Future-proofing UK Health Research: a people-centred, coordinated approach

Executive Summary

The Academy *of* Medical Sciences

Executive summary

For decades, the United Kingdom has been widely recognised as one of the best places for health research, with world-renowned academic research institutions, unmatched research potential of the NHS and a vibrant life sciences industry. This has made the UK a global magnet for talent and the knowledge generated has delivered benefits for people in the UK and around the world. However, this strength should not be taken for granted.

This report analyses reasons behind the UK's strength in health research and assesses the factors that increasingly threaten its ability to deliver the health and economic benefits we depend on. **We consider the steps required to take a holistic, inclusive and future-proofed approach to the sustainability of our health research ecosystem and the people and institutions on whom it depends.**

Why is health research important?

UK health research saves and improves lives domestically and around the world. UK advances in basic and discovery research have laid the foundations for many breakthroughs in healthcare, from enabling the sequencing of the human genome to improving our understanding of the human immune system to enable development of antibody therapies used to treat a range of inflammatory diseases. Research has also led to public health interventions such as the smoking ban, and driven technological advances like Magnetic Resonance Imaging (MRI).

The COVID-19 pandemic is a compelling example of the value of UK health research to the nation's health, wellbeing and health security: from our public health response and understanding the virus, to developing diagnostics, evidence-based repurposing of treatments, and development of novel vaccines. **The key to this world-leading effort was the balance of discovery, clinical and public health research across academic, healthcare and industry settings underpinned by collaborative partnerships between sectors and the involvement of patients, carers and the public.** This recent experience clearly demonstrates the vital link between the UK's strength in health research and our health security and resilience.

Health research indirectly benefits patients and researchers. The NHS is an extraordinary national asset and yet it faces many chronic challenges, including workforce issues, backlogs and keeping pace with emerging health trends and threats. Prioritising research in the NHS and other healthcare settings is core to the long-term resilience of both our health and health service. Research-active hospitals have better patient outcomes, including lower mortality rates, with the benefits extending beyond the direct research participants.[1,2,3] Evidence suggests engaging in research can improve clinicians' job satisfaction, boost morale and reduce burnout.[4,5,6,7]

The health research sector drives economic gains. In 2021, the UK life sciences industry employed over 280,000 people, of which almost 100,000 were employed at research and development (R&D) sites. Public sector investment also delivers a clear financial dividend: **every £1 of public investment in medical research delivers a return equivalent to around 25p each year, forever.**[8]

More broadly, a healthy nation is fundamental to the UK's prosperity. Health research fuels discoveries that keep people healthier for longer. A healthy population is essential for economic prosperity - better health increases the overall labour supply by increasing worker productivity and extending healthy working years.[9,10,11] Meanwhile, poor physical and mental health does not just negatively impact lives, it can lead to economic inactivity, increased demands on health and social care provision, and reduced productivity and tax revenue.[12,13]

Importantly, people strongly support spending on health research. Polling shows that the public see health as a research priority.[14,15] Indeed, many people choose to fund health research themselves and medical research is consistently amongst the most popular charitable causes in the UK.[16] Our own public engagement suggests people care about health research because it could benefit anyone at some stage in their lives.[17]

Key threats to the sustainability of the health research ecosystem

Despite the current strength and promise of UK health research, the system faces a number of issues. Our analysis, informed by a Steering Group, a Patient and Carer Reference Group and supplemented by evidence-gathering with individuals and organisations from all parts of the research system, identified four interconnected issues. In this report we present a range of solutions that will help to address these:

1. **Research culture and career structures can be inflexible, precarious and exclusive, undermining the ability of diverse individuals with diverse expertise to fully explore their potential and be part of the health research system.**

   People are central to a sustainable health research system. However, conventional career structures remain precarious and there is evidence of a growing and, at times, unmanageable workload on the next generation of researchers. The system also fails to value critical career paths outside of the norm, with insufficient opportunities for team scientists and skills specialists. These factors combine with cultures that fail to include underrepresented groups and those whose expertise does not align with conventional research experience, including patients, carers and the public. Here we present a range of actions that will help to place people at the heart of sustainable health research.

