Neglected Disease Research and Development: New Perspectives

Executive summary

Each year since 2007, the G-FINDER project has provided policy-makers, donors, researchers and industry with a comprehensive analysis of global investment into research and development of new products to prevent, diagnose, control or cure neglected diseases in developing countries. This is the fourteenth annual G-FINDER report, presenting data on investments made in 2020.

OVERVIEW OF 2020 NEGLECTED DISEASE FUNDING

In the first year of the COVID-19 pandemic, funding for neglected disease R&D dipped a little – by 4% – from 2019’s near-record high, leaving it still safely above its long term average at $3,937m. While we are never happy to see a drop in funding, the small size of this fall seems like mostly good news: funding appears to be weathering the storm relatively well, and we continue to enjoy the benefits of record funding growth in the years leading up to 2019.

Total R&D funding for neglected diseases, 2007-2020

![Graph showing total R&D funding for neglected diseases, 2007-2020](image)

But we doubt that a single year of data tells us the whole story about how COVID will end-up changing neglected disease R&D funding. We are still worried that a focus on COVID might capture some of the attention and resources traditional funders might otherwise have given to neglected disease, and that the costs of stimulus during the pandemic – or its impacts on the global economy – will lead to future reductions in overall government spending which might flow through to budgets for neglected disease R&D.

The immediate impact of COVID-19, though, seems to have fallen mostly on clinical trials. Clinical development funding fell by $124m in 2020, a drop of 10%, with real terms falls from every sector and across almost every major product category. One of the big private sector funders reporting lower clinical development spending confirmed that this drop was due to the difficulties of conducting trials in the face of lockdowns and travel restrictions and we assume this sort of COVID interruption explains much of the wider drop in clinical development.
Funding from the private sector – around 90% of which is funding from multinational pharmaceutical companies (MNCs) – is especially vulnerable to disruptions in clinical trials, since clinical development represents a larger share of private sector funding and because they report actual expenditures and hours worked, rather than the disbursement data we get from most other kinds of funders; so that when they down tools it shows up immediately in our data.

So it’s no surprise that a big share of the drop in clinical development funding – about a third of the overall total – came from multinational pharmaceutical companies. What did worry us, though, is that this happened immediately after another – and even bigger – drop in clinical development funding in 2019, before most of us had even heard of COVID. At the time we put that fall down to natural changes in the product pipeline, especially the conclusion of a big one-year hepatitis C drug trial, and a natural reversion after the record high in 2019. Now, though, we’re left looking at two consecutive big falls in multinationals’ clinical development funding, and wondering whether they really do have separate causes – or whether we should treat them as the start of a worrying trend.

An ongoing decline in private sector funding would, obviously, be bad news. The rapid growth in MNC’s funding over the five years to 2018 was a big reason global funding grew over that period, and they play a vital role in getting products the last mile out of the lab and into patients’ arms.

The evidence that this is a trend, rather than a blip, is that it wasn’t just MNCs’ clinical development funding that fell – their early-stage research funding also dropped sharply. But the case that this really is just a temporary disruption, separate from whatever happened in 2019, is that – unlike last time – everyone reduced their clinical development spending in 2020, with an overall decline similar to the one for MNCs.

Since there are reasonable arguments on both sides and not enough data to draw any firm conclusions, this is an area we will continue to watch with interest, and with a bit of concern. Even in the best-case scenario, we would expect the disruption to trials to have continued into 2021 and that we may see even larger falls in clinical development as disbursement schedules catch up to conditions on the ground.

A big reason overall funding remained relatively stable even after big cuts to clinical development was another big increase in funding for platform technologies, which are one of the year’s good news stories. Platform funding has been growing fast since hitting a bit of a low in 2017. It has more than tripled since then, partly thanks to another $33m (34%) of growth in 2020.

**Platform funding by type, 2007-2020**
As the graph on the previous page shows, most of this recent growth has been driven by rising funding for vaccine platforms – up nearly 800% since 2017 – and diagnostic platforms – up 326%. These two areas now account for three-quarters of all platform funding, up from 45% in 2017.

