

## Academy of Medical Sciences response to the inquiry on equity in the STEM workforce

### Introduction

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 UK'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 Academy of Medical Sciences is committed to working towards full equality of opportunity both in our own organisation, practices and work, and in the wider academic workforce. Our commitment applies to every sphere of Academy activity. We strive to ensure that no individual or group is treated more or less favourably than others on the grounds of ethnicity, age, disability, sex, gender, marital status, sexual orientation, religion or belief. We are serious about learning both from our successes and our failures, and believe that transparency is key for sector-wide improvement.<sup>1</sup>

### 1. What are the demographics of STEM workers in your organisation or sector? Are there gaps in the quality of evidence, monitoring or reporting?

The Academy captures and publishes an annual *Diversity Report* spanning its activities, covering governance, fellowship, grant schemes, career development programmes, policy projects and events, corporate affairs, communications and human resources.<sup>2</sup> Data is collected and presented on gender and gender identity, ethnicity, sexual orientation and disability. We are working towards 100% data collection in all areas, however there is still significant work to do to achieve this. Better data will allow us to begin to identify the intersectional layers of an individual. It is important to establish these multiple identities that a person may hold to ensure they are included.

Our latest published dataset is available in our 2018-19 *Diversity Report*.<sup>3</sup> A 2019/20 report (unpublished at time of submission, but available [here](#) from February 2021) will provide a more up-to-date picture of the Academy's demographics, progress, and areas for improvement; the data below is based on the 2019/20 dataset.

Within the Academy fellowship, there is strong female representation on governance committees, constituting 46% across the board. Out of 37 seats on the Academy's core governance bodies in 2020, only one was filled by a BAME Fellow. Overall, 20% of the current Fellowship is female, 7% of the Fellowship providing diversity data identified as Black, Asian, or Minority Ethnic (BAME).

Importantly, out of a total of 1,329 Fellows, only 6 are Black, of which 2 were elected in 2020. Analysis shows that a higher percentage of BAME candidates were shortlisted compared to any white background (AWB) candidates (40% to 27%), but a lower percentage of BAME shortlisted candidates were elected compared to AWB shortlisted candidates (32% to 46%). There is no evidence that these differences are significant, but due to the low numbers of BAME Fellows a hypothesis test like this is likely to be under-powered.

In light of this data, the Academy's Council has committed to develop action plans to examine the Fellowship election process, working with the Fellowship Committee and experts from outside of AMS.

In terms of our overall data, the majority of that currently collected relates to gender and ethnicity, with either very good or good data in these areas. However, data collection is currently

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<sup>1</sup> <https://acmedsci.ac.uk/about/governance/equality-and-diversity>

<sup>2</sup> [Academy of Medical Sciences Annual Diversity Report 2018-19](#)

<sup>3</sup> [Academy of Medical Sciences Annual Diversity Report 2018-19](#)

poor for disability and sexual orientation, and not collected for any other protected characteristics. Generally, data collection is good for events and grant applications where diversity surveys are often part of the registration process, but are poorer in other areas. Further information on grant awardees is available our diversity report.<sup>4</sup>

There are ongoing efforts to improve data collection around disability (particularly broadening our understanding of neurodiversity and mental health), sexuality and gender identity and other areas where reporting is currently poor. Although data collection strategies are similar across the sector, improvements to data security (i.e. storage mechanisms) and inclusivity within collection are needed both internally and externally, to increase data in these areas and drive future diversity and inclusion strategies. To this end, the Academy is collaborating with the Equality, Diversity and Inclusion in Science and Health (EDIS) network on a strategy for good and secure data collection, which avoids repetitiveness but recognises the balance between increased accuracy and ensuring year-on-year consistency to measure progress. The network has produced the DAISY (Diversity and Inclusion survey) guidance document, which continues to be updated along with developing best practice.<sup>5</sup>

We are also implementing a new Contact Relationship Management (CRM) System which will allow the flexibility to explore new and innovative methods of data capture, security, live and historic reporting, and analysis, with the aim of significantly enhancing our existing diversity data set.

