

# Shaping the future training and employment environment for clinical research

Summary of a FORUM workshop held by  
the Academy of Medical Sciences,  
Association of the British  
Pharmaceutical Industry and the British  
Pharmacological Society  
16 July 2019



**BRITISH  
PHARMACOLOGICAL  
SOCIETY**



### **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.

### **The Association of the British Pharmaceutical Industry**

The ABPI exists to make the UK the best place in the world to research, develop and use new medicines. We represent companies of all sizes who invest in discovering the medicines of the future. Our members supply cutting edge treatments that improve and save the lives of millions of people. We work in partnership with Government and the NHS so patients can get new treatments faster and the NHS can plan how much it spends on medicines. Every day, we partner with organisations in the life sciences community and beyond to transform lives across the UK.

### **The British Pharmacological Society**

The British Pharmacological Society (BPS) is the primary UK learned society concerned with research into drugs and the way they work. The Society has around 4,000 members working in academia, industry, regulatory agencies and the health services, and many are medically qualified. The Society covers the whole spectrum of pharmacology, including laboratory, clinical, and toxicological aspects. Pharmacology is a key knowledge and skills base for developments in the pharmaceutical and biotech industries, and is therefore fundamental to a thriving UK industry and R&D. These skills allow members of the Society to identify therapeutic areas of clinical need, develop novel treatments that target these areas and ensure these new treatments are incorporated into healthcare practice bringing benefit to patients. The Society publishes three scientific journals: the British Journal of Pharmacology, the British Journal of Clinical Pharmacology, and Pharmacology Research and Perspectives.

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.

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# Executive summary

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**The UK's world-class clinical research ecosystem is highly reliant on the people that work in it. Ensuring that they have the skills and opportunities needed to meet the growing ambitions for UK clinical research is essential to developing new therapies, improving patient outcomes and growing the economy. However, there are increasing concerns that without investment and action, emerging skills gaps may widen, limiting this ambition.**

On 16 July 2019, the Academy of Medical Sciences, in partnership with the Association of the British Pharmaceutical Industry (ABPI) and the British Pharmacological Society (BPS), held a joint workshop on 'Shaping the future training and employment environment for clinical research'. The workshop brought together thought leaders and decision makers to help identify the skills, training and employment challenges faced by staff conducting or engaging with clinical research. Participants considered the causal system-wide barriers that lead to these challenges, and how the training and employment environment might be shaped to overcome them. A key discussion point was that whilst national policies – such as the Life Sciences Industrial Strategy and the NHS Long Term Plan – recognise the value of enhancing research capacity and capability in the NHS in order to help meet strategic objectives, it is challenging to implement these policies into practice within the healthcare system.

Discussions centred on how to remove barriers at the Trust level, including the need to:

- **Improve communication about the value of research and how investing in it can help Trusts meet their objectives.** Research needs to be framed as a central component of business for NHS Trusts. This will require a concerted and sustained effort from leaders and other stakeholders across the clinical research landscape to better understand and disseminate knowledge of the benefits of being research active and to help make the case for investment in research as a priority.
- **Examine and develop incentives that support investment in research.** The correct incentives will need to be determined to ensure that the value of research is recognised within the NHS from Board level through to individual job plans.
- **Ensure that research capability is embedded in national workforce planning, which will help Trusts engage with this issue locally.** A workforce skilled in research will be key to delivering the ambitions set out in the NHS Long Term Plan. Dedicated time for NHS staff to conduct and engage with research, and funding for education and training, will create a 'research ready' workforce. This should be at the forefront of thinking for the NHS People Plan and its implementation.
- **Develop the 'research workforce' and recognise the importance of promoting a positive research culture.** Research should be considered as part of the 'day job' for NHS staff at all levels to enable more of them to engage with research. The types of research endeavours encompassed by this positive research culture should include a spectrum of activities, from larger, more research-intensive projects and programmes through to more discrete participation and engagement on an individual level.

- **Enhance the research capabilities and capacities of the workforce** through the provision of appropriate education and training mapped to research duties, from the beginning of the training pathway into continuous professional development. For example, through embedding education in, and opportunities for exposure to, research in training curricula, or through other tools such as apprenticeships, credentialing or external secondments to develop skills ‘on the job’ as appropriate. Raising awareness of the different types of clinical research and how to get involved across healthcare professions will be important.
- **Ensure that healthcare professionals who have been trained in research have the appropriate ‘support packages’ to enable their practical engagement with it.** This could include mentoring, project management support or funding to recruit a research PhD student.
- **A greater commitment to expanding the number and diversity of apprenticeships,** and incorporating research skills into apprenticeship programmes, to help create a diverse workforce of ‘research ready’ staff capable of engaging with research programmes.

Participants also challenged the traditional view of clinical research as being only carried out in research-intensive Trusts attached to a university medical school. The Long Term Plan’s ambition to revolutionise primary care presents opportunities to embed more research in primary care and expose primary care teams to research. Participants also discussed the value of enhancing capability in District General Hospitals (DGHs). The UK should seek to make primary care research as world leading as that in secondary care. In secondary care, research should also be expanded outside of traditional centres of excellence. Discussions highlighted the need to:

- **Develop models of practice that support research with local patient populations.** Historically, research has not been carried out where the burden of disease has been greatest and lower levels of research investment in these areas have led to poorer health outcomes. Mapping the incidence of conditions that are of research interest would help identify the most appropriate regions to conduct research, including clinical trials.
- **Support clinicians and other staff in both primary care and DGHs to engage with research.** It is important to raise awareness of research careers and opportunities across professions. Direct research skills, along with soft skills, should be a component of education from secondary school through to higher education and professional development.

Finally, discussions touched on logistical challenges between different parts of the sector and the need to align these to ensure ease of integration – of both data and people:

- **Develop the technologies and pathways that support research.** There is a need for streamlining, alignment and standardisation of the use of data across industry, academia and the NHS to ensure mutual access for research. This should be accompanied by an appropriate data governance framework that enhances citizen trust and is underpinned by active public engagement on the value of using data for research.
- **Develop employment models that are ‘fit for purpose’ across the sector.** The need for greater mobility across industry, academia and the NHS is well-recognised. However, it is necessary to underpin this with job plans and contracts that recognise competing needs across the sector (e.g. balancing time spent in the clinic and working in industry). More flexibility and shared responsibility for contracts across sectors is required, which could be facilitated through systems-level employment models. Approaching research as a strategic activity may also help overcome cultural differences across sectors and to maximise opportunities for collaboration. A team science model of interdisciplinary working will be necessary to speed up innovation and its adoption.

This meeting was convened as part of the Academy's FORUM programme, which was established in 2003 to recognise the role of industry in medical research and to catalyse connections across industry, academia and the NHS. We are grateful for the support provided by the members of this programme and are keen to encourage more organisations to take part. If you would like information on the benefits of becoming a FORUM member, please contact [FORUM@acmedsci.ac.uk](mailto:FORUM@acmedsci.ac.uk).

