

INNOVATIVE FUNDING MODELS DURING COVID-19

Horizon Scan

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ABOUT THIS HORIZON SCAN

This Horizon Scan builds on the previous report “[Innovating in the Research Funding Process: Peer Review Alternatives and Adaptations](#)” (released on November 13, 2019), which provided an overview of the challenges of peer review in the allocation of funding for research and offered innovative suggestions to transform this process. The Horizon Scan highlights how the COVID-19 pandemic has accelerated the adoption of some of these innovations and has generated other changes in the allocation of resources, discussing the implications for funding and health services research.

ABOUT THE PARADIGM PROJECT

The Paradigm Project is a concerted, collaborative effort to increase the relevance, timeliness, quality, and impact of health services research (HSR). Convened by AcademyHealth and funded by the Robert Wood Johnson Foundation, the project is ideating and testing new ways to ensure HSR realizes its full potential to improve health and the delivery of health care. The Paradigm Project is designed to push HSR out of its comfort zone—to ask what works now, what doesn’t, and what might work in the future.

Learn more at www.academyhealth.org/ParadigmProject.

1. INTRODUCTION

This report supplements an earlier Paradigm Project Horizon Scan published in 2019 that examined innovative alternatives to peer review as the basis for allocating research funds. Since then, the COVID-19 crisis has brought into sharp focus the importance of research and scientific advancement in modern society. As we face a global pandemic, there is an urgent need to find solutions through research. This extends not just to vaccines and treatments to directly address COVID-19, but also wider research to address the broader challenges faced by society. In this context, with the need for research clear and urgent, we have seen funders taking new and innovative approaches to funding research intended to direct funds to crucial activities more quickly and effectively. Though crucial in this current context, these new models for funding might also offer learnings on ways to improve the effectiveness and efficiency of funding models for the long term. Here we update the 2019 report to add a review of a range of different approaches used to support research related to COVID-19: public engagement and crowdfunding; flexibility in use of funding and resources; adapting application and decision processes to ‘fast-track’ funding; coordination and access; and prizes. This is by no means an exhaustive list, and equally some of these mechanisms are not new and have been seen before COVID-19 – indeed some were covered in the 2019 review. However, the scale and speed of the changes in approach and openness to new funding routes is unprecedented and presents an opportunity for change and learning. It is also worth noting that at present there is little evidence on the effectiveness of these different approaches. Over the longer term, it will be important that we evaluate how well these novel mechanisms performed in directing funding quickly and appropriately so we can learn what works.

2. PUBLIC ENGAGEMENT AND CROWDFUNDING

‘Crowdfunding’ is an approach in which members of the public are asked to make contributions to support research. There are a range of well-known platforms for this that are typically in use to support other types of (non-research) activities such as GoFundMe¹, Crowdfunder² and Just giving.³ These are often used to support charitable giving or support new small businesses to obtain initial funds, but their use to support research has been limited to a few examples.⁴ Even in the COVID-19 context, crowdfunding has typically been more widely used to support healthcare provision – for example, to support costs of personal protective equipment (PPE) or medical devices. In an analysis of 200 randomly selected GoFundMe crowdfunding campaigns related to COVID-19, only two of those 200 campaigns were for funding to support research.⁵ There are some examples, however, of crowdfunding approaches to support research recently. One is the Oxford University public appeal for donations to support COVID-19 research.⁶ Recent data are not available but as of April 7, 2020 the appeal had raised over £50,000 through donations from more than 200 individuals. Another organization that has used this approach is the European Institute of Innovation and Technology (EIT), which set up a crowdfunding platform to support start-ups and research companies working on COVID-19 to seek financing to support market entry. It is worth noting that although support for research through crowdfunding approaches has so far been limited even within a COVID-19 context, there has been significant amounts raised to address wider concerns related to the pandemic – for example, to support provision of PPE – so there may be scope to explore this avenue further.

In the context of health services research (HSR), this is a potentially interesting avenue to explore. It may be that there are patient advocacy groups which could bolster the likely effectiveness of crowdfunding campaigns, and depending on the specific research in question, it is possible that some of the types of research conducted may be of a nature which wider actors including members of the public—could engage with and be willing to support.