2. **There is a lack of multidirectional movement of research talent between public, private and charitable research sectors.**

   Limited understanding between sectors, poorly aligned incentives, and a perception of both personal and institutional risk from cross-sector mobility continue to create conditions in which movement between sectors is, at best, unidirectional and, at worst, disincentivised. This is to the detriment of the system as a whole - not enough people have a clear understanding of the needs of other sectors, making it more difficult for these sectors to work together effectively and ultimately stalling innovation. It also limits the range of career opportunities for individuals who feel unable to move between sectors, meaning cross-cutting skills and insights that can drive innovation and future impact are missed. This report offers solutions that can help to ensure people have the opportunity to develop careers that span sectors.

3. **The existing funding model fails to cover the full cost of health research and relies on cross-subsidy.**

   The variety of health research funders in the UK creates a unique and interdependent funding system. However, the system is failing to live up to the sum of its parts, as the full costs of health research are not covered by any funder. The gap between the cost of research and the income received for that research is widening in academic institutions, making the system increasingly financially dependent on cross-subsidy from other sources, primarily international students' tuition fees. The failure to cover the full costs of research is detrimental to the institutions where it takes place, but also to all those who work with and within the system. Our findings show that the sector must work together to drive towards financial sustainability of health research.

4. **Our healthcare system struggles to embed health research.**

   Clinical delivery pressures and a failure to value the contribution that research makes to healthcare are creating a healthcare system that is unable to prioritise research. Meanwhile, the people who drive research in healthcare settings enjoy limited opportunities. Clinical academics find it hard to develop their dual careers between academia and the NHS, whilst healthcare and public health professionals wishing to engage in research do not have adequate time or support to do so either from their employers or from their professional bodies. Here we offer solutions that will help to maximise our healthcare system's research potential.

Many of these issues exist across the R&D system and we found evidence of positive initiatives already underway to tackle them. However, we conclude that health research experiences specific challenges and has unique opportunities due to the blend of public, private and charitable funding; complex career pathways in NHS, academia and industry; importance of patient, carer and public involvement; and high cost of research.

Our analysis shows that some of these issues were exposed by the pandemic, although most pre-date the emergence of COVID-19 and many appear to be getting worse rather than better. External factors such as inflation threaten to further exacerbate these issues in the immediate future. Overall, the combined and erosive effect of these challenges presents a **real risk of steady decline,** to the detriment of the UK's health and wealth.

Our vision for a sustainable health research ecosystem

In this report, we take a **holistic approach** to these issues, informed by the views of today's leaders in research; patients, carers and the public; as well as the next generation of researchers. We seek to build on the strong history of collaboration to present solutions that will deliver a world-leading and sustainable health research ecosystem in the UK. Our solutions are centred on inspiring people and organisations to take **collective responsibility** for an ecosystem that allows public, private, charitable and NHS sectors to leverage one another's strengths in support of overall sustainability. This will require **strong coordination** across all stakeholders in health research.

Through the **coordinated approach that we propose in this report,** we believe that it will be possible not only to address the four issues we describe above, but also to train, support and empower the diverse research talent of the future, as well as providing a financially sustainable platform for ideas, innovation and partnerships to thrive. In doing so, we can continue to ensure the UK is amongst the best places in the world to conduct health research for the benefit of patients and the public.

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Solutions

Here we present a range of potential solutions to address the four key issues outlined above.

Delivering the solutions we propose needs to be underpinned by strong coordination across all stakeholders in health research, from basic biomedical through to clinical and applied research. This should include public and charitable funders, higher education institutions (HEIs), industry, patients, carers and the public, and NHS leaders. Whilst there is a strong history of coordination in health research through bodies such as the Office for Strategic Coordination of Health Research (OSCHR) and UK Clinical Research Collaboration (UKCRC), we believe that applying these principles to existing and new coordinating bodies will be vital to delivering the solutions set out in this report.