# Introduction

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## The context for clinical research in the UK

Clinical research in the UK is world-leading, and more patients within the UK are taking part in NHS clinical research than at any point in the past (see Box 1).<sup>1</sup> A strong clinical research environment is critical for providing evidence on the efficacy and safety of new healthcare treatments, and for ensuring the continuing prominence of the UK in the field. There is increasing evidence that patients have better outcomes in research-active healthcare settings.<sup>2</sup> In addition, clinical research is also crucial for the UK economy, bringing in jobs and services. However, there are signs that clinical research capacity in the UK is under pressure. For example, figures for the number of Phase I, II and III clinical trials showed a continuing and relatively strong performance by the UK up to 2016, when the UK share had increased to 29% of total EU Clinical Trial Authorisation applications.<sup>3</sup> Since then, the UK share of EU trials has flatlined.<sup>4,5</sup>

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<sup>1</sup> National Institute for Health Research (2019). *Key stats sheet 2018/19*. [https://www.nihr.ac.uk/research-and-impact/nhs-research-performance/crn-performance/Key%20Stats%20Sheet%202018\\_19.pdf](https://www.nihr.ac.uk/research-and-impact/nhs-research-performance/crn-performance/Key%20Stats%20Sheet%202018_19.pdf)

<sup>2</sup> Ozdemir BA *et al.* (2015). *Research activity and the association with mortality* PLoS One **10(2)**: e0118253

<sup>3</sup> Ministerial Industry Strategy Group Clinical Research Working Group (2018). *Clinical trials* <https://www.abpi.org.uk/media/4650/clinical-trials-in-the-uk-report-jan-2018.pdf>

<sup>4</sup> Medicines and Healthcare products Regulatory Agency. *Clinical trials for medicines: authorisation assessment performance*. <https://www.gov.uk/government/publications/clinical-trials-for-medicines-authorisation-assessment-performance>

<sup>5</sup> The trends for trials involving med tech and non-biomedical interventions are as yet unknown.

## Box 1: UK clinical research in numbers

- In 2018/19, every single NHS Trust in England took part in research, with over 1 million clinical research participants.<sup>6,7</sup>
- In 2017/18, the National Institute for Health Research (NIHR) invested £252 million in research programmes and a further £607 million into clinical research infrastructure.<sup>8</sup> Clinical research carried out in England is worth £2.7 billion to the UK economy and supports 47,000 jobs. Additional revenues and cost savings, such as provision of medicines to patients in trials, provided approximately £28.6 million of savings to the NHS, with an estimated total of £335 million from commercial income.<sup>9</sup>
- Over the financial years 2016/17 to 2018/19, the NIHR Clinical Research Network supported clinical research activity that generated £8 billion in gross value added. Over the same period, for each patient recruited into commercial clinical research studies, NHS Trusts in England received an average of £9,189 in revenue from life sciences companies, as well as a pharmaceutical cost saving of between £4,143 and £7,483.<sup>10</sup>
- More broadly, the Medical Research Council (MRC) spent £814 million in 2017/18 and medical research charities invested £1.3 billion in 2018 to support world-class medical research.<sup>11,12</sup> In addition, the UK's biopharmaceutical industry invests £4.3 billion in UK R&D each year.<sup>13</sup>
- Over the last decade, an average of 28% of EU clinical trial applications have come from the UK.<sup>14</sup>
- The UK ranks first in Europe for the number of early clinical trials, with 147 Phase I and 253 Phase II clinical trials started in 2017.<sup>15</sup>

<sup>6</sup> NIHR (2019). *NIHR CRN Research Performance Report 2018/19*. <https://www.nihr.ac.uk/documents/performance-report-yearend-201819/21871>

<sup>7</sup> NIHR (2019). *Number of participants in NIHR-supported research exceeds one million for the first time*. <https://www.nihr.ac.uk/news/number-of-participants-in-nihr-supported-research-exceedsone-million-for-the-first-time/22543>

<sup>8</sup> NIHR (2018). *NIHR Annual Report* <https://www.nihr.ac.uk/documents/about-us/our-contribution-to-research/research-performance/NIHR-Annual-Report-2017-18.pdf>

<sup>9</sup> ABPI (2019). *Clinical trials* <https://www.abpi.org.uk/media/7607/rmi-0128-0919-clinical-trials-report.pdf>

<sup>10</sup> KPMG (2019). *Impact and value of the NIHR Clinical Research Network*. [https://www.nihr.ac.uk/documents/partners-and-industry/NIHR\\_Impact\\_and\\_Value\\_report\\_ACCESSIBLE\\_VERSION.pdf](https://www.nihr.ac.uk/documents/partners-and-industry/NIHR_Impact_and_Value_report_ACCESSIBLE_VERSION.pdf)

<sup>11</sup> <https://mrc.ukri.org/about/what-we-do/spending-accountability/facts/>

<sup>12</sup> <https://www.amrc.org.uk/pages/category/key-stats>

<sup>13</sup> ABPI (2019). *Clinical trials* <https://www.abpi.org.uk/media/7607/rmi-0128-0919-clinical-trials-report.pdf>

<sup>14</sup> *Ibid.*

<sup>15</sup> *Ibid.*



### Who is involved in clinical research?

For the purposes of this workshop, 'clinical research' was considered across all stages of medical research and medicines development, from experimental medicine and Phase I trials through to Phase III and IV studies. The 'research workforce' is defined as encompassing all those potentially involved in the clinical research enterprise. This includes clinical academics, clinician scientists, clinicians, nurses, midwives, pharmacists, allied healthcare professionals, Principal Investigators (PIs), Co-investigators, industry researchers, technologists, statisticians, apprentices, as well as graduates, PhD students and postdoctoral researchers. It was emphasised that in order for the UK to remain globally competitive, the training and development of a workforce that can engage with clinical research at any level and in a holistic and multi-disciplinary way needs to be supported. The skills and experience that each constituent brings to every stage of the research process must be valued. The full potential of involving a wider range of skilled individuals beyond full-time researchers in clinical research is yet to be realised.

Although the UK is a world leader in clinical research, it is clear that those working in clinical research continue to face challenges around their skill sets, career pathways or employment environment that impair their ability to conduct or engage with clinical research. Identifying and addressing these challenges is vital to achieving a workforce that can meet the ambitions set out in the Life Sciences Industrial Strategy.

### Ambitions for clinical research in the UK

Recent policy developments signal that this is a key area of interest for many stakeholders, including:

- The Government's **Industrial Strategy** that set an ambition to increase R&D spending to 2.4% of GDP by 2027 from the current level of 1.7% of GDP, which could see life sciences R&D spending hit £14 billion.<sup>16</sup>
- The **Life Sciences Industrial Strategy (LSIS)**, which set out a strategic goal to '*support a 50% increase in the number of clinical trials over the next 5 years and a growing proportion of change of practice and trials with novel methodology over the next 5 years*'.<sup>17</sup>  
The LSIS also identified opportunities for undertaking novel and more efficient trial designs, including the use of digital real-world evidence, facilitated by innovative regulation.
- **The Life Sciences Sector Deal 2** and subsequent **Life Sciences 2030 Skills Strategy**, which identified key skills trends and gaps, and suggested that the life sciences sector has the potential to create approximately 133,000 jobs over the next 10 years.<sup>18,19</sup>
- **The NHS Long Term Plan (LTP)**, a key focus of which is '*research and innovation to drive future outcomes and improvement*'.<sup>20</sup> The LTP includes the commitment to increase the number of people registering to participate in health research to one million by 2023/24.