### **3. Where are there evidenced inclusive behaviours and policies within different organisations, subsectors, sectors and countries on: recruitment; and/or retention**

#### **3.1 Background**

Many policies and commitments aimed at improving equality and diversity in STEM are already in place. Our own organisation is committed to working towards full equality of opportunity in our practices. As part of this commitment, the Academy is a member of the Equality, Diversity and Inclusion in Science and Health (EDIS) network, which aims to build a coordinated movement to improve the diversity and inclusivity of UK Science and Health.<sup>6</sup> Current data suggests that there is much more work to do, and the Academy is committed to identifying gaps and working in partnership with the relevant groups to address these inequalities.<sup>7</sup>

Across the sector, many organisations have ‘action-plans’, reports, or statements in place to address barriers to participation for minority groups. Those of note include the Royal Academy of Engineering’s commitment to elect half of all fellows from under-represented groups by 2026<sup>8</sup>, and the Trans Inclusion Policy introduced by the Wellcome Trust.<sup>9</sup>

#### **3.2 Data collection and publishing**

A strong focus on data collection is an important way to inform best practices, as it ensures that what we do is driven by a solid evidence base. To achieve this, the Academy and organisations across the sector must improve data collection, analysis and transparent publication in accessible ways.

As referenced above, the Academy publishes an annual diversity report which presents data on diversity spanning across all of its activities. This report has been compiled for the last 6 years with the last three being published openly including full data sets. Whilst this is a positive example of evidenced inclusive behaviours, the Academy recognises the need for better data collection in order to drive future improvements in diversity and inclusion.

Some organisations across the sector, including the Academy, are now taking steps to follow the efforts of UKRI and introduce ‘harmonised diversity data’, where data collected on sex, age,

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<sup>4</sup> [Academy of Medical Sciences Annual Diversity Report 2018-19](#)

<sup>5</sup> <https://edisgroup.org/wp-content/uploads/2020/01/DAISY-guidance-version-Jan-2020-1.pdf>

<sup>6</sup> <https://edisgroup.org/strategy/>

<sup>7</sup> <https://acmedsci.ac.uk/more/news/race-and-the-academy-the-president-reflects>

<sup>8</sup> <https://www.raeng.org.uk/news/news-releases/2020/july/academy-sets-target-to-elect-half-of-all-new-fello>

<sup>9</sup> <https://wellcome.org/news/our-trans-inclusion-policy-latest-step-making-wellcome-more-inclusive>

ethnicity and disability is shown against the value, rate, and proportion of successful applications across all levels.<sup>10</sup> Other such as the Wellcome Trust also publish an annual ethnicity pay gap report alongside a compulsory gender pay gap report.<sup>11</sup>

### **3.3: Activities, programmes and funding schemes**

There are many good examples of activities, programmes and funding schemes providing opportunities to pursue equity in the sector.

#### *Gender*

The Academy's flagship SUSTAIN mentorship and leadership programme for female scientists offers individualised support tailored to career needs, including career development sessions, a peer support network and one-to-one mentoring from a senior academic.<sup>12</sup> SUSTAIN graduates cite the programme as having equipped them with the skills to proceed as a future research leader, enable better long-term decisions, and enable them to take up new senior positions.<sup>13</sup>

Motivated by the lack of women experts in the media, the Academy has developed a unique and award-winning media training programme for female scientists, providing access to long-term support and media opportunities.<sup>14</sup> Many of the 107 women engaged in the programme have completed high profile broadcasts interviews, and since its inception widespread efforts across the sector have improved the ratio of women to men experts in the media from 4:1 to 2.2:1.

We are also taking steps to minimise unconscious bias in our funding panels, to help ensure decisions are made fairly and all voices are heard in the process. All our panel members are asked to watch short videos on unconscious bias and making group decisions prior to panel meetings and funding recommendations. We know that a further sustained programme of learning and unlearning is required for our Fellows, staff, researchers and collaborators. We aim to improve our training offer, learning from others across the sector and supporting each other on our journey.

