wellcome

Achieving Equitable Access to Health Technologies

What have we learned from Covid-19 so far?

Executive Summary

A vast number of people around the world do not have access to potentially lifesaving vaccines, medicines and other healthcare products. The Covid-19 pandemic has shone a spotlight on this issue, which was already acute in many other health challenges. Thanks to huge national and international efforts and an unparalleled pace of innovation, tools were developed to prevent, test and treat Covid-19 less than a year into the pandemic, but these essential vaccines, tests and treatments remain a scarce resource and access to them has been slow for all but a handful of countries. Both the challenges and the critical importance of delivering these tools rapidly and equitably throughout the world have been brought home in recent months as new variants have started to emerge, vaccines roll out, and high-income countries increasingly seek to vaccinate their whole populations rather than only the most vulnerable.

Wellcome's report on equitable access, published in February 2020, laid out some of the challenges faced by funders of R&D in helping to tackle inequities in access to health technologies. In this paper, we reflect on how these challenges have been addressed during the pandemic, and identify areas where efforts need to be redoubled or reimagined to best support access during Covid-19 and beyond.

Priority-setting and collaboration

Strengthened collaboration has enabled rapid development of Covid-19 tools but more must be done to help scale supply of them to meet global needs.

Priorities and activities across the development–delivery pathway are not always well coordinated, which can lead to inefficient development and slower access to potentially life-saving products. Covid-19 has brought many global health actors together around a common focus and shared priorities, facilitating collaboration, rapid development and equitable distribution of new products. The ACT Accelerator has played a central role in this as the global initiative to develop and provide access to vaccines, treatments and tests. By convening organisations that support development, manufacture, procurement and delivery of Covid-19 technologies and fostering an end-to-end approach, access and delivery have been considered earlier in development and activities across partners are coordinated. COVAX[1] provides access to the world's largest and most diverse portfolio of Covid-19 vaccines and is expected to deliver 2 billion doses by the end of 2021. Further collaboration, in areas such as expanding regulatory reliance, improving knowledge transfer and building production capacity, would help to scale supply and expand availability of Covid-19 technologies to meet global needs.

Transparency

The issue of transparency has been brought to the fore and some organisations have made positive steps, but there is still a long way to go before transparency is the norm.

There is a lack of transparency across several aspects of the R&D process, including financing and the approaches taken by funders to achieving equitable access to products they have financed in whole or in part. The Covid-19 pandemic has drawn attention to the question of transparency, with increased scrutiny in areas such as the level of public investment in the development of new products and the prices paid for them by different countries. In response, we have seen some positive steps from some governments, companies and regulators, such as publication of study protocols and transparency statements. There remains little transparency around R&D costs (how much has been invested, at what stage and by whom) and whether global equitable access conditions are tied to this investment, making it difficult to assess if enough is being done to drive equitable access.

Investment

We have seen increased investment in R&D, procurement and distribution of Covid-19 tools but the mechanisms to mobilise global funding are limited and major financing gaps remain.

The world struggles to finance the development and delivery of new products to tackle global health challenges, even when the health and economic impact of investing is clear. Since the pandemic began, substantial public, private and philanthropic investment has been directed to the development, procurement and delivery of Covid-19 products. However, the ACT Accelerator still faces a significant funding gap. Most investment has been reactive and

has come from a relatively small number of funders, with many governments investing far more in tackling the consequences of the virus in their countries than in a solution to the global pandemic. International financing institutions (IFIs) such as the World Bank remain untapped as a major source of direct financing for collective global efforts, such as the ACT Accelerator, as their operating model relies on countries applying for loans or grants and therefore IFI resources are not used for the scale and coordination of financing activities at a global level.

The pandemic has raised crucial health, equity and economic questions around the systems we have in place to deliver access, but it also provides us with a unique opportunity to think about how we could do things differently in future. For example, with a different approach during Covid-19 R&D – such as one with upfront global investment at sufficient scale and with clearer global access obligations – some of the access and equitable allocation challenges we are seeing might have been mitigated. We also have the chance to set our future ambitions higher for a truly global and equitable response, for example, by moving faster in areas such as R&D, supply scale-up and equitable delivery. Alongside continued efforts to ensure equitable access to Covid-19 products, we must therefore seize this moment to make longer-term changes that will bring equitable access to future vaccines, treatments and other healthcare products a lot closer to reality.

Recommendations

Recommendation 1: Develop a lasting mechanism for collaboration on R&D and access

The ACT Accelerator partner organisations should identify the most effective elements of the Accelerator, as well as lessons learned, and consider how they can be developed into a longer-term, sustainable collaboration to coordinate and accelerate the development and delivery of products for other unmet global health challenges, where international collaboration is essential.

