

White Paper

**THE COVID-19 HIGH-WIRE ACT CONTINUES,
BUT SO TOO DOES OPPORTUNITY**

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THE WORLD HAS CHANGED remarkably over the last 18 months, as a period of near-unprecedented disruption transformed how we live and work, placing huge strain on our families, economies, and societies. The coronavirus pandemic has shaken the foundations of our connected modern world, yet like any period of disruption, it has delivered an equally potent catalyst for innovation that promises a welcome glimmer of hope for the world that might follow.

The global coronavirus situation remains challenging and dynamic. Many countries lauded for their early interventions in 2020 now face resurgent second or third waves of infections that threaten to overwhelm healthcare systems. Nations championed for their strict early interventions—many of them in East and Southeast Asia—now face emerging outbreaks or worsening domestic infections that threaten hard-won efforts against the virus. While early interventions placed them in good stead through much of the last 18 months, the situation today is precarious.

Many developed nations struck heavily by the pandemic are now charging forward with vaccination programs, as the difficulties of the past year provide a powerful impetus to protect populations against COVID-19 and its emerging variants into the future. The UK and US—two of the most heavily afflicted nations in the world—are at the forefront of this charge, alongside global vaccination leader Israel, leveraging the world’s innovative COVID-19 vaccines. It’s clear that given the contemporaneous disease burden in their respective countries, the US and UK in particular saw rapid vaccination rollout as a critical route for sustainable protection of their citizens, and engaged substantial resources to do so.

When the authors of this report first commented on a then-emerging global coronavirus threat in our white paper [Detect, Develop, and Deliver: A Holistic Approach to Managing Outbreaks](#), in February 2020, confirmed global case numbers sat at just 78,000, and deaths at 2,500. The relative tally today is sobering, with over 3.5 million deaths, and 170 million cases reported. Commentators are united in their belief that these numbers represent a significant undercounting.

In the first edition of this white paper series, we argued for the importance of systems to Detect and understand global health threats generally, and SARS-CoV-2 specifically, the foresight to

rapidly Develop countermeasures, and the critical need to Deliver appropriate healthcare interventions to mitigate the worst impacts of the pandemic.

These solutions remain fundamental to our approach in tackling the COVID-19 disease burden today. Yet the last 18 months, while filled with challenge and tragedy, reveal a glimpse of how innovations developed to manage this threat could, with the right commitment and engagement, offer a powerful springboard to more equitable and effective approaches to healthcare in a post-pandemic world.

Breaking the chain

The model to Detect through track and trace, Develop diagnostics, vaccines, and therapeutics, and Deliver key interventions outlined in our earlier white paper has been largely followed to one degree or another in the majority of countries around the world. The execution of this tactic has been further complemented by the fast pace of innovation enhancing data analytics in epidemiology, rapid vaccine development, accelerating healthcare provider training, deepening patient engagement, and optimizing cold chain management.

Breaking the chain of infection has been the goal of increasingly innovative healthcare interventions in nations around the world over the past 18 months. Provision of remote public services, multi-channel communication on social distancing and health measures, new diagnostics, digital contact tracing, and dynamic movement restrictions, have all been targeted at preventing potentially infectious individuals from interacting with their fellow citizens.

In the early days of the COVID-19 pandemic, there was a fraught balance sought by some countries aiming to navigate a perceived tradeoff between lives and livelihoods. Those countries which shut down hard and fast to establish effective healthcare procedures suffered both a less-negative health impact and reduced economic jolt as a result. Vietnam, Australia, and New Zealand—three countries seen as exemplars of pandemic controls—evidence far lighter economic impacts than other developed nations that have suffered a rolling series of infection waves and lockdowns. The situation in developing countries is more complex still, as nations balance the financial needs of workers and economies in far more precarious economic positions.

A year on, and many nations are now attempting to tread a middle ground between full societal shutdown and carefully managed economic activity. While the temptation might be clear, this is ultimately a false choice. Countries attempting to find this balance—France, Sweden, Italy, to name a few—have never achieved it. The success of nations like Australia, New Zealand, and indeed China, has demonstrated that the only effective way to stop the virus spreading outside vaccination is by breaking the chain of infection.

An important secondary point is the long-term toll that infection control measures such as social distancing, mask wearing, border closures, and restricted gatherings can take on both the economy and our mental health. The uncertainty of lockdown durations, and their severity, impact growth, as the private sector withholds investment and consumer confidence erodes.

