

Early and mid-career researcher priorities for sustainable health research careers

Workshop report, May 2022

The Academy of Medical Sciences

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Executive summary

A sustainable research career must offer sustained job security and a work-life balance, within a system that supports established high-quality and innovative science as well as career structures outside of a one-track Principal Investigator (PI) pathway.

This was the view of early and mid-career researchers who attended a workshop to contribute to the Academy of Medical Sciences' project on *Future-proofing UK Health Research: a people-centred, coordinated approach*.¹

The workshop was attended by 29 biomedical, clinical, health and lived experience researchers, who were asked to define their vision for sustainable health research careers, the barriers to this, and the possible interventions that could help us future-proof UK health research.

Attendees identified a range of structural and systemic challenges to sustainable health research careers and suggested a variety of interventions which could help to address these, including:

- Initiatives from funders and employers that could create career structures which value difference and allow flexibility. These could include career paths for diverse research careers including skills specialists, lived-experience researchers and cross-sectoral opportunities.
- Interventions that provide researchers with the security and freedom to innovate. These included extending the duration of funding, realistic expectations placed on researchers, minimum contract lengths for post-doctoral researchers and commitment from employing institutions.
- Equity of opportunity throughout research careers to improve the diversity of the health research workforce.
- Better data on the health research workforce that would enable funders and employers to design evidence-based career support that meets the needs of the workforce.
- Greater consistency in HR policies between institutions and funders. This was highlighted as central to improving the experience of researchers.

Introduction

People are critical to the health research system, with excellent research dependent upon attracting and retaining a diverse range of talented people, and providing rich, rewarding and sustainable careers. Therefore, on 4 May 2022, the Academy hosted a workshop to explore early and mid-career researcher priorities for improving the long-term sustainability of UK health research, with a focus on research careers.

The workshop was chaired by Professor Ruth Plummer MBE FMedSci and attended by 29 early and mid-career biomedical, clinical, health and lived experience researchers (see *Attendee list*). The aim of the workshop was to consider what sustainable research careers look like to early and mid-career researchers and a series of possible interventions designed to support this. The outcomes of this conversation would inform the Academy of Medical Sciences' Working Group project on *Future-proofing UK Health Research: a people-centred, coordinated approach*.²

Attendees were asked to consider the following questions:

1. What does a sustainable research career mean to you?
2. What do you think is preventing us from achieving this sustainability?
3. What do you like about current interventions to support more sustainable research careers?
4. How could these interventions be improved?
5. What new or existing interventions would you prioritise to achieve your vision of sustainable research careers?

As many of the issues of research sustainability are interlinked, especially those of research funding and careers, workshop attendees were asked to take a holistic view of the health research system, considering how financial sustainability impacts research careers and vice versa.

Defining sustainable health research careers in the long term

Workshop attendees were asked to define long-term sustainability in health research careers. Attendees identified several factors and considered a sustainable career to be one that affords the following:

- Sufficient security in employment to allow opportunities to focus on collaboration, innovation and quality science.
- Reward for activities which contribute to high quality and impactful science, valuing collaboration over competition.
- A recognition that well-trained scientists are needed in a variety of societal roles outside of traditional academia. A sustainable system would champion, develop and value:
 - Research careers across a broad range of cross-sector partnerships and non-academic roles.
 - Innovative academic research positions outside of a Principal Investigator (PI) centred approach, for example for skills specialists, research technicians and lived experience researchers.
- A career offering personal meaning, and opportunities to develop oneself and one's team.
- A career offering an appropriate work-life balance.
- Equity of opportunity for groups traditionally excluded from, or under-represented in, the health workforce.
- Flexibility within career structures, for example in entry point, career type and trajectory.

Barriers and possible interventions

Having identified the features of sustainable health research careers, attendees were asked to identify barriers to their vision and to prioritise interventions to address these.

The interventions identified by attendees at the workshop ranged from focussing on what individuals, funders, higher education institutions (HEIs) and research institutes can do to support early and mid-career researchers in the current system, to how we might change the system itself to better support careers and facilitate better science and innovation for the long-term.

We have presented the barriers and interventions identified at the workshop below and separated these into themes within career structures and the wider system. Themes include flexibility, security, equity of opportunity, consistency and data. Attendees identified several interventions for each theme, which are presented in no particular order.