Recommendation 2: Identify long-term solutions for scaling supply capacity for pandemics

Key industry partners, civil society and governments should explore barriers to scaling supply capacity for pandemics and identify actions that can be undertaken ahead of time, in areas such as IP licensing, knowledge and technology transfer, regulatory constraints, and capacity building, to help meet global demand for products. Limited supply is a critical barrier for global vaccine access during the Covid-19 pandemic and needs to be addressed to support global access now and for future pandemics.

Recommendation 3: Increase transparency of public, private and philanthropic R&D investments

Those funding and undertaking R&D should explore how to improve transparency of R&D costs to better understand how much has been invested, at what stage and by whom. This would improve coordination and efficient use of funding, as well as addressing information imbalance, for example between buyers and sellers, when agreeing terms of purchase agreements for newly developed products and assessing alignment with equitable access principles. One way to do this could be to include details such as product-by-product R&D costs within existing initiatives to track R&D funding.

Recommendation 4: Agree a clearer, more consistent approach to access among funders of R&D

Funders should lead the way on transparency, challenging ourselves to develop a clearer, more consistent and ambitious vision and approach across all major funders. Wellcome will work closely with other R&D funders to discuss and agree how to improve transparency and consistency in our approaches to supporting needed development and equitable access. We will report back on progress on this and our five previous commitments (Annex I) in our next access report in 2022.

Recommendation 5: Create a more sustainable financing system for tackling global threats

Ongoing reviews of financing for future epidemics and pandemics, such as the G20 High Level Independent Panel, must consider how their recommendations will support the development and equitable delivery of global public goods, addressing challenges including the fragmented nature of the financing landscape and historic under-investment in prevention and preparedness, and exploring opportunities to further incentivise preparedness and equitable access through sustainable financing mechanisms. Covid-19 provides a catalytic opportunity to address this long-standing issue for tackling global health threats.

Introduction

Across the world, a huge number of people do not have access to the medicines and other healthcare products that they need – as many as 2 billion according to the WHO[2]. The reasons behind this are many and varied, spanning the whole pathway from product development to equitable delivery (illustrated in Figure 1). When it comes to ensuring equitable access to innovative products, those who conduct and support research have a vital role to play. Decisions about what research is supported and when and how it is supported determine whether we have safe, effective and affordable products that address the biggest health needs and are best suited for those who need them. Of course, efforts during R&D stages alone are not enough to ensure that people have access to the healthcare products that they need – there are many other factors further along the pathway, and these barriers are also imperative to address. For example, Médecins Sans Frontières (MSF) estimates that around half of people requiring insulin do not have access to it, even though it was discovered almost 100 years ago[3] and, the Access to Medicine Foundation has reported that for over 40% of off-patent/generic antibacterial medicines there is no evidence of registration in countries where people urgently need access[4]. However, as a funder of R&D, we are interested in looking at how those supporting and undertaking R&D, in particular, can better support equitable access to innovative products.

Figure 1: Stages of the development-delivery pathway

This report will focus primarily on stages 1-4 of this pathway

Adapted from Uniting Efforts meeting report 2019.
N.B. During Covid-19, some of these stages have been run in parallel in order to accelerate the pathway to delivery

In our previous access report, we spoke about some of the challenges faced by funders of R&D in supporting equitable access, including fragmentation and a lack of transparency in funders' approaches. Since we published that report, the world has been turned upside down by the Covid-19 pandemic, and the question of equitable access and the challenges we identified in the report have become even more relevant, with almost every country worldwide in need of rapid access to safe, effective and affordable tests, vaccines and treatments.

While the global need for Covid-19 tools means that some of the access challenges seen for neglected tropical diseases do not apply (e.g. lack of incentives for development), it brings its own challenges, requiring countries and multilateral institutions to work together to tackle a global crisis. The global response to Covid-19 has resulted in both impressive achievements and painful realities when trying to ensure rapid development and equitable access to lifesaving vaccines, treatments and tests across the world. Through significant hard work and collaboration across national and international organisations, these vital tools have been developed in unparalleled timeframes and at unmatched scale. At the same time, demand for vaccines continues to outweigh supply, and access has been slow in the majority of countries. In recent months, the emergence of new variants and the initiation of vaccination programmes targeting whole populations have brought home both the challenge and the critical importance of rapidly and equitably delivering these tools.

While the challenges of the current pandemic are not yet over, Covid-19 has already raised important questions about the systems we have in place to deliver access, and it provides a unique opportunity to learn from the global response and think about what needs to change in future. In this paper, we highlight some of these areas, drawing on challenges from our previous report, and identify actions needed to seize this opportunity for change and help ensure future innovations reach the people that need them, no matter where they are in the world.

