

COVID-19 R&D TRACKER UPDATE: 25 JUNE 2020

Takeaways from the COVID-19 R&D TRACKER

- Following COVID-19 R&D since January, the [COVID-19 R&D tracker](#) by Policy Cures Research seeks to help funders, policy makers, researchers and others understand the evolving COVID-19 R&D landscape. Below are some key takeaways around funding and the product pipeline of more than 850 product candidates.

Product development at pandemic speed:

- The R&D response to the ongoing COVID-19 pandemic has been unprecedented - it took only 69 days from the identification of novel coronavirus to starting the first-in-human COVID-19 vaccine trial. In comparison, it took 25 months for the first vaccine to enter human trial during the previous SARS outbreak (2002-2004).

Vaccines funding and R&D:

- Half of the US\$7.3 billion¹ in funding announced for COVID-19 R&D has been committed to vaccines (US\$3.7 billion, 51% of the total), compared to a little over US\$1 billion for therapeutics, US\$731 million for diagnostics and US\$158 million for basic research.
- As of 25 June, there were 15 vaccines in various stages of clinical development, including one candidate in a late-stage efficacy trial.
- Although the accelerated pace of development is cause for optimism, there are several causes which warrant caution, including that the three most advanced candidates are based on novel technologies, meaning that we have limited experience in terms of long-term protection, appropriateness and manufacturing scale-up.

Therapeutics (drugs and biologics) still unproven:

- Approximately 130 therapeutic agents, including anti-virals, are under clinical investigation for treating COVID-19. The vast majority of these are repurposed drugs, with fewer than 20 novel or near-novel anti-virals currently in human trials. None of the direct-acting drugs (old or new) have proved effective so far.
- Four completely novel monoclonal antibodies have recently entered clinical development, which is extremely encouraging; however, it should be noted that antibody-based therapies are a relatively new concept for treating infectious diseases, with no approved therapies for any of the high burden communicable diseases.

Diagnostics rapidly developed:

- Diagnostic tools have played a critical role in designing an effective COVID-19 control strategy. During the 2014 West African Ebola outbreak it took nearly 3 months before a stringent regulatory authority approved the first Ebola diagnostic. In less than 6 months, there are nearly 100 COVID-19 diagnostics conditionally approved by the US Food and Drug Administration.

¹ EDIT: In our initial 25 June COVID-19 R&D tracker analysis, we said total R&D funding was nearly US\$8.5 billion, however, after reviewing BARDA's grant to AstraZeneca for \$1.2 billion, we decided to declassify this as R&D funding and instead consider it as manufacturing and procurement which falls outside our scope. Hence, we have corrected total R&D funding figures as \$7.3 billion along with other subsequent numbers. We aim to have funding for manufacturing and procurement displayed on our Tracker separately soon.

BARDA is the biggest funder

- The US Biomedical Advanced Research and Development Authority (BARDA) is currently the largest single funder of COVID-19 R&D, having committed close to US\$1.5 billion. Total funding committed by BARDA to emerging infectious disease R&D between 2014 and 2019 was US\$1.3 billion, with the majority going towards research targeting Ebola and other filoviruses.

CEPI steps into a leading role

- The Coalition for Epidemic Preparedness Innovations (CEPI) has received more funding commitments in the first half of 2020 than in the nearly three years prior combined. CEPI has received US\$1.2 billion since the start of 2020 compared to a total of US\$778 million in funding commitments reported between CEPI's inception in 2017 and the end of 2019.
- The funding commitments received by CEPI before 2020 put CEPI in a position to respond quickly following the emergence of COVID-19. CEPI made immediate funding commitments to a number of product developers in January 2020. The four grants CEPI announced in January totalled US\$28 million, making up nearly half (48%) of the committed global funding to product developers over that period.

New funders emerge

- The crisis has seen many new entrants to biomedical R&D funding, including from previously uncommitted national governments, as well as from the philanthropic sector, with a range of new foundations and corporate donors from non-health sectors providing key contributions. Although funding for COVID-19 is still largely coming from the public sector (\$6.5 billion) and heavily concentrated in the United States (US\$2.2 billion), many governments which haven't traditionally funded emerging infectious disease R&D have announced significant contributions, such as South Korea (US\$173 million), Saudi Arabia (US\$160 million) and Spain (US\$113 million), along with many diverse foundations and corporate donors.

Comparison with prior coronavirus funding

- Since 2016, the [G-FINDER project](#) by Policy Cures Research has gathered data funding on R&D funding for two earlier coronaviruses, MERS and SARS. This data shows a total global funding for coronaviruses of just over US\$100m between 2016 and 2018, or just over 1% of current announced COVID-19 funding. Coronavirus funding showed a slight decline between 2017 and 2018, following a significant reduction in funding from the US National Institutes of Health.

Comparison with prior Ebola funding

- Total global funding disbursed for Ebola R&D between 2014 and 2018 was \$1.9 billion, as compared to \$7.3 billion committed COVID-19 in the first half of 2020 alone. This demonstrates the unprecedented scale of the global response to a pandemic which, unlike the West African and DRC Ebola outbreaks, has fallen heavily on high income countries.

Therapeutic Accelerator starts up

- Therapeutics (drugs and biologics) have received a little over US\$1 billion in funding commitments. The largest recipient of this therapeutics funding is the COVID-19 Therapeutics Accelerator. Backed by the Bill & Melinda Gates Foundation, the Wellcome Trust and Mastercard, the Accelerator was created in CEPI's image to serve as a therapeutics-focused response to the emerging pandemic. However, without pre-existing connections with key public funders, the Accelerator has mostly drawn its support from a different stable of funders; to date it is almost exclusively funded by philanthropic organisations, with the UK's Department for International Development currently its only public funder.

Basic research being left behind:

- Basic research to better understand COVID-19 is key for the rational design and development of health technologies. However, product development is the overwhelming focus of the global funding response, even while some critical basic science-related questions remain unanswered. For example, even though there are hundreds of vaccines in development, we are still yet to agree on fundamental facts about what is needed for a vaccine to be effective.

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