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<sup>16</sup> HM Government (2017). *Industrial Strategy: Building a Britain fit for the future*. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf)

<sup>17</sup> Life Sciences Industrial Strategy Board (2017). *Life Sciences Industrial Strategy*. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/650447/LifeSciencesIndustrialStrategy\\_acc2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/650447/LifeSciencesIndustrialStrategy_acc2.pdf)

<sup>18</sup> Office for Life Sciences (2018). *Life Sciences Sector Deal 2*. <https://www.gov.uk/government/publications/life-sciences-sector-deal/life-sciences-sector-deal-2-2018>

<sup>19</sup> Science Industry Partnership (2020). *Life Sciences 2030 Skills Strategy*. <https://www.scienceindustrypartnership.com/media/2070/sip-life-sciences-2030-skills-strategy-digital-version.pdf>

<sup>20</sup> NHS (2019). *The NHS Long Term Plan*. <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan-june-2019.pdf>

- Health Education England's **Topol Review** into how to prepare the healthcare workforce to deliver the digital future.<sup>21</sup>
- Since the meeting took place, the Queen's Speech in December 2019, outlined that the Government '*will prioritise investment in infrastructure and world-leading science research and skills, in order to unleash productivity and improve daily life for communities across the country.*'<sup>22</sup>

Against the backdrop of these initiatives, now is an opportune time to consider how the UK's clinical research workforce, and those that support clinical research more widely, can help meet these ambitions. Achieving these ambitions will require a highly skilled workforce that can engage with and conduct clinical research in a rapidly evolving UK healthcare environment.

To discuss this topical issue, the Academy, ABPI and BPS convened a FORUM workshop on 16 July 2019, chaired by Professor Sir Munir Pirmohamed FMedSci, David Weatherall Chair of Medicine at the University of Liverpool and President-Elect of the BPS. Participants were drawn from the NHS, academia and industry, as well as learned societies, research networks and funding bodies. A full list of participants is available in **Annex I**. The meeting aimed to:

- Consider what is needed from the UK training and employment landscape if it is to support achieving the ambitions of the Life Sciences Industrial Strategy.
- Identify and prioritise the challenges faced by individuals related to skills, training and employment and how these may be caused by system or institution-wide barriers.
- Begin to consider how the employment and training environment might be shaped to help address some of these barriers and the challenges they cause, using real examples.

Four main themes emerged from the day, which form the chapters of this report:

- Theme 1: The clinical research workforce and a shared, cross-sector vision
- Theme 2: Recognising the value of research
- Theme 3: Shifting models of research and healthcare delivery
- Theme 4: Upskilling the workforce of the future

The Academy of Medical Sciences has published a separate report exploring how the interface between academia and the NHS can be enhanced to improve the health and wealth of the UK (see Box 2 for further details).<sup>23,24</sup>

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<sup>21</sup> Health Education England (2018). *The Topol Review: Preparing the healthcare workforce to deliver the digital future*. <https://topol.hee.nhs.uk/wp-content/uploads/HEE-Topol-Review-2019.pdf>

<sup>22</sup> <https://www.gov.uk/government/speeches/queens-speech-december-2019>

<sup>23</sup> <https://acmedsci.ac.uk/policy/policy-projects/nhs-academia-interface>

<sup>24</sup> Academy of Medical Sciences (2020). *Transforming health through innovation: Integrating the NHS and academia* <https://acmedsci.ac.uk/file-download/23932583>

## Box 2: Examples of current projects aiming to promote research in the NHS

### **‘Transforming health through innovation: Integrating the NHS and academia’ – Academy of Medical Sciences**

In early 2020, the Academy of Medical Sciences published a report exploring how the interface between the NHS and academia can be enhanced, identifying actions for stakeholders across the healthcare sector to incentivise research in the NHS. To generate the changes that are needed to better integrate the NHS and the UK’s strong academic biomedical and health research sector, the report sets out a series of actions to achieve six important outcomes:<sup>25</sup>

1. Creating a healthcare system that truly values research
2. Fully integrating research teams across academia and the NHS
3. Providing time for research-active NHS staff
4. Rethinking undergraduate training to equip healthcare staff with the skills to engage with research
5. Incorporating flexibility into postgraduate training pathways
6. Streamlining research through joint research and development (R&D) offices

### **‘Research for all’ – Royal College of Physicians (RCP)**

In April 2019, the RCP published ‘Delivering research for all’.<sup>26</sup> Endorsed by 17 Royal Colleges and research institutions, including NIHR, the statement calls for more research to be conducted in NHS trusts. In November 2019, the RCP released a further statement, ‘Benefiting from the ‘research effect’: The case for trusts supporting clinicians to become more research active and innovative’, outlining the clear benefits for NHS Trusts of becoming more research-active.<sup>27</sup>

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<sup>25</sup> Academy of Medical Sciences (2020). *Transforming health through innovation: Integrating the NHS and academia* <https://acmedsci.ac.uk/file-download/23932583>

<sup>26</sup> Royal College of Physicians (2019). *Delivering research for all: expectations and aspirations for the NHS in England*. <https://www.rcplondon.ac.uk/file/13147/download>

<sup>27</sup> Royal College of Physicians (2019). *Benefiting from the ‘research effect’: The case for trusts supporting clinicians to become more research active and innovative*. <https://www.rcplondon.ac.uk/projects/outputs/benefiting-research-effect-case-trusts-supporting-clinicians-become-more-research>

**'Identifying and improving the capacity of health service staff to conduct research' – Cancer Research UK**

Cancer Research UK is currently undertaking a project to examine the capacity of health service staff to conduct research and explore how this might be improved.<sup>28</sup> The project will aim to address the lack of information available to guide policy solutions to barriers for clinical research capacity.

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[https://www.cancerresearchuk.org/sites/default/files/capacity\\_of\\_health\\_service\\_staff\\_to\\_conduct\\_research\\_-\\_sept\\_2019.pdf](https://www.cancerresearchuk.org/sites/default/files/capacity_of_health_service_staff_to_conduct_research_-_sept_2019.pdf)

# Theme 1: The clinical research workforce and a shared, cross-sector vision

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**Achieving the ambitious aims for UK clinical research requires the entire clinical research community to be unified in its vision for what should be achieved and, importantly, how it will be achieved.**

## **A shared vision for the clinical research environment**

Key to the UK achieving its ambitions for clinical research will be the combined efforts of different sectors and stakeholders working towards a shared vision for the clinical research environment. However, differences in perspectives and varying involvement in clinical research mean that this is not guaranteed. As such, participants discussed the need for all sectors and stakeholders to agree on what the shared vision is, and what steps are needed to achieve a world-leading workforce that supports these ambitions.