Three principles should underpin this coordination:

1. **Clear accountability for a coordinating body/bodies** including lines of reporting with other bodies.
2. **Representation of all key health research stakeholders** including public and charitable funders, higher education institutions (HEIs), industry, patients, carers and the public, NHS and public health leaders.
3. **Access to appropriate resource and data** to perform necessary functions.

To address this overarching challenge, the Academy of Medical Sciences will therefore commit to mapping existing coordinating functions in health research, before convening key stakeholders from across the sector, including existing coordinating bodies to consider:

- Strengths, challenges and gaps in existing coordination
- How the principles above can support enhanced coordination in health research

We will convene this group within six months of publication of the report.

This table summarises our specific solutions with key organisations responsible for implementing them identified on the left-hand side.

Key

Public funder	Charitable funder	Higher education institute	Government	Regulator	Industry	NHS

In order to future-proof the UK health research system, we must place people at its heart

1.	**To address the issue of precarity and inflexibility of research careers and expand the breadth of opportunity, we propose the following solutions:**

	a.	Public and charitable funders and employers should ensure that their respective funding and employment strategies **provide greater security and career development opportunities for health researchers,** including clear use of open-ended contracts wherever possible, and where it is not, use of redeployment practices; shared commitments between funders and employers on researcher salaries; and greater consistency for extending accrued benefit for individuals moving between fixed-term contracts within or (especially) between sectors.
	b.	Academic employers should develop enhanced **career paths for those working as part of interdisciplinary teams ('team science') and skills specialists** including through the creation of clear structures for career progression.
	c.	Public and charitable funders **should expand the opportunities for, and recognition of, team science activities,** including through the Future Research Assessment Programme (FRAP), tailored grant opportunities and co-investigator status.
	d.	**Funders and employers should continue to recognise the impacts of unavoidable disruption to research careers such as ongoing impacts of the pandemic on career progression** including through use of COVID-19 impact statements and flexibility of promotion and reward procedures.

2.	**To create a research culture that rewards good academic citizenship, values the well-being of researchers, and provides the time for researchers to innovate, we propose the following solutions:**

	a.	Funders and employers should increase access to **inclusive research leadership** training and give greater prominence to inclusive leadership and wider markers of good academic citizenship in reward and promotion.
	b.	Public and charitable funders should include/introduce greater **standardisation in their grant application requirements** to reduce the workload of the research workforce, including reduced bureaucracy as recommended in the *Independent Review of Research Bureaucracy.*
	c.	Public and charitable funders should introduce **innovations in their grant-making processes that will help to reduce workload for researchers,** such as including two-stage application processes, where detailed submissions are only required after preliminary assessment, and partial randomisation above a certain quality threshold for small awards.

3. To increase the inclusivity of health research careers in the UK, we propose the following solutions:

a. Funders and employers must coordinate efforts to improve the **collection and sharing of holistic data, across a range of protected characteristics, on the diversity of the health research workforce.** This should range from early career researchers, postdoctoral researchers (including those employed through research grants) through to senior leadership and Trustee levels.

b. Individual funders and employers should use these data to **develop evidence-based delivery plans** to address any inequalities that are identified. This may include:

  i. **the design and delivery of targeted and specific interventions at particular career stages** and/or for particular underrepresented groups.
  ii. activities targeted at diversity at senior leadership and Trustee positions in funders, charities and HEIs.

c. The health research ecosystem must collectively renew its efforts to present and promote health research as an attainable and attractive career path for all, including through:

  i. **investing in awareness-raising initiatives** targeted at secondary school and undergraduate levels, with a particular focus on those who may not previously have considered research careers.
  ii. diversifying routes of entry into research through apprenticeships and other routes.

4. To ensure the UK remains open to talent from across the globe, Government departments, funders and regulators should work together to remove barriers to attracting global talent:

a. Home Office, UK Visas and Immigration and the Department for Science, Innovation and Technology (DSIT) must ensure that our **visa and immigration system works effectively, fairly and in an expedient fashion for health researchers working in public, private and charitable settings (as well as for their families) and is competitive** with other strong research nations.

b. Public and charitable funders should consider the **inclusion of visas and Immigration Health Surcharge as eligible costs** in their research grants.

c. Regulatory bodies such as the **General Medical Council (GMC) and Nursing and Midwifery Council must work with the Royal Colleges and other stakeholders to ensure that recognition of their clinical qualifications does not present undue regulatory or financial burden** on clinical academics seeking to bring their research expertise to the UK.