The Athena SWAN programme aims to transform gender equality within higher education and research.<sup>15</sup> 70% of higher education providers in the UK have engaged with this charter and there is strong evidence that it has supported cultural and behavioural change.<sup>16</sup>

Other examples of best practice highlighted through scoping include Innovate UK's 'Women in Innovation' campaign, which has resulted in a 70% increase in women applying to Innovate UK's funding;<sup>17</sup> and the Royal Society's Rosalind Franklin Award and Lectureship grant, focusing on raising the profile of women in STEM.<sup>18</sup>

#### *Ethnicity*

Alongside efforts to promote gender equity, the Academy is committed to promoting wider diversity in the sector, particularly in relation to researchers of colour. As highlighted in response to an open letter on racial justice in Times Higher Education, our data shows there is much more to do.<sup>19</sup> Whilst the number of Black academics elected to the Fellowship increased slightly in 2020, our grants data suggest ongoing disparities in success rates between white researchers and researchers of colour. It is clear that we need to look long and hard at what we consider 'excellent' and be clearer about how we define it. We must appreciate more fully that some people are offered fewer opportunities and experience more barriers to research's common markers of

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<sup>10</sup> [UKRI Harmonised Diversity Data Reports](#)

<sup>11</sup> <https://wellcome.org/news/wellcomes-pay-gap-data-2019>

<sup>12</sup> <https://acmedsci.ac.uk/grants-and-schemes/mentoring-and-other-schemes/sustain>

<sup>13</sup> <https://acmedsci.ac.uk/more/case-studies/sustain>

<sup>14</sup> [https://acmedsci.ac.uk/grants-and-schemes/mentoring-and-other-schemes/sustain/media\\_women](https://acmedsci.ac.uk/grants-and-schemes/mentoring-and-other-schemes/sustain/media_women)

<sup>15</sup> <https://www.advance-he.ac.uk/equality-charters/athena-swan-charter>

<sup>16</sup> <https://www.advance-he.ac.uk/news-and-views/new-report-adds-athena-swan-review-evidence-base>

<sup>17</sup> <https://apply-for-innovation-funding.service.gov.uk/competition/711/overview#supporting-information>

<sup>18</sup> <https://royalsociety.org/grants-schemes-awards/awards/rosalind-franklin-award/#:~:text=The%20Royal%20Society%20Rosalind%20Franklin,promotion%20of%20women%20in%20STEM.&text=The%20first%20award%20was%20made%20in%202003.>

<sup>19</sup> <https://acmedsci.ac.uk/more/news/race-and-the-academy-the-president-reflects>

esteem. We must find ways to recognise and support great medical and health research, wherever and however it is done.

We recognise the need to do more to engage seriously with structural racism in the sector, without prompts from staff and scholars of colour to do so. Along with looking at internal processes and structures, our focus is to work in partnership with relevant groups to address inequalities. We aim to give autonomy to people and communities already working with people and scholars of colour to prioritise work on their terms.<sup>20</sup> For example, we recently worked with Black British Professionals in STEM (BBSTEM) to support workshops on mental health and imposter syndrome for Black researchers, along with reviewing our existing careers programmes to ensure they support fair access.

At present, there are distinctly fewer programmes across the sector aimed at increasing inclusion of Black, Asian and minority ethnic researchers, compared to those targeting gender equity, however, there are examples of good practice to build upon. These include The Royal Academy of Engineering's recent *Hamilton Commission*, to research and provide actionable recommendations on barriers to progression and recruitment of Black people in motorsport, and its Graduate Engineering Engagement Programme (GEEP) to increase transition of engineering graduates from diverse backgrounds into a career in engineering, achieving participation from more than 700 students of non-white backgrounds.<sup>21,22</sup>

### *Sexuality*

The Academy is a member of the Proud Science Alliance, a collective of healthcare and life sciences sector LGBTQ+ networks working together to raise the bar on LGBTQ+ inclusion.<sup>23</sup> By formally connecting with the Proud Science Alliance, we provide a platform for future collaboration, open ourselves to advice on being more welcoming and inclusive for LGBTQ+ researchers, and commit to strengthening this agenda across medical science as a whole by working together to achieve more than we could individually. Together we are working to develop events that support LGBTQ+ leaders and build connections and networks for our staff, Fellows and awardees.

