WORKING GROUP #1 REPORT

ADDRESSING THE PUBLIC HEALTH CRISIS

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ACKNOWLEDGMENTS

As co-chairs, it was a privilege to have the opportunity to work with a cohort of 35 very special individuals representing 16 institutions from across the world. This Working Group #1 was tasked with 'addressing the public health crisis'. Our common goal was to put together ideas and solutions that were implementable in large parts of the world to respond to the coronavirus pandemic. Working across time zones—and indeed against time—we are delighted to have put together a comprehensive set of recommendations and analyses that flow from the richness and diversity of the group and individual expertise. The effortless commitment of the group to the task is noteworthy and much appreciated.

We must also acknowledge the numerous suggestions received on email, from multiple stakeholders. Many of them have participated at the first and second town hall meetings.

We must thank Professor James McGann, who has expended considerable energy and effort towards mobilising the global think tank community during this time of crisis. He and his team at the Think Tanks and Civil Societies Program, Lauder Institute, University of Pennsylvania, have been the driving force in bringing the global think tank family together at this especially important global moment.

Finally, as co-chairs, it is important to note that this is not a consensus report. Not all participants agreed with every recommendation, and the recommendations are not necessarily endorsed by each of the institutions participating. However, it is equally important to note that this report brings with it not only policy recommendations but also the goodwill of the think tank community. This is a global product for global public good.

Co-chairs

Samir & Aaron

EXECUTIVE SUMMARY

Globalisation has integrated nations, economies and people. It has also led to an inadvertent rise in the internationalisation of infectious diseases. Over the past few decades, the global community has witnessed several epidemics, including the SARS (Severe Acute Respiratory Syndrome) outbreak between 2002-2004 and the Ebola epidemic between 2014-2016. The expanding population, rapid urbanisation, and changing weather and climate have further catalysed the spread of infectious diseases. In our digital age, it has been estimated that the outbreak of an infectious agent can travel from a remote village to any hub in the world in less than 36 hours—with the related economic and social impact travelling with it.[1]

As a consequence of past outbreaks, we have witnessed policymakers promising the development of health infrastructure and healthcare delivery mechanisms down to the community level. The current pandemic reveals that this has either not happened or is insufficient. We must use this moment to dedicate funds, resources and political capital to create resilient global frameworks to respond to epidemics, perverse practices that make us more susceptible to epidemics, and underlying circumstances that can halt our lives so dramatically.

Originating in late 2019, the novel coronavirus has travelled widely and speedily throughout the world, directly affecting the health of millions, and putting billions at risk. Very little was known about

[1] World Economic Forum, "Outbreak Readiness and Business Impact Protecting Lives and Livelihoods across the Global Economy", http://www3.weforum.org/docs/WEF%20HGHI_Outbreak_Readiness_Business_Impact.pdf, (accessed on June 12, 2020).

the coronavirus at the onset of the outbreak, and much remains to be discovered, but the virus has certainly proven to be highly contagious and lethal. The COVID-19 pandemic has left both strong and relatively weaker health systems in shambles. It has exposed several shortcomings of the global health system—inadequate funding, feeble infrastructure, inequitable access, and opaque international governance and discussions. The COVID-19 crisis has been accompanied by a plethora of misinformation and disinformation crossing borders, thereby hampering the world's ability to effectively counter the pandemic. This has emphasised the need to put into place real-time communication systems and engagement frameworks amongst global partners, nations and multilateral agencies, communities and individuals.

This report is divided into six sections that examine health systems at a global, national and local level while dealing with large-scale public health crises like the COVID-19 pandemic. Working Group members were divided into sub-groups, based on their individual and institutional areas of interest and expertise. Sub-group leaders were tasked with coordinating the efforts towards convening meetings, compiling information and writing sub-theme reports.

Heritage Foundation's Bridgett Wagner took the lead on the sub-theme of 'Knowledge and Information Sharing', while Institute for National Security Studies' Amos Yadlin and Ari Heistein led the group that worked on compiling 'Best Practices and Policies to Manage a Public Health Crisis'. Chatham House's Robert Yates spearheaded the sections on Universal Health Coverage and 'Equitable Distribution of Vaccines, Medicines, and Capabilities' along with Venkat Nadella from India's DST-Centre for Policy Research, Indian Institute of Science. Angela Mo and Pamela Tin, colleagues from Our Hong Kong Foundation, took the lead on the sub-theme 'Treatment of Non-COVID-19 patients', which has been an aspect of public healthcare that has often been overlooked during this crisis. Group co-chair Samir Saran led the group working on '#Tech4All—Bridging the Digital Divide', while Richard Chasdi from George Washington University and co-chair Aaron Shull led the section on 'Health Preparedness and Resilience: Country Assessments'.

INTRODUCTION

When the Think Tanks & Civil Societies Program at the Lauder Institute, University of Pennsylvania, started bringing together think tanks from across the globe in late March this year, the goal was clear: to pool in our collective human resources and ideas so that the think tank community can produce policy suggestions and effect positive policy changes during these unprecedented times.

With traditional tools like conferences and forums being out of the question during a pandemic, the global think tank community moved straight into the digital ecosystem by convening meetings virtually. Despite varying time zones—with representatives from South America to East Asia—and conflicting schedules, think tank executives got together for two digital town halls to discuss how the community can collaborate to produce "action-oriented" recommendations and guidance that will assist and augment the work of policymakers across geographies.

As the world continues to grapple with the spread of the novel coronavirus, it is clear that both developing and developed economies need to rethink and redesign their health systems. Healthcare, which was once considered an internal responsibility of nation-states, is one of the biggest global security challenges due to the interconnected nature of our world. Therefore, domestic healthcare policies and governance will increasingly emerge as an international area of concern and enhanced coordination.

The current crisis calls for rapid responses to protect people, communities, and economies as we battle COVID-19. In a rapidly evolving landscape shaped by the pandemic, it is crucial that we not play "catch up" to a deadly virus, but come up with dynamic solutions that aid in dealing with the current health emergency and also buttress our ability to handle future crises.
Working Group #1, tasked with 'addressing the public health crisis', aims to provide a framework for concrete action-oriented programmes, which will support policymakers and healthcare professionals who are on the frontlines of this crisis. It places emphasis on protecting the elderly, immunocompromised, poor and other vulnerable groups. It illuminates possible courses of action for the global think tank community to critique, build upon and disseminate.

KEY POLICY RECOMMENDATIONS

The key recommendations from the report are provided below.

KNOWLEDGE AND INFORMATION SHARING

1. **Collect Consistent, Reliable and Disaggregated Data:** Real-time knowledge and information sharing is a necessity, given the fast mutating virus, and this requires accurate and consistent data collection to track and respond to the spread of a pandemic. Data standards must be established at the national level, along with prompt coordination and verification to ensure consistency across large populations. Disaggregated data is important to spot vulnerable populations, develop treatments, and for better targeted containment strategies. Additionally, access to transparent public health data enables projections that drive lifesaving and economy-moving decisions.

2. **Invest in Collaboration, Innovation, and Distribution:** Collaboration across governments, the private sector, universities and research organisations will speed up drug and vaccine discovery and development. Tracking the progress will also be essential in identifying the barriers in production and distribution. Governments and private foundations should consider grants to develop and widely distribute diagnostics, therapeutics and vaccines. Governments across the world have already allocated funding and resources towards developing a vaccine for COVID-19. For instance, in May, the Indian Council for Medical Research announced a collaboration with the biotech firm Bharat Biotech International

Ltd. to develop a potential COVID-19 vaccine.[2] The EU's flagship programme for research and innovation, Horizon 2020, has already mobilised €1 billion for coronavirus response, €150 million of which will fund disruptive innovations under the European Innovation Council's Accelerator.[3]

3. **Streamlining Regulatory Environment and Reforming Legal Regimes to Allow Innovations:** The pandemic calls for the adjustment of regulatory frameworks to allow for rapid development and verification of testing and vaccines. There is a dire need to relax info-sharing regulations between health systems (while developing privacy protections for patients), and develop payment methods to encourage innovation in telehealth and telemedicine. Additionally, liability protection for medical practitioners, and manufacturers of new therapeutics and vaccines are needed to advance the production and use of innovative treatments to create timely cures for infectious diseases. However, ethical guidelines must be issued to ensure that vulnerable populations do not become medical 'guinea pigs' in a more relaxed regulatory framework.

BEST PRACTICES AND POLICIES FOR MANAGING THE PUBLIC HEALTH CRISIS

4. **Sharing of Experiences and Simulation Models to Better Inform Policies:** This pandemic has created a demand for intensive experience mapping and sharing on a real-time basis. The current global situation warrants the:
    - Sharing of best practices between countries, including effective methods for stemming the spread of the disease.
    - Sharing measures taken that proved ineffective and/or caused economic or societal harm, to inform partners to avoid repeating mistakes made by others.
    - Sharing of simulation models that allow testing of different policies in the specific realities of different countries.