5. To properly value patient and public involvement in health research, we propose the following solutions:

a. Public and charitable funders and employers should work together to **create a culture that truly values Patient and Public Involvement (PPI)** in health research through:

  i. **enhancing peer-to-peer support, career development and training opportunities for both the lived experience** and academic researchers they fund/employ.
  ii. **demonstrating the value of lived experience researchers** through opportunities for co-investigator and/or co-applicant status on research funding, formal training, accreditation and honorary and temporary research contracts for lived experience researchers to ensure greater access to the research infrastructure in HEIs or other research settings.

5.   (Continued)

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	b. Public and charitable funders across the four nations of the UK should develop **consistent and fair remuneration polices,** particularly recognising both the true time committed and costs incurred by lived experience researchers.
	c. Public and charitable funders should **develop pre-award funding streams for PPI at the earliest stages of conception of research projects.**
	d. **Coordination and collaboration between public and charitable funders** to provide strategic co-funding to address key gaps in the advancement of public involvement: the development of robust methodologies, learning and development, underserved community involvement and understanding impact.
	e. **Sharing of best practice across public and charitable funders** across the four nations of the UK including through clear, publicly accessible information on interventions and robust evaluations of their success.

In order to future-proof the UK health research system, we must ensure talented people have the opportunity to develop careers that span sectors
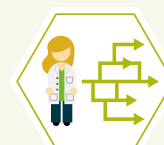
6.   To create the conditions in which multidirectional movement between sectors is understood, attractive and attainable for individuals and organisations, we propose the following solutions:

	a. Employers across academia, industry and HEIs should **adopt hiring, promotion and reward procedures** that recognise and assess the value that candidates moving from different sectors can bring to their organisations and agree methodology to calibrate markers of achievement in those different sectors.
	b. **Secondments and joint appointments** between academia, industry, NHS, Government departments and agencies and other settings should be far easier and more attractive, including through: i. employers providing mechanisms to take the employee back at a grade commensurate with their experience ii. employers adopting streamlined and standardised policies for secondments and joint appointments wherever possible. In academic settings, Universities UK (UUK) should work with its members to support greater consistency.
	c. Research England and Higher Education Funding Bodies in the devolved administrations should ensure that the **FRAP incentivises and rewards HEIs for creating an environment that supports cross-sector mobility.**
	d. The Office for Life Sciences should **commission an audit and analysis of existing and recent cross-sector mobility initiatives** in health research to better understand existing successful cross-sector schemes at all career stages: what works; what doesn't work; and where there are gaps that need filling, including for lived experience researchers.
	e. The **BEIS R&I workforce survey should be expanded** to capture information on the prevalence, drivers and barriers to cross-sector mobility.
	f. Using information from this audit and survey, **public and private sector employers and funders should invest in tailored schemes to promote cross-sector mobility.**

In order to future-proof the UK health research system, we must ensure that the true cost of excellent health research is adequately covered

7. To fully understand the current failure to cover the full economic costs of health research, we propose that:

a. **Public, charitable and industry funders are coordinated and transparent in their data collection and annual reporting on:**

    i. the **relationship between research funding and research costs.**

    ii. the extent to which **research funders are achieving their own commitments to cover certain costs** of the research that they fund.

    iii. expectations on matched funding from partners.

b. there should be annual assessment of these data and a coordinated response to the trends they reveal.