Career structures

Challenges

Attendees raised that there is a historical, rigid perception of career structures for researchers within the health research sector which perpetuates the myth that everyone enters research via the same route and ends their career as a PI or company Chief Executive Officer (CEO). In turn, this myth contributes to the narrative that everyone *should* be a PI or CEO, and results in a lack of recognition or prestige for other research roles. This is compounded by what attendees described as the career 'pyramid', in which there are many more people obtaining PhDs than there are PI or CEO roles or intermediate-level funding.³

Attendees felt that whilst aspiring to be a PI or CEO may suit some people's career aspiration, it is not relevant for all health researchers. This poses challenges as there continues to be a lack of other established career paths within health research for people looking for alternatives to the PI-centric route. Attendees highlighted that this lack of options limits innovation.

A significant issue identified by workshop attendees was the widespread use of short-term contracts by many HEIs and research institutes; these pose limitations for early and mid-career researchers and have an unequal impact on parents, carers and people from underrepresented groups who are more likely to leave research due to job insecurity.

Attendees also highlighted a perception that workload and expectations in the current career and funding structures are increasing. For instance, inflation in traditional markers of success, promotion metrics, administrative burden and 'good academic citizen' expectations, are causing increased pressure and competition for early and mid-career researchers and increasing the risk of burnout.

All of these factors are creating a set of circumstances which are leading to a loss of talent from health research. This is worsened by compounding barriers for different groups, and a lack of recognition of the intersectional layers that apply to this.

Attendees highlighted a distinct variation in policies between employing organisations and recognised that working with HR and finance departments within HEIs, research institutes and NHS Trusts would be needed to better understand how these challenges can be addressed.

Defining career structures that value difference and allow flexibility

Not all individuals in the health research workforce enter their career at the same point, progress in the same way or aspire to the same career trajectory. To support their vision of sustainable health research careers (see *Defining sustainable health research careers in the long term*), attendees recognised the need to create a system which values the contributions of the whole research workforce and identified flexibility as key to this.

Flexibility within career structures is needed to establish multiple points of entry and variation within the research career offer to ensure that individuals do not get 'only one chance to succeed'.

Attendees highlighted the need to establish professional, long-term careers with development opportunities for skills specialists, research technicians and lived experience researchers.

Individuals in these roles should be recognised for their contributions, for example, in research publications. The Academy's 2016 report, *Improving recognition of team science contributions in biomedical research careers*, provides further information and recommendations on this topic.⁴ In addition, the Academy's 2020 report, *Transforming health through innovation: Integrating the NHS and academia*, has recommendations of relevance to early-career clinical academics (e.g. Outcome 5: Incorporating flexibility into postgraduate training pathways).⁵

Attendees emphasised that opportunities for careers spanning between academia and industry should be available earlier in research careers. This could be facilitated in part by greater cross-sector mobility and knowledge exchange between early and mid-career researchers in different sectors, for example through sharing of entrepreneurship skills.⁶

Attendees proposed the following specific interventions to promote flexibility:

- Establishing defined, long-term career paths within HEIs and research institutes for a variety of research roles, outside of the PI-centric career path, with opportunities for development, promotion and recognition.
- Developing transdisciplinary research hubs with multiple PIs and research leads, which would focus on skills training and personal development, and facilitate collaboration on funding applications.
- Establishing core skills hubs at HEIs and research institutions, supported by contributions from industry and funders as part of grant funding. These hubs would be areas for collaborative training in research skills and knowledge sharing between disciplines and sectors.
- Some attendees noted that options for job-sharing at senior levels may provide opportunities to improve diversity within senior research roles.

Cross-sector careers were explored further at the Academy of Medical Sciences/FORUM workshop on cross-sector mobility.⁷

Career structures that provide security and freedom to innovate

Stability and security were considered necessary to create conditions for the best science, for researchers to build their careers and those of their teams, and for innovative and high-risk research which could deliver higher reward. Attendees noted that longer-term funding, or an increase in the number of smaller pockets of funding, for those at the 'bottom of the pyramid' would support innovation.

Attendees also considered that fellowship selection criteria and promotion metrics should reflect the full contribution of an individual to the research endeavour and department, for example by recognising teaching or other contributions. Attendees noted that these metrics should also set more realistic expectations of what can be achieved within the duration of a funding award and recognise that there are other significant demands on early and mid-career researchers' time.

Attendees proposed the following specific interventions to provide security:

- HEIs should provide secure conditions of employment and salary commitments for those holding competitive, intermediate level fellowships.
- Increasing flexibility from research funders regarding fellowship metrics and selection criteria. This should include recognition that different markers of success will be needed in different specialities, career types and career stages.
- Use of appraisals to ensure career development opportunities and that commitment is maintained from both the employer and employee.
- Introducing a minimum duration for post-doctoral researcher contracts in HEIs and research institutes.
- Some attendees proposed a more radical solution in which researchers could receive a form of universal basic income, topped up by grant applications.