5. **Towards Research-Based Solutions and Policies:** In the emerging world, think tanks can necessitate the augmentation of state capacity, both during a pandemic and otherwise. As honest and unbiased intermediaries of research and analysis, in an era of misinformation, think tanks provide an array of solutions to the most widespread crises. Partnerships within global and regional think tanks can aid in

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[2] Special Correspondent, "Coronavirus | ICMR, Bharat Biotech tie up for Indian COVID-19 vaccine", *The Hindu*, May 10, 2020 https://www.thehindu.com/sci-tech/health/coronavirus-icmr-bharat-biotech-tie-up-for-indian-covid-19-vaccine/article31547614.ece

[3] EURAXESS "EUR 1 Billion Mobilised Under Horizon 2020," *Euraxess*, May 7, 2020, https://euraxess.ec.europa.eu/worldwide/south-korea/eur-1-billion-mobilised-under-horizon-2020

the cross pollination of ideas, perspectives and innovations that are imperative to move forward. These ideas and solutions can be shared by establishing a COVID-19 website to display these assessments in a clear, accessible, and comparative manner. The site will include links to simulation models, which will help policymakers and the public understand the efficacy of different policies in different environments. It is important to emphasise here that the intent is not to point fingers at any policy failures but to collectively develop a broader and deeper understanding of the coronavirus and how best to cope with it.

ACCELERATING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE AND ENSURING AN EQUITABLE DISTRIBUTION OF VACCINES, MEDICINES, AND CAPABILITIES

6. **Increased Investment and Reduced Cost of Healthcare:** An increase in public spending on health to improve allocative efficiency by prioritising spending on public health services (including emergency preparedness) and better access to primary care is necessary. Furthermore, access to healthcare requires improved integration within national health reforms. Currently, high out-of-pocket expenditure or lack of health insurance pose a significant barrier in healthcare delivery, especially during a health emergency. The World Health Organization (WHO) recommends the removal of financial barriers to health services by abolishing user fees and co-payments for everyone, so as to provide healthcare to all without the attached monetary burden.

7. **Digitisation and Optimisation of Healthcare Delivery:** We must take advantage of increasing digital opportunities to scale up impact and outcomes, reduce costs and rapidly improve the efficacy of healthcare delivery. The effective utilisation of data can improve specific processes in healthcare services delivery. Personalising health services and scaling up the use of telehealth technology to increase the frequency and utility of interactions, along with using real-time interactive guides can assist in improving the health of individuals who are unable to receive required medical care during the pandemic.

8. **Local Capacity Building:** Local governments and officials are the face of health response during emergencies. We must empower them and civil-society institutions, so that people have confidence in the legitimacy of governmental action.

9. **Media as a Hub of Information:** Since precise knowledge and information is crucial towards tackling the pandemic, traditional and social media hold the key to reaching out to the public for promoting best practices and health safety measures. Strengthening the role

of the media is crucial for an informed citizenry and this is vital to contain the spread among communities and protect the more vulnerable sections of society.

TREATMENT OF NON-COVID-19 PATIENTS

10. **Designated Hospitals for Infectious Diseases:** Policymakers should advance new strategies to prevent the interruption of vital care for non-COVID-19 patients during emerging biological threats. To maintain healthcare access for non-COVID-19 patients, policymakers should consider designating hospitals and health facilities for infectious disease while protecting others for non-infectious care. Hospital councils, administrators, and government officials should work together to outline a pandemic designation plan, including a roll out and roll back during an outbreak.[4]

11. **Capacity Building:** Healthcare workforce shortages across the globe threaten access to care. Policymakers should increase funding for education and support continuous training to ensure an adequate workforce. Policymakers should permanently remove regulatory barriers on non-physician providers such as advanced practice nurses.

12. **Targeted Healthcare Delivery:** Surge response should be considered for hotspots to improve efficiency of healthcare delivery and target distribution of vital medical resources and personnel. Universal threat levels could be developed using internationally agreed upon metrics to guide deployment.

13. **Amplified Testing and Surveillance:** Testing and screening should include individuals that are symptomatic, those that have been exposed, and frequent testing of residents and staff in high-risk facilities, such as nursing homes, to reduce asymptomatic spread. Alternative surveillance methods, such as random sampling and testing wastewater (if found to be efficacious), could be employed as a low-cost method for identifying community prevalence.[5]

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[4] Amy Anderson and Daniel Johnson, Jr., "Designating Hospitals: A New Strategy to Improve America's Response to a Major Pandemic", *The Heritage Foundation*, June 18, 2020, https://www.heritage.org/public-health/report/new-strategy-equipping-medical-providers-cope-the-next-pandemic-or-infectious

[5] Amy Anderson and Daniel Johnson, Jr., "Achieving Consensus: A Common-Sense Approach for Testing in a Pandemic", *The Heritage Foundation*, June 10, 2020, https://www.heritage.org/public-health/report/achieving-consensus-commonsense-approach-testing-pandemic

#TECH4ALL–BRIDGING THE DIGITAL DIVIDE

14. **Data Collection and Privacy:** De-identified patient records are a valuable resource for building group trends and predictive analytics by artificial intelligence applications at a national and international level. Differential privacy, a system for publicly sharing information about a dataset—by describing the patterns of groups within the dataset while withholding information about individuals in it—should be encouraged by governments and public health officials for knowledge sharing.

15. **Promoting Telemedicine:** With the stress on hospitals due to COVID-19, telemedicine practices should be promoted for non-COVID-19 cases as much as possible, especially considering that many are dying from lack of access to non-COVID-19 treatment. For instance, supportive digital technologies like diabetes management apps and medication management apps should be encouraged. These do not require actions by licensed professionals and will lighten the burden on the public health and hospitals systems.

16. **E-administration:** With social distancing becoming the norm, governments should encourage the use of electronic administration tools in the medical field.
    - Governments should consider licensing expansion or separate licenses for previously licensed healthcare professionals who offer telemedicine.
    - With the threat of a second wave of COVID-19 looming, governments should put in place systems to issue e-passes to citizens to enable the movement and travel of healthy citizens.
    - Telemedicine and 'at-home' treatments may require administrative and legislative changes to existing medical insurance policies so that they can be accepted for online consultations and be made eligible for re-imbursements.
    - E-administration in the health sector can also be strengthened to regulate and penalize illegitimate doctors and quackery that have otherwise been ignored or tolerated.

17. **Fighting the 'Infomedic':** There is a need for social media and technology companies to step up efforts to combat the propagation of misinformation through their networks. Social media companies need to address 'algorithm bias', which rewards certain types of online engagement and amplifies misinformation based on a user's recommendations. Artificial intelligence tools can be used to track, detect, and delete information that has been proved to be false by independent fact checkers.

18. **Creation of a Central Information Repository:** There is a need to create an international central information repository when it comes to the spread of infectious diseases. This repository should use big data and IoT to consolidate all local developments into a larger global picture. This body will be entrusted to give

clear and prescriptive information to all governments, international organisations, and citizens.

19. **Promotion of Digital Best Practices:** The central information repository and governments should promote information sharing and best practices from around the world. For instance, the Indian state of Kerala has shown how the skillful use of traditional and social media for communications allowed the government, civil society workers, and citizens to work seamlessly towards containing the spread through pointed contact tracing, isolation, and treatment of those who tested positive.[6] The use of social media portals amongst the medical community is another instance that can be replicated to save lives. South Korea is an example of a country that has successfully leveraged data and technology to stem the spread of COVID-19.[7] All South Koreans with a smartphone are sent an emergency alert if they are in close proximity to a COVID-19-positive person. Incoming travelers are mandated to report their symptoms daily on an app that they must download upon arrival at the airport. Even the routes taken by COVID-19-positive persons are published on a regular basis.

HEALTH PREPAREDNESS AND RESILIENCE: COUNTRY ASSESSMENTS

20. **Conforming to International Evaluations:** The WHO and its officials need to determine how to compel nation-state leaders to conform more readily to the "Joint External Evaluations mechanism" constituted under the International Health Regulations, 2005.

21. **Developing Enhanced Early Warning Systems:** Enhanced early warning systems should be developed, perhaps utilising the "amber system" of colour codes that was a hallmark of the early post 9/11 era in the United States.