3. FLEXIBILITY IN USE OF FUNDING AND RESOURCES

Another simple way in which funders have directed funding quickly to support COVID-19 research is through diverting existing research funding from other projects. For example, the British Heart Foundation altered guidance so that Institutions that hold BHF Research Excellence Awards and Accelerator Awards can direct any currently uncommitted funds from their grants to COVID-19 research.⁷ More widely, the charity has encouraged clinical researchers, including fellows and chairholders, to devote their time (and the time of their BHF-funded support staff) to COVID-19 research until they are able to return to their normal research activity. Beyond the individual award level, we also see this at the programmatic level, with allocated funds being redirected to support Covid-related research. For example, the UK's Global Challenges Research Fund has opened calls for research to address COVID-19 with an international development focus, repurposing the funds directed to this wider stream of development research to cover relevant COVID-19 research that still sits within the wider Fund remit.⁸ At NIH, we see one-year extensions being offered to existing funding recipients subject to approval, as well as the use of existing networks, such as clinical trial networks already in place, as a route to direct additional funding for COVID-19 allocated under the Coronavirus Aid, Relief, and Economic Security (CARES) Act.⁹

We also see flexibility in the use of resources and facilities to support wider aspects of the COVID-19 response beyond research. For example, Cancer Research UK institutes and laboratories repurposed their resources to help the COVID-19 response, including donating equipment and reagents to national COVID-19 testing and setting up testing hubs. This includes the flagship Francis Crick Institute, which converted part of its laboratories into a COVID-19 testing service for NHS staff, aiming to provide up to 2,000 tests per day.¹⁰ Wellcome offered their empty office space during the lockdown period as a rest and recuperation space for NHS staff working at the adjacent University College London Hospitals NHS Foundation Trust (UCLH), including provision of meals. NIH has stated that resources such as PPE and lab supplies can be diverted to support local COVID-19 response subject to approval.¹¹

It is interesting to reflect on the extent to which the diversion of funding from other avenues to COVID-19 research is desirable. As noted by Younes et al¹² there are significant 'start-up' costs in redirecting research, which will to some extent depend on the extent to which the existing research and knowledge of individuals bears relevance to COVID-19 related issues. They also reflect on the fact that where avenues of research to pursue and ideas are finite, there may be diminishing returns to directing funding all to one area of research. However, given the dearth of pre-existing knowledge in this space since COVID-19 is a new virus, it is likely we are still far from reaching diminishing returns in this field and indeed it is likely significant further investment is still needed.

This flexibility and adaptation of funding could certainly translate to an HSR context, but it is worth reflecting on how and when this would be appropriate in a non-pandemic setting. Funding being moved from one area to another might be a useful approach when a particular

avenue proves unfruitful or where a specific challenge emerges that requires pooling of resources rapidly. However, in the normal research context it is likely that a range of topics needs to be supported and to move too much in the direction of flexibility may undermine quality review and prioritization processes at the earlier stages of decision-making that have led work to be funded. This could be considered by HSR funders more widely but the degree of latitude given to transfer funding and the context in which this is appropriate may need to be considered on a case-by-case basis.

4. ADAPTING APPLICATION AND DECISION PROCESSES TO 'FAST-TRACK' FUNDING

Decision and applications processes have been adapted in some cases to accommodate the need to fund COVID-19 research more quickly or in recognition of the challenges that the crisis presents in preparing applications and assembling the relevant documentation. For example, the British Heart Foundation is prepared to consider applications without some of the usual paperwork, such as those which are typically provided by healthcare providers regarding health systems costs and protocols (subject to some conditions).¹³ One of the most widespread changes to funding processes are those which speed up both the application and decision-making processes. In a broad sense, this typically comprises of significantly shorter application forms focusing just on the key aims and project approach; shorter timeframes for application, or a rolling timetable with proposals accepted and reviewed continuously; and abbreviated review processes — either removing external peer review or requiring rapid turnaround on those reviews, and quick synthesis and decision-making, with either rapid convening of virtual panels for review or internal decision-making by staff at the funding organization.

One illustrative example here is the rapid response call run by the UK's Medical Research Council (MRC) in February 2020. The application form only required very brief content (c.2000 words on the core content of the proposal, plus some administrative and cost information), and proposals we required by short timeframes (c.3 weeks after opening of call). Proposals were reviewed directly by an expert panel of academics approximately two weeks after submission with no external peer review and no opportunity for applicants to respond to panel comments in instances where feedback was provided. The key assessment criteria for applications were:

- The potential for the proposal to have an impact within the epidemiological span of the outbreak
- Need for rapid activation
- Access to required resources
- Applicant expertise and experience
- Partnership: including strength and clarity of collaborations and opportunities provided
- Design and feasibility of project plan
- Value for money
- Alignment with WHO-defined priorities (diagnosis and understanding call)

Another example is the Corona fast-track data call run by the Dutch Research Council (NWO) and the Netherlands Organisation for Health Research and Development (ZonMw).¹⁴ The call was open from April to September 2020 with applications accepted and reviewed on a rolling basis as received. The target assessment period for applications was four working days from receipt of the application. Assessments were conducted internally by NWO with Domain (research area) directors given the authority to make funding decisions individually. Assessments were made on the basis of relevance, urgency, expertise, added value and feasibility. Funding provided was capped at 50,000 euros, and there was an expectation for research to commence within one month after award and projects had a maximum duration of six months.

