Bolstering UK health and life sciences innovation through cross-sector collaboration

FORUM roundtable on Thursday 23 November 2023

The Academy of Medical Sciences

The Academy of Medical Sciences is the independent body in the UK representing the diversity of medical science. Our mission is to promote medical science and its translation into benefits for society. The Academy's elected Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. We work with them to promote excellence, influence policy to improve health and wealth, nurture the next generation of medical researchers, link academia, industry and the NHS, seize international opportunities and encourage dialogue about the medical sciences.

In 2022, the Academy launched its 10-year strategy, which focuses on making medical science work for everyone. In doing so, the goal is to bring many different disciplines together, working across the whole of the UK, with a diverse fellowship, engaging a diverse community, including patients and the public, and developing the next generation of researchers.

The Academy of Medical Sciences' FORUM provides an independent platform for senior leaders from across academia, the commercial sector, government, and the charity, healthcare and regulatory sectors to come together with patients and take forward national discussions on scientific opportunities, technology trends and associated strategic choices for healthcare and other life sciences sectors.

Opinions expressed in this report do not necessarily represent the views of all participants at the event, the Academy of Medical Sciences, or its Fellows.

All web references were accessed in April 2024.

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Executive summary

The UK is internationally recognised for its impactful life sciences and health research. Excellent research and its ability to benefit patients is often underpinned by collaboration between the variety of sectors in the life sciences and health ecosystem. However, barriers to cross-sector collaboration remain and can delay or even deter such partnerships.

On Thursday 23 November 2023, the Academy of Medical Sciences hosted a roundtable to bring together experts from across the healthcare, academic, commercial, regulatory, funding and patient communities to explore how better cross-sector collaboration could bolster UK health and life sciences innovation. The following key themes emerged from the discussions:

1. **Building blocks for effective cross-sector collaboration** were highlighted by participants. These included: establishing common objectives between partners; identifying 'connectors' and 'translators' to facilitate interactions between organisations; securing sufficient resources to support and maintain collaborations and the involvement of all relevant stakeholders, including patients, in the early stages of a project.

2. **Creating an enabling environment for cross-sector collaboration in the UK:** A clearly articulated shared ambition for the UK health and life sciences, underpinned by strong leadership at a national level and an enabling regulatory system, would support the coordination of activities between sectors. Geographical proximity and good transport connectivity between partners were seen as advantageous to collaboration, with organisations such as life sciences clusters, Academic Health Sciences Centres and Health Innovation Networks playing key roles in enabling and supporting cross-sector collaboration.

3. **Improved access to and linkage between health datasets** that are truly representative of UK patient populations are vital to support the development and effective implementation of new innovations. Whilst doing so, it is important to maintain public trust in how their data are used for research.

4. **Skills and capacity building:** It is critical to identify and build the skills base across sectors to effectively tackle current and future health challenges. Such skills would be more effectively mobilised by promoting and supporting professionals to transfer between sectors during their career (known as cross-sector mobility), though many barriers to such movement remain to be addressed. Creating greater capacity for research in the healthcare system is also needed to realise the potential of UK health and life sciences research and improve health and healthcare service delivery.

Introduction

Life sciences and health research are huge assets to the UK, bringing benefits to the health of the population and to the economy.[1] The UK life sciences and health ecosystem comprises a rich variety of sectors; enabling collaboration between them has the potential to significantly improve healthcare and health research by making the system more than the sum of its parts. There are striking examples of how collaboration has significantly improved health by supporting research and its implementation, including within the development of the COVID-19 and malaria vaccines and ongoing research into promising cancer vaccines. However, several barriers to cross-sector collaboration remain and must be addressed to develop a robust and resilient health and life sciences ecosystem.