### *Other efforts*

Other notable efforts to better understand key EDI challenges and enable better forward planning across the sector include reviews commissioned by UKRI and Advance HE,<sup>24,25</sup> and a House of Commons Science and Technology Committee inquiry into the impact of science funding policy on EDI and accessibility, exploring how current procedures and cultures marginalise and exclude individuals.<sup>26</sup> The Research Excellence Framework (REF) is also taking steps to improve inclusivity in the research funding process, advised by an Equality and Diversity Panel (EDAP) on the implementation of equality measures in research funding.<sup>27</sup>

There are good examples of programmes and funding schemes targeting those trying to actively improve diversity across the sector, including Wellcome Trust and Royal Society of Chemistry schemes for individuals wishing to understand and tackle D&I challenges within their own organisation.<sup>28, 29</sup>

However, there is a need to give greater power and agency to underrepresented communities in future, to enable them to develop these programmes and initiatives, as opposed to schemes being established based on what the sector assumes are the needs and wishes of such groups.

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<sup>20</sup> <https://acmedsci.ac.uk/more/news/race-and-the-academy-the-president-reflects>

<sup>21</sup> <https://www.raeng.org.uk/diversity-in-engineering/the-hamilton-commission>

<sup>22</sup> <https://www.raeng.org.uk/diversity-in-engineering/employers/graduate-engineering-engagement-programme>

<sup>23</sup> <https://www.proudsciencealliance.org/our-vision>

<sup>24</sup> [Equality, diversity and inclusion in research and innovation: UK review](#)

<sup>25</sup> [Equality, diversity and inclusion in research and innovation: international review](#)

<sup>26</sup> <https://publications.parliament.uk/pa/cm201719/cmselect/cmsctech/1716/171603.htm>

<sup>27</sup> <https://www.ref.ac.uk/panels/equality-and-diversity-advisory-panel/>

<sup>28</sup> <https://wellcome.org/grant-funding/schemes/research-enrichment-diversity-and-inclusion>

<sup>29</sup> <https://www.rsc.org/awards-funding/funding/inclusion-diversity-fund/>

### 3.4 Governance structures

In order for organisations to be able to address inequality issues in their work, and in the wider sector, they must have diverse representation in their decision-making committees. Additionally, many organisations across the sector have an EDI-specific representative on their organisational governance committees.

The Academy has two Diversity Champions on its governing Council and has trialled inclusion of two early-career researchers from the its Future Leaders in Innovation, Enterprise and Research (FLIER) programme for the past two years.

## 5. What are the impacts of COVID-19 on equity for STEM workers (including job and income security, contract type etc.) in the short- and medium-term? Which communities, groups, organisations or sectors are being most impacted?

The Academy's recently published report on '*The impact of COVID-19 on medical research careers beyond the immediate term*' details the broad challenges of COVID-19 for the biomedical research workforce, and the opportunities to overcome disruption and mitigate the impact of the pandemic. The report emerged from a workshop which convened key researchers across career stages, industry, funders and employers, in July 2020; the points relating to equity are summarised below.

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### 5.1 Shorter term impacts

The impacts of COVID-19 have been significant and varied, affecting every part of the biomedical research sector - individuals, institutions and organisations - in different ways, with some groups at the greatest risk of negative and disproportionate impacts.

Recent and continued disruption has acted as a compounding factor for many pre-existing challenges and inequalities in research, including those related to gender, race, career stage and religion, such as: funding bias; under-representation; lack of mentorship and networking opportunities; and caring responsibilities (such as childcare and home-schooling). Disproportionate impacts for such cohorts could jeopardise recent progress on equality, diversity and inclusion and research culture agendas, and without supportive action, has the potential to represent a major loss of research talent.

