AAC (005)

ACCELERATED ACCESS COLLABORATIVE

DELIVERY OF THE LIFE SCIENCE VISION HEALTHCARE MISSIONS

Executive summary

- The Life Science Vision was published in July 2021, and set out Government, the NHS and Sector's plans for making the UK *the* globally leading location for Life Sciences over the next decade.

- The Vision included seven Healthcare Missions, with an eighth then added with the publication of the Government's Drug Strategy in December. The aim of these Missions is to "bottle" the success of the UK's vaccine and wider research response to the pandemic and apply it to other areas of significant clinical need.

- Three of the eight Missions, on Mental Health, Obesity and Cancer, have a particular focus on the development and scale use of new technologies in the NHS, and are being co-designed with national and local health service partners.

Board members are asked to:

- Note the plans for the delivery of the Life Science Vision, including the eight Healthcare Missions.

- Confirm that your organisation will work collaboratively with the Accelerated Access Collaborative and the Office for Life Sciences to ensure the successful delivery of the Missions.

Background

1. The Life Science Vision, published in July 2021, was developed jointly by Government, the NHS and the Sector, at the personal request of the Prime Minister. The aim of the Vision was to set out a compelling ten year plan for how the UK would become *the* leading global location for Life Sciences.

2. The Vision had four core areas of focus:

    a. Maintaining the UK's world leading science and research infrastructure, and continuing to invest in the UK's unique Genomic and Health Data assets;

    b. Consolidating the role of the NHS as a key partner and driver of Life Sciences innovation in the UK;

c. Improving the business environment for Life Sciences firms operating in the UK; and

d. Delivering a series of Healthcare Missions, in which the NHS, industry, academia, philanthropy and Government work together to accelerate the development and use of new products for major disease areas.

3. The Healthcare Missions span a variety of disease areas,[1] technology types and Technology Readiness Levels (TRLs).[2] Broadly, the Missions are designed to learn from and replicate, albeit at a smaller scale, core elements of the Vaccine Taskforce, by bringing together the best of the NHS, industry, academia, philanthropy and Government to accelerate the development of new products to market in areas of significant clinical need. Each Mission will also have clear, accountable leadership, and the freedom to take novel and high-risk approaches to support the development of new products.

4. Through a joint programme of work, NHS England and the Office for Life Sciences have identified the NHS as having a core role in the delivery of three of the eight Missions.[3] These are:

   a. Mental Health – Developing new pharmaceutical and digital therapeutics to treat and support those with severe mental health conditions and improving the biological categorisation and diagnosis of mental ill-heath.

   b. Obesity – Developing and testing at scale new pharmaceutical, Medtech, and digital interventions to support sustainable weight loss, and how these products, and combinations of such products, can be used most effectively in real world settings ("what works, for whom, and under which conditions").

   c. Cancer – Supporting the later-stage development and at scale testing of new multi-cancer early diagnostics, accelerating research and development into new cancer immune therapies and vaccines, and working with NHSX to ensure smooth access to high quality data for cancer research and innovation.

5. The prioritisation of these Missions reflects alignment between the aims of the Mission and broader NHS plans, such as the Long Term Plan and Core20PLUS5; the significant clinical

[1] Dementia, Cancer, Mental Health, Obesity, Addiction, Ageing, Respiratory and Vaccines.
[2] See Annex A.
[3] As the five remaining Missions are scoped, developed and delivered in the coming years, it is possible that the NHS may take a greater leadership role in them, pending further discussions.

need for new innovations in these areas and inequalities in current clinical outcomes; and the opportunity to accelerate product development through harnessing the NHS' scale and diversity of the UK population. In the Comprehensive Spending Review, the Chancellor also allocated £95m R&D capital to directly support the delivery of these three Missions. The expectation is that this funding will be matched by industrial and philanthropic partners.

6. Across these Missions, we see the NHS and wider health system partners as having three core functions:

    a. Mission Design and Development – Working with Government and partners to ensure that the focus and work of the Missions aligns with NHS priorities and plans, and that delivery planning reflects the wider pressures the Service faces.

    b. Mission Oversight and Delivery – At a national level, working with NHS England to ensure the Missions are delivering on our shared ambitions and priorities (including membership of key governance and scientific committees); and at a regional and local level, working with NHS Trusts, academic institutions and private and philanthropic partners to deliver the Missions on the ground.

    c. Where appropriate, and in line with NHSE's established rules and governance procedures, and the statutory roles and duties of the MHRA and NICE, supporting the scale-up of innovations. For instance, this may include innovative deals and partnerships to support rapid population-level uptake of new innovations whose clinical and cost effectiveness is demonstrated through the Missions.