On Thursday 23 November 2023, the Academy of Medical Sciences held a roundtable, chaired by Professor David Adams FMedSci, to explore how better cross-sector collaboration could bolster UK health and life sciences innovation. The roundtable brought together patient contributors with senior leaders from across the FORUM network, including from healthcare, academia, the commercial sector, health technology assessors, and funders. Participants discussed what currently works well, what could be improved, and the next steps to support cross-sector collaboration across UK health and life sciences to improve health and healthcare by driving innovation. The following note highlights the key themes that emerged from these discussions. The roundtable agenda and attendee list can be found in Annex 1 and Annex 2, respectively.

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[1] Wellcome Trust, *et al.* (2018). *Medical research: What's it worth? A briefing on the economic benefits of musculoskeletal disease research in the UK*. https://acmedsci.ac.uk/file-download/54792223

Building blocks for effective cross-sector collaboration

Cross-sector collaborations can be formal or informal, and be of varying scales and sizes, for example between two researchers or between multiple organisations. The following key features of effective cross-sector collaborations were raised, with participants highlighting examples of good practice.

Common objectives and expectations

It was suggested that the greatest potential for cross-sector collaboration comes when partners agree from the outset on common goals or challenges to address. For example, one participant noted the value of the Advanced Pain Discovery Platform, a consortium that has developed from a shared vision to understand and address the complexity of chronic pain.[2] Clarifying expectations, goals, and capabilities at the outset of a collaboration (e.g. through a memorandum of understanding) can save time, ensure agility, and build mutual trust as the partnership progresses. Establishing the role of each partner and the similarities and differences between their respective expectations (e.g. appetite for risk), skillsets and capabilities (e.g. feasible timelines) can help avoid future misunderstandings. For example, assumptions about the level of risk acceptable to patients are often found to be incorrect and participants noted the importance of engaging with patients at the earliest stages of the project to gain an accurate understanding of their needs and priorities.

Mutual understanding of partners' respective strengths can also be used to make a partnership more impactful, by making best use of what each partner can offer. For example, the charitable sector may have access to a diverse range of patient voices for a project and so could act as conveners, while commercial organisations may have more expertise in meeting regulatory requirements and translating innovations to market. Participants also emphasised the importance of agreeing how to equitably share the credit and benefits (such as any potential profits or intellectual property rights) at an early stage. Clarifying these details early on can reduce the need for time-consuming revisions to projects and products later in the partnership to satisfy all partners.

Connectors and translators

Participants felt that collaborations are made easier when people, organisations, or structures are available specifically to cultivate and support partnerships. Collaboration can happen organically, but many participants highlighted the value of 'connectors' in the system: independent actors who bring people together, as well as build and maintain relationships. Participants highlighted charities and initiatives such as the Academy of Medical Sciences' FORUM programme as useful connectors.[3]

'Translators' can also be useful to facilitate collaboration. Communicating across disciplinary and sectoral boundaries can be challenging. For example, different sectors and specialties can use different terms for the same things. Individuals who work in one sector, but have a good understanding of the similarities and differences with other sectors, can facilitate communication and play a mediator role, helping to build trust, and to address disagreement or misalignment between partners in a project.

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[2] https://apdp.community/
[3] The Academy of Medical Sciences' FORUM provides a neutral and independent platform for individuals with lived experience to come together with representatives from academia, the commercial sector, healthcare, charities, regulators, and funders, to tackle significant challenges in health and life sciences. For more information, including on how your organisation can join the FORUM, please visit the Academy's website (https://acmedsci.ac.uk/policy/forum) or get in touch via email (FORUM@acmedsci.ac.uk).

The stability of personnel who perform connecting and translating roles within sectors was felt to be an important factor in maintaining consistent relationships within cross-sector collaborations. High staff turnover is a challenge to the maintenance of existing collaborations, and succession planning in all sectors, particularly at times of structural change, can help minimise disruption to existing collaborations.