Most of this growth has come from the three biggest funders of platforms, both over the life of the G-FINDER survey and in each of the last three years: the Gates Foundation, the US National Institutes of Health and the US Department of Defense. Between them, these three organisations are responsible for just under 80% of both recent and historical platform funding.

Anecdotally, based on project descriptions and the range of diseases they are hoping to target, some of the increase in platform funding is in response to COVID-19. But the majority of the COVID-inspired surge in platform funding is not even partly directed at neglected disease, and so is not captured in the figures we present here. We can only hope that some of the innovations in research and development necessitated by the pandemic ultimately carry through to neglected disease R&D as well.

The other big good news story of 2020 was a large increase in philanthropic funding, the only major funding sector that didn’t drop off in 2020. Their overall funding rose by $28m (3.6%) to its highest level since its peak in 2008, but with a slightly more diverse set of funders. The Gates Foundation provided nearly 90% of philanthropic funding back in 2008. In 2020 that figure fell to 76%, which is still impressively high, but also a record low. Overall funding from the Foundation was almost exactly the same in 2020 as it was in 2019 – though it made another big shift away from individual disease R&D and towards platforms and core funding for the Gates Medical Research Institute – so it wasn’t responsible for either the overall increase in philanthropic funding or the Foundation’s declining share of the total. The real growth was from the Wellcome Trust – consistently the second largest philanthropic funder – and Open Philanthropy, a relatively young organisation which began funding neglected disease R&D in 2017 when it was spun out from its parent, GiveWell. Since then, it has increased its neglected disease funding at a rapid pace, from $8.2m in 2017 to $25m in 2020, focusing on diagnostic platforms, biological vector control for malaria and rheumatic fever vaccines, alongside funding lines – not included here – for COVID, multiple emerging infectious diseases, and sexual & reproductive health.

The increasing funding from philanthropic organisations, and the slight increase in the diversity of our philanthropic funding, is heartening, but also a little frustrating. With COVID, we have seen the kind of mobilisation the philanthropic sector – and the global health establishment as a whole – is capable of when a crisis hits closer to home. The OECD1 recorded COVID funding commitments from 48 different philanthropic foundations – many of them new to global health – totalling $1.6 billion in the first half of 2020 alone. Our own tracking of COVID R&D funding commitments made in 2020 shows a total across all sectors of nearly $7.5 billion in committed R&D funding, from at least 126 different funders spread across 36 different nations and the European Commission. These resulted in disbursements of at least $4.0 billion for COVID-specific product R&D from G-FINDER participants alone – not counting a huge increase in funding for EID-specific platform technologies, which jumped by $107m to $165m.

This is an impressive global response to the pandemic; but it also highlights how narrow the philanthropic engagement in neglected disease remains. In an average year, fewer than ten philanthropic organisations provide even a million dollars in funding for neglected disease R&D.

Neglected disease R&D remains reliant on a few large organisations and a disturbingly short tail of smaller funders providing almost all the remainder. Many of the most neglected diseases are almost completely reliant on just one or two ongoing funders for most of their research and development. Leprosy, cryptococcal meningitis, leptospirosis and most helminth infections have relied on just one or two funders for more than 70% of their R&D funding over the past decade. This leaves them vulnerable to shifts in those organisations’ priorities and in practice makes any progress in treating them reliant on the progression of just one or two product candidates through the pipeline.

The global R&D response to the COVID pandemic from dozens of funders shows how the quantity and diversity of funding can speed up development timelines and build a robust product pipeline, but it also underlines how little of that sense of urgency accrues to neglected disease.

While we hope that COVID inspires action on other global health issues, and that the tools and techniques developed in response to the pandemic can make their way to neglected disease R&D, there are two clear ways COVID might hurt neglected disease funding, beyond its initial impact on conducting trials: a direct displacement of neglected disease funding in favour of COVID, and an overall reduction in government spending leading to tighter budgets for global health initiatives.

