

Why a vaccine hub for low-income countries must succeed

A new initiative aims to shift the dangerous imbalance in access to medicines, laid bare by the COVID-19 pandemic. It deserves support.

Scientists developed vaccines against a new disease in less than 12 months. And yet, 18 months after the first of these vaccines, against COVID-19, were rolled out, just 15% of people in low-income countries have been fully vaccinated. Such inequity costs lives and unmask a long-standing problem: that some regions of the world have been compelled to rely on others for life-saving science and technology. It is unacceptable, for example, that in Africa, a continent of 54 independent countries and 1.2 billion people, 99% of vaccines are imported.

The World Health Organization (WHO) is searching for a way to get vaccines to more people more efficiently. Last year, the WHO launched a radical initiative called the mRNA vaccine technology transfer hub. The aim of the initiative is to set up a system that develops and produces mRNA vaccines and treatments (for COVID-19 and other diseases) from the technology used in Pfizer and Moderna's highly successful COVID-19 vaccines.

Crucially, the ambition is to achieve this through collaborations between universities and companies based in low- and middle-income countries. In a significant move, on 8 July, the US National Institutes of Health, where much of the foundational research on mRNA vaccines was conducted, joined this mission to build capacity in lower-income countries.

However, as *Nature* reports in a Feature (see page 226), the hub must overcome challenges presented by the global vaccine market, world trade rules and an intellectual-property (IP) system that often benefits established corporations, universities and governments in high-income countries.

One hurdle will be convincing governments and organizations to buy locally made vaccines: such products might initially cost more than those made by established companies that produce at larger scales and can afford to drop prices. But for this initiative to be viable over time, local manufacturers of mRNA vaccines and therapeutics need to be assured that there will be demand for their products. For this to happen, up-front contracts will be needed from buyers.

A key buyer is Gavi, the Vaccine Alliance, a public-private

 **The hub is a refreshing alternative to the existing model for vaccine R&D."**

global health partnership that procures vaccines for dozens of lower-income countries, funded largely by high-income countries and the Bill & Melinda Gates Foundation, a non-profit organization based in Seattle, Washington. Gavi has said that it is committed to supporting vaccine manufacturing in Africa; however, it has not specified how much extra money it would spend on regionally made vaccines, and it has not yet promised to buy vaccines from the companies working with the mRNA technology transfer hub.

In May, the leaders of a number of African Union (AU) member states called on Gavi to commit to buying at least 30% of all COVID-19 vaccines produced in Africa as new manufacturers come online. Such a commitment will be essential to reaching the AU's ambition for 60% of Africa's vaccines to be produced on the continent by 2040.

Adjusting the scales

Barriers created by IP rights represent yet another hurdle in the hub's path. Earlier this year, the company at the core of the hub, Afrigen Biologics and Vaccines in Cape Town, South Africa, successfully reproduced small quantities of Moderna's mRNA vaccine. But Moderna has not agreed to license its IP or share data that could help Afrigen to ensure that its vaccine candidate meets similar safety and efficacy metrics.

Sadly, last month, the World Trade Organization (WTO) ended some 20 months of negotiations on a waiver proposed by South Africa and India covering IP on COVID-19 vaccines, drugs and diagnostic tests, which would have allowed faster knowledge sharing. The campaign, which *Nature* supported, faced strong opposition from the European Union and the pharmaceutical industry.

The WTO members instead agreed on a deal to amend existing rules on IP sharing in emergencies; however, these will be cumbersome to implement and do not amount to a waiver. Many researchers who have devoted their careers to studying mRNA want to see it save more lives, rather than widen inequality, and question whether the current IP regime is, in fact, stifling the kind of innovation that could see the mRNA hub succeed.

The hub is a refreshing, ambitious alternative to the existing model for vaccine research and development (R&D). With collaboration and knowledge sharing at its core, it aims to create and boost home-grown R&D and innovation in low- and middle-income countries. But it is clearly a threat to a system in which companies are able to claim IP rights on lifesaving products that are often created using findings from publicly funded research.

As economists Mariana Mazzucato and Jayati Ghosh, with innovation-policy researcher Els Torrelee, have argued, there is something wrong with a system in which people's taxes pay for science, yet, in the middle of a pandemic, relatively few companies and governments are permitted to control who has access to lifesaving products derived from research, and on what terms (see go.nature.com/3ixz3dd).