Beginning at the end: early consideration of implementation

Some participants noted that adoption of research and innovation into the healthcare service remains a challenge. Swift adoption is important to ensure research and innovations are translated into health outcomes, and to ensure that the UK is seen as an attractive place to invest in and collaborate with. Cross-sector collaboration is usually required for effective adoption and implementation of research and innovations into the healthcare system. For example, some of the challenges with adoption occur because innovations do not effectively address a real-world problem or may not be suitable for the end-user. Many participants highlighted that involving and engaging with all relevant stakeholders, including patients, carers and healthcare professionals across different healthcare settings, earlier in projects, can ensure that effective and appropriate solutions are created for the need at hand. One approach to integrating implementation in this way, is to 'begin at the end', working backwards from the needs of the end-users. For example, the eCareWell project, led by Ulster University, created a community med-tech testbed in Derry-Londonderry and gave 19 Northern Ireland technology companies the opportunity to seek insights and feedback about their products from informal carers in the community.[4]

The collection and use of real-world evidence in the development of innovations can also ensure they are effective for the needs of a particular population and are therefore more likely to be adopted. For example, within Cheshire and Merseyside Integrated Health and Care Partnership, the Combined Intelligence for Population Health Action (CIPHA) collates population data from across the area's acute trusts, GP practices, community trusts, local councils and emergency services to shape services for targeted populations.[5] Participants also noted that resource is necessary for implementation work, and that consideration for funding of implementation should be planned for at the start of any collaboration.

Resources for collaboration

Establishing and maintaining collaborations across sectors requires significant time and resource, availability of which may vary between sectors. For example, engaging with a clinical trial unit, to seek advice on designing, conducting and publishing clinical trials, will increase costs. Participants noted that funding, particularly long-term financial support, is often required to maintain collaborations and capitalise on the initial investment. Participants suggested that cross-funder calls offered a particular opportunity to encourage interdisciplinary and cross-sector collaboration. Examples of existing funding initiatives supporting cross-sector collaboration include the Innovative Health Initiative (formerly the Innovative Medicines Initiative), a public-private partnership between the European Union and the European life sciences industries that supports cross-sectoral health research and innovation.[6] Participants welcomed the UK's association with Horizon Europe, which promotes and can provide resource for collaborations.[7] They also noted the importance of recognising and celebrating the UK's previous success in applying for such international funding schemes and of encouraging researchers to apply so that the UK continues to be an active participant in Horizon Europe and subsequent EU Framework Programmes.

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[4] Ulster University, *et al*. (n.d.). *eCareWell. Can Technology support you as a carer?* [pamphlet].
[5] NHS Confederation (2023). *Using population health data to underpin transformation change.*
https://www.nhsconfed.org/case-studies/using-population-health-data-underpin-transformation-change
[6] Innovative Health Initiative. *About IHI*. https://www.ihi.europa.eu/about-ihi
[7] Whilst not explicitly mentioned by participants, it is relevant to note that funding for interdisciplinary and cross-sector working is available under the second pillar of Horizon Europe, 'Global Challenges and Industrial Competitiveness'. European Commission, Directorate-General for Research and Innovation (2021). *Horizon Europe, pillar II - Global challenges and European industrial competitiveness*. Publications Office of the European Union. https://data.europa.eu/doi/10.2777/881197

Creating an enabling environment for cross-sector collaboration in the UK

To create an enabling environment for cross-sector collaboration, a number of key factors at a system-wide level were identified at the roundtable.

Shared vision and strategic leadership

Some noted that a distinction is often made between the healthcare and life sciences fields both in the structure of Government departments and in Government policy, which creates silos. It was felt that strong, strategic, and consistent leadership within Government would be useful to facilitate joined-up thinking across Government and the healthcare and life sciences fields more broadly. Participants highlighted that communicating a shared ambition for the UK health and life sciences fields as a whole would be valuable to coordinate activities between sectors, and to signal that the UK is receptive to and attractive for funding and investment. Frameworks developed by Government departments such as the Office for Life Sciences, to set out how organisations can contribute to such a shared ambition, could help facilitate cross-sector collaboration in the healthcare and life sciences ecosystem. Implementation of the recommendations of the Lord O'Shaughnessy Review was highlighted as a valuable opportunity to bring the sectors together.[8] Some participants also noted the value of increasing the science capability within Civil Service and Government, to help inform the development of evidence-based policy and understanding of the implications of decisions that affect research and development.[9]

