The Academy of Medical Sciences

From the President
Professor Dame Anne Johnson

April 2021

The Lord Patel KT
Chair, Science and Technology Committee (Lords)

Dear Lord Patel,

I write as President of the Academy of Medical Sciences to support your Committee's inquiry into research and development (R&D) funding.

Medical research has been at the heart of the UK's response to COVID-19; is central to our exit strategy; and will be a significant driver of both health and wealth as the UK looks to recover from the pandemic. Every £1 invested in medical research returns the equivalent of 25p per year, for ever. Medical research is also an international asset, providing a platform for mutually beneficial partnerships and UK leadership around the world.

The Government has rightly identified R&D as an asset and their ambitions to build on our existing strengths are welcome. But it is imperative that ambitions of being a science superpower are matched with sustained, strategic investment – so medical research can continue to play its essential role in supporting the UK's health and wealth for years to come.

I welcome the recent positive announcement (01 April 2021) that £250 million new funding, and £400 million previously unallocated, will be used to help fund the UK's association to Horizon Europe. I look forward to seeing the full breakdown of costs for how the full cost of association (expected to be around £1 billion in 2021/22) will be accounted for. Nevertheless, this is a welcome sign of this Government's commitment to back science even in straitened financial times.

However, challenges remain and we must consider the impacts of the reduction of Official Development Assistance (ODA) and the fundraising shortfall of hundreds of millions of pounds faced by our medical research charities.

The Spending Review expected later this year will be a pivotal moment – a chance to build on positive ambitions and first steps to cement the UK as a scientific superpower, but crucially to offer the kind of long-term stability that is essential if medical research is to continue to thrive.

Below, we have detailed some of the ways that funding cuts and gaps may impact the work of the Academy and the wider scientific community. We have also set out some of the ways in which the UK has relied upon medical research in the past year, and the lessons we should take forwards about the importance of long-term, strategic investment.

In addition to the evidence below, I am receiving regular reports of significant concern from our elected Fellows, who are the UK's leading medical scientists from hospitals, academia, industry and the public sector, as well as early career researchers. Their concerns extend not only to the impact of the funding cuts and gaps themselves, but also to the impact of the uncertainty they generate, for the trajectory of the UK's domestic research and for our international reputation as a scientific partner of choice.

Please let me know if you would like to discuss this submission further with either myself or the Academy's staff.

Yours sincerely,

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The Academy of Medical Sciences

Academy of Medical Sciences response to the House of Lords Science and Technology Select Committee inquiry into research and development funding

April 2021

Summary

- Medical research has been at the heart of the UK's response to COVID-19 and will continue to be central to our recovery.
- The Government has rightly identified research and development (R&D) as a national asset and their ambition to build on our existing strengths and make the UK a scientific superpower is welcome.
- However, long-term success in science will rely heavily on stability and surety of funding – which leverages further investment and is attractive to skilled talent. A series of recent funding cuts or gaps have put into question the reality of 'supercharging' UK science – or indeed maintaining our current rate of success.
- Horizon Europe – We welcome the fact that Government have committed an additional £250 million towards the cost of UK association to Horizon Europe in 2021/22. A full breakdown of how this cost will be covered will provide the necessary clarity on this announcement and its impacts on the wider system. **Crucially, a long-term solution must be found at the next Spending Review to avoid overburdening the science budget in the years to come**.
- Official Development Assistance (ODA) – The decision to temporarily reduce ODA from 0.7% to 0.5% GNI has already had a significant effect on UK-funded R&D. UKRI have announced a £120 million gap between their committed and actual funding for 2021/22.[1] Many others, including the Fellows of the Academy of Medical Sciences, are reporting anecdotal evidence of the impact of these cuts on UK-funded projects and relationships. Figures published by the Foreign Secretary suggest the cuts to ODA will fall disproportionately on R&D through the allocation to the Department for Business, Energy and Industrial Strategy and the Department for Health and Social Care (see Annex 1). **The next Spending Review presents a crucial opportunity to ensure these cuts to R&D are time-limited and mitigate their impact on the presence and reputation of Britain globally.**
- Medical research charities – Research charities are an integral feature of the UK's research funding ecosystem, particularly in the case of medical research. However, the pandemic has induced a fundraising shortfall, and their ability to continue to play their unique role is under threat. **To minimise the long-term impact of COVID-19 on the research careers, projects and pipeline of life-saving treatments funded by medical research charities, we support the call for help to address the shortfall in their fundraising income through transitional funding**.