7. The section below sets out the current aims and objectives of each of the NHS focussed Missions. These have been developed following extensive engagement with national and local NHS clinical leaders and teams, and national and international experts from industry, academia and philanthropy.

Mental Health Mission

8. Mental ill-health is one of the leading drivers of morbidity in the UK and globally, with the burden of disease particularly pronounced in socio-economically deprived communities. There have been concerted efforts in recent years to increase investment in Mental Health services and R&D.

9. While pharmacological treatment options in other clinical areas (such as Cancer and Rare Diseases) have expanded significantly in recent years, driven by an ever-greater understanding of the biologic and genomic triggers of disease, there has been little progress in Mental Health. Many existing treatments have limited efficacy and pronounced side effect profiles.

10. The aim of the Mental Health Mission is to address this through making the UK the best place in the world in which to undertake Mental Health research and develop new treatments and technologies, with a particular focus on:

    a. Improving the understanding of the biology of mental ill health, and, in the medium term, the ability of clinicians to make a biological/genomic diagnosis of disease.

    b. Developing new pharmacological treatments for Mental ill-health, which are more targeted and efficacious, and have a low burden of side effects.

    c. Supporting the development and rigorous testing of new Digital Therapeutics and Tools for the diagnosis and treatment of Mental ill-health.

11. Subject to further scoping, the expectation is that this Mission will require a minimum HMG investment of £30m - £35m over the Spending Review period.

Obesity Mission

12. The UK has among the highest rates of obesity in the western world, despite, over the last two decades, taking increasingly expansive public health approaches. The high rates of Obesity place a significant burden on the NHS, given it is a key risk factor in the development of a wide range of diseases, including certain cancers, cardiovascular disease and diabetes.

13. The NHS has well developed services to treat Obesity, spread across four “Tiers” of service, with treatment becoming more medicalised in Tiers 3 and 4. In recent years, the NHS and NIHR have played a globally leading role in trialling, at scale, novel approaches to treating Obesity, such as Total Diet Replacement and digital weight management technologies, and with the advent of the National Obesity Audit, will have exceptionally rich long term outcome data on individuals who have interacted with Obesity services.

14. The Obesity Mission seeks to build on this work to support the NHS and patients to tackle obesity with efficient, effective care, and to make the UK the leading global location in which to trial new Obesity innovations. This would involve setting up a major, long term platform or other at-scale trial infrastructure, involving thousands of patients, to demonstrate the efficacy and cost-effectiveness of:

    a. Individual products and approaches;

    b. Different combinations of products and approaches (e.g. TDR + Medicine; Medicine + Digital Intervention; TDR + Digital Intervention + Surgery); and

    c. Potentially, novel and existing service delivery models (e.g. the use of Medicines earlier in the clinical pathway than is currently the case; the use of digital weight management services in a non-pandemic setting).

15. The trial would provide granular patient outcome data over a 1 – 3 year time horizon, with the National Obesity Audit allowing for longer term monitoring of patient outcomes. It is expected that all participants in research funded by the Mission will be deep genotyped and phenotyped to further deepen our understanding of the causes of obesity, and how diverse patient populations respond to different treatments and combinations of treatments.

16. Subject to further scoping, this Mission is expected to require a minimum HMG investment of £20m over the Spending Review period, alongside industry and philanthropic co-investment.

Cancer Mission

17. Cancer is a leading cause of morbidity and mortality in the UK, with survival rates lagging behind comparator countries.[4]

18. Earlier diagnosis is key to improving cancer outcomes. Over the last twenty years, there have been a number of Government or NHS plans that have sought to drive improvements in this area, including the NHS Long Term Plan, which set an ambition of diagnosing 75% of cancers at Stage I or II by 2028.

[4] Cancer Research UK, Early Detection and Diagnosis of Cancer Roadmap

19. While the NHS will need to deliver a wide suite of actions to meet the NHS Long Term Plan ambition on early diagnosis, there is agreement that new technologies and innovations can play an important role. This has already been demonstrated by advances in genomic technologies, which are transforming the speed and accuracy with which some cancers can be diagnosed.

20. For example, the development of new diagnostic tests that detect multiple types of asymptomatic cancers from a single blood draw has the potential to revolutionise cancer diagnosis. The GRAIL Galleri blood test is a prominent example of this and in November 2020 the NHS negotiated a world first deal to pilot the test in 165,000 patients.