In addition to supportive frameworks, the sharing of best practice of innovation and adoption was noted as a valuable factor to improve health and healthcare services. Alongside Government, other organisations can play an important role in doing so. For example, LifeArc and the Medical Research Council (MRC) recently published a free, online toolkit that provides guidance to charities, researchers and others looking to repurpose existing drugs to treat other diseases.[10] By providing best practice advice on navigating the complex regulatory and commercial landscape, projects like this can encourage and facilitate cross-sector working.

Enabling regulation

Regulation in the ecosystem more broadly can be an enabler of innovation, yet some participants noted that it can still at times act as a barrier and delay progress. The Government Chief Scientific Adviser's Pro-Innovation Regulation of Technologies Review was highlighted as identifying opportunities to tackle the regulatory barriers to innovation.[11] Participants supported the recommendation within this Review for a concierge process to be set up in the UK by Government to help innovators navigate the regulatory landscape and receive the necessary advice to bring their products to market.[12] They also suggested an additional function of the

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[8] O'Shaughnessy J (2023). *Commercial clinical trials in the UK: the Lord O'Shaughnessy review - final report*. www.gov.uk/government/publications/commercial-clinical-trials-in-the-uk-the-lord-oshaughnessy-review/commercial-clinical-trials-in-the-uk-the-lord-oshaughnessy-review-final-report

[9] Whilst not explicitly mentioned by participants, it is relevant to note that an existing opportunity to do so includes the UK Department for Science, Innovation and Technology's (DSIT) Expert Exchange programme, which allows science, engineering and technology experts to complete placements within DSIT, contributing their technical skills and knowledge to the department. Gov.uk. (2023). *Press release: Best and brightest from UK science, engineering and tech to join DSIT under new Expert Exchange.* https://www.gov.uk/government/news/best-and-brightest-from-uk-science-engineering-and-tech-to-join-dsit-under-new-expert-exchange

[10] https://www.repurposingmedicines.org.uk/index.html

[11] HM Treasury (2023). *Pro-innovation regulation of technologies review. Life Sciences.* https://assets.publishing.service.gov.uk/media/64706d21c38c55000c342bd5/Life_sciences_report_-_Pro-innovation_Regulation_of_Technologies.pdf

[12] *Ibid*

process to help identify where sectors, particularly the commercial sector, could collaborate with the healthcare system and with academia.

Geographical focus and connectivity

Participants suggested that geographical proximity between different sectors working on similar challenges can enable and accelerate collaborative efforts. Life sciences clusters, in which highly skilled individuals and infrastructure are concentrated within a city or region, can provide benefits to productivity and innovation. The Francis Crick Institute was a noted example, bringing together organisations across academic, clinical, and industrial sectors with infrastructure to carry out discovery research in biomedicine. Academic Health Science Centres and other similar organisations, such as King's Health Partners and Bristol Health Partners were also highlighted for their success in translating early scientific research into benefits for patients by bringing together local universities and NHS organisations.[13] Participants also noted connectivity between cities as a beneficial factor, allowing people to travel to establish and maintain collaborations within and between sectors, and to access specific infrastructure and expertise that may not be available in their own city. Participants noted the close and deliberate links between Oxford and Birmingham, within the south-east of England, as well as between Edinburgh and Glasgow as examples where improved geographical connectivity enables effective collaborations.

Harnessing the potential of data

Patient datasets that are comprehensive and representative are essential to support and enable robust research that improves health. Participants highlighted the importance of ensuring that the system of health data access and management in the UK is joined-up and representative of patient populations. Maintaining public trust and involvement in how their data are used is vital. Participants highlighted NHS datasets as assets for the UK. Participants also noted UK Biobank (a large-scale biomedical database and research resource), and Our Future Health (a programme that allows registered researchers to securely study the de-identified health data collected from hundreds of thousands of adult volunteers across the UK population) as valuable examples of using patient data in a trustworthy manner.[14]

Prioritisation of and increasing capacity for research in healthcare

To realise the potential of UK health and life sciences research to improve health and healthcare service delivery and benefit the economy, participants felt it was important to build capacity for health research in the UK healthcare system. Facilitating collaboration between the healthcare sector with the commercial sector and academia in research endeavours was also seen as an important way to use limited healthcare resources for research more efficiently.