Career structures that provide equity of opportunity

Inequalities in opportunity and experience persist in health research careers and the challenges explored in this workshop are known to be compounded by the additional barriers faced by parents and people with protected characteristics that are underrepresented in the research workforce.^{8,9} Attendees considered the current career structures and system to be built by and for the people who historically had access to careers in research; attendees suggested that the system needed to be redeveloped to recognise the change in demographics of the people within it, and to support greater diversity and equity of opportunity in the future.

To do this, attendees highlighted the need for improved understanding of intersectionality within the sector and recognition of the additional support that different individuals or groups may need for equity of opportunity. For example, first generation university students and graduates are likely to have less access to informal academic networks than individuals whose parents attended university.

Attendees felt that even for those who do aspire to hold PI positions, the route to achieving this status can be rigid or hard to access. For instance, some described their perception that funders may expect an applicant to move HEI or research institute to pursue their research and career. Attendees highlighted that this can create a 'trade-off' between career progression and personal life, and noted that it was a particular issue for those with young families.

Attendees emphasised the importance of a system which supports lived experience researchers to have research careers, as large numbers of people are currently excluded from taking forward viable ideas due to a lack of resource at the initial stages.

Attendees proposed the following specific interventions to support greater equity of opportunity:

- Diversity on funding panels, including those outside of traditional PI roles.
- Emphasis from funders on researchers being in the right research environment for their research, as opposed to expecting applicants to move HEI or institute.
- More opportunities for flexible working arrangements in research careers, particularly for those with caring responsibilities.

- Early-stage funding for lived experience researchers to develop their initial ideas, investment in training for lived experience researchers, and developing defined career opportunities for these individuals.

Support to enhance career opportunities and experience

Attendees considered there to be a 'glass ceiling' for career progression beyond short-term post-doctoral contracts. Attendees described how policies from funders which require applicants to be on a permanent or long-term contracts in order to apply for funding can have perverse effects. Whilst these policies are often introduced to incentivise employers to place researchers on long-term contracts, some attendees described how they can lead to excluding those on short-term post-doctoral contracts from applying when they would otherwise be well placed to do so.

Knowledge sharing and peer-to-peer support between early and mid-career researchers was considered particularly important for individuals' resilience within the current system. However, attendees cautioned that interventions should seek to avoid placing the administrative burden on early and mid-career researchers themselves, due to already existing workload pressures outlined above.

Attendees proposed the following specific interventions to enhance career opportunities and experience:

- Improved access to mentorship from outside of an individual's sector or speciality, and more publicising of these opportunities.
- HEIs, research institutes and funders to allow the leading team members to be PIs on grant applications. Attendees recognised that the commonly allowed co-I title had some benefits, but does not fully address the glass ceiling problem.
- More opportunities for early and mid-career researchers to sit on funding panels would help to make the funding landscape less opaque and easier to navigate.
- Peer-to-peer support and knowledge sharing forums and groups within and across HEIs and research institutes, organised by early and mid-career researchers.

System

Challenges

Barriers to the long-term sustainability of health research careers sit within the wider health research system. Researchers continue to face systemic challenges that need to be addressed holistically, as well as the more localised challenges specifically affecting careers described above.

Challenges within the wider health research system include the size of the overall funding pot and issues of full economic cost recovery (explored further in the *Maximising the benefits of a diverse health research eco-system* workshop).¹⁰

Attendees reported that poor data on the overall research talent in the system (for example, a lack of data on the numbers of early and mid-career researchers in the UK) impair the ability to make informed decisions about appropriate career support and relative need for investment at various career stages. Attendees suggested that there is a perception that funding structures are skewed to support PhD students and then established group leaders, with less support for middle stages.

Attendees recognised that there are encouraging examples of positive interventions and behaviours by HEIs, research institutes, Trusts and funders, but often a lack of consistency between these affects the overall experience of researchers in the system. For example, there are significant variations at the NHS-academia interface caused by differences in the approaches of different NHS Trusts.

Defining a system which uses evidence to support careers

Data drives evidence-based decision making, and improved data collection on talent within the system could be used to inform the most effective interventions to support the current and next generations of health researchers.

Attendees proposed the following specific interventions to provide data to improve the system's ability to support early and mid-career researchers:

- Funders could work with HEIs to build a database of early and mid-career researchers in the system.
- Evidence of how the grant holder has professionally developed any early and mid-career researchers employed on their grant could be included in grant progress reviews and reports, and even be assessed in future funding applications. Attendees recognised that some funders and institutions already ask for this and highlighted that the possible increase in administrative time to document this support could be balanced by the recommendations made below.