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We did find some slight statistical evidence that funding is being redirected: for every million dollars an organisation invested in COVID R&D, their funding for neglected disease R&D declined by an estimated $30k. But this feels like a pleasingly small level of impact, and was driven by the drops in neglected disease funding from just three big organisations – the US NIH, the German BMBF and the UK DHSC. And history shows us that there was no direct displacement of neglected disease R&D funding during the big increase in emerging infectious disease investment following the West African Ebola pandemic, leaving us cautiously optimistic that COVID won’t directly divert much funding from neglected disease R&D in the years to come.

The second possibility, of a global belt-tightening in response to COVID deficits or a post-pandemic recession, is more worrying, because it happened once before, following the 2008 Global Financial Crisis (GFC).

**High-income country neglected disease and overall government funding, 2007-2016**

Stimulus-driven growth in high-income country public funding in 2009 was followed by years of economic recession and slower growth in overall government spending – going mostly to increased welfare costs with real-terms cuts in most discretionary spending. We saw what looked like deficit-inspired reductions in funding for neglected disease R&D, which bottomed-out in 2015, leaving it, in real terms, slightly below its pre-GFC level, seven years later.

This time around, the crisis has not been accompanied by any stimulus-driven boost in funding for neglected disease R&D, since the increase in public health funding unsurprisingly focused on COVID-19. So we may enter a period of stagnant or falling government expenditure without that buffer, but with the advantage of much higher – and seemingly durable – overall neglected disease R&D funding, hopefully setting us up to weather a post-COVID period of belt-tightening relatively unharmed.

But perhaps not. Statistical analysis conducted by PCR based on 13 years of G-FINDER data across 24 different countries shows a clear relationship between government spending and neglected disease R&D funding. It suggests that we were actually somewhat lucky following the GFC, and that a global dip in government spending like that seen in 2015 would lead to a $177m drop in neglected disease R&D funding, which would be the largest reduction we had ever seen.

As much as the costs of the pandemic might raise concerns about the availability of funding, it has also been a stark demonstration of the harm caused by an uncontrolled infectious disease, and of how rapidly a global response can turn the tide. COVID has made global health more salient in the minds of policy makers and philanthropists, attracting new funders to emerging infectious disease R&D and providing evidence that tools for controlling infectious disease are both valuable and within reach.

*The remainder of this document provides a brief summary of the other headline findings from the full G-FINDER report – available at [https://www.policycuresresearch.org/2021-g-finder-neglected-disease/](https://www.policycuresresearch.org/2021-g-finder-neglected-disease/)*
Histoplasmosis and scabies were added to the G-FINDER survey of 2020, adding funding totalling $5.2m to our survey scope, while the addition of LMIC-focused basic research for Enterotoxigenic *E. coli* and rotavirus added less than $0.2m. We also relaxed the LMIC-specificity requirement for hepatitis C vaccine R&D, which was responsible for an additional $0.2m. Neither these expansions of our scope, nor the slight net increase in participation compared to the previous survey, had much influence on the headline funding figure.

HIV/AIDS, tuberculosis and malaria received the largest shares of funding, as they have every year, accounting for more than two-thirds ($2,671m, 68%) of reported global investment. Funding for each of the top three diseases fell in 2020 – much of the decline in HIV and malaria investment fell on vaccine R&D, whilst most of the drop in tuberculosis was for drug R&D. The top three disease’s 68% share of global funding fell to its lowest ever level – well below their 75% average over the first five years of the G-FINDER survey.

**Funding by disease category 2007-2020**

The drop in share for the top three diseases was also a reflection of a significant rise in funding for non-disease-specific R&D (up $47m, 8.8%) – which includes core funding, funding for platform technologies, multi-disease vector control products and other multi-disease R&D – continuing six years of growth to a new record-high of $583m thanks to increases in core and platform funding.

