The Pandemic That Won’t End

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Every struggle against a pandemic is a race against time. Human intelligence, scientific know-how, and technology try to outstrip the microbe’s capacity for rapid change. The human species produces a new generation on average about every 20 to 30 years; microbes produce a new generation in minutes to hours. Each of those reproductive cycles gives the virus the opportunity to mutate. Many of these inevitable mutations will be insignificant or even detrimental to the microbe’s survival, but some will make the germ better suited to the pressures of its environment—and more dangerous to humans.

As the COVID-19 pandemic enters its second year, variants of concern have been identified in Brazil, South Africa, and the United Kingdom. They will not be the last. Scientists fear that some of these new strains may be resistant to the recently produced COVID-19 vaccines. As a result, the development of novel coronavirus variants threatens to extend the pandemic even as the rollout of vaccines has promised to bring it to an end.

This pressure makes vaccine access more important, not less. New mutations can develop when the virus is able to spread through unprotected populations. The best way to head off the development of dangerous variants is to have as many people as possible protected from infection in the first place. The current global COVID-19 vaccine regime, however, is not fit for that purpose. Millions of people in high-income countries may have already received vaccines, but many low- and middle-income countries have yet to issue a single dose.

Such inequity is not merely unjust but hazardous. Vaccine nationalism—the understandable desire to tend to one’s own citizens first before worrying about others—won’t save wealthy countries if new variants of the disease prolong suffering and disruption elsewhere. Collective action to immunize the world from COVID-19 may sound idealistic, but it is a practical necessity.

THE TROUBLE WITH VARIANTS

For many months, scientists assumed that the COVID-19 microbe was relatively stable. Its mutations seemed insignificant enough that a safe and effective vaccine might be able to quash the disease once and for all. But the emergence of the first variants of concern in November and December 2020 forced the scientific community to acknowledge, with a due degree of humility, that bringing the pandemic to an end will not be so straightforward.

Variants of diseases such as COVID-19 offer several grounds for concern. A variant may be more easily transmissible from person to person. It might cause more serious disease and greater mortality and therefore lead to a greater burden on already stretched

hospitals and health-care facilities. And most troublingly, immunity acquired via vaccination or from previous exposure to COVID-19 may not prevent a new mutation of the disease from causing infection.

> Variants of COVID-19 may circumvent the immunity provided by vaccination.

The surge in the United States of the COVID-19 variant first detected in the United Kingdom suggests the virus is adapting in ways that make it more transmissible and cause more serious disease. As long as the virus can continue to spread anywhere in the world, no one is safe from mutations that have the potential to render current vaccines and treatment regimens less effective or even ineffective. Two other variants—one first detected in South Africa and one in Brazil—are not spreading in the United States or around the world as alarmingly at present but seem able to evade the immune protection afforded by the current vaccines or by recent natural infection. These dangerous mutations could prolong the pandemic, extending all the concomitant suffering, hospitalization, death, and economic disruption of the past year.

The emergence of troubling COVID-19 variants becomes more likely as long as vast swaths of the world still lack access to vaccines. In February, United Nations Secretary-General António Guterres announced that ten countries had administered 75 percent of the world's available COVID-19 vaccine supply. At that time, more than 130 countries, home to 2.5 billion people, had yet to receive a single dose of any vaccine, rendering them vulnerable to new variants. High-income countries could get close to herd immunity—the point at which enough people in a given population are immune that each infected case transmits to fewer than one other person so that the virus cannot spread easily—through vaccination in the coming months. But they will still be in danger from variants evolving in nonvaccinated or inadequately vaccinated countries that then make their way across international borders.

Such mutations could pose a major health threat to all countries and disrupt the interconnected global supply chain by damaging manufacturing and agriculture in regions still blighted by the virus. Countries could once again shut down borders and prevent travel. A January study published by the International Chamber of Commerce claimed that unequal access to vaccines could cost the global economy as much as $9.2 trillion, with around half of that total lost in wealthy countries. The continuing pandemic could also wreak havoc on already vulnerable and shaky governments, leading to greater geopolitical instability.

DECLARING WAR ON COVID-19

To stop the pandemic from dragging on another two to three years will require a global response that radically boosts vaccine production and distribution. One element of such a response is the COVID-19 Vaccine Global Access program, known as COVAX, a World Health Organization (WHO) initiative to provide vaccines to 92 low- and middle-income countries, including many in Africa. The facility's initial goal was to cover just 20 percent of its target populations, and officials feared that reaching even that threshold would be difficult. In February, Ghana became the first nation to receive a COVAX supply, but it

included only enough doses to vaccinate one percent of its population of 31 million people. Widespread immunization in Africa remains a distant prospect; the African Union hopes to have 60 percent of the continent's 1.3 billion individuals vaccinated within three years.