Defining a consistent and collaborative system

Many organisations and institutions have implemented measures to address the issues highlighted at this workshop and successful examples exist across the sector. However, the offer is inconsistent.

There are examples of restrictive policies which can prevent early and mid-career researchers from developing their careers, such as those described in under *Support to enhance career opportunities and experience*. Attendees also shared examples of HEIs not following through on their commitments to protect research time for post-doctoral researchers, which is of particular detriment to clinical academics.

Attendees proposed the following specific interventions to improve consistency and sharing of best practice:

- Funders need to work together to identify gaps in the funding offer, to consider how the health research system will be maintained in the long term and to adapt funding practices appropriately.
- Development of coordinated guidance on the funding opportunities available for different specialities.
- A consistent, joined-up offer from HEIs regarding HR policies for changes in contracts. Universities should work together to develop continuous employment policies for researchers moving between individual institutions, similar to the NHS model for clinicians and Principles and Obligations requirements for clinical academics.¹¹
- Streamlining information about existing interventions and opportunities at different institutions, and improving publicity of these across the sector.
- Universities should use future iterations of the Research Excellence Framework to highlight how they are progressing early and mid-career researchers, and that this should be used as a significant marker of success for the institution.
- Streamlining of funding applications: attendees suggested that two-stage applications sent to multiple funders with coordinated criteria, with individuals then selected to provide full applications by specific funders, would significantly limit early and mid-career researcher and funder administrative burden.

Conclusions

A sustainable health research system is contingent on attracting and retaining talented people in research careers. Therefore, providing sustainable, rewarding and impactful health research careers is vital for a functioning research system.

Significant barriers prevent equity of opportunity for all people who want to pursue a health research career and stifle the innovation opportunities for those within the current system. Distinct challenges exist for researchers seeking to establish their independent careers, clinical academics, lived experience researchers and those working at the interface of NHS, academia or industry partnerships. Many of these are compounded by additional barriers due to inequalities.

Strong themes emerged around designing a system that supports greater flexibility, stability, innovation and equity. Systemic challenges, such as a lack of data collection and poor consistency of employment policies, will require a collaborative approach from a range of stakeholders.

The findings of this workshop informed the development of an Academy of Medical Sciences Working Group report: *Future-proofing UK Health Research: a people-centred, coordinated approach*.¹²

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Attendees List

Professor Ruth Plummer MBE FMedSci, Newcastle University – Chair
Professor Dame Nicky Cullum DBE FMedSci, University of Manchester – Facilitator
Professor Caetano Reis e Sousa FRS FMedSci, Francis Crick Institute – Facilitator
Dr Susie Candy, Academy of Medical Sciences – Facilitator
Dr Mahetab Amer, University of Leeds
Dr Matt Bawn, Earlham Institute
Dr Ana Castro, University of York
Ms Rebecca Crook, University of Manchester
Dr Jo Doherty, Cardiff University
Dr Dominika Gruszka, University of Oxford
Dr Shlomi Haar, Imperial College London
Dr Jamilla Hussain, Bradford Institute for Health Research
Dr Seyed Mehdi Jafarnejad, Queen's University Belfast
Dr Zueb Jiwaji, University of Edinburgh
Dr Greig Joilin, University of Sussex
Dr James Lee, Francis Crick Institute
Dr Sarah Martins Da Silva, University of Dundee
Dr Amy Mizen, Swansea University
Dr Christoph Oing, Newcastle University
Dr Eileen Parks, University of Oxford
Dr Ruth Payne, University of Sheffield
Dr Vassilis Pelekanos, University of Nottingham
Dr Bryony Porter, University of East Anglia
Sarah Rae, Lived experience researcher
Professor Jody Rosenblatt, King's College London
Dr Nicola Tempest, University of Liverpool
Dr Ana Tiganeşcu, University of Leeds
Dr Mark Turner, Coventry University
Dr Charlotte Vrinten, Imperial College London
Dr Laura Winchester, University of Oxford
Dr Justin Yang, University College London
Dr Alison Yeates, Ulster University

Additional attendees who prefer not to be named for personal reasons

Secretariat

Dr Tom Livermore, Head of Science Base and Careers Policy
Holly McIntyre, Policy Officer
Harry Chambers, Policy Officer
Dr Rachel MacDonald, Head of Programmes
Joseph Ewing, Policy Manager, September 2021-September 2022
Melissa Cabecinha, Policy Intern, April 2022-June 2022



Academy of Medical Sciences
41 Portland Place
London, W1B 1QH
+44(0)20 3141 3200

info@acmedsci.ac.uk
www.acmedsci.ac.uk

 [@acmedsci](https://twitter.com/acmedsci)

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