22. **Reforming Care Systems and Law Enforcement:** The coronavirus should serve as a watershed event for reforms in the care system and internment facilities. Overcrowded conditions in old-age homes, orphanages and prison facilities should take on a new urgency beyond

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[6] Gopika I.S., "How Kerala mastered the art of contact tracing to fight COVID-19, save lives." *New Indian Express*, May 21, 2020, https://www.newindianexpress.com/states/kerala/2020/may/21/how-kerala-mastered-the-art-of-contact-tracing-to-fight-COVID-19-save-lives-2146294.html

[7] Aaron Holmes, "South Korea is relying on technology to contain COVID-19, including measures that would break privacy laws in the US — and so far, it's working." *Business Insider*, May 2, 2020, https://www.businessinsider.in/tech/news/south-korea-is-relying-on-technology-to-contain-COVID-19-including-measures-that-would-break-privacy-laws-in-the-us-x2014-and-so-far-itaposs-working/slidelist/75507188.cms

moral and ethical dimensions. It should become a national security concern of its own, with more emphasis on setting up frameworks to ensure there is no overcrowding in care homes to protect vulnerable populations.

23. **Building Anticipatory Governance Systems:** To encourage the creation and integration of 'anticipatory governance' units into government decision-making processes at national levels, as well as at the state, provincial, or departmental levels in all countries. One way to approach the goal of more effective "health security" is for the WHO, supported by the UN, nation states, and other international government organisations, to help efforts to integrate 'anticipatory governance' into the formal decision-making processes of all countries.

KNOWLEDGE AND INFORMATION SHARING

1

KNOWLEDGE AND INFORMATION SHARING

APPROACHES

Scoping the Issue

On March 12, 2020, the World Health Organization (WHO) deemed COVID-19 to be a pandemic. At the time, Dr. Hans Henri P. Kluge, WHO Regional Director for Europe, described COVID-19 as a "fast-evolving situation," and noted, "We may not always have the best evidence at hand on which to base our decisions, but we do not have the luxury of time to wait until better evidence becomes available." He called on "all countries to exchange country experiences and practices in a transparent and timely way. We can all benefit from evidence of measures that have been found to be effective."[8]

Health officials rely on detailed data and assumptions to develop projections on how far a virus will spread and how many lives will be lost. These projections help to drive policy and treatment decisions. Because of the tremendous impact on lives and livelihoods, the data used, as well as the assumptions made, should be transparent, available for verification and adjusted as new information is made available. Early data from the onset was delayed by actions of local governments. Early model projections that were widely cited by the media and used by governments were proven overly pessimistic and were later significantly downgraded.[9]

While it will remain impossible to protect every individual from getting sick, the wealth of data collected should be shared, evidence examined, and modelling assumptions understood and updated to help us develop strategies for dealing with COVID-19. Additionally, best practices and training should be shared widely.

In an era of mobile populations, international travel and global trade, we must collaborate internationally in order to respond effectively to defeat such a pandemic.

Existing Reality

Initial lags in reporting, and even cover-up by local health authorities in Wuhan, China, resulted in a delay in identifying human-to-human transmission as a cause of the virus spread.[10] Once this was understood, inadequate supplies of accurate testing slowed the response. In South Korea, which is considered a model for their response to the virus, mass-scale testing has been cited as a critical mechanism in isolating COVID-19 cases and treating infected people.[11] However, testing supplies continue to be a challenge in most countries.

While premier health organisations—namely, the European Centre for Disease Prevention and Control[12], WHO[13] and Center for Disease Control and Prevention[14]—published risk assessments, guidance documents, training programs and data platforms, the fast-moving nature of the pandemic led to instances of conflicting guidance. This further underscores the need to update and evolve public health interventions in light of new data.[15]

Opportunities

In responding to COVID-19, think tanks, policymakers and businesses have an opportunity to expand the reach of medical providers, disseminate accurate public health information more quickly, encourage the public to partner in their own care, and tap best practices outside their borders.

Coordination among public health agencies, leading pharma and healthcare companies and other non-governmental organisations to share infrastructure, knowledge and subject-matter expertise can substantially enhance the speed of vaccine and therapeutics development. For instance, the 'Accelerating COVID-19 Therapeutic Interventions and Vaccines' partnership is a knowledge and expertise sharing framework among leading biomedical companies and government agencies in the United States.[16]

Not only do new technologies like 3-D printing allow for rapid production and wide distribution of safety and hospital equipment like ventilators,

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[12] European Centre for Disease Prevention and Control "COVID-19", https://www.ecdc.europa.eu/en/covid-19-pandemic (accessed on May 30, 2020)
[13] World Health Organization, Coronavirus disease (COVID-19) pandemic, https://www.who.int/emergencies/diseases/novel-coronavirus-2019 (accessed on May 30, 2020)
[14] Center for Disease Control and Prevention, Coronavirus (COVID-19), https://www.cdc.gov/coronavirus/2019-ncov/index.html (accessed May 31, 2020)
[15] Norbert Michel, PhD and Doug Badger, "Policymakers Should Adapt COVID-19 Responses to the Evidence," *Heritage Foundation Backgrounder* No. 3496, May 23, 2020, https://www.heritage.org/sites/default/files/2020-05/BG3496_0.pdf
[16] National Institutes of Health News Release, "NIH to launch public-private partnership to speed COVID-19 vaccine and treatment options", April 17, 2020, https://www.nih.gov/news-events/news-releases/nih-launch-public-private-partnership-speed-covid-19-vaccine-treatment-options (accessed June 1, 2020)

but also new software can streamline the process of tracking and tracing the spread of a virus and evaluating a person's risk of contracting COVID-19. However, the wide acceptance of these tools in some Asian countries may be difficult to replicate in western democracies without assurances of privacy protections.

Greater standardisation of data and inter-operability of healthcare systems could provide a more comprehensive view, allow for better trend-spotting, and inform mitigation strategies and vaccine production.[17] In Europe, investing in an expanded and improved EuroMOMO (European monitoring of excess mortality for public health action system) would allow for better, more standardised tracking of excess mortality, in turn facilitating officials and the public in assessing the spread and effects of the virus in quasi-real time.

RESULTS & RECOMMENDATIONS

1. **Invest in Testing and Stockpile Personal Protective Equipment (PPE):** Initial shortages of PPE and tests limited the response, and the lack of stockpiles are a concern for future outbreaks. Countries should expand stockpiles, with particular attention to providing sufficient supplies to healthcare providers in an emergency.

2. **Collect Consistent, Reliable and Disaggregated Data:** Real-time knowledge and information sharing is a necessity given the fast mutating virus, and this requires that accurate and consistent data be collected to track and respond to the spread of COVID-19. This may require data standards be established at the national level, and coordination and verification take place to ensure consistency across large populations. Disaggregated data is important to spot vulnerable populations, develop treatments, and for better targeted containment strategies.

3. **Provide Greater Transparency to Data and Models Used:** Projections made using public health models drive lifesaving and economy-moving decisions. Peer review and adjustment are critical. Access to outside experts can provide new insights, greater accountability and better decision-making.

4. **Invest in Collaboration, Innovation and Distribution:** Collaboration across government, private sector, university and research organisations will speed drug and vaccine discovery and development. Tracking the progress will also be essential to identify barriers in production and distribution. Governments and private foundations should consider grants to develop and widely distribute diagnostics, therapeutics and vaccines. For example, the EU's flagship program for research and innovation, Horizon 2020, has already mobilised €1 billion for Coronavirus response, €150 million of which will fund disruptive innovations under the European Innovation Council's Accelerator.

[17] Kirsten Axelsen, Jason Grinstead and Michael O'Neil, "Data is key to containing COVID-19 and preventing next pandemic," *RealClearHealth*, May 27, 2020 https://www.realclearhealth.com/articles/2020/05/27/data_is_key_to_containing_covid-19_and_preventing_next_pandemic_111049.html

5. **Streamline Regulatory Environment:** Adjust regulatory frameworks to allow for rapid development and verification of testing and vaccines. Relax information-sharing regulations between health systems (while developing privacy protections for patients) and develop payment methods to encourage innovation in telehealth and telemedicine.[18]

6. **Reform Legal Regimes to Allow for Innovation and Delivery of New Treatments:** Liability protection for manufacturers of new therapeutics and vaccines and for medical practitioners are needed to advance the production and use of innovative treatments.

[18] "EUR 1 Billion Mobilised Under Horizon 2020," *Euraxess*, May 4, 2020, https://euraxess.ec.europa.eu/worldwide/south-korea/eur-1-billion-mobilised-under-horizon-2020

POLICIES AND PROCEDURES

BEST PRACTICES AND POLICIES FOR MANAGING THE PUBLIC HEALTH CRISIS

2

BEST PRACTICES AND POLICIES FOR MANAGING THE PUBLIC HEALTH CRISIS

APPROACHES

Scoping the Issue

As states and populations around the globe seek to cope with the novel coronavirus, they encounter challenges due to a lack of understanding about the illness and effective methods to cope with it. To an extent, this is unavoidable since ongoing research around COVID-19 has yet to produce a full and detailed picture of the disease. However, greater international cooperation, in particular pooling together policy experiences and information, can eliminate some of the uncertainty and facilitate more informed policy decisions for coping with this multi-dimensional threat to lives and livelihoods.

