Academy of Medical Sciences' written submission to follow oral evidence given by Professor Paul Stewart FMedSci, Vice-President (Clinical)
Lords Science and Technology Committee inquiry: Clinical academia in the NHS

Summary

- Clinical research is an invaluable asset to the UK's strength as a nation, in terms of our health and wealth.
- Clinical research in the NHS is driven by both clinical academics – those employed jointly by universities and the NHS – and the wider clinical workforce who are NHS employees but play a critical role in research delivery. Each group faces different challenges.
- Clinical academic careers remain attractive, but a range of barriers, including inflexible training and a lack of 'pull-through' from clinical PhD to later career stages, are threatening to weaken the clinical academic workforce.
- Research can improve clinicians' job satisfaction and help retention in the wider academic clinician workforce.
- The wider clinical workforce often lacks the time and support to properly engage in research.
- The clinical academic landscape is different in the devolved nations and for different clinical professions.
- The value of research in the NHS has been recognised across the sector, including by Royal Colleges, Regulators, and by the UK Government.
- Embedding research in NHS culture must be seen not as a luxury, but as a solution to many of the challenges it faces.

Value of clinical academia

NHS and patient care

- Research active hospitals have better patient outcomes, including lower mortality rates, with the benefits of research extending beyond those directly participating in research. [1,2,3]
    - In a study of patients with colorectal cancer, the mortality rate in the first 30 days after major surgery was 5% in hospitals with high research participation, but 6.5% in hospitals that did not achieve high participation, a difference of 30%.[4]
- Research in or with the NHS has led to significant breakthroughs in patient care, for the UK and globally, and is central to continued innovation in health and care. UK clinical academia has been fundamental to global health during the COVID-19 pandemic.
    - **Annex 1 provides a series of case studies highlighting the impact of clinical academia on the UK's health and wealth.**

Economic value and R&D

- In FY 2018/19, a total of £2.7 billion in gross value added and 47,467 FTE jobs were generated by clinical research activity supported by the NIHR Clinical Research Network.[5]

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[1] Ozdemir BA, *et al.* (2015). *Research Activity and the Association with Mortality*. PLoS One 10, e0118253.
[2] 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.
[3] McManus RJ, *et al.* (2008). *How representative of primary care are research active practices? Cross-sectional survey*. Family Practice 25, 56–62.
[4] Downing A, Morris E JA, Corrigan N, *et al*. *High hospital research participation and improved colorectal cancer survival outcomes: a population-based study. Gut* 2017;66:89-96.
[5] https://www.nihr.ac.uk/documents/partners-and-industry/NIHR_Impact_and_Value_report_ACCESSIBLE_VERSION.pdf

- ABPI 2022 Life Sciences Superpower report:[6] 'If the UK can preserve and grow the UK life sciences sector, it is estimated to yield significant benefits, including:
    - An additional £68 billion to the UK economy from increased R&D investment over the next 30 years
    - A 40% decrease in total attributable burden of disease from tackling the UK's most pressing disease areas.'

Universities

- 'Clinical research funding is the largest funding income stream for most academic institutions, with on average 28% - over £5billion - of research income leveraged from clinical medicine.'[7]
- A set of patient-reported outcome measures for Multiple Sclerosis (MS), the 'MS Scales', developed by a clinical academic at the University of Plymouth have generated over £1.5 million in licencing income for the University of Plymouth's trading company for their use in commercial trials.[8]

Research Excellence Framework

- In REF 2021, 91% of clinical medicine (Unit of Assessment (UoA) 1), 92% of public health, health services and primary care research (UoA 2) and 84% of allied health professions, dentistry, nursing and pharmacy research (UoA 3) in the UK was rated world-leading or internationally excellent.[9] Of this, 69% of UoA's 1 and 2 impact profiles were rated world leading.
- Universities and medical schools submitted 889 impact cases in UoAs 1, 2 and 3 in 2014 and 798 in 2021. In 2014, Medical Schools Council (MSC) compiled an impact report of some of the world-class research taking place in UK medical schools. Some illustrative examples are provided in Annex 1.[10] Analysis of the 2021 impact case studies is not yet available.