Participants explored the development of a training and employment environment that:

- Drives team science and a positive research culture.
- Values and rewards a range of skills and people.
- Supports collaboration between different parts of the sector, including research funders, universities, NHS organisations and industry.
- Helps people gain experience of different parts of the sector and supports cross-sector working where beneficial.
- Supports the NHS to build research capacity in a sustainable way alongside service provision commitments.
- Allows different versions of success in research, with budget set aside for a 'safe place' to fail and accommodate risk.
- Embeds training in research and entrepreneurship skills at an early stage, starting with a focus on STEM education at school level.

Dr Stephen Simpson, Director of Research and Programmes at Versus Arthritis and Chair of the Experimental and Precision Medicine Forum highlighted the need for:

- Cohesion: different players within the landscape working together towards the same goal to address the system- or institution-level barriers in effectively engaging and enacting clinical research.
- Clarity: developing a better understanding of the skills needs of each sector.
- Simplicity: signposting opportunities to make it easier for researchers to forge their own career routes navigating between the different sectors.

Dr Declan Mulkeen, Chief of Strategy at the Medical Research Council, noted that a radical shift in how research funders, employers and other stakeholders work together will be a



# Theme 2: Recognising the value of research

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**For research to become embedded as normal practice across the NHS, participants discussed why it needs to be accessible for all those wishing to engage with it and valued by the whole NHS workforce, from those in leadership roles through to clinical staff.**

## **Research as a priority for the NHS**

Despite significant increases in the amount and quality of clinical research since the creation of the NIHR in 2006, participants noted that there remains an enormous challenge in making clinical research a priority within the NHS, which is dealing with many competing pressures and priorities. Evidence about the level of NHS engagement with research, and its impact on service delivery and staff recruitment and retention, are limited. However, research is a key part of the NHS Constitution for England and the benefits research can bring to patients have been clearly demonstrated.<sup>29,30,31,32</sup>

There is an ongoing perception that NHS Boards, commissioners and senior management still regard research as an 'add-on' to service provision instead of a core component. Decision makers within the NHS are also perceived to be 'risk-averse' to the adoption of innovative research, particularly where it disrupts existing models or has complex budgetary implications. It was suggested that NHS management graduate schemes could incorporate a 'research' secondment to raise awareness of the value of research and the work done by researchers. Given the current financial and staffing pressures faced by the healthcare system, protecting and expanding research in the NHS is a significant challenge and will require a concerted and sustained effort from leaders and other stakeholders across the clinical research landscape.

Clinical job plans were also highlighted as a challenge for engaging with research. The new consultant contract only includes 1 to 1.5 core Supporting Professional Activities (SPAs),<sup>33</sup> the majority of which is spent undertaking continuing professional development (CPDs) leaving

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<sup>29</sup> Department for Health (2015). *The NHS Constitution for England* [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/480482/NHS\\_Constitution\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/480482/NHS_Constitution_WEB.pdf)

<sup>30</sup> Downing A, et al. (2016). *High hospital research participation and improved colorectal cancer survival outcomes: a population based study*. *Gut* **66**, 89-96.

<sup>31</sup> Jonker L & Fisher SJ (2018). *The correlation between National Health Service trusts' clinical trial activity and both mortality rates and care quality commission ratings: a retrospective cross-sectional study*. *Public Health* **187**, 1-6. <https://www.sciencedirect.com/science/article/pii/S0033350618300015>

<sup>32</sup> Boaz A, et al. (2015). *Does the engagement of clinicians and organisations in research improve healthcare performance: a three-stage review*. *BMJ Open* **5**, e009415.

<sup>33</sup> Supporting Professional Activities (SPAs) are activities that underpin direct clinical care. This may include participation in training, medical education, continuing professional development, formal teaching, audit, job planning, appraisal, research, clinical management and local clinical governance activities.



little or no time for research.<sup>34</sup>

Participants stressed the need to provide dedicated time for research to more healthcare professionals, including nurses, midwives, pharmacists and allied health professionals. However, dedicated time was not suggested to be applied universally and homogeneously. There will be different requirements for research intensive staff, such as clinical academics, compared to other NHS staff who are conducting research but are less deeply involved in project leadership. There would need to be sufficient funds available to allow the NHS to backfill positions, especially for clinicians from niche specialties where this presents particular challenges. In addition to dedicated time for research, the importance of the right support package to enable clinicians to undertake research was emphasised. Examples of such packages could include project management support or funding to recruit a research PhD student.

Two examples of current projects to understand time and capacity issues were highlighted. The Academy's 'Enhancing the NHS-academia interface' project proposes establishing a pilot to explore the impacts of dedicated research time, whereby a proportion of consultants have a percentage of their time protected for research (see Box 2). Participants also noted that Cancer Research UK is funding a project to explore what the scale is of the challenge associated with health service staff lack of capacity to conduct research and identify solutions to improve the capacity of the existing workforce.

### Research culture

Participants noted that the differences in, and poor understanding of, cultures between researchers working in academia, industry and the NHS are a key barrier to cross-sectoral mobility. Industry's main focus is perceived to be in innovating and creating new therapies, with a focus on short-term deliverables. In contrast, academia is perceived as driven primarily to look for new knowledge. In the NHS, patient interests are the primary focus area. Reconciling the different drivers and ways of working across academia, industry and the healthcare sectors can be a challenge.

It was remarked that mutual trust between industry and NHS researchers is growing. However, the speed at which collaborations are established needs to improve, as long set-up times can be a barrier for those wishing to work at the NHS-industry interface. It was felt that Trust Boards and Chief Executives need to prioritise streamlining procedures to facilitate this process. To encourage a change in attitudes, there is a need to develop a more sophisticated understanding of the types of incentives and rewards that would drive positive cultural behaviours. For example, a recent KPMG report showed that the healthcare system saves £6,000 for every £5,000 of commercial income generated by an NHS organisation.<sup>35</sup> Therefore, incentivising organisations to meet specific financial targets for commercial income could be an effective solution.

Participants also advocated the need to embed research skills in training schemes for NHS managers to raise awareness of the importance of research and instil a research culture in the healthcare system. The Wellcome Trust is currently undertaking a project on reimagining research culture to create an environment that supports creativity and collaboration and prioritises diversity and inclusion.<sup>36</sup> This work has included a survey of researchers of their

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<sup>34</sup> <https://www.hcsa.com/hcsa-journal/hospital-consultant-specialist-autumn-2016/2016/11/charting-the-decline-of-spa%E2%80%88time.aspx>

<sup>35</sup> KPMG (2019). *Impact and value of the NIHR clinical research network*  
[https://www.nihr.ac.uk/documents/partners-and-industry/NIHR\\_Impact\\_and\\_Value\\_report\\_ACCESSIBLE\\_VERSION.pdf](https://www.nihr.ac.uk/documents/partners-and-industry/NIHR_Impact_and_Value_report_ACCESSIBLE_VERSION.pdf)

<sup>36</sup> <https://wellcome.ac.uk/what-we-do/our-work/research-culture>



experience of research culture.<sup>37</sup> The outputs from this project may help to further support cross-sectoral working.