[1] UKRI (2021) https://www.ukri.org/our-work/ukri-oda-letter-11-march-2021/

Medical research success and lessons

Current and forthcoming decisions about R&D funding should be taken in the context of the past year, in which medical research – driven by collaboration across all sectors – has delivered unparalleled benefit to patients and the wider public in the UK and around the world. For example:

- The RECOVERY trial in the NHS, jointly funded by NIHR and Wellcome, identified dexamethasone as the first effective treatment for patients suffering severe COVID-19 and continues to generate rapid, high-quality data on other potential treatments.[2]
- Collaboration between the NHS, academia and industry produced an effective, cheap and easy-to-transport vaccine.
- Invaluable diagnostic innovations have sped up and improved the capacity of our testing.

The past year has demonstrated the value of previous investments. For example:

- The National Institute for Health Research Clinical Research Network (NIHR CRN), which made it possible to conduct COVID-19 vaccine trials at multiple sites quickly.[3]
- New vaccines would not have reached the public without the long-term support for industry and academia which allowed them to build the knowledge and capacity to respond quickly when we needed it.

It must be recognised that cuts to, or unfilled gaps in, R&D funding risk halting investments in research and innovation which, once lost, will take time to rebuild.

Impact of Horizon Europe funding decisions

The Academy strongly welcomes UK participation in Horizon Europe, the EU's flagship research programme. The announcement (01 April 2021) that £250 million new funding, and £400 million previously unallocated, will be used to help fund the UK's association to Horizon Europe provides welcome reassurance that the UK science budget will not see a cut to the budgets of existing projects. Nevertheless, a breakdown of how the full cost of association will be covered will provide the necessary clarity on this announcement and its impacts on the wider system.

Impact of ODA cuts

Following the Government's decision to temporarily reduce the Official Development Assistance (ODA) budget, from 0.7% to 0.5% of GNI, the Academy of Medical Sciences has been asked to cease all calls for new ODA activity, and to prioritise existing activity. We have now confirmed to our grant awardees that the cuts to the ODA R&D budget will not impact their active award in FY21/22. However, the cuts mean that we are unable to open any further rounds of our Newton International Fellowship[4], Newton Advanced Fellowship[5] or Networking Grant schemes[6], and no more Global Challenges Research Fund (GCRF) policy workshops[7].

Figures published by the Foreign Secretary, delivery partners and UKRI suggest the cuts to ODA will fall disproportionately on R&D. Annex 1 details how the ODA budgets for the R&D-intensive departments BEIS and DHSC have received amongst the largest cuts (31% and 28% respectively). Moreover, the BEIS

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[2] Nuffield Department of Population Health (2021) RECOVERY Trial https://www.recoverytrial.net/#:~:text=The%20RECOVERY%20Trial%20is%20currently%20testing%20some%20of,identified%20quickly%20and%20made%20available%20to%20all%20patients

[3] Science and Technology Committee and Health and Social Care Committee (2020) Oral evidence: Coronavirus: lessons learnt, HC 877 https://committees.parliament.uk/oralevidence/1376/pdf/

[4] https://acmedsci.ac.uk/grants-and-schemes/grant-schemes/newton-international-fellowships

[5] https://acmedsci.ac.uk/grants-and-schemes/grant-schemes/newton-advanced-fellowships#:~:text=The%20Academy%20of%20Medical%20Sciences%20offers%20Newton%20Advanced%20Fellowships%20to,international%20researchers%20from%20partner%20countries.&text=The%20scheme%20is%20currently%20closed,applications%20for%20consideration%20in%202022

[6] https://acmedsci.ac.uk/grants-and-schemes/grant-schemes/gcrf-networking-grants

[7] https://acmedsci.ac.uk/policy/policy-projects/gcrf#:~:text=The%20Academy%20of%20Medical%20Sciences%27%20GCRF%20grant%20has%20supported%2021,address%20key%20global%20health%20challenges.