8. To maximise the strength of the UK's varied, vibrant and collaborative health research funding system, funders across public, charitable and private settings must take a collective responsibility to work in partnership to sustainably fund health research. This should include:

a. Governments across the four nations delivering **increased investment in the fundamental underpinnings of health research** that will support and leverage investment from other sources, including through:

    i. investment from Research Funding Councils across the four nations to ensure that **mainstream, un-hypothecated quality-related/Research Excellence Grant (QR/REG) funding keeps pace with other forms of investment.**

    ii. Research Funding Councils across the four nations working with charities to **recommit to their shared objective to 'work together to improve the financial sustainability of […] research'.** This should include consideration of **how Charity Research Support funding can leverage further charitable investment** and ensure that charity-Government partnership **funds the full economic costs at a level competitive with Research Council funding.**

b. The Association of Medical Research Charities (AMRC) working with its members to **expand innovative models of partnership across the charitable sector** to ensure every pound of public money invested goes as far as possible towards improving people's health.

c. The Association of the British Pharmaceutical Industry (ABPI), BioIndustry Association (BIA) and UUK working with their members to generalise and disseminate the **guidance and criteria for assessing the value of industry-academic collaborations** to ensure they represent value for money for both parties.

9. To achieve true financial sustainability, which attributes value to the full diversity of people and activities required for excellent research, it will be vital to allocate funding to the solutions set out above. This should include:

a. Accounting for the true costs of supporting research career development, reducing the precarity of research careers and supporting meaningful PPI.

b. Ensuring that the FRAP measures and rewards these approaches.

In order to future-proof the UK health research system, we must maximise the research potential of our healthcare system

10. To reassert the value of research as a core part of the NHS's business, we propose that:

a. Every **Integrated Care Board (ICB), NHS Trust and Health Board should have responsibility for valuing and promoting research** across their organisations, and annually publish information on the outcomes and benefits of all research activities.

b. **ICBs and Hospital Trusts should seek to enhance opportunities to share innovation and to learn** from one another's experience of developing and implementing their research strategies, including how they involve patients, carers and the public in the process.

c. **ICBs in England and comparable bodies in the rest of the UK should use their annual business plans to set out how research can support clinical delivery,** including through enhanced job satisfaction, reduced burnout and improved retention; improving healthcare pathways through health systems engineering and health improvement research; fulfilling their existing duty to address health inequalities; and attracting industry investment that can create revenue and save money for NHS trusts.

11. To ensure that clinical academics (including doctors, dentists, nurses, midwives, allied health professionals (NMAHPs), registered public health practitioners) are supported to develop their dual careers, we suggest that:

a. Royal Colleges, Deans of Health and Regulators should embed **flexibility in training** across specialities to reflect the dual-career nature of clinical academia.

b. Public and charitable funders should coordinate with each other to ensure **balance across pre- and postdoctoral funding opportunities.**

c. HEIs should **recognise the value of clinical academics to HEIs,** including through reinvestment in career opportunities for Senior Clinical Lecturers across doctors, dentists, NMAHPs and registered public health practitioners.

12. To ensure that the wider healthcare workforce has access to the training, support and time to engage in research:

a. Undergraduate providers should enhance **exposure to research during training,** including through working with the private sector to increase access to industry placements.

b. **Funders and HEIs should improve access to research skills training across a wide range of areas from data and digital skills to PPI.**

c. HEIs should provide **greater support for integrated research teams that span university employees and those on NHS and other healthcare contracts,** including through:

i. **increasing the number of honorary academic appointments** offered to healthcare professionals that contribute significantly to research.
ii. reward and recognition through the FRAP for HEIs that provide a research environment that is conducive to NHS-academia interactions.

12. (Continued)

d. NHS organisations and funders should work together to develop a pilot in which **dedicated time for research is available to a proportion of healthcare professionals** wishing to engage in research.

e. NHS Employers should work with organisations such as the University and Colleges Employers Association (UCEA) and the ABPI to create **clear and transparently governed mechanisms to allow people to work within NHS, academia or industry settings simultaneously.**

13. To truly maximise the research potential of the healthcare system, we must facilitate the use of patient data as a research resource for the good of all. This must be done in a way that:

a. Learns from best practice across the four nations.

b. Respects and protects the privacy, rights and choices of patients and the public.

c. Includes patients and the public as active and meaningful partners in decisions about their data.

d. Maintains trustworthiness in the responsible and effective stewardship of patient data within the NHS.

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