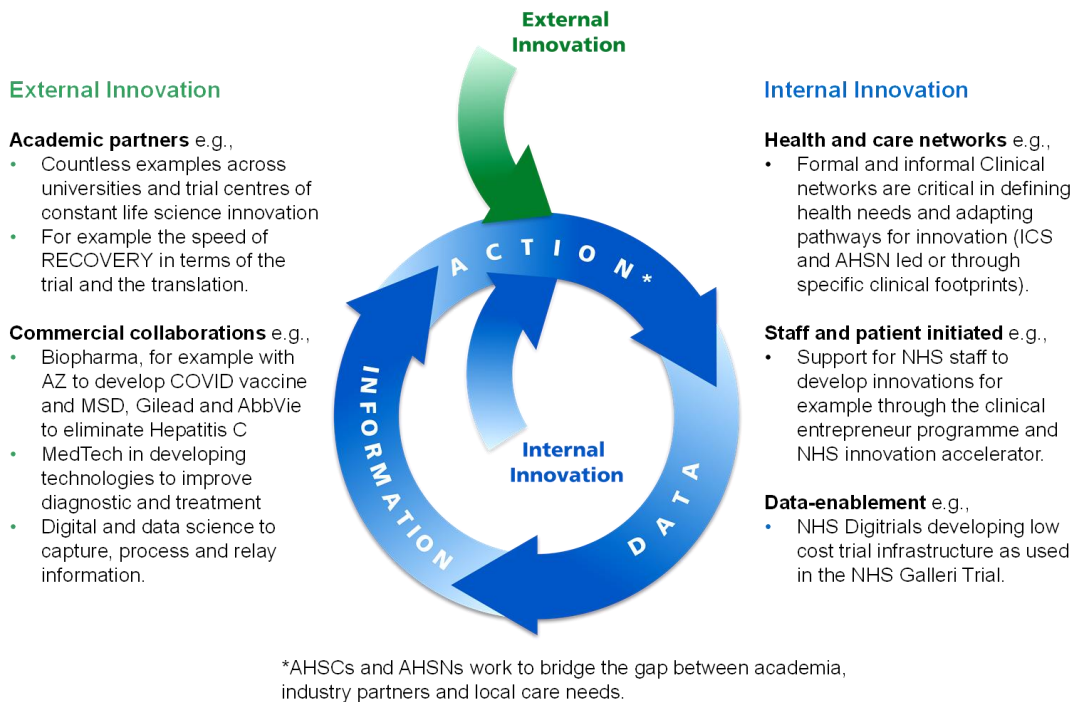


Exhibit 1. Internal and external innovators partnering within the NHS to drive a continuous learning health system

11. A learning approach is at the core of successful organisations. It is a virtuous circle of action which generates data which informs decision-making and implementation, generating further data for insights and so on (see exhibit). Many systems and NHS organisations are using this approach, and this requires partnerships across health systems, through collaborative networks.
12. Effective learning health systems are part of, and rely on, a wider set of steps we can take to improve adoption of innovation, at national, regional, and local geographies including:
 - A clear entry point for innovators to engage with system irrespective of origin – NHS, academic, life sciences and the voluntary sector.
 - An aligned approach to managing the development pathway for innovations from idea to adoption.
 - Establishing a shared collective view of priorities within a system – whether at national, local, or place level.
 - Integrating the pipeline for identified innovations into ICS transformation programmes.
 - Using a learning system approach – creating more consistent approaches for evidence synthesis, project evaluation, assessment of benefits realisation and capturing/sharing learning and evidence.
 - Build system capability to support research and innovation on an ongoing self-sustaining basis.