ODA allocation to UKRI has been cut by almost 50% from £245 million to £125 million.[8] Together this suggests a disproportionate effect on ODA-funded R&D activities.

As part of our) GCRF portfolio, we have been working with international Academies around the world on critical health issues such as universal health coverage, improving malaria control strategies and the covid-19 pandemic.[9] Without our GCRF funding our ability to respond to the most critical international health issues is threatened.

Terminating partnerships developed for the Newton programme will have a particularly negative impact, as they were delivered with in-country partners who also commit money to the projects. There is likely to be an impact on the reputation of the UK as a trusted partner, a reduction in long term capability of our partners and damage to the future of young scientists.

The President of the Academy of Medical Sciences wrote to the Foreign Secretary with the Presidents of the other National Academies, ahead of the decision to reduce the ODA budget, and continues to advocate for the protection and growth of global R&D partnerships.[10]

The following are examples of the kinds of projects that could be affected:

New knowledge to combat non-communicable disease in South Africa

Newton Fund delivered by the Academy of Medical Sciences - this study reflects on a study that aims to benefit under-represented groups with an LMIC.

The World Health Organisation estimates that 85% of global deaths from non-communicable disease (NCD) occur in low and middle-income countries. Epigenetic mechanisms – a cell's ability to activate and silence genes – have been exciting new targets for NCD intervention. However, most epigenetic data is currently from European populations and it is unclear whether findings from this data can be extrapolated to other populations. The Newton Fund has supported a UK-South Africa study comparing epigenetic data from the Batswana South African ethnic group with existing data in other populations. It found that current blood-based epigenome-wide association study findings can largely be extrapolated to under-represented ethnicities for whom epigenetic data is not yet available. Collaboration with world leaders in epigenetic epidemiology research in the UK has developed the skills and expertise of South African researchers and will lead to more research on health questions relevant to populations of developing countries.

Making prosthetic limbs from plastic bottles

GCRF networking grant delivered by the Academy of Medical Sciences

Recipients of a GCRF networking grant have developed prosthetic limbs made out of plastic bottles. These prosthetics are 40% lighter and, at £10 a unit, is 500 times cheaper than current alternatives. Two patients in Jaipur have been fitted with the limbs, describing them as 'lightweight' and 'easy to walk with'. Furthermore, the recycled plastic bottles are able to offer a porous socket which helps to keep the wearer cool. This is a feature that neither carbon nor glass fibre sockets – which are currently the best designs available can boast.

Global Challenges Research Fund policy workshops

GCRF administered by the Academy of Medical Sciences

The Academy of Medical Sciences have delivered a policy workshop project that has enabled over 40 national academies in ODA eligible countries to consider how scientific evidence can help address key global health challenges. In addition, they have built capacity in ODA countries for the provision of scientific advice to national Governments that have resulted in policy change. Workshop topics have covered multimorbidity, rapid diagnostics tests, clinical research capacity, obesity, neurodevelopment disorders, mental health, universal health coverage, non-communicable diseases, urban health, anaemia at altitude and COVID-19.

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[8] https://www.ukri.org/our-work/ukri-oda-letter-11-march-2021/

[9] https://acmedsci.ac.uk/policy/policy-projects/gcrf#:~:text=The%20Academy%20of%20Medical%20Sciences%27%20GCRF%20grant%20has%20supported%2021,address%20key%20global%20health%20challenges.