### **Navigating NHS research infrastructure**

Participants noted the difference in time and speed of regulatory processes – the time taken to get diagnostics and devices through regulatory processes can be significantly longer than for pharmaceutical products. It was noted that industry, small and medium sized enterprises (SMEs) in particular, need support in navigating the NHS landscape and locating the right expertise across academia and the NHS to be able to develop and pilot their novel products and technologies. Participants recognised the complexity in the current infrastructure and the important role of the NIHR Office for Clinical Research Infrastructure (NOCRI) in understanding the research needs of industry and signposting them to available support.<sup>38</sup> However, it was remarked that this service is not widely known and is therefore underutilised.

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<sup>37</sup> <https://wellcome.ac.uk/reports/what-researchers-think-about-research-culture>

<sup>38</sup> <http://www.uk-pgx-stratmed.co.uk/index.php/nihr-office-for-clinical-research-infrastructure-nocri>

# Theme 3: Shifting models of research and healthcare delivery

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**The shift towards a greater emphasis on preventative and person-centred care will bring both new challenges and opportunities for clinical research. The resulting integrated health and social care system could be a platform for world-leading research and care.**

## **From a disease-specific approach to a skills-led approach**

Funders of medical research have typically funded projects in a disease-specific manner. However, there is a need for funders to work across disease areas as multimorbidity increasingly becomes a recognised health challenge. Research to effectively address different multimorbidity clusters will require a 'team science' approach involving multidisciplinary teams, as well as many different skills and sector perspectives. At the same time, medical practice has also evolved to become more and more specialised. This specialism may have resulted in poor awareness of the value of cross-disciplinary research, and missed opportunities to conduct research and provide care for co-existing conditions. For example, a recent NIHR funding call on multimorbidity received very few applications, possibly because researchers were unaware of the opportunity or unable to develop the cross-disciplinary relationships to conduct such research projects. It is hoped that the number of applications will grow as the profile of these funding calls increases.

The need for medical training and practice to evolve to focus on multiple conditions and the value of more generalist clinicians was noted (see Case study 1). Participants stressed that this would help equip healthcare professionals with the skills to deal with the complexities of multimorbidity and long-term health conditions. Participants also advocated the importance of funders enabling team science by different modalities of funding, such as identifying clusters of diseases that can drive collaborations across specialties or disease areas.

### Research in primary care

The NHS Long Term Plan details proposals for major investment in Primary Care Networks (PCNs),<sup>40</sup> which would comprise expanded multidisciplinary teams. PCNs will receive funding to employ additional health professionals, such as pharmacists and paramedics. By 2023/24, each PCN could have as many as six whole-time equivalent clinical pharmacists. Participants agreed that there is an opportunity to build on the investment in PCNs and the resultant increase in the primary care workforce to create additional research capacity in primary care – at present, it is estimated that only 42% of GP practices are research active,<sup>41</sup> and participants noted that the academic research workforce in primary care has been shrinking in recent years. Attention must therefore be paid to the recruitment, retention and development of the primary care research workforce to ensure that it does not shrink further.

## Case study 1: Bristol Health Partners' Health Integration Teams

Bristol Health Partners created its unique Health Integration Team (HIT) model approximately 10 years ago.<sup>39</sup> HITs are cross-organisation, interdisciplinary groups set up to harness research, innovation, education, patient care and prevention strengths by working together in new and different ways.

The HIT model is focussed on the integration of primary, secondary and tertiary care with community service provision, public health (including preventative strategies), education, training, innovation and research. This signals a move away from specialisms towards a whole systems approach to tackling local patient-facing health priorities, such as dementia and multimorbidities.

### Driving research leadership and research activity outside of the academic centres

Participants noted the apparent geographical disconnect between concentrations of research activity and the location of disease burden in the UK. For example, Northern regions have a higher incidence of chronic obstructive pulmonary disease (COPD), but comparatively little clinical research into the condition. Better alignment of research activity to geographical health needs and disease burden would not only improve local systems and patient outcomes, but also enhance the efficiency of clinical research, for example by more easily recruiting clinically relevant trial participants.

The NIHR Local Clinical Research Networks have been requested to ring-fence 2% of their 2019/20 funding allocation to prioritise research activity that aligns with local population health needs. On a national scale, such correlation between research and local needs could be

<sup>39</sup> <https://www.bristolhealthpartners.org.uk/health-integration-teams/>

<sup>40</sup> From 1 July 2019, all patients in England will be covered by a primary care network (PCN). PCNs are made up of groups of neighbouring general practices, typically serving natural communities of around 30,000 to 50,000.

<sup>41</sup> <https://www.rcgp.org.uk/clinical-and-research/about/clinical-news/2018/june/clinical-research-for-gp-practices.aspx>

enhanced through the development of a national repository of patients to map disease prevalence. The NIHR has contributed to this process by developing 'heat maps' for a variety of conditions which could be used to map research and funding priorities.<sup>42</sup>

Another key step would be to improve research capacity in DGHs and PCNs to enable the local population to benefit from research in areas where there is no major Teaching Hospital or research hub. It was noted that DGHs often have research as part of their strategy, but are typically not involved in the design and management of their own trials. This could mean that some DGHs still need to develop the expertise to do innovative or independent research.

Participants proposed several ways in which DGHs could be supported to conduct more research:

- Pairing up research-intensive NHS Trusts with PCNs and DGHs to engender a culture of research.
- Providing clinicians in DGHs with appropriate training and support to lead on and participate in research studies as PIs. It was suggested that a Clinical Academic Research Partnership (CARP)-like scheme (see Case Study 2) that provides protected research time for clinicians to undertake commercial research could be beneficial.
- Getting research-active nurses, such as those on the 70@70 NIHR Senior Nurse and Midwife Research Leader Programme, to visit DGHs as research 'champions'.
- Improving collaboration opportunities for DGHs with academic institutions and the commercial sector. This could be incentivised, for example, by requiring DGHs to ensure that a proportion of their income comes from commercial sources and could drive local solutions.

However, it can be challenging for DGHs to engage in commercial research. Industry may be more likely to approach research centres that have previous track records in research. In addition, reimbursement for studies are made after the trial is concluded, which may be perceived as a financial risk. Furthermore, the business case for building the infrastructure required to have a continuous research portfolio would require evidence of long-term income. However, Contract Research Organisations (CROs) often cannot guarantee future work, which adds uncertainty to the value of the infrastructure investment. Dedicated centralised funding for this infrastructure may therefore be required. NHS Research Scotland (NRS) has a dedicated scheme for pump-priming to train people in commercial research.<sup>43</sup> Participants were not aware of any similar schemes in England, Wales or Northern Ireland.

The large variability in approval times for trials in hospitals was highlighted as a barrier. It was noted that this issue is being addressed by Liverpool Health Partners who have created a Joint Research Service, SPARK, as a one-stop approval for seven hospitals.<sup>44</sup> This circumvents the need for DGHs to operate individually and speeds up approval time for studies.

### **Recognising the value of data for clinical research**

The UK's outstanding clinical research base is underpinned by access to data, with significant opportunities presented by increasing capabilities in the collection, linkage and analysis of data. Capitalising on this opportunity for medical research will require embedding data analysis skills training throughout the NHS to train a cadre of the clinical workforce (including health and clinical informaticians) to be able to operationalise the wealth of data generated within the NHS and apply it to effect change.