Existing Reality

While multiple organisations have been actively engaged in comparing statistics on infections and deaths, a presentation of the crisis that is both broader and more nuanced is necessary. Despite some initial attempts,[19] there is no comprehensive database that documents and compares the policies implemented by different countries and the results yielded.

The information shared so far has focused on the clinical aspects of the pandemic and perhaps, to a certain extent, on nations' experience with the various forms of lockdowns. The broader spectrum of public policy choices needs to be discussed in this process, including best practices in terms of governance and implementational challenges that arise with certain decisions. This could be useful to highlight the importance of bottom-up initiatives that leverage the power of the community in containing COVID-19. In Hong Kong, for example, personal protective behaviours, such as use of face masks and hand hygiene, have been regarded to be essential contributors for bringing COVID-19 under control.

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[19] OECD. "COVID-19 Health System Response Tracker" https://read.oecd-ilibrary.org/view/?ref=119_119689-ud5comtf84&Title=Beyond%20Containment:Health%20systems%20responses%20to%20COVID-19%20in%20the%20OECD; Tableau. "ACAPS COVID-19 Government Measures Dataset" https://public.tableau.com/profile/visualitics#!/vizhome/COVID-19GovermentMeasuresWorldwide/COVIDGovernmentMeasuresWorldwide; Oxford. "COVID-19 Government Response Tracker (OxCGRT)" https://github.com/OxCGRT/COVID-policy-tracker

Opportunities

In a world that is treading towards greater isolation and limited international cooperation, sharing assessments of coronavirus policies and their results provides a venue for collaboration that will produce a collective benefit. The ongoing pandemic serves as a tragic reminder that seeking to retreat from international conflicts and commerce does not protect one from all developments beyond one's own borders. If we are all facing an invisible and largely unknown enemy, it would not only be dangerous to do so alone but pointless to the extent that formulating policy on this issue requires a degree of 'trial and error', so ignoring the experience of others would be tantamount to insisting on learning from one's own very costly mistakes.

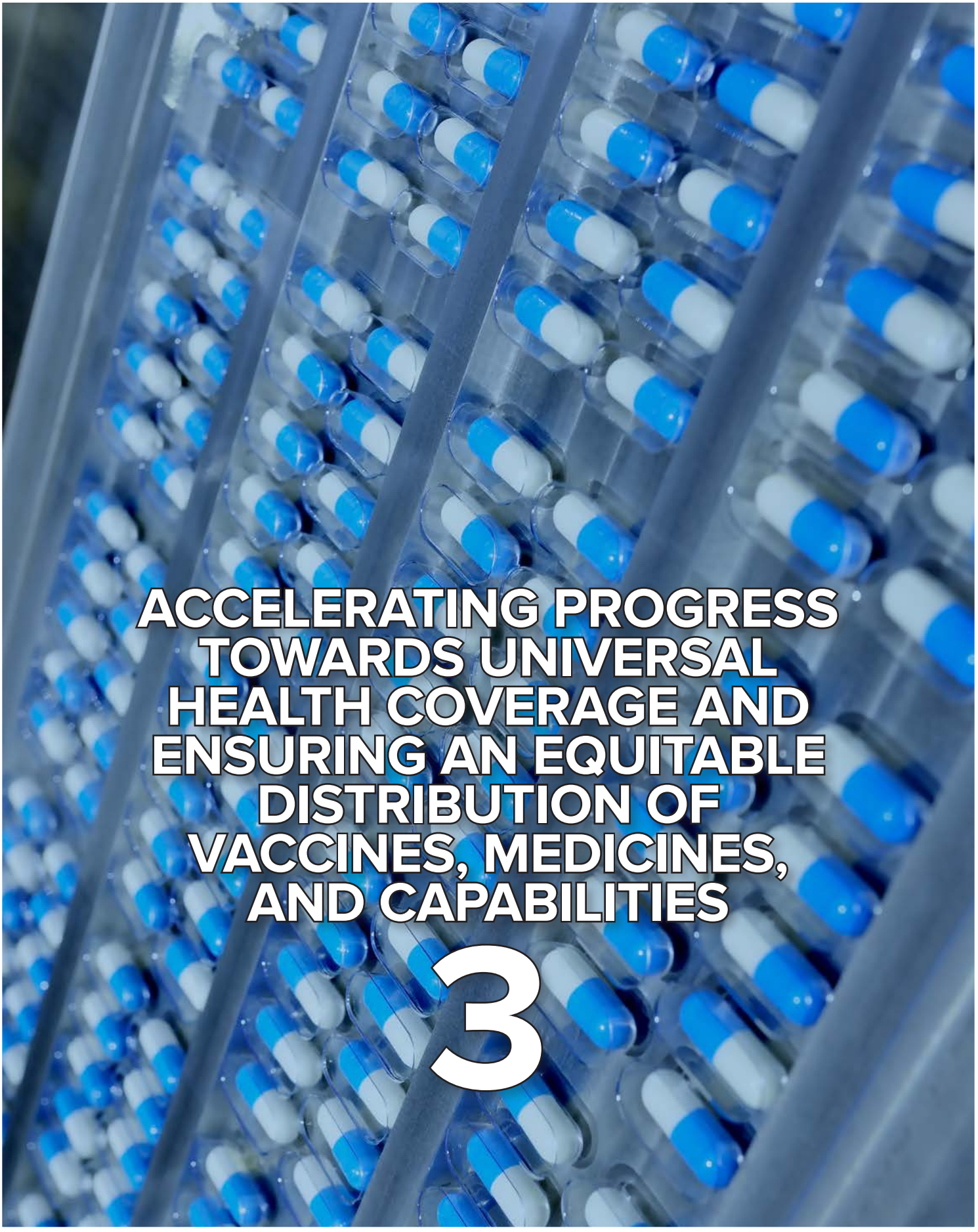
The coming together of the global think tank community at this time presents an opportunity to lead towards the formation of an apolitical information sharing forum, which seeks to promote smarter policies to cope with the multi-dimensional risk posed by the pandemic. This can serve to bridge not only an information gap in the context of the pandemic, but perhaps even a political gap by constituting a link between civil societies, particularly in countries that do not have formal or cooperative relations.

RESULTS & RECOMMENDATIONS

1. **Simulation Models to Better Inform Policies:** This pandemic has created a peculiar situation around the world. The current global situation warrants the:
    - Sharing of best practices between countries, including effective methods for stemming the spread of the disease.
    - Sharing measures taken that proved ineffective, causing economic or societal harm, to inform partners to avoid repeating such mistakes.
    - Sharing of simulation models that allow testing of different policies in the specific realities of different countries.

2. **Emergence of Research-Based Solutions and Policies:** In the emerging world, think tanks can necessitate the augmentation of state capacity, both during a pandemic and otherwise. As honest and unbiased intermediaries of research and analysis in an era of misinformation, think tanks provide an array of solutions to the most widespread crises. Partnerships within global and regional think tanks can aid in the cross pollination of ideas, perspectives and innovations that are imperative to move forward. These ideas and solutions can be shared by establishing a website to display these assessments in a clear, accessible and comparative manner. The site will include links to simulation models to help policymakers and the public understand the efficacy of different policies in different environments.

3. **Global Outreach Programmes and Events:** Think tanks can convey the findings of their research through curated events involving stakeholders across the spectrum, from the public to government officials. A public Zoom summit can be convened to discuss key lessons learned from this research endeavour as well as ideas to build on the cooperation it fostered.



ACCELERATING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE AND ENSURING AN EQUITABLE DISTRIBUTION OF VACCINES, MEDICINES, AND CAPABILITIES

3

ACCELERATING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE AND ENSURING AN EQUITABLE DISTRIBUTION OF VACCINES, MEDICINES, AND CAPABILITIES

APPROACHES

Scoping the Issue

COVID-19 is a universal threat to the health and wellbeing of everyone on the planet, and in the spirit of "leaving nobody behind", we need universal measures to tackle this threat.

It is essential that everyone should have access to a full range of quality health services to prevent and treat the disease. Furthermore, in accessing these services people should not face financial hardship that could plunge their families into poverty and, therefore, further impact their health and welfare.

