

## Towards Societies Living with COVID-19

Peter Piot<sup>1</sup>; Julia Spencer<sup>1,\*</sup>

The coronavirus disease 2019 (COVID-19) pandemic is undoubtedly the greatest challenge in peacetime facing the world for more than 100 years. No country is untouched with more than 100 million confirmed cases and over 2 million deaths as of January 28, 2021 (1), and the actual number of infections is probably closer to one billion as few countries had sufficient testing capacity to identify all cases, particularly throughout early 2020.

The effectiveness of national responses to the pandemic has been very unequal. Whereas some countries, particularly in East and Southeast Asia and Oceania, have been able to bring the epidemic provisionally under control though with continuing outbreaks, much of the rest of the world is still struggling with expanding epidemics and an escalating death toll. In addition to the physical and mental health impact and disruptions to health services, it is likely that the social and economic devastation will be with us for years to come. The sobering reality is that we are only at the end of the beginning, not the beginning of the end.

While dealing with the acute stage of the pandemic, we need to start planning for the long-term and shift our thinking to societies living with COVID-19, even if we should benefit from the protection of vaccines. The future trajectory of the pandemic will vary by country and depend on a combination of at least five factors: societal and public health responses, vaccine coverage, the duration of natural and vaccine-induced immunity, seasonality, and future mutations of the virus (2–3).

The recent emergence of new variants of the COVID-19 virus is at the same time expected, since RNA viruses mutate and the number of people infected in the world is enormous, and a major concern since this is probably only the beginning and evolutionary pressure from vaccination, particularly incomplete vaccination, may provide a breeding ground for escape mutants. It seems that at least the B.1.1.7 British variant is inactivated by the current vaccines and both Novavax and Janssen reported protection against the South African 501Y.V2 variant.

However, other, more divergent and complex mutations may render vaccines less effective. It may also mean that vaccines have to be redesigned regularly, that multivalent vaccines may need to be developed, and that, just as for influenza, countries may need to periodically vaccinate — all this at a high cost.

The silver lining is that unprecedented scientific collaboration has achieved in months what would normally take decades with several safe and effective vaccines on the market, as well as diagnostics and, to a lesser degree, therapeutics. But scientific innovation alone is insufficient. Sustained progress in bringing the virus under control requires continued compliance with all non-pharmaceutical measures alongside the global rollout of equitable and efficient vaccination programmes and vaccine uptake.

With our increasing understanding of the virus and our new armamentarium of tools against it, the likely scenario is that most countries will gradually begin to control COVID-19 with very low mortality but with occasional flare-ups, possibly seasonal outbreaks because of waning immunity or the emergence of new variants of concern.

However, the crisis is not over anywhere until it is over everywhere. Some countries are not yet sufficiently protected and widespread testing and contact tracing, including for international travel, will be essential. We must also ensure that everyone, everywhere, has equitable access to safe and effective vaccines starting with the most vulnerable, including in low- and middle-income countries. This is not only a moral imperative, but as long as one country in the world is affected by COVID-19, no country is safe. Equitable access to COVID-19 vaccines is becoming one of the most pressing geopolitical issues of our time.

As we rapidly roll-out vaccination programmes to save lives and livelihoods, we must also address the long-term health and socioeconomic challenges ahead of us. But there is also an opportunity to make our societies and systems more resilient and more just by accelerating much needed changes in many areas such as health, education, workplace policies, urban planning, food production, and environmental policy.

Although it is unlikely that we can eradicate COVID-19 in the foreseeable future, we have the tools and strategies to prevent COVID-19 outbreaks from spiralling into major epidemics while protecting those most at risk of developing severe disease. As we have seen in many settings, hard-won gains are easily reversed and there will always be a risk of resurgence. Success hinges on action at all levels — to protect ourselves we must protect our communities.

We must also learn critical lessons to better prepare for the next epidemic, and important efforts are under way in this regard (4). It may well be that we are entering an age of pandemics due to our increasing inability to live in harmony with natural ecosystems in our interconnected world (5). Indeed, infectious diseases are emerging at an accelerating rate and more than 60% of those emerging in humans are zoonoses, most of which originate in wildlife (72%) (6). The risk is further compounded by the profound health impacts of the global climate crisis (7).

International collaboration is vital for epidemic preparedness and response as “public health goes global” (8). In addition to the global leadership of the World Health Organization, regional bodies are playing an increasingly important role in providing political leadership and strengthening resilience and preparedness tailored to unique national contexts, from the African Union to the European Union and the Association of Southeast Asian Nations. Regional entities should also rapidly embrace much needed cross-sectoral strategies beyond the health sector. China’s support through COVAX [the initiative led by World Health Organization (WHO), Global Alliance for Vaccines and Immunization (GAVI) and the Coalition for Epidemic Preparedness Innovations (CEPI)] and bilateral supplies of vaccines should play a major part in ensuring equitable access.

Now more than ever we must break the vicious cycle of panic and neglect associated with pandemics and sustainably invest in prevention and preparedness (9). As COVID-19 has amply demonstrated, epidemics can trigger major economic and security crises, and effectively managing them therefore requires a whole-

of-society approach, underpinned by robust and well-resourced public health systems. We must also work to overcome the silos between human, animal, and environmental health, investing in systems that embrace the critical intersection between these fields as advocated by the One Health approach (10). The COVID-19 pandemic is a profound tragedy and we must act now to ensure we are better prepared when the next epidemic inevitably strikes.

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\* Corresponding author: Julia Spencer, julia.spencer@lshtm.ac.uk.

<sup>1</sup> London School of Hygiene & Tropical Medicine, London, UK.

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Professor Peter Piot, MD, PhD  
Director and Handa Professor of Global Health, London School of Hygiene & Tropical Medicine