

**S**PEED MATTERS. IN THE FIGHT AGAINST A global pandemic, early public health interventions can save lives, as many governments have learned to their cost. But perhaps nowhere is speed more important than in the development and deployment of vaccines.

The record-breaking pace at which academic researchers and pharmaceutical companies produced COVID-19 shots has been a triumph of modern science. Vaccines have allowed many rich countries to reopen their economies and release their populations from onerous restrictions. Yet their roll-outs have also exposed an unacceptable inequity in access, with hundreds of millions of people in low-income countries left behind.

In the future, the world will need to move faster—to compress vaccine development times even further and close the access gap—if it is to avoid a re-run of the devastation caused by COVID-19.



# Faster Vaccines

Two hundred and sixty viruses from 25 virus families are known to infect humans, plus many others in animals and birds could jump the species barrier at any moment. It is only a question of time before the next outbreak hits. However, with the right preparation, the damage can be limited by using the toolkit that the world now possesses to stamp out emergent diseases before they wreak havoc.

So, what needs to happen? While no vaccine has ever been made as fast as the ones for COVID-19, the 314 days it took from the release of the coronavirus genetic sequence in January 2020 until submission of Phase 3 vaccine clinical trial data for regulatory review was still too long.

The Coalition for Epidemic Preparedness Innovations (CEPI) has therefore set a “moonshot” goal to shrink this timeline to just 100 days—an ambition now backed by G7 leaders. If this had been achieved in 2020, a vaccine could have been ready for emergency use by May, rather than December, potentially averting millions of deaths, and restoring societies and economies much sooner.

The target of 100 days may seem outlandishly ambitious, but experts are convinced it is achievable by leveraging mRNA and other advanced technologies pioneered during the pandemic.

These new ways of making vaccines are far more rapid than conventional approaches. And it is now

**Quicker development and improved access are critical to preparing for future disease outbreaks.**

**The good news is we now have a blueprint, says Brunswick’s BEN HIRSCHLER.**

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possible to create prototype vaccines against diseases that are most likely to cause future outbreaks, as well as potentially develop universal vaccines for coronaviruses and the flu that would protect against all forms of these pathogens.

Intriguingly, the new science is also starting to be applied in other areas. Because mRNA effectively recruits our bodies to make medicines, it could be a way to treat everything from autoimmune conditions to cancer.

But smart R&D alone is not enough. The international community also needs to do a far better job of ensuring equitable vaccine access, if diseases are not to fester in poor countries where they will ruin more lives and fuel dangerous mutations.

The stark fact is that although some 7 billion doses of the COVID-19 vaccines have now been administered globally, only around 3% of people in low-income countries have received at least one dose. This lag is untenable in an age where deadly viruses can spread around the world at the speed of a jet plane.

There needs to be expanded vaccine-making capacity in more countries and a doubling-down in commitments to initiatives like COVAX, which was set up to make COVID-19 vaccines available worldwide. In the view of Bill Gates, the world should have the goal of being able to make and deliver enough vaccines for everyone on the planet within six months of detecting a potential pandemic.

The right investments and decisions today will be crucial in significantly reducing the risks posed by tomorrow’s disease outbreaks. ♦