Ensuring that everyone gets the health services they need without suffering financial hardship is the definition of universal health coverage (UHC). Many global health agencies, including the World Health Organization (WHO), argue that accelerating progress towards UHC is the best strategy to tackle COVID-19 and prevent future pandemics.[20]

With global leaders under immense pressure to respond to the COVID-19 crisis, might the adage of "not letting a good crisis go to waste" provide the wake-up call the world needs to achieve UHC by the end of the Sustainable Development Goal (SDG) era in 2030?

Existing Reality

While COVID-19 is overwhelming all countries, the nature and magnitude of the public health crisis varies widely amongst nations, so the starting point in accelerating progress towards UHC will be different for each country amidst the pandemic. This creates unique challenges in ensuring equitable access to healthcare.

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[20] "Living with COVID-19: Time to get our act together on health emergencies and UHC", UHC 2030 International Health Partnership, May 27, 2020, https://www.uhc2030.org/fileadmin/uploads/uhc2030/Documents/Key_Issues/Health_emergencies_and_UHC/UHC2030_discussion_paper_on_health_emergencies_and_UHC_-_May_2020.pdf

COVID-19 has laid bare the inadequacies in global public health systems, including problems such as poor access to primary healthcare, inequitable distribution of therapeutics and vaccines, shortages of skilled health workers, limited information systems, inadequate and poorly maintained physical infrastructure, widely varying state capabilities in health service delivery, and weak governance and accountability systems.

In many countries, these failings are primarily due to chronically low levels of public spending on health, with the burden of financing healthcare falling on households through out-of-pocket spending. Ineffective information campaigns further contribute to low levels of health coverage. Health systems financed primarily through private voluntary financing are inefficient and fundamentally inequitable, as the poor and vulnerable are often excluded.

In adhering to UHC principles, a COVID-19 vaccine, when one becomes available, and treatments for the disease should be allocated equitably.[21] However, economic nationalism and a lack of international cooperation is leading to an inefficient race to reserve vital commodities for wealthy nations, with the likelihood that the poor and vulnerable in developing countries will be left behind.

To date, our response to drug and vaccine development and delivery of health services is ad-hoc and fragmented at best, demonstrating a need for collaboration and knowledge exchange at the international, national, and subnational levels. For COVID-19 vaccines, although there are many projects in the pipeline, what is still missing is a coordinated public policy response[22] that ensures that enough projects will be supported through all the phases of development and clinical trials, such that there will be several successful vaccines and that these will be available to all in need.

Overcoming these system failures to tackle COVID-19, to improve health security and to accelerate progress towards UHC, will require nation states to make fundamental reforms to their public health systems. This will involve replacing inequitable private financing, especially user fees, with higher levels of public financing, which should be allocated more efficiently and equitably towards more cost-effective primary care services.

Regrettably, despite the severity of the pandemic, it is likely that many key decision-makers (notably finance ministers) will not see this as incentive enough to invest in public health systems and associated government reforms. Creative and persuasive policy research will, therefore, be required to ensure that this is not a missed opportunity and that adverse political inertia is disrupted.

Opportunities

As the COVID-19 pandemic represents the greatest threat to human health in over a century, people are turning to their governments to resolve the crisis and protect their health, their livelihoods, and their future well-being.

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[21] Thomas J. Bollyky, Lawrence O. Gostin, and Margaret A. Hamburg, "The Equitable Distribution of COVID-19 Therapeutics and Vaccines", *Jama Network*, May 7, 2020, https://jamanetwork.com/journals/jama/fullarticle/2765944

[22] Reinhilde Veugelers, Georg Zeichmann, "Racing against COVID-19: a vaccines strategy for Europe", *Bruegel*, April 21, 2020, https://www.bruegel.org/2020/04/COVID-19-vaccines-strategy/

How leaders perform and respond to the pandemic is likely to define their premiership. This, therefore, presents them with a tremendous opportunity to write themselves into the history books as a great leader, rescuing their people from a crisis. Hence, despite being a global threat, COVID-19 also represents an opportunity to catalyse radical policy reforms in health and all sectors with a view to achieving the SDGs.

It represents a great chance for progressive leaders to launch publicly financed UHC reforms as a practical way to extend health coverage and provide financial protection to all citizens. There is a historical precedent for such policy momentum, as many of the world's UHC systems emerged out of crises, notably the UK, France, and Japan, after World War II, and Thailand after the Asian Financial Crisis at the turn of the century. This is especially important for countries struggling with providing basic healthcare coverage. With renewed focus on vaccination, these countries can channel efforts particularly towards immunising children against lethal, communicable diseases.

Achieving an equitable distribution of vaccines, medicines and capabilities, and accelerating progress towards UHC are essentially political economy issues that can deliver economic and societal benefits far beyond the health system. Therefore, fast-tracking UHC reforms that tackle the pandemic and deliver quick political wins can enable governments to implement other concurrent reforms, such as introducing and raising taxes, cutting fuel subsidies and implementing governance reforms, while paying attention to the value of community engagement and the involvement of local governments. Those countries that have been struggling with decentralised forms of governance can take this as an opportunity to empower communities through civil society organisations and elected officials at the local level.

Public-private partnerships, to build countries' technical, administrative, organisational, and managerial absorptive capacity, are another opportunity the pandemic provides. Furthermore, launching extensive health reforms also provides opportunities to radically refocus healthcare delivery on more cost-effective primary care services and improve efficiency through utilising digital technology including telemedicine.

Different countries' experiences in tackling the pandemic will also provide invaluable lessons in how to integrate public health services within UHC reforms. For instance, experience from South Korea's response to COVID-19[23] shows that their lessons from SARS (2002-03) has greatly helped with their preparedness and early coordinated response. There is also an opportunity to integrate the coming technological and digital environment with current institutions and processes to tackle COVID-19 and achieve other non-COVID-19 UHC goals.

[23] Emma Graham-Garrison, "Experience of Sars a key factor in countries' response to coronavirus." *The Guardian*, March 15, 2020, https://www.theguardian.com/world/2020/mar/15/experience-of-sars-key-factor-in-response-to-coronavirus

RESULTS & RECOMMENDATIONS

Any policy recommendations that think tanks make require a deep understanding of the local context. For policy responses to be sustainable, communities and their representative leadership must own programmes that promote UHC and the equitable distribution of vaccines and medicines. Practical first steps that can be undertaken to accelerate progress towards UHC include:

1. **Publicly-Financed Health Reforms:** Encourage political leaders to launch genuinely universal, publicly financed, health reforms as an effective strategy to tackle the pandemic and bring substantial health and economic benefits to their people.

2. **Increase Spending on Healthcare:** Increase public spending on health and improve allocative efficiency by prioritising spending on public health services (including emergency preparedness) and better access to primary care, integrating these better within national health reforms.

3. **Building Human Capital:** Build on the relationship between human capital formation (through investments in education) and improvement in population health outcomes to make nations better prepared to manage/prevent future epidemics/pandemics.

4. **Remove Barriers to Healthcare Access:** Remove financial barriers to health services by abolishing user fees and copayments for everyone, as recommended by WHO.

5. **Equitable Distribution of Health Resources:** Ensure a more equitable allocation and distribution of health resources (including medicines and vaccines) across countries and within them.

6. **Use of Health Tech:** Take advantage of digital opportunities to raise outcomes and scale volume while reducing costs; utilizing data to continuously improve specific processes in healthcare services delivery.

7. **Scale up Telemedicine:** Personalise health services and scale up the use of telehealth services to increase the frequency and usefulness of interactions and use real-time interactive guides that improve the health of individuals who are not currently receiving medical care.

8. **Investing in Low-Cost Pilot Projects:** Invest in low cost pilots to test transformative advances and develop associated agile, life-cycle processes that include the stakeholders appropriate for each type of advance (including policy leaders, institutions, practitioners, patients and the public).

9. **Empower Local Governance Systems:** Empower local governments, bureaucracies, and civil-society institutions, so that people have confidence in the legitimacy of governmental action.

10. **Strengthen Local-Level Communications:** Strengthen local media as key information, education, and awareness tool.