The role of the healthcare workforce
Participants discussed the support needed by four parts of the healthcare workforce involved in facilitating research, including:
- University researchers who also do clinical work known as 'clinical academics'. Participants noted that numbers of clinical academics are declining in the UK, and specific support is needed to address this.[15]
- Healthcare professionals who also do research, sometimes referred to as 'academic clinicians'. Participants highlighted measures to support academic clinicians to do research, including by providing protected time for research activities.[16]
- Healthcare professionals who directly facilitate clinical research (e.g. research nurses who help run clinical trials).
- Healthcare professionals who do not do research themselves but have a role in facilitating research (e.g. by recruiting patients to trials). Given their role as gatekeepers for patient participation in clinical research, participants noted that it is important to ensure that the

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[13] https://www.england.nhs.uk/aac/what-we-do/innovation-for-healthcare-inequalities-programme/academic-health-science-centres/
[14] https://www.ukbiobank.ac.uk/learn-more-about-uk-biobank; https://ourfuturehealth.org.uk/
[15] Medical Schools Council (2022). *Clinical Academic Survey*. https://www.medschools.ac.uk/clinical-academic-survey
[16] The Academy of Medical Sciences (2023). *Future-proofing UK Health Research: a people-centred, coordinated approach.* https://acmedsci.ac.uk/file-download/23875189

healthcare workforce understands how to support and engage with ongoing research and understand its value.

Participants emphasised that all these groups are important for enabling research in the healthcare system and that each group faces different challenges and may require different support.[17] It was also noted that the benefits of research are often not recognised and valued by the healthcare system. Participants emphasised that the efficient use of existing resources will be paramount, given the current pressures on the system.

The role of healthcare infrastructure
Participants also discussed ways that healthcare infrastructure could help facilitate research. There was a focus on the potential role for Integrated Care Systems (ICSs), established in 2022 in England, in outlining the research needs of a region and by helping to ensure that innovations are adopted so that research evidence is translated into benefits for patients. In particular, Integrated Care Boards (ICBs) within ICSs have responsibility for developing plans to meet the health needs of their populations, managing the NHS budget, and arranging for the provision of health services through collaboration of relevant sectors and services within their geographical areas. As ICBs have a legal duty to facilitate and promote research, as set out in the Health and Social Care Act 2022, participants suggested that they could provide a useful mechanism to drive research. Participants suggested that ICBs and other organisations aiming to help adoption and spread of innovations across the NHS in England, such as the 15 Health Innovation Networks (HINs), could do this by highlighting and collaborating on priority research areas in their regions. It may also be beneficial for such organisations to nominate a lead or team to shape and advocate for research infrastructure.

ICSs can also facilitate research by signalling demand for innovations that will benefit patients and support of swift innovation uptake. However, some participants commented that roll-out of innovations across England currently requires organisations to engage region by region with individual ICBs and/or HINs, which takes time and resource and can lead to duplication of effort. Whilst the value of each ICB being empowered to focus on the care needs of their respective populations was recognised, having a single 'front door' to roll out innovations in England could be valuable to facilitating scale-up of new innovations.[18]

Porosity and mobility between sectors

Participants agreed that cross-sector mobility – the ability of professionals to transfer between sectors during their career – should be encouraged and incentivised to develop a diverse and resilient workforce with understanding of the differences and similarities between sectors. Such individuals can act as 'connectors' and 'translators' in cross-sector collaborations, as mentioned above, and facilitate the cross-sector collaboration often needed to drive and implement innovation in health and healthcare. Participants highlighted a number of challenges that are hindering and even penalising cross-sector engagement and mobility, and offered potential solutions to facilitate movement between sectors:

- **Structural barriers** can deter cross-sector movement, including the salary disparities between the commercial sector and elsewhere. Different sectors are often driven by different measures of success, which can make it challenging for individuals to demonstrate their suitability and value within another sector. For example, it may be more challenging for individuals within the commercial sector to move to academia, where an individual's publication record is given precedence.[19]

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[17] Whilst not explicitly discussed by participants, further actions required to support the long-term sustainability of the UK health research system have been outlined within the Academy of Medical Sciences' 2023 report: *Future-proofing UK Health Research: a people-centred, coordinated approach.* https://acmedsci.ac.uk/file-download/23875189

[18] Whilst not explicitly mentioned by participants, it is useful to note that the Accelerated Access Collaborative aims to act as the front door for innovation support in England – any efforts to improve how innovations are rolled out could build on this initiative. NHS England. *Accelerated Access Collaborative.* https://www.england.nhs.uk/aac/

[19] Although not explicitly mentioned by participants, it is valuable to note that the Academy has previously recommended that the UK higher education funding bodies should ensure that the Future Research Assessment Programme (which aims to examine approaches to the assessment of UK higher education research performance in the UK) incentivises and rewards higher education institutions for creating an environment that supports cross-sector mobility. The Academy of Medical Sciences (2023). *Future-proofing UK Health Research: a people-centred, coordinated approach.* https://acmedsci.ac.uk/file-download/23875189

- **Ingrained perceptions of different sectors** can also discourage movement. For example, some noted a perception that working in the commercial sector could be seen as less altruistic and commercial research is given less recognition and weight than other sectors, such as the healthcare and academic sectors. It was also suggested that there should be greater awareness across sectors of the value of cross-sector collaboration to improving health and care, research and innovation and of opportunities for such collaboration. For example, participants noted that many healthcare professionals have limited understanding of their role and potential role in the R&D process and the impact they can have within it, due to lack of exposure to the commercial and academic sectors during training. Participants highlighted the value of programmes such as the NHS Clinical Entrepreneur Programme, which aims to provide commercial skills, knowledge, and experience to clinical and non-clinical NHS staff.[20]
- **Promoting and building upon programmes that allow individuals to gain experience working in other sectors** without leaving their current sector or risking their primary post. Secondments and roles that straddle two or more sectors were noted as valuable mechanisms to enable cross-sector collaboration.[21] There are a growing number of opportunities to gain experience in other sectors, such as the Academy's Cross-sector Programme and Experience Awards, as well as its Future Leaders in Innovation, Enterprise and Research (FLIER) programme.[22,23]
- Participants noted the value in making such experiences available at early career stages – for example through Industrial Cooperative Awards in Science and Engineering (CASE) PhD studentships.[24]

Workforce skills

It was felt that cross-sector collaboration will be necessary to tackle future health challenges and capitalise on opportunities, such as an ageing population or the use of AI in healthcare. It is important to consider the workforce skills that will be required across the health and life sciences' sectors to collectively respond to such challenges. To prevent a skills gap within the workforce, participants suggested that conducting a horizon scanning exercise for skills would be valuable so these could be rapidly addressed. Entrepreneurial skills were identified as important to develop in the workforce to encourage innovation and collaboration. Participants noted that attracting skills and talent to the health and life sciences sector will require the sector to offer financially competitive rewards for positions and opportunities to create positive impact within roles. As international collaboration is important to ensure that innovation in the UK benefits from the best ideas and expertise from across the world, participants suggested that the UK workforce should be supported and incentivised to spend time abroad and barriers for highly skilled individuals coming or returning to the UK to work should be minimised. [25]