[10] National Academies (2020) 87956942 (acmedsci.ac.uk)

Support for medical research charities

Research charities are an integral feature of the UK's research funding ecosystem – particularly significant in the case of medical research:

- Medical research charities have provided more than £14 billion of funding since 2008.[11]
- Charities often invest in early-stage, high-risk research which complement public investment and leverages additional sources of private investment.
- In 2019, members of the Association of Medical Research Charities (AMRC) provided stipends for more than 1,700 PhD students as part of their wider support for the salaries of over 17,000 researchers.[12]

However, their ability to continue to do this is under threat:

- AMRC members reported a loss of 38% in income during March–May 2020 compared to the same period last year.[13] This does not account for the ongoing impact of the pandemic, including a return to the closure of charity shops and cancellation of fundraising events.
- AMRC's members are planning for an average decrease of 41% in their research spend in FY20/21, resulting in a projected reduction in UK medical research investment of more than £300m.[14]
- Many charities have already been forced to make cuts to their funding, for example CRUK funding for response mode grants in December 2020 has roughly halved compared to what they would normally fund – on top of the £44m cuts made earlier in 2020.[15] Current projections at Cancer Research UK could mean cutting around £100m out of our research budget per year in the near future. The British Heart Foundation expected to cut around £50 million in support for new research in 2020.[16]
- 58% of charity-funded early career researchers have been unable to secure further funding since March and 40% are considering leaving medical research.[17]

To minimise the long-term impact of COVID-19 on the research careers, projects and pipeline of life-saving treatments funded by medical research charities, we support the call for help to address the shortfall in their fundraising income through transitional funding.

This response was prepared by Joseph Ewing, Policy Manager. For further information, please contact joseph.ewing@acmedsci.ac.uk

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[11] Association of Medical Research Charities (2020) Our sector's footprint, https://www.amrc.org.uk/our-sectors-footprint-in-2019

[12] Association of Medical Research Charities (2020) COVID-19: The risk to charity-funded researchers, https://www.amrc.org.uk/covid-19-the-risk-to-charity-funded-researchers

[13] Association of Medical Research Charities (2020) COVID-19: The risk to AMRC charities, https://www.amrc.org.uk/covid-19-the-risk-to-amrc-charities

[14] Ibid.

[15] Cancer Research UK (2020) Cancer Research UK forced to cut research funding due to COVID-19, https://www.cancerresearchuk.org/about-us/cancer-news/news-report/2020-12-08-cancer-research-uk-forced-to-cut-research-funding-due-to-covid-19

[16] British Heart Foundation (2020), BHF announces staff consultation and warns of a possible loss of 300 roles https://www.bhf.org.uk/what-we-do/news-from-the-bhf/news-archive/2020/july/bhf-announces-consultation-and-warns-of-job-losses

[17] Association of Medical Research Charities (2020) COVID-19: The risk to charity-funded researchers, https://www.amrc.org.uk/covid-19-the-risk-to-charity-funded-researchers

Annex 1: Departmental allocations of ODA 2016/17 to 2021/22 (£m)

Department or cross-departmental fund	**2016-17 (£m) ***	**2017-18 (£m) ***	**2018-19 (£m) ***	**2019-20 (£m) ***	**2020-21 *Data not yet available***	**2021/22 (£m) ****	**Approximate % change**
DFID	10,102	10,589	10,802	10,371		N/A	N/A
FCO	466	524	611	625		N/A	N/A
FCDO (FCO and DFID merged in 2020)	*(10,568)*	*(11,113)*	*(11,413)*	*(10,996)*		8115	-26%
BEIS	721	845	946	1,038		706	-31%
CSSF (excl. non-ODA)	484	549	624	625		337	-46%
Home Office	385	377	407	409		470	+14%
DHSC	99	168	234	289		207	-28%
DEFRA	75	78	80	81		92	+13%
Prosperity Fund (excl. non-ODA)	55	73	120	290		-	
Other	173	182	203	183		58	-68%
TOTAL				**13,911**		**9985**	

*Department for International Development, HM Treasury, 2019, Annex: Official Development Assistance (ODA) allocation by department, https://www.gov.uk/government/publications/uk-aid-tackling-global-challenges-in-the-national-interest/official-development-assistance-oda-allocation-by-department

**Secretary of State for Foreign, Commonwealth and Development Affairs, Written Statement made on 26 January 2021, https://questions-statements.parliament.uk/written-statements/detail/2021-01-26/hcws735