Workforce retention and job satisfaction

- Evidence suggests that engaging in research may improve clinicians' job satisfaction, can boost morale, and can reduce burnout.[11,12,13,14,15]
- Almost two thirds (64%) of doctors surveyed by the Royal College of Physicians said they would like to spend more time on research.[16]
    - When asked to rank potential measures to improve job satisfaction, consultants valued support to spend their time on leadership, education, training, and research.[17]

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[6] https://www.abpi.org.uk/media/0bfpf3wb/abpi-life-sciences-superpower-report-v7.pdf
[7] https://www.catch.ac.uk/discover-clinical-academia/the-value-of-clinical-academia
[8] https://www.catch.ac.uk/discover-clinical-academia/the-value-of-clinical-academia
[9] https://ref.ac.uk/media/1910/mp-a-overview-report-final-updated-september-2022.pdf
[10] https://www.medschools.ac.uk/media/1902/health-of-the-nation-the-impact-of-uk-medical-schools-research.pdf
[11] Lambert TW, Smith F, Goldacre MJ. *Making clinical academic careers more attractive: views from questionnaire surveys of senior UK doctors.* JRSM Open. 6(8): 2054270415602644, 2015.
[12] Dale J, Potter R, Owen K, Parsons N, Realpe A, Leach J. *Retaining the general practitioner workforce in England: what matters to GPs? A cross-sectional study.* BMC Family Prcatice. 16:140, 2015.
[13] Watson C, King A, Mitra S, Shaaban AF, Goldstein AM, Morowitz MJ, Warner BW, Crombleholme TM, Keswani SG. *What does it take to be a successful pediatric surgeon-scientist?* Journal of Pediatric Surgery. 50(6): 1049-52, 2015.
[14] Community Research (2018). *Adapting, Coping, Compromising research.* https://www.gmc-uk.org/-/media/documents/adapting-coping-compromising-research-report-79702793.pdf
[15] Shanafelt TD, et al. (2009). Career Fit and Burnout Among Academic Faculty. Archives of Internal Medicine 169(10), 990–995.
[16] Royal College of Physicians (2016). *Research for All: Building a research-active medical workforce.*
[17] Royal College of Physicians (2020). *Research for All: Developing, delivering and driving better research.* https://www.rcplondon.ac.uk/file/24291/download

Recognition of the value of research in the NHS across the sector

- Health and Care Act 2022: Research and innovation responsibilities are embedded within ICS duties in England by legal requirement for ICBs to "facilitate or otherwise promote" research across "matters relevant to the health service".[18]
- UK Government's Life Sciences Vision includes an ambition to embed research across the NHS as a "core part of effective patient care", bolstering capacity and creating a "research-positive culture in which all staff are supported and expected to participate".[19]
- GMC's *Normalising research – Promoting research for all doctors* position statement aims to enable a culture in the workplace where doctors are encouraged to be research-aware and research-active.[20]
- The 2022 joint RCP-NIHR *Making research everybody's business* position statement recognises that research must be normalised as core business in the NHS and sets out recommendations for stakeholders across the health and care system to make "research a part of everyday practice for all clinicians".[21]

Risks to clinical academia

Difference between clinical academics and research-active clinicians

Clinical academics are clinically active professionals who are also employed by research institutions or higher education institutions to lead, or otherwise deliver, academic research. Academic clinicians/research-active clinicians are clinically qualified professionals employed in the health service who support the leading and delivery of research in those settings. Both clinical academics and academic clinicians are essential to the delivery of clinical research in the UK, and both face distinct challenges to their contributions to research delivery. Whilst data on clinical academics (provided below) is widely available thanks to university staff data, data about academic clinicians is not readily available. Clinical academics generally have their research time protected by funding and university contracts, whereas NHS service pressures have significantly limited the capacity that research-active clinicians have to dedicate to research.

Clinical academic workforce

The MSC staffing survey indicates the current numbers and demographics of the clinical academic workforce.[22] **This data does not reflect the numbers of research active clinicians in the NHS.** All statistics provided below have been drawn from the MSC staffing survey data unless otherwise stated.[23]

- The number of clinical academic consultants in the NHS has stagnated at ~3000 since 2021: a decline in overall proportion from 8.6% in 2011 to 5.7% in 2021
    - *Down 126 FTE from 3162 in 2011 to 3036 in 2021. The NHS consultant workforce has increased from 36,965 to 53,100 in that time*.
- Clinical academics account for just 0.7% of GPs
- In 2021, there were ~7000 clinical academic researchers (early career) vs ~3000 Lecturers, Readers/Senior Lecturers and Professors
    - This decline is particularly acute at the mid-career level (Senior Lecturer), where there has been a 25% decline in numbers across the UK
    - Post-PhD attrition – anecdotal evidence that research roles for doctoral nurses, midwives and allied health professionals (NMAHPs) are particularly difficult to find