TREATMENT OF NON-COVID-19 PATIENTS

4

TREATMENT OF NON-COVID-19 PATIENTS

APPROACHES

Scoping the Issue

One chief impact of the pandemic has been the disruptions in general health services for non-COVID-19 patients. Healthcare providers have observed the prioritisation of care for COVID-19 patients, particularly in hospital settings, and a general underutilisation of services for non-COVID-19 patients with chronic illnesses and differing levels of disease severity. In the US, 55 percent of adults aged 70 years or older have already experienced disruptions in medical care.[24] While systems face healthcare workforce shortages and repurposing to address COVID-19 treatment gaps, existing services like immunisation programmes have been curtailed. For instance, there is a 20 percent absenteeism rate among polio vaccinators in Pakistan.[25] Attempts to prevent healthcare setting-acquired infections have also contributed to the deferral of necessary and timely treatment for non-COVID-19 patients. Supply chain disruption for medicines and resources have further affected non-COVID-19 treatment.[26]

Beyond the current health crisis, health systems have noted a steep economic impact from

[24] "More than Half of Older Adults Already Experiencing Disruptions in Care as a Result of Coronavirus", *NORC at the University of Chicago*, April 2020, https://www.norc.org/PDFs/JAHF%20TSF/JAHF_TSF_NORC_topline_5420.pdf
[25] Roxanne Nelson, "COVID-19 disrupts vaccine delivery." *The Lancet*, April 17, 2020, https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30304-2/fulltext
[26] Emily Koum Besson, "COVID-19 (coronavirus): Panic buying and its impact on global health supply chains", World Bank, April 28, 2020, https://blogs.worldbank.org/health/COVID-19-coronavirus-panic-buying-and-its-impact-global-health-supply-chains

maintaining and expanding care. Outside of COVID-19 hotspots, hospitals have increased preparation for expected patient spikes, putting pressure on already constrained budgets. The impact will be especially prevalent within low and middle-income countries, where a lack of resources and reliance on imported medication will have devastating consequences.[27] Increased strain on budgets and safety nets is anticipated to impact future decisions and provisions of national health programs.

Existing Reality

Research shows that COVID-19 causes severe disruptions to health services in low and middle income countries primarily through three pathways—first, through overwhelming the health system by the sheer number of COVID-19 patients and causing preventable mortality among COVID-19 and non-COVID-19 patients; second, through various interventions used to slow the transmission of COVID-19 that also inhibit access to preventive interventions and services like immunisations; and third, through supply chain disruptions that constrain the supply of medicines and other pharmaceutical products for acute and chronic medical conditions.[28]

Given the high number of fatalities and the panic-inducing media coverage, patients are also increasingly unwilling to visit healthcare settings, or are delaying care till their condition worsens. In many countries, there are separate facilities in operation for COVID-19 patients as well as additional precautionary measures, including separate entrances, mandatory screening, and reduced number of visitors and bystanders in the hospital/healthcare facility. However, overall service provision for non-COVID-19 patients have been severely curtailed to cater to pandemic requirements.

Hospital and medical facility closures have eliminated vital health services leading to preventable deaths and progression of diseases that will negatively impact short-term and long-term health outcomes for millions of people across the world. There are efforts to manage chronic diseases through telehealth in some places, but infrastructure is often a binding constraint. Also, patients still require diagnostic testing and treatments that must be provided in medical facilities by medical personnel.

Private hospitals, physician practices, outpatient facilities, and nursing homes are facing severe financial losses due to closures, public fear of accessing healthcare and the restrictions placed on the delivery of care, leading to several facilities going offline. Overall, these developments have affected the vulnerable populations the most, and it is feared that gains made across the world over years on the Sustainable Development Goals will be wiped out due to COVID-19-triggered disruptions.

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[27] United Nations Department of Economic and Social Affairs, "UN/DESA Policy Brief #66: COVID-19 and the least developed countries", *UN*, May 1, 2020, https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-66-COVID-19-and-the-least-developed-countries/

[28] A Hogan et al., "Report 19: The potential impact of the COVID-19 epidemic on HIV, TB and malaria in low-and middle-income countries.", MRC Centre for Global Infectious Disease Analysis, Imperial College, London, https://spiral.imperial.ac.uk:8443/handle/10044/1/78670

Opportunities

The COVID-19 pandemic is diminishing countries financially through the extraordinary expenses for healthcare and economic stimulus packages that have become necessary due to the pandemic-induced lockdowns. This puts non-COVID-19 health services under unprecedented pressures. Government leaders should consider new digital options to enhance and expand non-COVID-19 healthcare. Three crucial opportunities are available during and after the pandemic.

The first imperative is to enhance health systems digitally without changing their goals. The lockdowns have already made many things digital-first. Next, satellite-enabled Internet will make this a digital-first planet with seven billion people connected with the ability to use live video everywhere on the globe. Health systems will not be limited to primary, secondary and tertiary locations. They can expand by digitally scaling services and improving outcomes while reducing costs. User-centered design researches, prototypes, tests and improves digital services. Uses are measured so that trials and usage produce verified outcomes. These sense-and-respond services fit many personal health needs all day long, with telemedicine as needed.

The second imperative is to overcome the financial crisis by digitally scaling health systems instead of shrinking them. These combine lower costs, intelligent automations and customisation to each health system, personalisation to individual needs, and scaling to serve a country's citizens as a normal part of online life.

Public health is the third imperative that may be on the brink of a disruption. About 80 percent of most health outcomes are unrelated to the medical system.[29,30] For example, COVID-19 has accelerated the paradigm shift from face-to-face to virtual care. A sense-and-respond system can include "always-on" behavioral assistants and artificial intelligence for chronic illnesses, toxic environments, diet and sustainability. These could transform public health's traditional results.

Always-on health systems will be a normal part of online-first life on a digital-first planet. Since that is expanded by our COVID-19 world, the time to develop these systems is now.

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[29] Asif Dhar, David A. Friedman, Christine Chang and Melissa Majerol, "Smart health communities and the future of health", *Deloitte Insights*, July 6, 2019, https://www2.deloitte.com/us/en/insights/industry/health-care/smart-health-communities.html
[30] Steven A. Schroeder, "We Can Do Better — Improving the Health of the American People", *New England Journal of Medicine*, September 20, 2007, https://www.nejm.org/doi/full/10.1056/NEJMsa073350

RESULTS & RECOMMENDATIONS

1. **Separate Hospital Systems for Infectious Disease:** To maintain healthcare access for non-COVID-19 patients, policymakers should consider designating hospitals and health facilities specifically for infectious disease while protecting others for non-infectious care. Hospital councils, administrators and government officials should work together to outline a pandemic designation plan, including a roll out and roll back, during an outbreak.[31]

2. **Increase Funding for Healthcare Workforce:** Healthcare workforce shortages across the globe threaten access to care. Policymakers should increase funding for education and support continuous training to ensure an adequate workforce. Policymakers should permanently remove regulatory barriers on non-physician providers such as advanced practice nurses.

3. **Surge Response for Hotspots:** Surge response should be considered for hotspots to improve efficiency of healthcare delivery and target distribution of vital medical resources and personnel. Universal threat levels could be developed using internationally agreed upon metrics to guide deployment.

4. **Enhanced and Targeted Testing:** Testing and screening should include individuals that are symptomatic, those that have been exposed, and frequent testing of residents and staff in high-risk facilities such as nursing homes to reduce asymptomatic spread. Alternative surveillance methods such as random sampling and testing wastewater (if found to be efficacious) could be employed as a low-cost method for identifying community prevalence.[32]