The WHO and its partners are right to seek to adjust the scales. In addition to the justice imperative, outbreaks would end sooner if every region of the world could rely

on its own defences, stifling the spread of emerging pathogens and viral variants. As Larry Brilliant, an epidemiologist who helped to eradicate smallpox, told *Nature*: “Equity is often thought of as a burden, but it is a strategic need in the battle against pandemics.”

Boris Johnson’s successor must reset relations with research

The UK government must stop picking fights with universities and reset the country’s relationship with the European Union.

Boris Johnson’s forced resignation on 7 July was, arguably, the most chaotic in British political history. It came after more than 50 of his ministers resigned within 48 hours. When Johnson will actually leave 10 Downing Street still isn’t clear; he is currently in a ‘caretaker’ role and could remain in office for some months. But change at the top offers glimmers of hope for researchers, provided Johnson’s successor recognizes the damaging effects of current policies and acts swiftly to mitigate them.

The government must cease its damaging and ill-considered fights with the scholarly community. It has to stop undermining the autonomy of universities. Political obstacles to UK access to European Union research funding must be rapidly removed. And a sea change is needed in the United Kingdom’s overall relationship with its European partners.

End Horizon Europe uncertainty

Pressing pause on a draft law (the Northern Ireland Protocol Bill) has to be an urgent priority. The law, if enacted, would override key obligations that the UK government agreed to as part of its exit agreement with the EU. The UK Parliament is due to discuss the bill this week. In response to the possibility of this law being passed, the EU has begun legal action, and is stopping UK-based researchers from continuing to participate in its €100-billion (US\$101.8-billion) Horizon Europe funding programme, the world’s largest such scheme. If the passage of the law can be suspended and UK officials return to negotiating with EU counterparts, there might still be hope for UK researchers to rejoin Horizon Europe through the country becoming an ‘associated’ nation. Unless that happens, there’s little prospect of UK-based researchers participating in Horizon Europe under the terms originally agreed.

“A new set of people offers the best chance to move forwards from the nightmare of the past three years.”

The UK government had previously promised to provide researchers with interim funding should there be delays to rejoining Horizon Europe. It has also been working on a fully fledged ‘Plan B’ funding mechanism to support international collaborations with UK researchers in the event that EU association turns out not to be possible. The precise arrangements for the scheme are still being worked out. The architect of these discussions, science minister George Freeman, was among the scores of ministers to quit Johnson’s government.

The incoming science minister must work urgently and constructively with the UK Treasury to accelerate this work and to ensure that the Plan B funding is protected, otherwise there is a risk it will be spent on other priorities. Further down the line, Johnson’s successor should consider merging the roles of science minister and universities minister. Until recently, one minister was responsible for both areas, but in early 2020 the job was split for no beneficial reason. This has resulted in some very mixed messages from the government.

Protect researchers from harm

Whereas Freeman sought to engage with researchers to try to resolve their concerns, his colleague Michelle Donelan, the minister for universities until last week, sometimes took a different approach. On 27 June, Donelan wrote to universities saying that institutions should not need to comply with independent equality and diversity compliance measures, and specifically named the Race Equality Charter as an example.

Previously, the government had also downgraded the Athena SWAN Charter, a set of policies and actions designed to promote gender equality in universities. The government claimed that such schemes compromise academic freedom, but failed to provide credible evidence to support this view. The government must swiftly and publicly rescind Donelan’s letter. As *Nature* recently affirmed, good science requires a conscious effort to protect people from harm – and that should include protecting those involved in doing the research.

Last week, Johnson’s new education minister, James Cleverly (who is the fourth minister the education department has had in three years), pledged that the caretaker administration would not do anything to “tie the hands” of its successors. This potentially clears the way for the building of more constructive partnerships. But, given the Johnson government’s elastic relationship with the truth, such words cannot be taken on trust. That, more than anything, is why Johnson and his caretaker administration need to exit quickly.

The Johnson government’s three years were characterized by a shocking and persistent disregard for rules, for the truth and for expert evidence – all of which culminated in extreme positions on a number of policy issues. A reset is urgently needed in the United Kingdom’s relationship with the EU and in the government’s dealings with universities. The installation of a new set of people offers the best chance for everyone to move forwards from the nightmare of the past three years.