"Demand for Covid-19 vaccines continues to far outstrip supply, with one analysis suggesting that nearly a quarter of the world's population will not receive a vaccine until at least 2022"

1. Priority-setting and collaboration

The problem

The R&D landscape is highly complex, with many different and autonomous actors involved in supporting and undertaking research activities. For example, over 260 organisations participated in the 2019 G-FINDER survey on neglected disease R&D[5]. In this complex and fragmented system, activities at the R&D stage and across the wider development–delivery pathway are not always coordinated or undertaken collaboratively, which can have negative knock-on consequences for equitable access.

Lack of coordination and collaboration can negatively impact access in a number of ways. Without coordination between organisations, it is difficult to build a clear, shared picture of current activities and areas of unmet need. This can lead to gaps in activities or duplication of efforts, as organisations do not have the information they need for effectively setting individual priorities and ensuring complementarity. Beyond priority-setting, lack of collaboration can slow down the R&D process itself, as different actors fail to share knowledge and expertise that may help overcome challenges more quickly and push boundaries.

Priority-setting and collaboration must extend beyond the R&D process to ensure the health benefits of products are realised. This includes collaboration between actors working at each stage of the development–delivery pathway, for example regulators working together to realise efficiencies in the global system, as well as collaboration across the pathway, for example interactions between those involved in R&D and delivery partners. This end-to-end approach helps to anticipate and address potential barriers to equitable access that may occur further downstream. For example, considering the end-user at an early stage of development can help to ensure that the most suitable products are taken forward, with the caveat that upfront requirements must not be so stringent that they stifle the potential for future innovation. Overall, an approach that is too siloed and fragmented can lead to research priorities that are not well-aligned with the most pressing health needs and to slow and inefficient development and delivery of vital health products.

Various initiatives have been established to improve coordination and priority-setting in recent years, including the WHO list of priority pathogens for antimicrobial resistance (AMR)[6] and the Global Observatory on Health R&D – a global-level initiative that aims to help identify health R&D priorities based on public health needs[7]. There have also been successes in specific disease areas, where initiatives such as product development partnerships have brought together a range of partners to prioritise and drive forward a portfolio of projects. Medicines for Malaria Venture, for example, has more than 150 active global partnerships and, alongside its partners, manages a portfolio of over 65 projects focusing on antimalarial R&D and access[8]. When it comes to the sharing of knowledge and expertise, progress has also been made through initiatives like cOAlition S[9], a group of research-funding organisations driving open access to research publications, and the establishment of the Medicines Patent Pool, which helps facilitate intellectual property licensing to improve access to medicines and health technologies[10].

Despite this progress, priority-setting and collaboration across the R&D pipeline often remain challenging, a point raised in the 2019 Global Action Plan for Healthy Lives and Wellbeing[11], and at the recent Uniting Efforts for Innovation and Access Global Dialogue[12]. This is particularly true in situations like epidemics, where speed is of the essence. Lack of coordination and collaboration was cited as a key challenge during the 2014–15 Ebola outbreak in West Africa, with a National Academies Committee concluding that "research and response efforts were greatly affected by relationships between international stakeholders and their ability to coordinate and collaborate"[13].

During Covid-19

The urgency and widespread impact of Covid-19 have brought focus to the global health community, with many actors dedicating significant time and resources to the development and equitable delivery of tools for Covid-19. In some respects, this has made priority-setting and collaboration easier, with interest and engagement from national and international organisations, including national governments, which have prioritised Covid-19 both domestically and through international forums such as the G7 and the G20. At the same time, Covid-19 has drawn attention and resources away from other urgent health needs, which have continued and, in some cases, been exacerbated through the pandemic. For example,

the monthly number of TB cases being reported in high-burden countries such as India and South Africa fell substantially in the first half of 2020, suggesting that fewer people are being diagnosed and treated[14].

Within the research community, we have seen many positive examples of collaboration, from the rapid and open sharing of the SARS-CoV-2 virus genetic sequence to the establishment of large-scale clinical trials such as the Solidarity and RECOVERY trials and initiatives like the CARE (Corona Accelerated R&D in Europe) consortium, to name but a few. These types of collaboration have been central to the rapid development of vaccines, treatments and tests for Covid-19 that we have seen over the past year and have helped provide robust evidence needed to give definitive answers about promising candidates. In recent months, there has been growing appetite to look at how we could develop future products even faster, with the UK government and the Coalition for Epidemic Preparedness Innovations (CEPI) announcing ambitions to cut the time needed for vaccine development to 100 days[15,16]. In future, we might need to consider how we go even faster than this to effectively tackle rapidly emerging threats. As we look to the future, bolder ambitions will also be needed in areas such as manufacturing scale up and global allocation to ensure that these vital products are not only rapidly developed but rapidly and equitably rolled out.