Variants that spread more easily and quickly have also reduced the effectiveness of social distancing. The sustainable path forward, even for those nations who have achieved domestic eradication, must be widespread vaccination. The countries that succeed in these efforts will be the first to return to a more resilient normalcy.

The consequences of varying government responses will have an impact long after the pandemic—early gains made by countries to control the virus and adopt innovative solutions will deliver long-term benefits.

Innovation can inspire a positive transformation

The situations nations find themselves in today are far removed from the turbulent period of uncertainty that framed the start of 2020. Interventions and innovations embraced over the past 18 months offer more sophisticated options for policy makers. Test and trace systems, often delivered through public-private partnership, have provided a pathway to rapidly identify, test, and trace contacts to interrupt potential chains of infection. Support policies have been established in many markets to target interventions with greater precision.

The game-changing innovation—COVID-19 vaccines—also offer an expanding layer of protection against serious illness and death that we lacked a year ago. It is imperative that we ensure more equitable and widespread access to these vaccines moving forward, a key focus

of the recent World Health Assembly hosted by the World Health Organization (WHO), and one echoed at this year's G7 and World Bank meetings.

Even with vaccination, COVID-19 won't vanish. It is now inevitable that it will be established in a flu-like scenario with routine boosters likely. Mutations of the 1918 Spanish flu virus still circulate and caused deadly outbreaks in 1957, 1968, and 2009. Countries must also consider the increasing evidence of long-term morbidities after COVID-19 infection. A broader view of health policy is needed.

Periods of disruption have long been a catalyst for transformative innovation. Much as we did at the end of World War II, we now face a critical global inflection point as we look to emerge beyond a period of crisis. Many of the innovations and evolutions in public service delivery developed during the pandemic offer a pathway for us to improve healthcare provision into the future.

Contact tracing—essential to tracking and tackling outbreaks—offers both the partnership model and the technical capabilities to Detect diseases beyond the scope of COVID-19. Those same digital capabilities provide the potential to track the significant burden of chronic conditions such as diabetes or hypertension, offering a platform for intervention which could save millions of lives annually.

New multiplex point-of-care diagnostic tests designed to identify signs of COVID-19 infection also offer a solution to identify other infectious diseases, providing new tools in our international healthcare arsenal. Comprehensive monitoring of symptoms or pre-existing conditions, incorporating both digital tracking and advanced analytics, provides an informed platform for intervention that could radically reduce costs for healthcare systems while significantly improving outcomes for patients.

Finally, the development of multiple efficacious COVID-19 vaccines reveals the capability of the global scientific community to Develop solutions to health challenges at an accelerated rate, when the right resources are deployed. These vaccines have also shown the promising potential of novel innovations such as mRNA to deliver transformative health impacts—a platform technology which could unlock revolutionary potential in areas from infectious disease to cancer.

Cold-chain capacity and logistics networks leveraged to Deliver COVID-19 vaccines domestically, regionally, and globally also offer an element of critical transport resilience which could smooth access to vaccines and therapies for other major healthcare interventions.

Sustaining a positive transformation

The innovations that have driven our COVID-19 response did not emerge in isolation. In many cases they built on existing or emerging technologies and capabilities to rapidly respond to a pressing global threat. The delivery of these interventions also, in many cases, leveraged existing relationships to build robust public-private partnerships that were able to quickly and effectively execute these measures.

This landscape of accelerated innovation delivered in partnership offers a powerful framework for positive transformation as we look to emerge beyond this pandemic. Unlocking the full value of this transformation will require agile collaboration with pragmatic health financing models that enable us to pivot from our current COVID-19 response to one which embraces a more holistic look at global health challenges.

Vaccination infrastructure offers perhaps the most obvious area of early intervention. Today, countries around the world are rushing to acquire sufficient vaccines to inoculate their vulnerable, followed by their wider populations. The lopsided manufacturing and distribution of vaccine stocks, compounded by a significant third wave in the world's largest vaccine producer India, has given a somewhat frantic view of that picture.

Beyond the urgent and undeniable need to ensure more immediate widespread manufacturing and equitable distribution—an intervention which ultimately benefits the entire global community—there comes a question of what happens next. Analysis of current global vaccine orders suggests a trajectory of significant oversupply of COVID-19 vaccines and constituent and ancillary material in coming years.