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[20] https://www.england.nhs.uk/aac/what-we-do/how-can-the-aac-help-me/clinical-entrepreneur-programme/
[21] The Academy has previously provided recommendations on making cross-sector secondments and joint appointments easier and more attractive. See solution 6b of our report: *Future-proofing UK Health Research: a people-centred, coordinated approach.* https://acmedsci.ac.uk/file-download/23875189
[22] Whilst not explicitly discussed by participants, the Academy's Cross-Sector Programme brings together innovators, researchers, health professionals and policymakers working across the life sciences sectors through networking events, and the Cross-Sector Experience Awards aim to promote health innovation. The Awards provide up to £100,000 to support individuals who want to work in a different sector for up to one year. https://acmedsci.ac.uk/grants-and-schemes/mentoring-and-other-schemes/cross-sector-programme https://acmedsci.ac.uk/cross-sector-experience-awards
[23] As highlighted by participants, the Academy's FLIER programme brings together a cohort of emerging leaders drawn from across academia, the commercial sector, healthcare, and government/policy organisations for a two-year, immersive, cross-sector learning experience. https://acmedsci.ac.uk/grants-and-schemes/mentoring-and-other-schemes/FLIER
[24] https://www.ukri.org/what-we-do/developing-people-and-skills/epsrc/studentships/industrial-case/#:~:text=Contact%20information-,Overview,academic%20partner%20of%20their%20choice.
[25] The Academy has previously provided recommendations on removing barriers to attracting global talent. See solution 4 of our report: *Future-proofing UK Health Research: a people-centred, coordinated approach.* https://acmedsci.ac.uk/file-download/23875189

Conclusion

Effective cross-sector collaboration improves healthcare and health research in the UK by facilitating knowledge and skills exchange, improving shared and sector-specific understanding of challenges, and bolstering the impact and efficiency of carrying out research. There are already excellent examples of cross-sector collaboration within the health and life sciences sector in the UK and learning from these and sharing best practice could support further effective cross-sector collaborative efforts.[26]

However, participants also noted several areas that should be developed to create a robust and resilient health and life sciences ecosystem for the future. These included building workforce skills and capacity for research and cross-sector collaboration, removing barriers to cross-sector mobility, building capacity for research in the healthcare system, establishing an enabling pro-innovation regulatory environment, and ensuring that strong and consistent leadership in government helps to coordinate activities and provides strategic direction across the health and life sciences sector. There is already work ongoing to address some of these challenges, including through the Lord O'Shaughnessy Review, the Government Chief Scientific Adviser's Pro-Innovation Regulation of Technologies Review, and within ICBs and HINs. There was overwhelming support in the room to build upon this work and ensure that the UK health and life sciences ecosystem is supportive of and will benefit from cross-sector collaboration. This will ensure that the UK continues to deliver world-leading health and life sciences research to improve the health of patients and the public.

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[26] In addition to the examples of effective cross-sector collaboration highlighted throughout this note, two further examples were discussed. These were: the collaboration between GlaxoSmithKline and the University of Oxford in establishing the Oxford-GSK Institute of Molecular and Computational Medicine and, as an example from outside health and life sciences, the University of Cambridge's partnership with Rolls-Royce in establishing two research centres, each focusing on a key industry challenge area. https://www.cam.ac.uk/stories/rolls-royce. University of Oxford (2021). *New Oxford-GSK Institute to harness advanced technology and unravel mechanisms of disease.* https://www.ox.ac.uk/news/2021-12-02-new-oxford-gsk-institute-harness-advanced-technology-and-unravel-mechanisms-disease

Annex 1: Agenda

Time	Item
12.00-12.30	Lunch
12.30-12.40	**Opening remarks** Professor David Adams FMedSci, Emeritus Professor of Hepatology, University of Birmingham & Academy of Medical Sciences Registrar (Chair)
	Discussion topic: How can cross-sector collaboration bolster health and life sciences innovation in the UK?
12.40-13.05	**Where is cross-sector collaboration currently working well to drive healthcare and life sciences innovation to improve health? How could this be built upon?** *10min brainstorm on tables and then 15min whole-group discussion*
13.05-13.30	**What are the key features of an effective cross-sectoral ecosystem of the future?** *10min brainstorm on tables and then 15min whole-group discussion*
13.30-13.35	Comfort break
13.35-13.55	**How can we future-proof the UK's cross-sectoral ecosystem to ensure it is resilient to future risks and responsive to future opportunities?** *10min brainstorm on tables and then 15min whole-group discussion*
13.55-14.00	**Closing remarks** Professor David Adams FMedSci, Emeritus Professor of Hepatology, University of Birmingham & Academy of Medical Sciences Registrar (Chair)
14.00-14.30	Participants were directed to the start of the 2023 FORUM Sir Colin Dollery Lecture at 14.30.