Funding for the WHO neglected tropical diseases (NTDs) covered by the G-FINDER survey totalled $328m, a decrease of $21m (-6.3%), marking four years of decline from their 2016 peak and continuing a decade of relative stagnation. Amongst the NTDs, only snakebite envenoming R&D investment rose (up $3.6m, 31%) thanks to increased drug R&D.
As in all previous years, the lion’s share of public funding came from high-income country (HIC) governments ($2,480m, 95% of public funding, and 63% of the global total), with the balance split between multilateral organisations ($54m, 2.1% of public funding) and low- and middle-income country (LMIC) governments ($88m, 3.3%).

Total public funding fell for the first time since 2015. HIC public funding dropped by $113m (-4.4%) ending four straight years of growth but remaining at the third highest level ever recorded. Multilateral investment fell by a similar proportion (down $2.7m, -4.7%), leaving it well above its long-term average despite a record fall in 2019. Funding from LMIC governments also dropped, by more than 16% (-$17m) from a record high in 2019. The US government continued to be the largest public funder, at $1,888m, accounting for just over three-quarters of total HIC public funding. The UK government was the second-largest contributor ($187m, 7.6%) for the fifth year running, despite a drop in funding from the UK DHSC to a third of its 2019 level (down $30m). The European Commission ($164m, 6.7%) increased its funding by $41m to a new record-high, thanks to the commencement of a new five-year TB drug R&D project and increased core funding to the European and Developing Countries Clinical Trials Partnership. The Indian government remained the largest LMIC public funder – as it has been each year they have participated – even though their investment fell by 8.8%.

Just over a fifth of total funding came from the philanthropic sector ($823m, 21%), representing the fifth consecutive increase.

The private sector accounted for 12% ($491m) of global funding. A drop of $69m from MNCs reversed much of the sector’s growth leading up to the 2018 peak. Conversely, small pharmaceutical and biotechnology companies (SMEs) saw a headline rise in funding – up $1.1m, 2.1% – but this reflected improved participation rather than a genuine increase. Participation-adjusted SME investment actually dropped by $2.6m (-5.7%). The impact of the decrease in industry investment was felt most heavily in HIV R&D (down $46m), followed by malaria (down $10m) and diarrhoeal diseases (down $9.1m).

Over three-quarters ($2,998m, 76%) of all funding for neglected disease basic research and product development in 2020 was directed externally via grants or contracts, while the remaining 24% ($939m) was spent internally via intramural or self-funded R&D, broadly in line with last year’s shares.

External funding sat at its third-highest level, only a slight dip from its peak of $3,119m in 2019 – which came after four years of steady growth – as $123m of the drop came from HIC public funders, headlined by a $60m fall in funding from the US NIH, alongside cuts from several other major funders, including cyclical falls from the UK DHSC and the Japanese Government.

Funding to non-PDP intermediaries (-$61m, down 27%) and direct funding to researchers and developers (-$59m, down 2.5%) were impacted the most. In contrast, funding to PDPs remained essentially stable (down just $1.4m, -0.3% compared with 2019), though their share of overall funding remained only slightly above last year’s record low.

Internal funding dropped 5.2% (-$51m), marking a second consecutive decline from its 2018 peak of $1,146m – after having grown relatively slowly over the preceding decade. The fall in internal funding came in spite of slight increases in public and philanthropic intramural funding and generally consistent self-funded R&D from SMEs; and was instead driven by the large ($68m, -14%) decline in MNC’s self-funding.

Funding to basic & early-stage research remained relatively unchanged between 2019 and 2020 to sit at $1,860m (down $18m, -0.9%), after a record high in 2019 which followed four consecutive years of growth. The big drop in clinical development fell most heavily on vaccine (down $67m, -11%) and drug (down $47m, -11%) R&D.

Additional analysis of the 2020 funding landscape is provided in the full G-FINDER report, available at https://www.policycuresresearch.org/2021-g-finder-neglected-disease/

The underlying data can be viewed using our data portal at https://gfinderdata.policycuresresearch.org/