Priority-setting and coordination during the pandemic has been supported by global initiatives such as the WHO R&D Blueprint and the International Severe Acute Respiratory and emerging Infection Consortium (ISARIC), which have helped to rapidly identify research priorities and support a responsive and well-coordinated research response. Across the development–delivery pathway as a whole, one of the key mechanisms for priority-setting and collaboration established during the pandemic has been the Access to Covid-19 Tools (ACT) Accelerator (see Box 1). The ACT Accelerator takes an end-to-end approach to the development and equitable delivery of new Covid-19 tools, bringing together organisations supporting the development, manufacture, regulation, procurement and delivery of Covid-19 technologies. Collaboration across different parts of this pathway has allowed access planning to begin early, anticipating and addressing potential barriers for products coming through the pipeline. COVAX – the Accelerator's vaccine pillar – provides access to the world's largest and most diverse portfolio of vaccines and is expected to deliver 2 billion doses by the end of 2021, including at least 1.3 billion in lower-income countries[17,18]. While this will make a significant and positive contribution towards global vaccine coverage, there are still huge challenges that urgently need addressing to improve the equity of the current global roll-out. Global supply remains constricted and many countries have secured many more doses than they will need to vaccinate their own populations, leading to calls for these countries to donate doses through COVAX, which we support[19,20]. There is an opportunity to learn from the end-to-end approach taken by the ACT Accelerator beyond the pandemic, in order to accelerate the development and delivery of products for other unmet health challenges that require coordinated international action. Crucially, this must include reflecting on the areas that have not worked so well. Experience from the ACT Accelerator has shown how critical it is that a broad range of voices, including those from low- and middle-income countries, civil society and communities, are included from the start to ensure that valuable perspectives from the poorest and most marginalised people are fully reflected in initial decisions and objectives. Any future mechanism must also go hand-in-hand with continued investment in broader approaches that focus on health system strengthening.

When it comes to the manufacture of Covid-19 vaccines, treatments and tests, there has been significant collaboration to try to meet global demand. This includes a number of agreements initiated by AstraZeneca to manufacture its vaccine around the world and strategic investments in vaccine manufacturing by CEPI to support the delivery of vaccines through COVAX[21,22]. Agreements have also been struck between multinational pharmaceutical companies, for example to expand fill-and-finish capacity for successful vaccines [23,24,25]. Attempts have also been made to facilitate greater sharing of know-how and pooling of IP, including through the Covid-19 Technology Access Pool (C-TAP), to maximise the use of existing manufacturing capacity and speed up access worldwide [26]. C-TAP is yet to gain real traction, with originators of Covid-19 products pursuing bilateral licensing arrangements. Despite these initiatives, we still do not have enough production capacity and it is not equally distributed globally. Demand for Covid-19 vaccines continues to far outstrip supply, with one analysis suggesting that nearly a quarter of the world's population will not receive a vaccine until at least 2022[27]. There are also increasing examples of many high-income countries, including the UK, US and Israel, seeking to rapidly vaccinate their entire populations, rather than only the most vulnerable [28,29,30]. This has the potential to further exacerbate global supply challenges, particularly if other countries follow suit. A key challenge for vaccines is that transferring product know-how from one manufacturer to another is a deeply complex process, and only a limited pool of potential partners will have the capacity and capability to take this up. We must therefore take a broad view of this challenge, exploring barriers to both expanding capacity and maximising existing capacity, to help meet global need in current and future pandemics.

Recommendations

Recommendation 1: Develop a lasting mechanism for collaboration on R&D and access