Severe impacts have also been felt by early career researchers and those at career transition points, with increasing uncertainty around progression and job security.

Moreover, there has been major disparity between the effects of COVID-19 on different funding sources, with some funders such as the Medical Research Council able to continue ongoing funding calls, as opposed to the charity sector, which has been hit disproportionately hard. Impacts will be widespread and include: career uncertainty and a lack of funding for charity-funded researchers due to deferred grand rounds; loss of outputs for research areas predominantly charity funded;<sup>31</sup> and delays or restarts to charity-funded clinical trials. PhD students have also been impacted by the differing abilities of funders to provide costed extensions.

Disruptions to research activity have been unequal, with some unable to pivot to COVID-related research, and losses of preliminary data for future grant applications. Both clinical and non-clinical researchers have experienced disrupted research plans, with many clinical academic trainees returning to frontline duties, delays to clinical research projects, barriers to restarting animal work, and lab closures, amongst other factors. Moreover, largescale disruption to studies involving

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<sup>30</sup> Academy of Medical Sciences (2020) *The impact of COVID19 on medical research careers beyond the immediate term* <https://acmedsci.ac.uk/file-download/74955141>

<sup>31</sup> Association of Medical Research Charities (2020). *The impact of COVID-19 on charity-supported medical research*. <https://www.amrc.org.uk/Handlers/Download.ashx?IDMF=a04d5206-ac5d-4649-a115-ce6ef97fc6ec>

patients will consequences for recent progress in this area, which will not be regained without considerable effort.<sup>32</sup>

Those on the frontline of the COVID response could suffer beyond a loss of research time; in particular the disproportionate effect of COVID-19 on some BAME staff groups, as a group who may be at higher risk of poor COVID-19 outcomes, is of concern.

Prioritisation of projects and paused training for junior scientists will also have impacts for early career industry-based researchers.

Without appropriate mitigation measures, the factors outlined above are likely to have the greatest impacts for already disadvantaged cohorts and their research activity, including those at earlier career stages and those from underrepresented communities.

## **5.2 Medium-longer term impacts**

COVID-19 research prioritisation and reduced research activity may also have delayed impacts for biomedical researchers, with mitigation efforts required to prevent a persistence or exacerbation of effects in the medium-longer term.

For example, many of those unable to continue normal levels of research activity may harbour concerns around data generation and gaps in publication records, particularly lacking sufficient data to support future funding applications. Perceptions of negative impacts on funding opportunities and career progression could have detrimental effects on researcher motivation and anxieties, and also risk exacerbating pre-existing challenges such as funding bias, under-representation and lack of access.

Declines in funding from charitable sources will also increase competition for researchers going forwards, and financial instability of research institutions is likely to negatively impact the longer term attractiveness of STEM careers for a diverse group of future researchers. Moreover cuts and longer-term scale backs in provision of networking and development opportunities risk inflicting disproportionate impacts early career researchers, those at transition points and BAME communities where access to these opportunities has been lower historically.

It is clear that the lasting impacts of COVID-19 could have major negative consequences on the attractiveness of a career in STEM, particularly for communities with pre-existing barriers and challenges, and potentially very damaging effects on the diversity of the future research talent pool.

## **6. What are the implications and opportunities of new policies and employer action in the next 5-10 years following COVID-19 and Brexit? What will the future impacts be for communities, groups, organisations or sectors?**

A number of proposed mitigations and opportunities to address sector challenges and better meet the needs of the biomedical research community going forwards are outlined in the Academy's report on COVID-19 and medical research careers, as detailed below.<sup>33</sup>

### **6.1 Measures already in place**

Across the sector, many have taken steps to develop supportive resources for the research workforce. For example, the Academy's *career support space*, aims to provide supportive resources during and beyond COVID-19, with themes including leading teams, looking after yourself, coping with loneliness and isolation and challenging inequalities.<sup>34</sup>