[18] https://www.legislation.gov.uk/ukpga/2022/31/contents/enacted
[19] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1013597/life-sciences-vision-2021.pdf
[20] https://www.gmc-uk.org/education/standards-guidance-and-curricula/position-statements/normalising-research---promoting-research-for-all-doctors
[21] https://www.rcplondon.ac.uk/file/41256/download
[22] https://www.medschools.ac.uk/clinical-academic-survey
[23] https://www.medschools.ac.uk/clinical-academic-survey

- Whilst gender balance at earlier career stages has improved, female clinical academics are still underrepresented at senior levels (25% of professors in 2021, up from 15% in 2011)
- Ethnicity demographics in clinical academia broadly unchanged since 2011
- Public health: BMA data from 2013 suggests that the majority of medical public health consultants in England are employed by local authorities (approximately 250-300). We have not been able to find data on change over time.[24]

Attractiveness of clinical academic careers

Whilst clinical academic careers are clearly still sought after, some recent reforms to clinical academic training are causing anxiety within the clinical academic community. We know that many clinical academics feel as though the sustainability of the profession is under threat. A survey of the perceived impacts of changes to physician training in the UK has been undertaken and will be shared with the Committee as soon as the results are published later in 2022.

COVID-19 – redeployment to front line and NHS backlog

- Estimates suggest that over 1,500 clinical academic trainees in England were deployed to clinical duties in 2020, representing over 90% of all trainees on the Integrated Academic Training (IAT) pathway, who were therefore unable to pursue their research in this time.[25]
    - CATF, COPMeD and health sector representatives produced practical guidance for clinical academic trainees and those supporting them in their return to research.[26]
- Investing in recovering research following the pandemic:
    - In England, to support the drive to recover the research portfolio, DHSC provided over £30 million of additional funding via the NIHR CRN in the 2021 to 2022 financial year to increase research delivery capacity, especially in community settings and with a key focus on achieving flexibility and agility in the workforce.[27]
    - The Welsh Government provided £1.7 million to support additional capacity in order to achieve the recovery of non-COVID-19 research, including development of research capacity outside of hospital settings.
    - Department of Health in Northern Ireland provided £3 million to support clinical research recovery, resilience and growth in Northern Ireland.[28]

Risks to clinical research more broadly

- ABPI 'Rescuing Patient Access to Industry Clinical Trials in the UK' report:[29] 'the number of industry clinical trials initiated in the UK per year fell by 41% between 2017 and 2021
    - The number of Phase III industry trials initiated in the UK – those with medicines closest to market – fell by 48% between 2017 and 2021.
    - The UK has fallen down the global rankings for late-stage clinical research, dropping from 2nd to 6th in Phase II trials and 4th to 10th in Phase III trials between 2017 and 2021.
    - Patient access to industry clinical trials on the NIHR CRN fell from 50,112 to 28,193 between 2017/18 and 2021/22 – a 44% drop.'

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[24] https://www.bma.org.uk/pay-and-contracts/contracts/public-health-consultant-contract/contracts-for-public-health-consultants
[25] https://acmedsci.ac.uk/file-download/50182747
[26] https://acmedsci.ac.uk/file-download/30131605
[27] https://sites.google.com/nihr.ac.uk/thefutureofukclinicalresearch/home/programme-updates/improving-visibility-and-making-research-matter-to-the-nhs?authuser=0#h.sqm8q3o2ais6
[28] https://sites.google.com/nihr.ac.uk/thefutureofukclinicalresearch/home/programme-updates/improving-visibility-and-making-research-matter-to-the-nhs?authuser=0#h.sqm8q3o2ais6
[29] https://www.abpi.org.uk/media/fjhnjz34/rescuing-patient-access-to-industry-clinical-trials-in-the-uk.pdf

Relevant reports and initiatives to support clinical academia

Integrate the NHS and academia

The Academy's *Transforming health through innovation: Integrating the NHS and academia* report[30] identified the following recommendations to enhance the NHS-Academia interface:

1. Creating a healthcare system that truly values research.
2. Fully integrating research teams across academia and the NHS.
3. Providing dedicated research time for research-active NHS staff.
4. Ensuring undergraduate curricula 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 offices (see Annex 2).