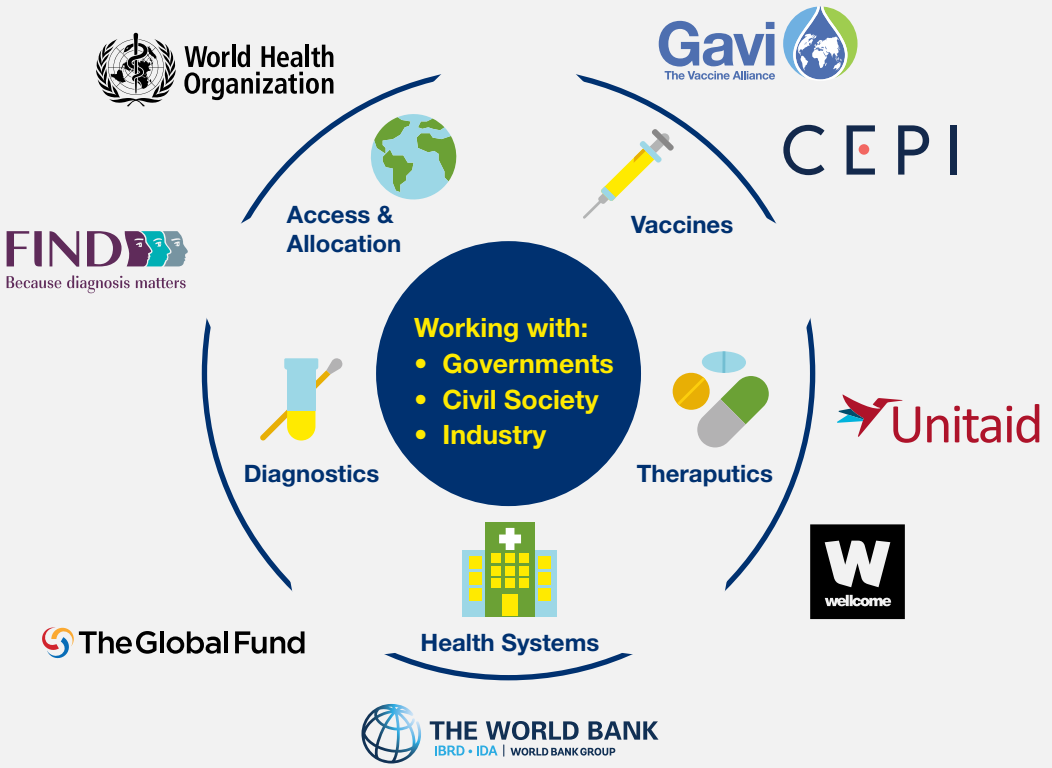
The ACT Accelerator partner organisations should identify the most effective elements of the Accelerator, as well as lessons learned, and consider how they can be developed into a longer-term, sustainable collaboration to coordinate and accelerate the development and delivery of products for other unmet global health challenges, where international collaboration is essential.

Recommendation 2: Identify long-term solutions for scaling supply capacity for pandemics

Key industry partners, civil society and governments should explore barriers to scaling supply capacity for pandemics and identify actions that can be undertaken ahead of time, in areas such as IP licensing, knowledge and technology transfer, regulatory constraints and capacity building to help meet global demand for products during this and future pandemics. Limited supply is a critical barrier for global vaccine access during the Covid-19 pandemic and needs to be addressed to support global access now and for future pandemics.

Box 1: The Access to COVID-19 Tools (ACT) Accelerator

The ACT Accelerator is a critical global collaboration, launched in April 2020, to accelerate the development and production Covid-19 tests, treatments and vaccines, and ensure that they are equitably accessible. It brings together governments, scientists, businesses, civil society, philanthropists and global health organisations across four pillars: diagnostics, therapeutics, vaccines and health systems strengthening



2. Transparency

The problem

The issue of transparency is relevant to several aspects of the R&D process – from the funding invested in R&D to the results of clinical trials and pricing for innovative products. While transparency alone will not automatically improve equitable access, it can drive activities that support it. For example, knowing how much a product has cost to develop, who has funded that development at what stage, and what access provisions are included in funding agreements can make it easier to assess whether enough is being done to support access. Transparency can also facilitate sharing of best practice, helping to drive up standards. Clinical trial transparency can help to improve efficiency and reduce waste in the R&D process, improving the speed and cost of delivering a new product, and may have a positive impact on public trust in the products being developed[31].

In recent years, we have seen concerted efforts to improve transparency in areas such as clinical trials, including the publication of a joint statement from funders of medical research and international NGOs requiring all clinical trials they fund or support to be registered and the results disclosed publicly[32]. We have also seen transparency rise up the global agenda, including at the 72nd World Health Assembly, where a resolution on 'Improving the transparency of markets for medicines, vaccines, and other health products' was passed. In July 2020, Italy became the first country to implement the WHA resolution, mandating the disclosure of public contributions to R&D, sales revenue, marketing costs and the status of relevant patents[33]. While there have been examples of encouraging steps towards transparency, there is still a long way to go in the approach taken by governments, industry, funders and others.

During Covid-19

With large sums of public funding invested in the Covid-19 response and many bilateral deals between governments and companies, the issue of transparency has been brought to the fore during the Covid-19 pandemic. While some actors have taken some positive steps, there is still further to go.

Clinical trials: The unprecedented speed with which Covid-19 vaccines, treatments and tests are being developed has encouraged high levels of scrutiny and calls for transparency to ensure that the studies themselves and the data emerging from them are robust. In response, we have seen some positive steps from companies and regulators. A number of vaccine developers have published the study protocols for their trials[32], and the European Medicines Agency (EMA) and US Food & Drug Administration (FDA) have published statements outlining measures they will take to maximise transparency during regulatory processes such as Emergency Use Authorizations[35,36]. As increasing numbers of Covid-19 products become available, transparency around clinical trial results and regulatory decisions will become even more critical to support clear communication and interpretation of these developments and to help build and maintain public trust.