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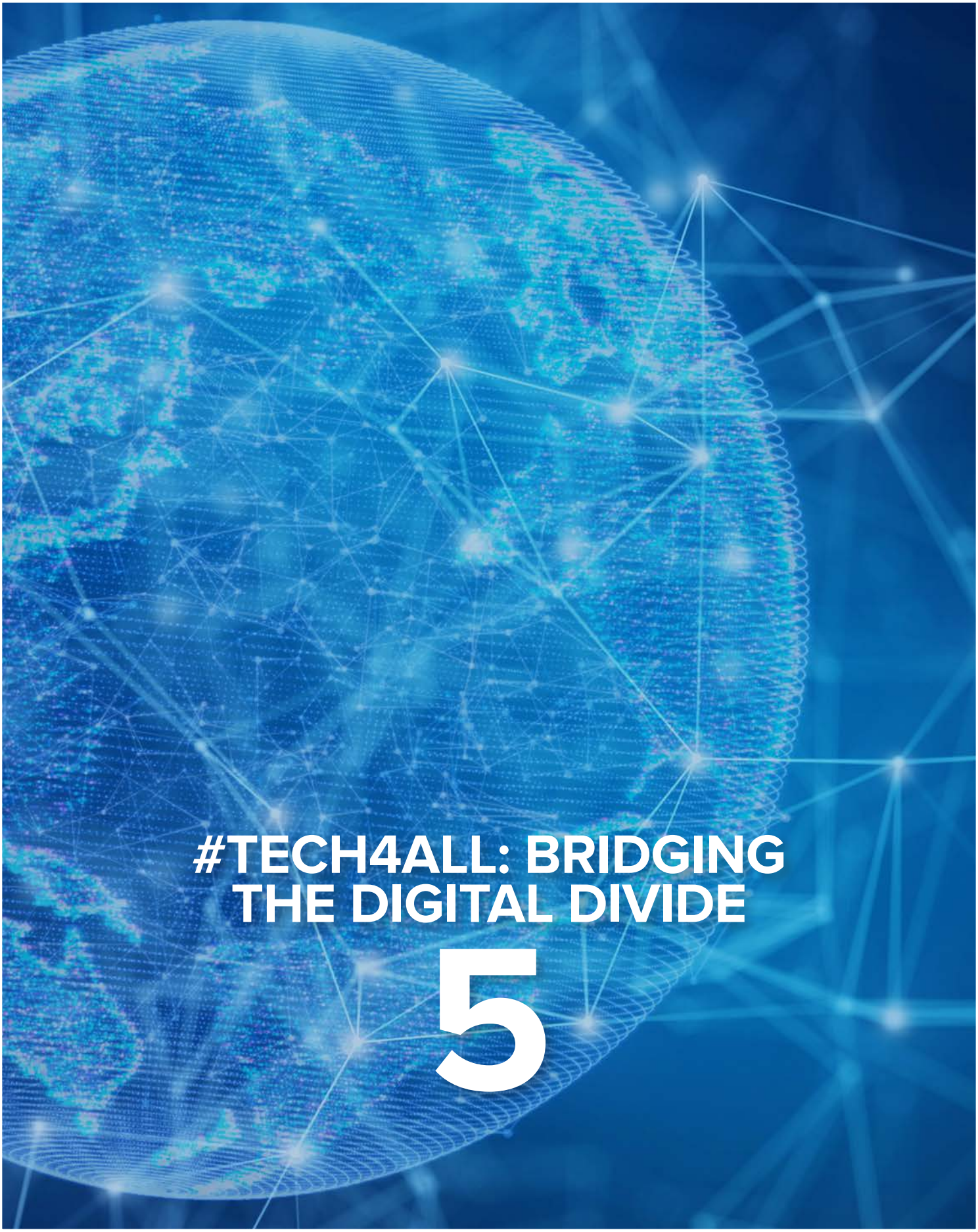
[31] Amy Anderson and Daniel Johnson, Jr., "Designating Hospitals: A New Strategy to Improve America's Response to a Major Pandemic", *The Heritage Foundation*, June 18, 2020, https://www.heritage.org/public-health/report/new-strategy-equipping-medical-providers-cope-the-next-pandemic-or-infectious

[32] Amy Anderson and Daniel Johnson, Jr., "Achieving Consensus: A Common-Sense Approach for Testing in a Pandemic", *The Heritage Foundation*, June 10, 2020, https://www.heritage.org/public-health/report/achieving-consensus-commonsense-approach-testing-pandemic



#TECH4ALL: BRIDGING THE DIGITAL DIVIDE

5

#TECH4ALL: BRIDGING THE DIGITAL DIVIDE

APPROACHES

Scoping the Issue

Technology has ended up playing a pivotal role in the battle against the novel coronavirus. From contact tracing apps built by tech giants like Apple and Google,[33] to artificial intelligence applications that can detect potential COVID-19 patients by analysing the sound of their coughs,[34] different options are being developed for the use of medical professionals, public health officials, and researchers.

Existing Reality and Opportunities

Bolster Telemedicine

Social distancing and lockdown measures have been preventing people from receiving medical treatment in-person. This has highlighted the need to build a comprehensive telemedicine framework, even as researchers race to find a vaccine. The global telemedicine industry was estimated to be worth about US$41.4 billion in 2019.[35] It is now

[33] Apple Inc. & Google LLC. "Privacy Preserving Contract", Apple, https://www.apple.com/COVID19/contacttracing
[34] Rahul Panicker, "Cough Against COVID", *Wadhwani Institute for Artificial Intelligence*, April 7, 2020, https://www.wadhwaniai.org/2020/04/07/cough-against-COVID/
[35] "Telemedicine Market Size, Share & Trends Analysis Report By Component, By Delivery Model, By Technology, By Application (Teleradiology, Telepsychiatry), By Type, By End Use, By Region, And Segment Forecasts, 2020 – 2027", *Grandview Research*, April 2020, https://www.grandviewresearch.com/industry-analysis/telemedicine-industry

predicted to grow at 15.1 percent CAGR.[36]

Governments around the world are setting up their own efforts to promote telemedicine. The Indian government has been active in setting protocols for the adoption of telemedicine and published its Telemedicine Practice Guidelines in late March,[37] admittedly towards better healthcare access and affordability. It is also building the National Health Stack,[38] a digital infrastructure to maintain a national electronic health registry, an insurance coverage and claims platform, a federated personal health records framework, and an analytics platform. The National Health Stack is essentially a set of cloud services, which can be accessed through a set of application programming interfaces by third parties.

But these bring their own medicolegal and ethical challenges that need to be addressed before a formal widespread adoption of telemedicine is undertaken. Broadly, these are the challenges for telemedicine:

Building trust and consent: Telemedicine by its very nature upends the traditional doctor-patient relationship, which relies on in-person consultations. Telemedicine might act as a barrier to establish trust with patients and, thus, take informed consent away from patients when it comes to medical procedures. Thus, it becomes vital to build a new trust and consent framework for the digital space.

Privacy and security: Privacy has been an essential part of medical ethics since the time of Hippocrates and is bolstered by various codes, including the International Code of Medical Ethics. Telemedicine might add another dimension for malicious operators, who can breach security systems and compromise patients' privacy. Hence, it is important for laws to promote robust security and to formulate appropriate data fiduciary models in the medical context.

Licensure and insurance coverage: Telemedicine platforms will be populated by doctors from various geographies and countries. In such a setup, doctors could end up practicing medicine outside their areas of licensure. Thus, there is a need for interventions to standardise accreditation for doctors who intend to practice telemedicine. There also needs to be a definite framework to ensure that doctor consultations over the Internet are covered by existing health insurance providers.

Even while keeping these concerns in mind, telemedicine has the potential to democratise healthcare access for billions living in remote areas, help reduce loads on hospitals, and minimise the exposure of people with non-COVID-19 related ailments to hospitals that could be sources of the COVID-19 infection.

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[36] Ibid
[37] Board of Governors, Medical Council of India, Ministry of Health and Family Welfare, Government of India India, "Telemedicine Practice Guidelines", Mar 25, 2020, https://www.mohfw.gov.in/pdf/Telemedicine.pdf
[38] NITI Aayog, Government of India, "National Health Stack Strategy and Approach Consultation Paper", July 2018, https://niti.gov.in/writereaddata/files/document_publication/NHS-Strategy-and-Approach-Document-for-consultation.pdf

Social Media for Good

The spread of social media has also led to an 'infodemic' with fake news and misinformation permeating cyberspace. Misinformation spread through smartphones has real-world (and often fatal) consequences, especially during a pandemic. This misinformation ranges from false home remedies to prevent infection and boost immunity,[39] to conspiracy theories that 5G towers are responsible for the spread of the coronavirus.[40] Robust systems have to be put in place to stem to spread of this 'infodemic'.

However, social media has also played a major role in the rapid dissemination of information amongst the medical community. Doctors and medical personnel have used social media platforms to share information on a real time basis. For instance, pulmonary specialists from beleaguered countries like Italy have shared videos of their learnings on the field in newly formed peer portals on social media,[41] which have been watched by millions, proving that widespread access to technology is crucial in an emergency situation.

Meanwhile, Facebook has developed a Disease Prevention Map as part of its Data For Good initiative and is helping researchers with their efforts to contain COVID-19.[42] These maps use aggregated and anonymised location data to track people's movements in the event of a disaster. So far, they have been used by public health officials to increase vaccination drives in Malawi[43] and create a risk model for cholera outbreaks in Mozambique.[44]

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[39] Dr Satani, Sarfaroz. Prasad, Peeyush. Rao, Alka. "No, Vitamin C and lemon-infused hot water do not protect against coronavirus or cancer." Altnews.in. https://www.altnews.in/no-vitamin-c-and-lemon-infused-hot-water-do-not-protect-against-coronavirus-or-cancer/ (Accessed June 3, 2020)

[40] The Hindu. "Conspiracy theorists burn 5G towers claiming link to coronavirus." Thehindu.com. https://www.thehindu.com/news/international/conspiracy-theorists-burn-5g-towers-claiming-link-to-coronavirus/article31395286.ece (Accessed June 3, 2020)

[41] Smith, Michael. Cortez, Michelle Fay. "Doctors Turn to Social Media to Develop COVID-19 Treatments in Real Time." Bloomberg.com. https://www.bloomberg.com/news/articles/2020-03-24/COVID-19-mysteries-yield-to-doctors-new-weapon-crowd-sourcing (Accessed June 3, 2020)

[42] Facebook. "Our Work on COVID-19" fb.com. https://dataforgood.fb.com/docs/COVID19/ (Accessed June 3, 2020)

[43] Stefaan G. Verhulst and Andrew Young, Andrew, "The Potential Of Social Media Intelligence To Improve People's Lives." *Gov Lab*, September 24, 2017, https://www.thegovlab.org/static/files/publications/social-media-data.pdf)

[44] Andrew Schroeder, "If Cyclone Kenneth Leads to Cholera in Mozambique, Who Is Most at Risk?", *Direct Relief*, April 27, 2019, https://www.directrelief.org/2019/04/if-cyclone-kenneth-leads-to-cholera-in-mozambique-who-is-most-at-risk/

RESULTS & RECOMMENDATIONS

1. **Data Collection and Privacy:** De-identified patient records are a valuable resource for building group trends and predictive analytics by artificial intelligence applications at a national and international level. Differential privacy, a system for publicly sharing information about a dataset—by describing the patterns of groups within the dataset while withholding information about individuals in it—should be encouraged by governments and public health officials for knowledge sharing.