Establishing effective public-private partnerships to help monitor and mitigate that potential oversupply, while steering a transition of production capacity to target other key health challenges, could offer huge potential value to global healthcare. That could include important

traditional interventions such as typhoid, rotavirus, or pneumococcal vaccines, alongside innovative new treatments such as cancer vaccines or other biologics.

Transformations in the provision of healthcare during COVID-19 also offer the potential for persistent positive change in a post-pandemic world. The use of non-traditional healthcare practitioners to deliver vaccines could provide a template for rapidly expanding access to healthcare. In markets such as the US and UK for example, pharmacists have been empowered to provide an expanding range of adjacent services in response to the pandemic. Using healthcare workers in roles that are not historically front-line positions could provide a particularly powerful intervention in developing countries where healthcare infrastructure is less accessible. Training of vaccinators has proven how quickly, and efficiently, new healthcare workers can be brought into the healthcare system.

In both emerging and developed countries, we've also seen the rapid adoption of tele-health interventions during the pandemic. In Singapore for example, tele-health initiatives have been launched to support patients with mobility issues in their own homes, allowing for one-on-one care without the need to attend a physical location. This same tele-health infrastructure can be leveraged to expand healthcare access post-pandemic, and even feed into the use of data-driven analytics to deliver holistic benefits realized across the wider healthcare ecosystem. With the widespread use of cell phones, this could also offer a new avenue for patient engagement in developing countries.

Manufacturing, both of vaccines and key personal protective equipment (PPE), also provides a path to innovation which could unlock further positive change. 3D or flexible manufacturing capacity can not only provide jobs in local markets, but could also offer the ability to rapidly pivot to develop new drugs or medical supplies. Automated technologies and advanced industrial robotics will further help embed this capacity for agile and rapidly-scalable manufacturing solutions in developed nations, while offering the potential to leapfrog to new manufacturing paradigms in developing countries.

While innovation is the impetus for this change, clear communication and trust will be vital in delivering on the promise. We've seen throughout the COVID-19 pandemic how critical clear communication from policy makers and decision makers can be. Tailored communication that targets defined population segments in different ways has been invaluable, reflecting that the

needs of affluent demographics for example are significantly different than those of more vulnerable communities.

That same honest and personalized engagement will be critical in the new reality which follows. Novel communication channels established to educate about vaccinations, promote their uptake, and communicate their benefits, can be leveraged for other treatment modalities such as maternal care, or mental healthcare. That ability to engage the population will be pivotal in enabling sustainable global healthcare solutions. Clear communications, comprehensive outreach, and trust will continue to be critical for the broader challenge of improving public health, especially for minority and vulnerable communities.

Achieving these ambitions will mean advancing and sustaining innovations in financing, technology, patient engagement, and managing healthcare workers. Those efforts must begin by improving global health systems via continued investments through public-private partnerships—and by supporting all people to realize their fundamental right to good health and quality healthcare—improving productivity and wellbeing. We must also do more to prepare for future biological threats, recognizing and responding to a changing climate, increased human-animal interface, cheap gene editing, and environmental degradation that could put humanity in closer proximity to new vectors of infection.

This paper makes three bold points. First, that there is no balancing act to successfully navigate the false trade-off between health and the economy. Second, that vaccinations are the foundation for sustainable solutions. Third and finally, that innovations initiated during the pandemic and adopted to tackle it can be sustained and scaled to ensure a more resilient health system for the future, and place us in better stead to treat existing diseases while providing more efficient, effective, and equitable healthcare.

To echo the language of our earlier recommendations designed to steer us through the pandemic, we bolster and sustain Detect, Develop, and Deliver strategies to accelerate the adoption of innovative solutions and steer us towards better healthcare beyond it.

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The past 18 months have presented substantial challenges for the global community. In sharing that challenge, there's also welcome evidence that we have shared the solutions—robust public-private partnerships to track and trace contacts, develop vaccines, and deliver key healthcare interventions.

Alongside this essential collaboration, innovation has been a fundamental driver of an effective global response to COVID-19. Sustaining these innovations should be a priority going forward. With the continued commitment of the global community, that foundation of innovation and partnership could yet provide the basis for a more effective, equitable, and resilient healthcare system in a post-pandemic world.

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