At NIH, there has also been a rapid response and expedited processes to distribute additional funding to support COVID-19 research. One common route is to allow researchers to seek one-year supplements to existing grants. NIH staff can evaluate these applications internally without sending proposals to external peer reviewers which allows assessment to take place quickly. Where new applications are received, the intention is to still use the usual peer review process but to do so much more quickly—with the process from application to award taking only three months, compared to the usual timeline of around nine months.¹⁵

As well as existing funders looking to operate quickly to support COVID-19 quickly, we also see non-traditional research funders stepping in to try and accelerate progress. One example of this is the ‘Fast Grants’ initiative, which is supported by a range of donors including Arnold Ventures, The Audacious Project, The Chan Zuckerberg Initiative, Elon Musk, Schmidt Futures, and others.¹⁶ Fast Grants offers support in the range of \$10k-500k to researchers working on COVID-19 projects internationally, with a maximum time span for the research of six months. In the initial tranche, decisions were provided on applications within 48 hours. More recently this has extended to two weeks. Decisions are made based on recommendations from a panel of biomedical scientists reporting to organisers ‘Emergent Ventures’, a part of the Mercatus Center.

Resources are also being diverted at an institutional level to help researchers get work on COVID-19 off the ground while they seek additional support. An example of this is the Brown COVID-19 Research Seed Fund. This offers one-off funding to researchers at Brown of \$20-50,000 based on a short 2-page proposal subject to review by a committee of faculty reviewers. The intention is to seed-fund relevant ideas so work can start immediately while wider funding is sought.

More widely, we see the process of research being accelerated to achieve progress in a much more rapid timescale than is typical—with usually sequential stages of research being conducted in parallel, working at greater risk (financial and safety) than usual, and regulatory bodies preparing to act at speed as promising solutions emerge. This, together with more rapid funding approaches, could help shorten the timelines to effective treatments and/or vaccines significantly.¹⁷

There is a lot to learn here that could be applied to a wider HSR context. Some of these funding routes have provided seed funding and quick access to support to move quickly on new problems. This could add value in addressing key challenges in HSR and ensuring the funding process is not a delay to progress. Some of the mechanisms to accelerate progress across the lifecycle of research—such as sequential stages being conducted in parallel—might be less appropriate outside a crisis setting. Trade offs need to be made between the advantages of rapid progress and the disadvantages of working at risk and potentially wasting valuable

resources. It would be interesting to investigate this further to understand the cost-benefit trade off and the scenarios in which parallel working and working at risk might actually be worthwhile in HSR due to the severity of the problem in question.

5. COORDINATION AND ACCESS

One mechanism to support better access to funding in COVID-19 has been approaches which coordinate and consolidate funding calls. A notable example here is the European Commission’s European Research Area (ERA) Corona platform¹⁸ which is intended to act as a ‘one-stop shop’ for coronavirus research and innovation funding opportunities. This brought together information on funded projects, funding opportunities and other information on EU grants affected by the crisis. It also intended to bring together national activities, such as funding opportunities across EU member states, so that these were available in one centralized location.

Alongside this, the EU also ran a global response pledging event on May 4 with intention to catalyze and leverage funding from donors to build on their own research funding commitments. On the first day, the 1 billion Euros input from the commission through Horizon 2020 was bolstered to 7.4 billion Euros through pledges from international donors.¹⁹ This collaborative and coordinated route is intended to support better coordination of work but also promote equality of access to the outputs of R&I activities supported, counteracting trends such as ‘vaccine nationalism’ that have emerged as a potential threat to the global response to the pandemic. Other coordinated activities from the Commission include a European COVID-19 data platform²⁰, and a pan-European EUvsVirus hackathon to identify novel solutions to address challenges presented by COVID-19.²¹ This type of cross-national coordination can also be seen at the WHO level with the COVID-19 solidarity response fund sourcing support at a range of levels to support their global coordination of the pandemic response including research but also wider actions across aspects such as prevention, detection and public health response.²²

In the U.S., similar initiatives have aimed to provide access to resources that promote research progress. The NIH office of Data Science Strategy is maintaining a list of open-access data and computational resources to support researchers working on COVID-19, all of which are free to access.²³ There is also access available to high performance computing resources through a public-private partnership led by the Office of Science and Technology Policy, Department of Energy and IBM.²⁴ Knowledge is being made freely available through the Allen Institute’s COVID-19 Open Research Dataset (CORD-19) which includes thousands of freely available scholarly articles on coronaviruses.²⁵