Continued work with our partners to be at the forefront of research and innovation through the Accelerated Access Collaborative

13. The UK Government's Life Sciences Vision² is clear that the NHS, and AAC partners, are central to leading innovative change. The NHS is in a unique position as a single destination global innovation partner with 66 million lives in its care and the support of a world class academic and commercial life sciences infrastructure. In exchange, the UK population gains faster access to innovative and affordable treatments and diagnostics.
14. NHS England detailed continued support for innovation research and life sciences to improve patient outcomes and reduce health inequalities at the November 2021 Board³. This remains a key part of how we can support delivery of one of the four "preconditions for success", *NHS as an Innovation Partner* element of the government's Life Sciences Vision.
15. We know we will need disruptive, nationally-driven innovative solutions to our biggest challenges. We will provide a clear articulation of NHS' needs through an enhanced demand signalling and horizon scanning function. Alongside this, our partners NICE and the MHRA are working to speed up and build in flexibility to our regulatory and assessment process. This includes; new innovative licensing processes and international collaboration, working with international partners through ORBIS to share safety data ensuring the UK remains early launch location meaning patients having faster access to proven, innovative medicines, medical devices, diagnostics and digital products; and delivering accelerated approvals of products whilst retaining the highest regulatory safety and efficacy standards.
16. As we identify solutions to meet our challenges, such as through the Prime Ministerial Healthcare Missions in the Life Sciences Vision, we will work with health and care leadership and citizens to develop new approaches, redesign pathways and incentives to ensure we are equipped to adopt innovation at a population level. We will focus our resources to support the local adoption of these technologies where they will have the largest impact in addressing health inequalities.
17. In addition, we are working in close partnership with the National Institute for Health Research (NIHR) to develop larger scale, faster, and more diverse research through the [Saving and Improving Lives](#) work, and to support clinical research recovery which slowed following an understandable focus on COVID-19 studies. This is supported by our plans to make it easier to develop trials in the NHS, improving patient recruitment into trials which could include enabling patients to register interest in participating in clinical research via the NHS app and enhancing 'DigiTrials'. In February 2022, we announced our plans to develop [Trusted Research Environments](#) in partnership with the DHSC and BEIS. These mark a significant investment to optimise the way NHS health data can be used for research to improve patient care.

² <https://www.gov.uk/government/publications/life-sciences-vision>

³ See also the NHSE Board update on AAC priorities [here](#)

Further investment in commercial agreements to help tackle the biggest challenges

18. Where it can bring maximum value into the NHS and is affordable within the service's financial constraints, we will continue to support the uptake of new technologies through innovative national commercial deals. These deals, through a single commercial negotiation with the NHS England Commercial Medicines Directorate, provide access for manufacturers to a broad and diverse market - and can be bolstered with uptake supported by the AAC partners and regional and local teams. By building strong relationships with partners at National Institute for Health and Care Excellence (NICE), Medicines and Healthcare products Regulatory Agency (MHRA) and industry, the NHS in England continues to make significant progress in supporting patient to access to safe, innovative medicines in a way that delivers optimal value for taxpayers.
19. Significant commercial partnerships have been, and are being, created in critical areas and we have an opportunity to build on these. Existing successful partnerships include:
 - Commercial agreements on personalised, precision treatments, including a gene therapy which restores eyesight in children.
 - The NHS GRAIL Galleri⁴ partnership for detection of early-stage cancers through a simple blood test.
 - Novartis Inclisiran⁵ partnership for a NICE-approved hyperlipidaemia treatment as a core part of cardiovascular disease prevention.
 - A series of 'smart deals' that secure patient access to breakthrough treatments at cost-effective prices including; the [introduction of adalimumab biosimilars](#), [wide-ranging agreements for a portfolio of cystic fibrosis drugs](#), and [securing first-in-class gene therapies such as Zolgensma®](#).
 - Government-led innovative partnerships such as [Our Future Health](#) initiative to collect information and samples from 5 million volunteers right across the UK to create one of the most detailed pictures ever of people's health.

⁴ <https://www.england.nhs.uk/2020/11/nhs-to-pilot-potentially-revolutionary-blood-test/>

⁵ <https://www.england.nhs.uk/2021/09/nhs-cholesterol-busting-jab-to-save-thousands-of-lives/>