Annex 2: Attendee list

- **Professor David Adams FMedSci (Chair),** Academy of Medical Sciences' Registrar & Emeritus Professor of Hepatology, University of Birmingham
- **Ms Deborah Alsina MBE,** Chief Executive, Versus Arthritis
- **Dr Natalie Bohm,** Medical Director (Evidence Generation & Scientific Partnerships), Pfizer
- **Dr Doug Brown,** Chief Executive Officer, British Society for Immunology
- **Professor Patrick Chinnery FMedSci,** Executive Chair, Medical Research Council
- **Professor Adrian Davis OBE**, Owner, AD Cave Solutions
- **Professor Alastair Denniston,** Consultant Ophthalmologist & Research Lead for Ophthalmology, University Hospitals Birmingham NHS Foundation Trust
- **Professor Erika Denton,** Medical Director, Norfolk and Norwich University Hospitals NHS Foundation Trust
- **Ms Sue Farrington,** Chair, Patient Information Forum
- **Professor Gary Ford CBE FMedSci,** Chief Executive Officer, Heath Innovation Oxford & Thames Valley
- **Dr Felicity Gabbay FMedSci,** President, Faculty of Pharmaceutical Medicine
- **Dr Joanna Jenkinson MBE**, Director, GW4 Alliance
- **Professor David Lomas FMedSci**, Vice Provost (Health) and Head of the School of Life and Medical Sciences, University College London
- **Professor Sir Simon Lovestone FMedSci,** VP Disease Area Stronghold Lead Neurodegeneration, Janssen
- **Mr Ben Lucas**, Managing Director, Merck Sharp & Dohme UK
- **Dr Nick McNally,** Chair, UKRD
- **Dr Gita Khalili Moghaddam,** UKRI Innovation Scholar, University of Cambridge
- **Dr Clare Morgan,** Director of Implementation & Partnerships, National Institute for Health and Care Excellence
- **Professor Clive Page OBE,** President, British Pharmacological Society
- **Linda Parton,** Member of the Lay Involvement and Knowledge Mobilisation (LINK) Group, Impact Accelerator Unit, Keele University
- **Dr Edward Piper,** Medical & Scientific Affairs Director, AstraZeneca
- **Mrs Joann Rhodes,** Chief Executive, Health Innovation Research Alliance Northern Ireland (HIRANI)
- **Professor Sir Nilesh Samani FMedSci,** Medical Director, British Heart Foundation
- **Emlyn Samuel**, Head of R&D Policy, GlaxoSmithKline
- **Dr Jason Slingsby,** Chief Business Officer, LifeArc
- **Professor Dame Helen Stokes-Lampard DBE FLSW,** Professor of GP Education, University of Birmingham
- **Professor Richard Trembath FMedSci,** Executive Director, King's Health Partners
- **Dr John Williams,** Managing Director, Birmingham Health Partners
- **Naho Yamazaki,** Deputy Director of Policy & Partnerships, Health Research Authority

Staff and Secretariat from the Academy of Medical Sciences

- **Dr Rachel Quinn**, Director of Policy
- **Dr Claire Cope**, Head of Policy
- **Dr Anna Hands**, FORUM Policy Manager
- **Frances Logan**, Policy Officer
- **Kate Little**, FORUM Policy Officer
- **Asshen Kaminda Dedigama Acharige**, Intern

The **Academy** *of* **Medical Sciences**