R&D funding: Covid-19 has further highlighted the importance of transparency in R&D funding. We have seen large amounts of funding invested in Covid-19 R&D, including significant public investment in industry R&D. It is difficult to track the relative financial contributions of private, public and philanthropic sectors to the development of a successful product, making it hard to independently assess whether prices agreed between governments and companies are appropriate when total R&D costs and the relative contribution of public funding are taken into account. In order to help track financial pledges for Covid-19, Wellcome supported the Economist Intelligence Unit (EIU) to develop a funding tracker[37]. The tracker synthesises global health-related funding efforts for Covid-19 in near real-time, from pledge to disbursement. The EIU provides an independent record of which funders are supporting which aspects of the global health response to the coronavirus pandemic, including the WHO Strategic Preparedness and Response Plan and the ACT Accelerator. However, it doesn't include details of investment from the private sector or domestic spend on R&D.

Access conditions: In addition to the lack of detail on R&D funding flows, there is also very little information available on what expectations relating to global equitable access, if any, are attached to this funding, both through specific contractual provisions and the overall global access strategies of R&D funders and innovators. This is an issue across public, private and philanthropic funders and is something that we raised in our last access report. In that report, we challenged ourselves, as Wellcome, to do more on transparency and we will report back on our progress in our next access report, which we plan to publish in 2022. On Covid-19, transparency is also important in the bilateral agreements with companies when purchasing vaccines, treatments and tests. In recent months, attention has been drawn to the fact that different countries pay different prices for vaccines, with some poorer countries reportedly paying more than high-income nations[38]. The details of vaccine purchase arrangements are, for the most part, not publicly available[39], making it difficult to accurately assess the situation or determine whether agreements are compatible with equitable access and a global response.

Recommendations

Recommendation 3: Increase transparency of public, private and philanthropic R&D investments

Those funding and undertaking R&D should explore how to improve transparency of R&D costs to better understand how much has been invested, at what stage and by whom. This would improve coordination and efficient use of funding, as well as addressing information imbalance, for example between buyers and sellers, when agreeing terms of purchase agreements for newly developed products and assessing alignment with equitable access principles. One way to do this could be to include details such as product-by-product R&D costs within existing initiatives to track R&D funding.

Recommendation 4: Agree a clearer, more consistent approach to access among funders of R&D

Funders should lead the way on transparency, challenging ourselves to develop a clearer, more consistent and ambitious vision and approach across all major funders. Wellcome will work closely with other R&D funders to discuss and agree how to improve transparency and consistency in our approaches to supporting needed development and equitable access. We will report back on progress on this and our five previous commitments (Annex I) in our next access report in 2022.

3. Sustainable Investment

The problem

Sustainable investment underpins efforts to improve equitable access – from investment in the development of safe and effective products to financing for their manufacture, procurement and distribution. The world often struggles to finance the development of new products to tackle big health challenges. Sometimes this is because these challenges predominantly affect people in low- and middle-income countries (LMICs), and it can be hard to attract significant private sector investment due to insufficient expected commercial rates of return. This contributes to a situation where research priorities do not always reflect the most urgent unmet health needs. For example, between 2000 and 2011, only 1% of the 336 new chemical entities brought to the market were for neglected diseases, despite these diseases being a leading cause of mortality and ill-health[40]. There have been some positive developments in recent years, with a number of non-profit product development partnerships established to stimulate development. In 2018, levels of investment in neglected diseases reached a record high of $4,055m[41] and the number of projects in the early-stage pipeline for neglected tropical diseases had more than doubled since 2014[42]. However, there is still a long way to go to fill the gap between current levels of investment and the amount that will be needed to bring promising candidates all the way through the pipeline, particularly for those addressing episodic outbreaks or affecting limited numbers of people[43].

The health challenges outlined above largely affect people in LMICs, but another group of challenges affect all countries and demand global solutions. This group includes health problems such as drug-resistant infections and diseases with epidemic potential. Globally, it is estimated that 700,000 people die every year from drug-resistant infections, across high-, middle- and low-income countries[44]. The solutions for these types of health challenge have been described by some as 'global commons' or 'global public goods' – solutions to which no one should be prevented from benefiting from and where one person who benefits should not stop another from doing so[45,46]. In an area like epidemics, these global public goods include not only tools such as vaccines, treatments and tests, but also broader capabilities such as early warning systems. Despite the widespread need and clear public health impact of these global health challenges, it can still be difficult to attract the level of investment needed to develop products to address them and to ensure the mechanisms for equitable access are embedded. There is often a high reliance on investment from a relatively small number of funders. For example, between 2014 and 2018, 61% of R&D funding to product developers for key emerging infectious diseases[47] (e.g. Zika, Marburg, Ebola and Nipah) came from the US government[48]. Levels of investment in infectious disease R&D have also tended to react to, rather than anticipate and prepare for, infectious disease outbreaks[49,50]. An exception to this has been support for the Coalition for Epidemic Preparedness Innovations (CEPI), which enabled funders to invest in R&D in advance of an epidemic. However, overall, the mechanisms available to secure upfront global investment that can be mobilised to develop and deliver these global public goods remain somewhat limited.