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<sup>42</sup> <https://sites.google.com/nihr.ac.uk/hsrtoolkit/our-areas-of-focus/crn-hsr-projects/mapping-delivery/research-targeting-tool>

<sup>43</sup> <https://www.nhsresearchscotland.org.uk/education-and-funding/funding-for-nhs-research-infrastructure>

<sup>44</sup> <https://liverpoolhealthpartners.org.uk/spark/>

## Case study 2: MRC Clinical Academic Research Partnership (CARP) scheme

CARP was set up by the MRC in 2018 to provide a flexible new route for research-qualified NHS consultants who are not currently research-active to participate in collaborative high-quality research partnerships with established leading biomedical researchers.<sup>45</sup> The scheme provides up to three years' funding to undertake a research project within an existing biomedical research team, including costs for consumables and up to half of the applicant's basic salary to support dedicated research time. Nineteen awards were made in the first round of the scheme, spanning basic discovery to applied health projects.

Similar schemes across the devolved nations aimed at building research capacity and culture, and support research staff include Heath and Care Research Wales' (HCRW) Clinical Research Time Award and the NHS Research Scotland's (NRS) Career Researcher Fellowships.<sup>46,47</sup>

Data from primary care is currently under-utilised for research. However, the additional focus on primary health care outlined in the Long Term Plan could be an opportunity for making more use of its data to locate patients who could participate in clinical research, such as those with multimorbidities. The Community Health Index number used in Scotland has historically made the location of patients from primary care easier, but this has proven more challenging in the rest of the UK where no such unique identifier existed until recently.<sup>48</sup>

There is a need to streamline, align and standardise the use of data across the academia-NHS-industry interfaces. It was emphasised that the three sectors need to recognise the value of the data held by each other. For example, it was suggested that little progress has been made in exploring the value of the data derived from electronic prescribing systems with industry, as conversations between the NHS and industry tend to focus on other issues, such as commissioning and adoption.<sup>49</sup>

Participants discussed the need for a national approach to data that is trusted by the public and engages them as meaningful partners. Data governance was highlighted as a major issue that needs more investment. Data governance systems in academic institutions are often perceived as less robust than in industry. In particular, the need to develop a data governance framework regarding metadata was highlighted. The recently established Health

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<sup>45</sup> <https://mrc.ukri.org/funding/browse/carp/clinical-academic-research-partnerships/>

<sup>46</sup> <https://www.healthandcareresearch.gov.wales/news/clinical-research-time-award-2018/>

<sup>47</sup> <https://www.cso.scot.nhs.uk/personal-awards-initiative/nrs-career-researcher-fellowships/>

<sup>48</sup> <https://www.ndc.scot.nhs.uk/Dictionary-A-Z/Definitions/index.asp?ID=128&Title=CHI%20Number>

<sup>49</sup> <https://www.gov.uk/government/publications/voluntary-scheme-for-branded-medicines-pricing-and-access>

Data Research UK and the Health Data Research Hubs will have an important role to play in the development of such a framework.<sup>50</sup>

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<sup>50</sup> <https://www.hdruk.ac.uk/>

# Theme 4: Upskilling the workforce of the future

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**A rapidly changing research landscape, powered by developments in big data and artificial intelligence, combined with the UK's ambitions to do more clinical research mean that the clinical research workforce of the future needs to adopt new ways of learning and working.**

## **Skills shortages and capacity building**

Participants noted the need for industry, academia and the NHS to better audit and understand the skills needs of each other. For example, it would be helpful to ascertain the number of researchers working in experimental medicine across all sectors in the UK and use this as a baseline to horizon scan key skills areas for future focus. Career paths should not aim to commit people to a long-term career in a particular area, but instead provide opportunities for short electives and exposure to different sectors, to provide a diverse, cross-disciplinary skillset.

Participants also highlighted that the LSIS challenges the research community to think broadly about future skills needs and personnel, focussing not just on researchers and clinicians with biomedical and health research skills, but also on nurses, technicians, trial managers, statisticians and data scientists, among others. Practically, this means that efforts to increase research-active clinicians need to be coordinated with those to increase the number of research active nurses, midwives, pharmacists, allied health professionals and supporting staff. The respective contributions of each of these roles towards clinical research should be recognised and incentivised. While the NHS People Plan includes plans to increase the number of NHS nurses, this is not extended to consider the proportion of nurses that should be research active.<sup>51</sup> The future vitality of the research sector also relies on the quality of the workforce in these wider roles.

## **Education and training**

The skills and demands required of the healthcare workforce are evolving. Rapidly changing patient needs, alongside medical and technological advances – for example in digital technologies, genomics, and artificial intelligence – require a healthcare workforce that is increasingly able to engage with cutting-edge research and use its findings. Consequently, the skill sets needed to be effective in academic medicine will become increasingly broader. The UK should invest in training and education to equip current and future researchers with the breadth of critical skills required to better meet the needs of the population, and to retain the UK's world leading position in clinical research. Equipping individuals with the skills to support potential future careers in clinical research could start as early as in primary and secondary education. Participants felt that STEM education in schools needs to be strengthened with

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<sup>51</sup> NHS Improvement (2019). *Interim NHS People Plan* [https://www.longtermplan.nhs.uk/wp-content/uploads/2019/05/Interim-NHS-People-Plan\\_June2019.pdf](https://www.longtermplan.nhs.uk/wp-content/uploads/2019/05/Interim-NHS-People-Plan_June2019.pdf)

strong emphasis on mathematics and digital science.

Some participants expressed concerns that existing undergraduate medical curricula do not encourage individuals to value research and consider how to apply research skills in their clinical practice. There is a need for early short-term exposure to clinical research across health care professions, including medics, nurses, midwives, pharmacists, allied health professionals and the wider clinical workforce. Medical curricula could be adapted to incorporate knowledge of how medicines are discovered and developed. Participants also stressed the importance of the clinical research workforce including generalists who understand interdependencies of conditions and therapy areas. This would support the ambitions outlined in the NHS Long Term Plan, which calls for more generalists in line with the needs of patients with multiple long-term conditions.

In addition to upskilling the workforce, career pathways need to be flexible, allowing people to switch their focus, and providing opportunities to collaborate and work at the interface of different sectors. Attracting graduates from other disciplines, including the arts and humanities, and retraining them to be able to enter clinical research careers was seen as a potential way to increase workforce capacity and bring in staff with a diverse set of skills and experiences. Providing clear pathways and additional entry routes (for example through technical education and apprenticeships) will be key to ensuring a sustainable clinical research workforce moving forward. Participants highlighted that there is an opportunity to create apprenticeships to train people and meet the needs of industry for highly-skilled employees. The Clinical Pharmacology Skills Alliance apprenticeship scheme was noted as an example of such an initiative.<sup>52</sup> Training in academia can result in overspecialisation of people past the PhD stage. Researchers wishing to work with industry need to have a broad skillset, including softer skills such as collaborative and leadership skills.

Training in additional skills could also be delivered through credentialing. Credentialing should be accessible for all trainees (including those who will not go into clinical academia) to allow them to acquire particular skills (for example in experimental medicine). Credentialing could support clinicians and other healthcare professionals who have not followed an academic training pathway but wish to undertake clinical research. This may improve the recruitment and retention of clinicians in areas of the UK with low levels of research activity.