We also see coordination in different forms, such as between the public and private sector. The NIH developed a \$1.5 billion initiative with the aim of accelerating development of diagnostic tests for COVID-19. This Rapid Acceleration of Diagnostics (RADx) initiative, which pairs up academic teams with experts in regulation, commercialization and manufacturing, has been compared to the reality TV show ‘Shark Tank’.²⁶ The intention is to accelerate progress by providing direct access to and input from expertise across aspects of development and implementation. To achieve rapid proposal review, the scheme used existing networks of NIH-funded diagnostic development centers to evaluate applications. As of October 2020, the network had identified six technologies that were moving to manufacturing and scale up.²⁷

We also see other specific funding opportunities which demonstrate coordination and pooling of resources between specific funders—for example the COVID-19 therapeutics accelerator co-funded by the Gates Foundation, Wellcome and the Mastercard Foundation.²⁸ Again, this type of coordination and co-funding of research is not particularly new or novel specifically to the COVID-19 context, but the speed and scale of coordination is notable.

This type of cross-funder coordination and access to information could certainly apply to HSR outside of a pandemic context. Increasing access to information and coordination across funders could have potential to reduce research waste through duplication, could promote applications from a wider range of individuals, and also could serve to highlight gaps in the funding landscape. However, it requires an organization to take responsibility to ensure this is kept up-to-date and comprehensive, and to publicise the resources broadly.

6. PRIZES

Innovation prizes are not a new concept.²⁹ However, we see several of these emerging to address COVID-19. The IBM Corporation has added coronavirus to their 2020 Call for Code Global Challenge.³⁰ This is an annual developer competition which aims to source solutions to societal issues which can be made open source. The COVID-19 track is looking for practical and sustainable open-source solutions to mitigate the impact of COVID-19, with a parallel track addressing climate change. Five prizes are available, worth between \$10,000 and \$200,000. Another example is the Association for Computing Machinery (ACM) Gordon Bell prize for high performance computing-based research, which offers an award of £10,000 to innovations in computational methods contributing to understanding the nature, spread and/or treatment of COVID-19.

There have also been calls for further prizes to support innovation in the COVID-19 response, notably from Nobel laureate, Paul Romer, who suggests developing a £1 billion prize for anyone who can create and deliver a COVID-19 test for 10 million people a day.³¹ He cites the uncertainty regarding the likely sources of innovation suggesting a prize is more likely to deliver results than coordinating research centrally – one of the advantages typically cited for prizes as a route to novel innovations addressing a clearly defined challenge.

We note in the 2019 report the potential of prizes to support HSR. These examples from the current crisis illustrate how prizes—though a longstanding feature of the research landscape—still have potential to help address current challenges.

7. REFLECTIONS AND CONTEXT

We highlight above some example of changes in practice to accelerate, coordinate, and target funding to address the COVID-19 crisis. What is clear across them all is that none of these is completely new—we have seen expedited funding processes, innovation prizes and co-funding mechanisms previously, but the scale and rate at which these have been deployed is notable. This provides a chance for us to make step changes in our funding processes and bring some of these more niche practices into the mainstream HSR system. It also presents a chance to reflect on what parts of our funding processes are necessary, and where there is more scope to change, adapt, and accelerate the ways we support health services research. As highlighted above, all of these models have potential, to different degrees, to be applied and learned from in the HSR sphere and outside of the pandemic context.

Although we focus in this document on changes to funding models, we also see a wider range of changes to the scientific system in the COVID-19 context. More use is being made of pre-prints and journals are accelerating their publication processes to make sure research is available quickly for others to use. Adding to this, there are also many examples of openness and data sharing.³² We also see a growth in citizen science, with mass engagement in online platforms such as Zoe's symptom tracking app³³, for example as people realise the importance and urgency of contributing to research. We also see changing attitudes towards and profile of science and research as it is discussed in the media. All these provide opportunities for health services research to work more quickly and more inclusively.

However, as well as positive changes, there are also significant challenges. Charitable funding for health research is in crisis, as events such as marathons and other sporting events that typically provide much of their funding are cancelled, putting research projects under threat. We also see large swathes of research significantly delayed, as clinical trials and other research in healthcare settings that does not focus on COVID-19 becomes extremely difficult. In other settings, research has also been delayed as people have to stay away from labs when restrictions are in place, research in educational settings becomes impossible in times of school closure, and travel is extremely restricted, limiting many typical research collaboration activities. Many of these challenges have impacted on health services research and may constitute a setback to many working in the field.

These opportunities and challenges may have long terms impacts on the scientific system and disentangling the effects of new funding models from these wider changes may be challenging. But this time of transition, change, and innovation present important opportunities for us to learn—to see what aspects of this time we want to carry forward to become part of our future health services research system, and also to reflect on how to mitigate the negative impact on health services research and researchers.

Endnotes

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