During Covid-19

Covid-19 falls into the latter of the two categories described above. The pandemic has had a global impact, with countries both rich and poor in need of safe and effective vaccines, treatments and tests to combat the virus. The case for investing in the development, procurement and distribution of such tools is clear – for each month lost in scaling-up access to Covid-19 tools, the world is estimated to lose 120,000 lives, US$460bn in economic output, and US$600bn in global trade revenue[51]. The International Monetary Fund (IMF) estimates that if medical solutions could be made available faster and more widely, it could lead to a cumulative increase in global income of almost US$9tr by the end of 2025[52].

There has been significant engagement and investment from the public, private and philanthropic sectors in the development of Covid-19 tools. Over 250 vaccines are in development for Covid-19[53], around $11bn has been invested by governments in the global response via the ACT Accelerator, and companies have invested substantial sums into their own Covid-19 programmes. Yet, despite this, the ACT Accelerator continues to face

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a major financing gap[54]. Investment is often left to development ministries and, while this source of funding is vital to ensure the development of products suitable for use in LMICs, it was never intended to be the only source of funding to solve health challenges that affect us all. The global community has also continued to rely on a relatively small number of donor governments for substantial contributions towards the development and delivery of Covid-19 tools. Many governments have focused on tackling the consequences of the virus rather than solving the pandemic itself, investing heavily in the public health measures necessary immediately to protect and save lives and economic stimulus packages needed to stabilise economies and protect livelihoods. The amount needed to fund the ACT Accelerator is only a fraction of this investment. An added challenge during Covid-19 has been that fundraising has taken place during the pandemic, particularly as GDP has fallen in almost every country, constraining budgets worldwide[55]. Early investment would help to ensure that valuable time and effort are not diverted to fundraising efforts in the middle of a pandemic and that a lack of funding does not cause unnecessary delays to the activities and initiatives being pursued. In turn, this may help provide more certainty and confidence for governments to participate in the global mechanisms being established.

Other mechanisms, such as international financing institutions, have been limited in their investment for activities undertaken at a regional or global level, as they typically provide financing directly to individual countries. For example, a constraint of the World Bank's preparedness programmes is the dependence on countries' decisions to apply, and when those funds are approved, disbursement has historically been slow. As a result, there are relatively limited options for mobilising funding with the speed, scale and flexibility required to tackle big global health challenges. In recognition of this challenge, the G20 has recently established a High-Level Independent Panel (HLIP) on Financing the Global Commons for Pandemic Preparedness and Response[56]. The HLIP brings together leaders from economics, finance and health to analyse gaps in the current financing system and propose actionable solutions to address these gaps on a systemic and sustainable basis. The HLIP will present its recommendations to G20 Finance Ministers and Central Bank Governors at their meeting in July 2021.

We are starting to see the first wave of successful products for Covid-19 rolled out in several countries. This is the result of enormous dedication and investment from many within the research, health and development sectors. The next challenge is to ensure that these products can be accessed by all who need them; for this, further investment, as well as political will, is crucial. Further investment will also be crucial to support the development of second and third generations of products, which are likely to have characteristics that make them more suitable for use in LMICs. Many of the existing products have characteristics that make delivery in low-resource settings challenging, such as the need for storage at very low temperatures (Figure 2). There is a risk that interest and investment in the global response will wane as high-income countries gain access to the first wave of products and life gradually begins to return to normal. Yet it is in every country's interest to ensure that all countries can access affordable and appropriate products to end the pandemic. A recent study from RAND estimated that the US, the UK, the EU and other high-income countries combined could lose about $119bn a year if the poorest countries are left without a supply of Covid-19 vaccine[57].

Recommendations

Recommendation 5: Create a more sustainable financing system for tackling global threats

Ongoing reviews of financing for future epidemics and pandemics, such as the G20 High Level Independent Panel, must consider how their recommendations will support the development and equitable delivery of global public goods, addressing challenges including the fragmented nature of the financing landscape and historic under-investment in prevention and preparedness, and exploring opportunities to further incentivise preparedness and equitable access through sustainable financing mechanisms. Covid-19 provides a catalytic opportunity to address this long-standing issue for tackling global health threats.