### **Mobility and permeability across academia-industry-NHS**

There is a strong emphasis in the LSIS on convergence in the life sciences, especially between diagnostics, personalised medicine and data science. Accelerating convergence within the sector will require the boundaries between pharma, biotech and medtech to be broken down. Participants advocated the need to expose the workforce to different sectors to foster a better mutual recognition of the differences and expectations across sectors. One such scheme is the North West England MRC Fellowship Scheme in Clinical Pharmacology and Therapeutics run jointly by the Universities of Liverpool and Manchester.<sup>53</sup> However, it was noted that differing incentives, rewards and career structures across academia, industry and the NHS can present a barrier to cross-sector team science.

Participants highlighted the importance of international mobility as key area of focus, with concerns that excellence in science and skills could be lost due to a reduction in mobility of international talent to and from the UK. It will be essential to ensure that the mobility of talented individuals is sustained and supported in future, especially in the context of the UK's

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<sup>52</sup> <https://www.bps.ac.uk/news-events/news/articles/2019/new-opportunities-for-clinical-pharmacology-scient>

<sup>53</sup> <https://www.liverpool.ac.uk/north-west-england-mrc-fellowship-cpt/>



departure from the EU. The Academy is considering the need for a new scheme to enhance connectivity and movement between researchers working across academe, NHS and industry. Equipping researchers with the skills to work across sectors and providing opportunities for networking will be key.

### **Promoting collaboration**

Nurturing a culture of collaboration, not just among academic researchers, but also funders and industry, was highlighted as a priority area to be addressed. The joint collaboration between Versus Arthritis and NIHR through the UK Musculoskeletal Translational Research Collaboration was highlighted at the meeting. It brings together the Versus Arthritis investment in Experimental Arthritis and Osteoarthritis Treatment Centres with the relevant NIHR infrastructure with expertise in MSK.<sup>54</sup> Participants felt that the number of such collaborations needs to increase and become more mainstream to enable team science through different modalities of funding.

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<sup>54</sup> <https://www.nihr.ac.uk/partners-and-industry/industry/collaborate-with-us/ukmsktrc.htm>

# Conclusions

The Chair, Professor Sir Munir Pirmohamed FMedSci, concluded the workshop by highlighting that the UK has an outstanding and enviable clinical research base. There is an opportunity to improve on efforts to showcase the UK's achievements. Efforts are already underway to do so, for example the Office for Life Sciences and the Department for International Trade are developing a 'Life Sciences Global Sales Pitch' to promote the UK life sciences offer globally. However, he stressed that the sector cannot be complacent, and changes and improvements are necessary to maintain and build upon this excellence.

Ensuring that the sector utilises all areas of the research system to increase workforce capacity will be crucial. The creation of UKRI presents an opportunity for the research councils to come together and innovate to enable team science.

The UK should also seek to increase the amount of research in primary care, so that it is comparable to that in secondary care centres of excellence. The Long Term Plan's commitment to extra investment and additional staff in primary care was welcomed and seen as a means to increase opportunities for research in primary care.



Figure 2 Participants were asked 'What are the immediate priorities to address training and employment challenges in clinical research?' and submitted words or phrases to form the word cloud.

Finally, Sir Munir emphasised that research is part of the NHS Constitution for England and needs to be a core component of care, rather than a 'nice to have'.<sup>55</sup> Given the current focus on development and implementation of the NHS Long Term Plan and the People Plan, now is an opportune time to consider how the UK's clinical research workforce, and those that support clinical research more widely, can help meet ambitions set out in these documents. Dedicated time for research and funding for education and training should be at the forefront

<sup>55</sup> Department for Health (2015). *The NHS Constitution for England*  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/480482/NHS\\_Constitution\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/480482/NHS_Constitution_WEB.pdf)

of NHS workforce thinking – acting now will be crucial to meet these ambitions within the next decade.

Informed by the discussions at the workshop, participants indicated that ‘mobility’, ‘flexibility’, ‘time’ and ‘confidence’ were immediate priorities to address training and employment challenges in clinical research (Figure 2). Further detail is provided in the summary box below.

## Current priorities and emerging themes for action

Participants proposed the following as priorities for urgent action:

- An immediate opportunity to engage with the NHS People Plan (due in 2020) to make the case for the value of research to the NHS and for it to be seriously considered in workforce planning.
- Improving research capacity in PCNs and DGHS, with the Long Term Plan's ambition to revolutionise primary care presenting opportunities for primary care teams to be exposed to research.
- Promoting flexibility, dedicated research time and support for research-active NHS staff to be able to maximise the research potential that currently exists within the NHS.
- Integrating research into care to help achieve the ambitions of the Life Sciences Industrial Strategy and the Long Term Plan.
- Better aligning populations, research and workforce in the NHS to ensure that research takes place with and in the populations most affected.
- Increasing research activity through education and training of the current workforce, along with the preparation of an appropriate pipeline of talented future staff. Initiatives proposed include:
  - Identifying opportunities to engage with curriculum development for specialty training. In particular, considering how research is embedded in medical school training and in the education and training of nurses, midwives, pharmacists and allied health professionals.
  - Ensuring a future apprenticeship ecosystem to broaden entry into the clinical research workforce.
  - Exploring the role of credentialing (e.g. in research skills, experimental medicine) and short-term early exposure to research.
  - Promoting a multimorbidity research approach where appropriate to identify and foster cross-specialism collaborations and enable mobility of researchers across different sectors.

# Annex I - Attendees

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## Chair

**Professor Sir Munir Pirmohamed FMedSci**, David Weatherall Chair of Medicine, University of Liverpool; President-Elect, British Pharmacological Society

## Attendees

**Professor Derek Alderson**, Chair, Academy Education Strategy Committee, Academy of Medical Royal Colleges

**Dr Liz Allen**, Vice President, Early Clinical Development, IQVIA

**Dr Jennifer Anderson**, Head of Training and Careers, Medical Research Council

**Mr Steve Bates**, Chief Executive, BioIndustry Association

**Dr Julianne Bostock**, Research Policy Senior Manager, National Institute for Health Research

**Ms Teena Chowdhury**, Operations Director of Audit and Accreditation, Royal College of Physicians

**Professor Waljit Dhillon**, Interim Associate Dean, NIHR Academy and Professor in Endocrinology & Metabolism, Imperial College London