Adherence to Principles and Obligations

- Clinical academics working across both NHS and universities are protected by the Principles and Obligations documents agreed between employers, host institutions and funders.[31,32]

Submission prepared by Holly McIntyre (Academy of Medical Sciences) based on the evidence provided by Professor Paul Stewart FMedSci on Tuesday 22 November 2022. Email: holly.mcintyre@acmedsci.ac.uk.

[30] https://acmedsci.ac.uk/file-download/23932583
[31] https://www.nihr.ac.uk/documents/uk-clinical-academic-training-for-nurses-midwives-and-other-professionals-allied-to-medicine-principles-and-obligations/27109
[32] https://acmedsci.ac.uk/file-download/4126761

Annex 1: Illustrative case studies spanning translational clinical research

1. Depletion of B cells to treat patients with Rheumatoid Arthritis (University College London Medical School)[33]
2. Internationally adopted guidelines on the treatment of blood pressure in patients with a stroke (University of Leicester)[34]
3. A novel therapy for patients with a disabling blood disorder, paroxysmal nocturnal haemoglobinuria (University of Leeds)[35]
4. The FRAX fracture risk score as a bedside clinical tool for predicting fracture risk and adopted globally (University of Sheffield)[36]
5. New treatment for people with heavy menstrual bleeding/uterine fibroids (University of Edinburgh)[37]
6. The NHS-delivered RECOVERY trial identified dexamethasone as a COVID treatment, estimated to have saved over 1 million lives worldwide[38]
7. Major clinical trials in radiotherapy and imaging which have changed standard clinical practice for cancer treatment, forming the basis of NICE and international guidelines (Institute of Cancer Research and The Royal Marsden)[39]

Many of these examples and case studies are drawn from the Academy's NHS-Academia report, Medical Schools Council's Health of the Nation: The impact of UK medical schools' research report and the Research Excellence Framework's 2021 Impact Case studies database. These documents and databases contain hundreds of further examples of world-leading research that has led to significant innovations in patient and public health.

[33] https://www.medschools.ac.uk/media/1902/health-of-the-nation-the-impact-of-uk-medical-schools-research.pdf
[34] https://le.ac.uk/research/stories/human-health/stroke-treatment
[35] https://impact.ref.ac.uk/casestudies/CaseStudy.aspx?Id=27416
[36] https://impact.ref.ac.uk/casestudies/CaseStudy.aspx?Id=12329
[37] https://www.pure.ed.ac.uk/ws/portalfiles/portal/206136332/nejmoa2008283.pdf
[38] https://www.england.nhs.uk/2021/03/covid-treatment-developed-in-the-nhs-saves-a-million-lives/
[39] https://acmedsci.ac.uk/file-download/23442253

Annex 2: Joint Research Office functions

Newcastle Joint Research Office (NJRO) [40]
The NJRO was established in 2006 between The Newcastle upon Tyne Hospitals NHS Foundation Trust (Trust) and Newcastle University (University) to support researchers in the development, implementation and delivery of world-class experimental, translational and clinical research.

Through the partnership, the Trust acts as sponsor for all University research requiring access to its patients. The NJRO team interfaces with colleagues across the Trust and University to support researchers through funding development, governance and regulatory compliance, application submission, post-award contracting and intellectual property, and post-award project management.

The Systems Leadership approach to research is essential in ensuring the partnership delivers the best research for patient outcomes. The successful development and clinical translation of pronuclear transfer (PNT) – the IVF-based technique known as 'mitochondrial replacement' to prevent transmission of mitochondrial DNA disease from mother to child – is a compelling example of world class research achieved by providing support for interdisciplinary research collaborations between the Trust and University.

The location of the research group that pioneered this technique within the NHS Newcastle Fertility Centre enabled unprecedented access to human eggs donated specifically for research. NHS consultant gynaecologists were instrumental in the establishment of the egg donation programme, as well as in navigating the UK regulatory landscape to obtain a license to fertilise donated eggs for research purposes.

Following a change in UK law in 2015, the Newcastle Fertility Centre can now offer PNT treatment to families at risk of transmitting serious mitochondrial DNA disease to their children.

A follow-up study of children born following PNT treatment is currently underway. Overcoming major scientific, logistical and regulatory hurdles could not have been accomplished without the robust infrastructure provided by the NJRO to facilitate and support collaboration between the Trust and University.

[40] https://acmedsci.ac.uk/file-download/23442253