COVAX began as a humanitarian initiative, but it has rapidly morphed into a vital instrument of enlightened self-interest. In February, the G–7 nations pledged to increase their commitments to COVAX to $7.5 billion, with $4.0 billion coming from the United States. Yet Tedros Adhanom Ghebreyesus, the WHO's director-general, insisted that sum is far less than what is needed. Wealthy countries must deliver greater funding to COVAX, with the knowledge that their donations represent a comparatively small insurance policy against the consequences of inaction.

Beyond supplying funds, governments and international aid institutions must figure out how to boost the supply of vaccines. Countries in Africa, Central and South America, and much of Asia have limited pharmaceutical manufacturing capability. To compensate for that lack, countries and corporations already making vaccines must coordinate in helping accelerate the production and distribution of the vaccines. This endeavor should include China, India, and Russia, as well as other Western countries, all of whom should work to develop capacity in allied or client countries. Member states of the World Trade Organization should consider its rules on intellectual property to see if special adjustments or waivers could be used to help increase supply. Private pharmaceutical companies must be willing to share knowledge and technology that in normal circumstances they might have kept to themselves. In an encouraging start, U.S. President Joe Biden announced in March that the pharmaceutical giant Merck has agreed to partner with traditional rival Johnson & Johnson to boost the supply of the latter's newly authorized single-dose vaccine.

A worker checks boxes of COVID-19 vaccines in Accra, Ghana, February 2021
Francis Kokoroko / Reuters

Subsequently, the WHO, governments, nongovernmental organizations, and pharmaceutical companies should scour the entire world for additional production capability to increase the manufacturing of COVID-19 vaccines and the necessary supplies to administer them, including vials, syringes, and refrigerated storage units. Plants that produce veterinary vaccines, for instance, might be enlisted in this effort, and then wealthy countries, the WHO, and large foundations should support them with the right financial and technological backing to get up and running. These new facilities might serve a lasting role beyond the particular crisis of this pandemic, addressing existing weaknesses and gaps in the international supply chain for generic drugs (at the moment most are manufactured in either China or India). And these facilities can help in the likely event of another pandemic, as governments can repurpose them to produce new vaccines to combat a novel disease outbreak.

Getting vast quantities of vaccine quickly to low-income countries will be immensely difficult, and even then, ensuring uptake will present another hurdle. Governments and international organizations must plan outreach and information campaigns to overcome vaccination resistance. These campaigns should enlist local political leaders, celebrities, and other known influencers. In parts of Africa and Asia, communities have viewed vaccination programs as suspicious or nefarious foreign schemes dating back at least to the worldwide smallpox eradication program of the 1960s and 1970s. Polio workers were murdered in Pakistan as recently as February in the misbegotten belief that they actually intended to control local populations through sterilization. Similar rumors, promulgated on social media, have filtered through sub-Saharan and West Africa regarding COVID-19 vaccines. Madagascar is promoting an herbal remedy to the disease, endorsed by

President Andry Rajoelina, and Tanzanian President John Magufuli, until last year the chair of the Southern African Development Community, declared the pandemic over in his country, a claim numerous public health experts have denied. He recently reversed his stance and asked citizens to wear masks.

NO COUNTRY IS AN ISLAND

Vaccines and vaccine education will ultimately be the best way to fend off the emergence of new deadly variants of COVID-19. But until such programs can take root, governments and international health organizations must set up a far-reaching surveillance and reporting system to monitor changes in the virus, as the United Kingdom has done effectively. Researchers are already trying to expand the protection that current vaccines offer. But they must also look to developing second- and third-generation vaccines to contend with variants as they emerge. This coronavirus may well become endemic—much like influenza, which spreads each winter, sometimes with a new variant that reaches epidemic or pandemic proportions before it eventually attenuates into a less fearsome seasonal strain. The next generation of COVID-19 vaccines might therefore be multivalent—that is, able to combat more than one variant. Ultimately, researchers should aim to develop a universal coronavirus vaccine that would target the pieces of the virus particle that all variants share. To get there may require an effort on the level of the Manhattan Project—but such labor will be well justified if it can neutralize the devastating potential of the virus's mutations.

Neither the United States nor any other global power can defeat a pandemic by thinking in national terms. COVID-19 vaccines are now a central component of the United States' national security and defense. But unlike other spheres of defense, this one involves protecting—not fighting—foreigners. As the poet John Donne noted centuries ago, "No man is an island, entire of itself; every man is a piece of the continent, a part of the main." Never has that been truer than during the current worldwide plague. If the bell continues to toll, it will be tolling for us all.

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