**Dr Gerry Grove**, Director BioSamples, AstraZeneca

**Professor Tim Higenbottam**, President, Faculty of Pharmaceutical Medicine

**Professor Jenny Higham**, Chair, Medical Schools Council

**Mr Jordan Holland**, Senior Policy Adviser, Department for Business, Energy and Industrial Strategy

**Dr Sarah Jefferies**, Clinical Director for Cancer, Addenbrooke's Hospital

**Ms Emma Lowe**, Senior Research Policy Manager, Department of Health and Social Care

**Dr Daniel Marks**, Director, Discovery Medicine, GlaxoSmithKline

**Professor Sara Marshall**, Head of Clinical and Physiological Sciences, Wellcome Trust

**Ms Christine McGrath**, Chair, UKRD

**Dr Alan McNair**, Senior Research Manager, Chief Scientist Office, NHS Scotland

**Ms Clare Meachin**, Associate Director of Nursing, Clinical Research Network Coordinating Centre

**Professor Geeta Menon**, Postgraduate Dean, Health Education England

**Dr Declan Mulkeen**, Chief of Strategy, Medical Research Council

**Professor Christopher Pugh FMedSci**, Professor of Renal Medicine, University of Oxford

**Dr Keith Ridge**, Chief Pharmaceutical Officer, NHS England

**Dr Stephen Simpson**, Director of Research & Programmes, Versus Arthritis

**Dr Jane Thompson**, Head of Learning and Knowledge Management, Health Research Authority

**Mr Luke Wainwright**, Research and Innovation Coordinator, NHS England

**Professor David Wynick**, Chair, R&D Group, University Hospital Association

**Ms Angeliki Yiangou**, Policy Advisor, Cancer Research UK

## Secretariat and staff

**Mr Andrew Croydon**, Director, Skills & Education Policy, Association of the British Pharmaceutical Industry

**Dr Ali Hansford**, Head of Regulatory Strategy Policy, Association of the British Pharmaceutical Industry

**Dr Mehwaesh Islam**, Policy Officer, Academy of Medical Sciences

**Ms Emma Laycock**, Policy Officer, Academy of Medical Sciences

**Dr James Squires**, FORUM Policy Manager, Academy of Medical Sciences

**Dr Naho Yamazaki**, Head of Policy, Academy of Medical Sciences

**Dr Anna Zecharia**, Director of Policy & Public Affairs, British Pharmacological Society

# Annex II - Agenda

UK Clinical research skills	
08.30-09.00	<b>Arrival and refreshments</b>
09.00-09.10	<p><b>Welcome and introduction</b>            Professor Sir Munir Pirmohamed FMedSci, David Weatherall Chair of Medicine, Department of Molecular and Clinical Pharmacology, University of Liverpool</p>
Session 1: What does the sector need?	
09.10-09.30	<p><b>The UK clinical research workforce: what does the sector need to deliver the Life Sciences Industrial Strategy?</b>            Dr Stephen Simpson, Director of Research and Programmes, Versus Arthritis and Chair of the Experimental and Precision Medicine Funders Group</p>
09.30-09.50	<p><b>Exploring a vision for the training and employment landscape.</b>  <i>Facilitated by Dr Declan Mulkeen, Chief of Strategy, Medical Research Council.</i></p> <p><i>Exploration and development of a 'straw person' vision set out in the briefing paper, to include points on:</i></p> <p>A training and employment environment that:</p> <ul style="list-style-type: none"> <li>• Values and rewards a range of skills and people</li> <li>• Supports collaborative working and team science</li> <li>• Helps people gain experience of different parts of the sector</li> <li>• Values engagement with research across the NHS, academia and industry</li> <li>• Recognises the changing landscape for UK clinical research and development, and seeks to engage all parts of the sector with training (e.g. support for SMEs)</li> </ul>
09.50-10.00	<p><b>Word cloud exercise</b>  <i>Chaired by Professor Sir Munir Pirmohamed FMedSci, David Weatherall Chair of Medicine, University of Liverpool</i></p> <p>All participants will be asked to use their phone to login to the Academy's Mentimeter system, which will be used to generate a word cloud. Participants will be asked to submit what they feel are the biggest training, skills and employment barriers to the life</p>

	sciences workforce engaging with and/or conducting clinical research.
10.00-10.15	<b>Coffee and tea break</b>
<b>Session 2: Identifying the skills and employment barriers to effective cross-sector clinical research</b>	
10.15-10.50	<p><b>Discussion session:</b> <i>Facilitated by Professor Jenny Higham, Chair, Medical Schools Council.</i></p> <p>Participants will be assigned one of three groups to join, with each group themed around an interface between industry, the NHS and academia. From the perspectives of individuals at that interface, participants will discuss the challenges people face in terms of skills, education, training and employment, and the system level barriers that may be responsible for these challenges – using the pre-read Annex and the word cloud to guide the conversations. Participants will also share and consider examples where these challenges have been tackled or overcome through proactive actions.</p> <p>Each group will be asked to discuss the challenges from the perspectives of:</p> <ul style="list-style-type: none"> <li>• <b>Group 1:</b> NHS-academia interface Chair: Professor Chris Pugh</li> <li>• <b>Group 2:</b> Industry-academia interface Chair: Dr Stephen Simpson</li> <li>• <b>Group 3:</b> NHS-industry interface Chair: Dr Sara Marshall</li> </ul>
10.50-11.25	<p><b>Discussion session 2:</b></p> <p>Participants will be assigned a second group from three groups to join themed around an interface between industry, the NHS and academia. As in the first discussion session, from the perspectives of individuals at that interface, participants will discuss the challenges people face in terms of skills, education, training and employment, and the system level barriers that may be responsible for these challenges – using the pre-read Annex and the word cloud to guide the conversations. Participants will also share and consider examples where these challenges have been tackled or overcome through proactive actions.</p> <p>Each group will be asked to discuss the challenges from the perspectives of:</p> <ul style="list-style-type: none"> <li>• <b>Group 1:</b> NHS-academia interface</li> <li>• <b>Group 2:</b> Industry-academia interface</li> <li>• <b>Group 3:</b> NHS-industry interface</li> </ul>

11.25-11.40	<b>Coffee and tea break</b>
11.40-12.30	<p><b>Reporting and discussion</b>  <i>Facilitated by Professor Jenny Higham, Chair, Medical Schools Council.</i></p> <p>The Chair of each group will report back to the group, highlighting the one or two key issues that merit further discussion. This will be followed by group discussion.</p>
<b>Session 3: The way forwards</b>	
12.30-13.00	<p><i>Facilitated by Dr Sara Marshall, Head of Clinical and Physiological Sciences, Wellcome Trust</i></p> <ol style="list-style-type: none"> <li>1. Where are there still unknowns or uncertainties as to barriers?</li> <li>2. Where should we be focusing our efforts to make the biggest gains?</li> <li>3. What can we learn from ongoing or recent initiatives?</li> <li>4. What are some potential system-level solutions to the most significant challenges?</li> </ol> <p>An opportunity to reflect on discussions, establish common ground and discuss whether there are still unknowns or uncertainties as to the barriers, and their causes, that inhibit the workforce from effectively engaging with or conducting clinical research. Using recent and ongoing initiatives as case examples, the group will also be asked to attempt to prioritise where action is likely to have the biggest impact, and potential solutions from these most significant barriers. The group can revisit the vision set out earlier in the day and consider how it may be to adapted or expanded to accommodate suggestions laid out in the discussions.</p>
13.00-13.15	<p><b>Summary from the Chair</b>  Professor Sir Munir Pirmohamed FMedSci, David Weatherall Chair of Medicine, Department of Molecular and Clinical Pharmacology, University of Liverpool</p>
13.15-14.00	<b>Close and networking lunch</b>







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