21. A number of other analogous technologies are expected to reach the market in the coming years, and there will be significant opportunities to test, trial and procure these at scale.

22. Early diagnosis will lead to an increase in treatment options with significant potential to improve patient outcomes. Immunotherapy is an emerging group of treatments which are showing great promise. However, many patients do not respond, relapse, or suffer immune-mediated toxicities. Developing a better biological understanding on the interplay between immunology and cancer will be critical to advancing the development of new immunotherapies, which in the future may include therapeutic cancer vaccines.

23. Thus, the intention is for this Mission to:

    a. Support the development and at-scale trialling and utilisation of novel pan-cancer asymptomatic diagnostics and AI technologies in the NHS.

    b. Accelerate research and development into, and commercialisation of, immune therapies, including cancer vaccines, to better understand treatment response and resistance, building on existing research infrastructure.

24. Subject to further scoping, the expectation is that this Mission will require a HMG investment of £20m over the Spending Review period. This will build on and leverage significant investments made by NHSEI (including NHSX), DHSC (including by NIHR and GEL), BEIS, UKRI and relevant philanthropic and private partners.

Health Inequalities and Levelling Up

25. Building on the NHS's Core20PLUS5 strategy, and the Government's Levelling Up White Paper, addressing Health Inequalities is a core element of the delivery of every Mission, including the three that are highlighted in this paper.

26. In particular, NHS England and the Office for Life Sciences plan, by design, for the Missions to address three particular types of inequality:

    a. Inequalities of Race – Ensuring that BAME and historically underrepresented groups are fully involved and able to participate in the scoping and delivery of the Missions; and that the Missions are delivered in areas of racial diversity.

    b. Inequalities of Socio-Economic Status – Ensuring that the Missions are delivered primarily in areas of socio-economic deprivation, and that those from deprived backgrounds have opportunities to participate.

    c. Inequalities of Geography – Ensuring that the Missions are delivered outside of just traditional academic centres, with a particular focus on areas and communities that have not previously had the opportunity to fulsomely participate in major research and innovation initiatives such as this.

27. Each Mission will have specific deliverables and Key Performance Indicators in relation to addressing Health Inequalities and Levelling Up. It is the expectation of NHS England and the Office for Life Sciences that these Missions will be at the forefront of addressing entrenched Health Inequalities, and supporting the Levelling Up of the UK.

Delivery and Governance

28. Extensive work is underway to scope and map how all of the eight Missions will be delivered, with a particular focus on the Mental Health, Obesity and Cancer Missions, given their advanced state, and the funding the Chancellor has provided for them. NHS England and the Office for Life Sciences intend that the funded Missions will launch in the first quarter of the 2022/23 Financial Year, with competitive processes in place to identify lead NHS, academic and industrial partners.

29. Each Mission will have bespoke governance arrangements that reflect the particular delivery challenges they face. It is expected that the Mental Health, Obesity and Cancer Missions, with their strong NHS and innovation focus, will report on a regular basis to the Accelerated

Access Collaborative Board, so that all partners are sighted on delivery and can advise and contribute to making the Missions a success. As part of this regular reporting process, it is expected that the relevant National Clinical Directors may attend future Board meetings to outline how the delivery of the Missions is linking in with wider NHS clinical and service priorities.

30. The Missions will also report, as required, into the central Governance Boards that Government has established to oversee delivery of the Life Science Vision. This includes the Life Science Vision Implementation Board and the Life Science Council.

Board members are asked to:

- Note the plans for the delivery of the Life Science Vision, including the eight Healthcare Missions.
- Confirm that your organisation will work collaboratively with the Accelerated Access Collaborative and the Office for Life Sciences to ensure the successful delivery of the Missions.

Annex 1: Mission Mapping by Technology / TRL

Mission	Technology Focus					Development Focus					
	Medicines	Medtech	Diagnostics	Digital Therapeutic	Wider Digital Tech	Basic Science	Preclinical	Phase I/II	Phase III / RWE generation	Service Design / Innovation
Dementia	X	X			X		X	X	X	
Cancer (DX)			X						X	
Cancer (Immune Oncology)	X					X	X			
Mental Health	X		X	X		X		X	X	X
Obesity	X	X		X					X	X
Vaccines	X						X	X	X	
Respiratory	X		X					X	X	
Ageing	X	X			X	X				
Addiction	X			X	X			X	X	X

Key: Agreement NHS core to delivery; Potential for NHS to be core to delivery