We are also part of cross-funder efforts to develop a question set on the impact of Covid-19, as part of the 2020-21 Researchfish impact submission. This looks to better understand the effects on

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<sup>32</sup> Academy of Medical Sciences (2020) *Public involvement and engagement in research during the COVID-19 pandemic*. <https://acmedsci.ac.uk/file-download/77957062>

<sup>33</sup> Academy of Medical Sciences (2020) *The impact of COVID19 on medical research careers beyond the immediate term* <https://acmedsci.ac.uk/file-download/74955141>

<sup>34</sup> <https://acmedsci.ac.uk/grants-and-schemes/whats-available-to-me/career-support-space>



awardees, contextualise the decrease in research outputs, and identify opportunities that may have arisen (e.g. collaborations and new research projects), to ultimately inform future activities and support.

Many other mitigations have been put in place to support research communities, including: updates to award assessment criteria and guidance around career breaks and caring responsibilities;<sup>35</sup> grant extension allocations for PhD students and provision of costed extensions to grant awards;<sup>36</sup> and the Government's University Support Package.<sup>37</sup>

Such efforts may be helpful in overcoming the broader and more specific impacts of the pandemic, supporting resilience, and encouraging and ensuring a diverse cohort of talent remain engaged in research in future.

## **6.2 Short term actions**

In the short term, funders should communicate clearly and look to integrate a 'COVID-19 crisis memory' in all future activities, to reassure researchers, increase flexibility of funding practices and account for individual circumstances. Targeted and tailored emergency funding for medical research charities is essential, to ensure the future of charity funded research and those supported by it.<sup>38</sup>

Support packages must prioritise those who have been disproportionately affected, including early career researchers, under-represented communities, those at career transition points and clinical academics returning to research.

Protecting and enhancing provision of 'soft skills', such as networking, career development opportunities and mentoring will also be crucial, especially for under-represented communities with pre-existing barriers to access. To be successful, this should utilise existing best practice across the sector, whilst improved data collection is also required to understand the effectiveness of this support in mitigating the impacts of COVID-19 on protected characteristics.

## **6.3 Longer term actions**

To protect against the longer-term effects of COVID-19 and mitigate the impacts of future disruption, the resilience and agility of the STEM workforce must be improved.

There is a need for the sector to come together to provide a compelling and inspiring vision for careers in medical research, highlight its long-term benefits and rewards, and encourage a more diverse group of talent to embark on research careers. Greater investment in training and development could help to support individual's career trajectories, along with encouragement for multi-disciplinary approaches to protect a developing talent pipeline.

Efforts must also be made to improve research culture and promote equality, diversity and inclusivity, supported by improved data collection and publication, to counter the progress lost during the COVID-19 pandemic. Whilst this is fundamental for understanding issues and identifying appropriate outcomes, it will also allow the demonstration of a credible, accessible and attractive narrative of how diverse groups can excel in the research community.

COVID-19 has also highlighted the importance of trust in science and increased public engagement with biomedical research. Harnessing this enthusiasm could help to engage new groups in biomedical research and provide a key opportunity to boost the interest of diverse groups in medical research.<sup>39</sup>

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<sup>35</sup> <https://mrc.ukri.org/skills-careers/additional-career-support/flexible-working-policies/>

<sup>36</sup> <https://www.ukri.org/wp-content/uploads/2020/11/UKRI-11112020-COVID-19DoctoralExtensionsPolicyPhase2PolicyStatement.pdf>

<sup>37</sup> <https://www.gov.uk/government/publications/support-for-university-research-and-innovation-during-coronavirus-covid-19/university-research-support-package-explanatory-notes>

<sup>38</sup> Association of Medical Research Charities (2020). *The impact of COVID-19 on charity-supported medical research*. <https://www.amrc.org.uk/Handlers/Download.ashx?IDMF=a04d5206-ac5d-4649-a115-ce6ef97fc6ec>

<sup>39</sup> Academy of Medical Sciences (2020) *Public involvement and engagement in research during the COVID-19 pandemic*. <https://acmedsci.ac.uk/file-download/77957062>