Figure 2: Characteristics of first generation Covid-19 vaccines

Technology/ company	Suitable for people with weak immune systems	Number of doses	Storage	Other vaccines using this technology
RNA Pfizer-BioNTech Moderna	✓	2	**Pfizer-BioNTech:** -70°C and 2-8°C for up to 5 days **Moderna:** -20°C for 6 months and 2-8°C for 30 days	**No other licensed vaccines**
Viral vector Oxford-AstraZeneca CanSino Biologics Gamaleya Research Institute Janssen	✓ (Depending on viral vector used)	1 to 2	**2-8°C**	**Ebola**
'Whole' virus Sinovac (inactivated) Bharat Biotech (inactivated) Sinopharm (inactivated) Medicago Inc. (virus-like particle)	✓	2	**2-8°C**	**Whooping cough (inactivated)** **Rabies (inactivated)** **Hepatitis A (inactivated)** **HPV/cervical cancer (virus-like particle)**
Protein subunit Novavax Anhui Zhifei Longcom	✓	2	**2-8°C**	**Hepatitis B**

As of 6 January 2021. Source: Company data/Gavi

Conclusion

The strengthened international collaboration that we saw over the course of 2020 in responding to the Covid-19 pandemic has helped us to develop safe and effective products at historic speed. While there has also been some encouraging action in the areas of transparency and sustainable investment, we continue to see many familiar challenges – research has been financed largely through reactive funding from a small number of funders, and most funding is provided without transparent access conditions attached. In 2021, the challenge of ensuring that all countries have rapid access to affordable and appropriate vaccines, treatments and tests is becoming a reality. With a different approach to Covid-19 R&D – for example one with upfront global investment at sufficient scale and with clear access obligations – some of these challenges might have been easier to tackle. Alongside continued efforts to ensure all countries can access Covid-19 products, we must start looking towards the future. Covid-19 provides us with a pivotal opportunity to do things differently and be more ambitious when it comes to access, learning from the hard lessons of the Covid-19 pandemic, building on the things that have gone well and intensifying our efforts in areas that remain challenging. We must not let this opportunity pass by, as we defeat this pandemic and prepare for the next one.

Annex I – Wellcome's plan of action to better support equitable access

In our previous access report, we committed to the following five actions to make progress towards an R&D ecosystem that supports access and better serves the global public interest:

Challenge 1: A lack of transparency makes it hard for funding agencies to implement best practice on access

We will:

- **Challenge ourselves on transparency** – We want to be more open about the steps that we are taking to support access. We will continue to report back and will start developing a clearer vision of what success looks like for us as a funder and how we might measure our progress, so that we and others can monitor how we are doing. We will scope how we can be more open to encourage access, including through our funding agreement templates, and be more open about what access provisions we actually agree with partners in future negotiations.
- **Support the development of an online repository of contractual provisions** – We will support the Master Alliance Provisions Guide (MAP Guide), developed by the Global Health Innovator Alliance Accelerator, which will provide an easily accessible list of different approaches that have been taken by public, corporate, philanthropic and multilateral institutions to address key access issues in global health agreements. The online guide will illustrate the policy language and legal terms used in agreements between parties. This should lead to discussions that are more productive and have the potential to accelerate the negotiation of future agreements by providing a point of reference for all funders and developers of new healthcare interventions.

Challenge 2: A fragmented approach by funders makes the system more complicated and provides incentives that may work against access

We will:

- **Develop and promote Global Good Access Practices** – We want to encourage a more coordinated approach across funders of health R&D. The Global Action Plan for Healthy Lives and Wellbeing for All calls for affordable access to be the core driving principle at each stage of the R&D process, with the ultimate aim to embed good access practice across the whole pipeline. We are committed to supporting these efforts and will work with interested stakeholders to do this, raising standards higher than the current practice. We will begin this process working with other funders of health R&D to consider what we can do together at an early stage in the process, to help develop and encourage commitment to a set of common guidelines and to provide more coherence across our different policies. The aim is for funders of health R&D to, where possible, align their policies and grant agreements with these practices.
- **Build upon Wellcome's own principles on access** – Linked to this important work at the global level, Wellcome has a set of principles that outline how we will achieve our access aims: support sustainable access and innovation; foster collaboration and partnership; be flexible and pragmatic; promote transparency to support innovation and access to products. Alongside the Global Good Access Practices, we want to go a step further and put more detail into our own principles, so it is clearer how they will be used in practice. By sharing our detailed principles we hope to increase transparency and do our part in addressing access early.
- **Support the establishment of an Annual Global Forum** – The Global Action Plan, which aims to drive progress towards Sustainable Development Goal 3, has recommended the development of an Annual Global Forum to accelerate the late-stage pipeline of critical medical and health products. This initiative would allow funders, regulators, financing institutions and the global community to get behind interventions that are nearing licensure or have recently been licensed but are facing late-stage access challenges. Agreeing what should be prioritised will be a particular challenge and one we all commonly face in global health, but if successful this action could make a significant contribution to getting a few major interventions to people who need them quicker. We want to help turn this idea into a reality and will support the signatories of the Global Action Plan and interested stakeholders to scope how the forum might work in practice.

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