2. **Promoting Telemedicine:** With the stress on hospitals due to COIVD-19, telemedicine practices should be promoted for non-COVID-19 cases as far as possible, especially considering that many are dying from lack of access to non-COVID-19 treatment. For example, supportive digital technologies like diabetes management apps and medication management apps should be encouraged. These do not require actions by licensed professionals and will lighten the burden on the public health and hospitals systems.

3. **E-administration:** With social distancing becoming the norm, governments should encourage the use of electronic administration tools in the medical field.
   - Governments should consider licensure expansion or separate licenses for previously licensed healthcare professionals who offer telemedicine.
   - With the threat of a second wave of COVID-19 looming, governments should put in place systems to issue e-passes to citizens to enable the movement and travel of healthy citizens.
   - Telemedicine may require significant legislative changes to existing medical insurance policies so that they can be accepted for online consultations and be made eligible for re-imbursements.
   - E-administration in the health sector can also be capitalised on to regulate and penalize illegitimate doctors and quackery that have otherwise been ignored or tolerated.

4. **Fighting the 'Infomedic':** There is a need for social media and technology companies to step up efforts to combat the propagation of misinformation through their networks. Social media companies need to address 'algorithm bias', which rewards certain types of online engagement and amplifies misinformation based on a user's recommendations. Artificial intelligence can be used to track, detect and delete information that has been proved to be false by independent fact checkers.

5. **Creation of a Central Information Repository:** There is a need to create an international central information repository when it comes to the spread of infectious diseases. This repository should use big data and Internet of Things to consolidate all local developments into a larger global picture. This body will be entrusted to give clear and prescriptive information to all governments, international organisations and citizens. One criticism on how the World Health Organization handled the COVID-19 crisis was that it replied to many questions with the refrain that there was "insufficient data" rather than taking a more precautionary recommendation posture. This new central information body should adopt a more precautionary stance so as to not erode trust towards governments and experts. If

there is one trusted source of information that is easily accessible, the spread of misinformation can be better contained.

6. **Promotion of Digital Best Practices:** The central information body and governments should promote information sharing and best practices from around the world. For example, the Indian state of Kerala has shown how the skillful use of traditional and social media for communications[45] allowed the government, civil society workers, and citizens to work seamlessly towards containing the spread through pointed contact tracing, isolation, and treatment of those who tested positive. The use of social media portals amongst the medical community is another instance which can be replicated to save lives. South Korea is an example of a country that has successfully leveraged data and technology to stem the spread of the novel coronavirus.[46] All South Koreans with a smartphone are sent an emergency alert if they are in close proximity to a COVID-19 positive person. Incoming travelers are mandated to report their symptoms daily on an app that they must download upon arrival at the airport. Even the routes taken by COVID-19 positive persons are published on a regular basis.

[45] Gopika I.S., "How Kerala mastered the art of contact tracing to fight COVID-19, save lives." *New Indian Express*, May 21, 2020, https://www.newindianexpress.com/states/kerala/2020/may/21/how-kerala-mastered-the-art-of-contact-tracing-to-fight-COVID-19-save-lives-2146294.html

[46] Aaron Holmes, "South Korea is relying on technology to contain COVID-19, including measures that would break privacy laws in the US — and so far, it's working." *Business Insider*, May 2, 2020, https://www.businessinsider.in/tech/news/south-korea-is-relying-on-technology-to-contain-COVID-19-including-measures-that-would-break-privacy-laws-in-the-us-x2014-and-so-far-itaposs-working/slidelist/75507188.cms

HEALTH PREPAREDNESS AND RESILIENCE: COUNTRY ASSESSMENTS

6

HEALTH PREPAREDNESS AND RESILIENCE: COUNTRY ASSESSMENTS

APPROACHES

Scoping the Issue

There is no one generally recognisable and widely shared definition of resilience. For Gary Goertz, the concept of "resiliency" rests on what he calls its four "dimensions": "political," "military," economic" and "legal" domains of human endeavour. Clearly, while these are not all of the components associated with resilience—which one US government definition has described as the "ability to bounce back"—Goetz's articulation of separate domains implies responses to return to ranges of normalcy found prior to the onset of a calamitous condition; that is the hallmark of several definitions of resilience.[47]

National security and health security systems in many countries are weak, and it is those systems in the aggregate that essentially comprise what amounts to an international response to calamitous conditions. To what degree, if any, that international response is holistic—namely a set of outcomes greater than the sum of its

[47] Gary Goertz, 2006, *Social Science Concepts: A User's Guide*, Princeton, NJ: Princeton University Press; Fridolin Simon Brand and Kurt Jax, 2007, "Focusing in the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object," *Ecology and Society 12*; US Department of Homeland Security, Risk Steering Committee, Washington, DC, September 2008; Richard J. Chasdi, 2014, "A Continuum of Nation-State Resiliency to Watershed Terrorist Events." *Armed Forces & Society*, July, Vol. 40 (3), 476-503.

individual parts—is a research issue worthy of new consideration in the new corona world? There is no one country that has proven to be completely prepared and, thus, resilient to the pandemic. It follows that for this pandemic, like many other transnational problems in the contemporary world, coordinated multilateral efforts are necessary as no one country is able to cope with such problems alone.

Any improvement in "socio-economic resilience" to cope with disease has to involve carefully reasoned appraisals based on modelling and best practices in health-related industries. Those approaches should eschew unilateralism as an approach; to move beyond the more reactive, makeshift, and incomplete approaches that have characterised most contemporary responses to the COVID-19 outbreak thus far.

Existing Realities

With regards to emergent realities and trajectories, the focus should be on broader international trends where "low to middle income countries", primarily in the developing world, must rely on bilateral or multilateral financial assistance to ensure that healthcare systems operate in effective and sustained ways. This dovetails well with the characteristics of what Charles W. Kegley and other writers call the "North-South Divide", which itself stems from the imperialism era.[48]

That economic backwater condition for low to middle income countries once more points to the importance of international multilateral efforts as these efforts will prove critical to effective policy response to this pandemic and related events.[49] Several low to middle income countries, such as Mauritius and Senegal, were proactive in response to the novel coronavirus, working with political and economic initiatives to buttress healthcare infrastructure.[50] What is significant here is that the full brunt of the pandemic has yet to hit the developing world. Therefore, it is an imperative that multilateral efforts are activated to provide the developing world with bulwarks against COVID-19 until a vaccine is produced.

It is important to note that the 2019 *Global Health Security Index* was basically flawed in some of its findings about top tier nation-state rankings. In terms of preparedness rankings, that report asserted the US ranked first in preparedness, while the UK ranked second.[51] In turn, Canada ranked fifth overall, followed by South Korea in ninth place, China ranking in 51st place, and with "...most African countries...at the bottom of the ranking."[52] The *Global Health Security Index* assigns overall health scores to countries, from 0 to 100, with a score of '0' reflecting "no preparedness" and a score of '100' reflecting ideal, "maximum" preparation. The mean score for countries examined in the 2019 *Global Health Security Index* was 40.2.[53]

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[48] Charles W. Kegley, 2007, *World Politics: Trends and Transformations, Eleventh Edition*, Belmont, CA: Thomson Wadsworth.
[48] Ke Xu et. al., 2018, *Public Spending on Health: A Closer Look at Global Trends, Geneva*: World Health Organization
[50] "Policy Responses to COVID19", International Monetary Fund, https://www.imf.org/en/Topics/imf-and-COVID19/Policy-Responses-to-COVID-19
[51] The Global Health Security Index, https://www.ghsindex.org/ (Accessed on June 12, 2020)
[512] Global Health Security Index (2019); Sara Ronco (2020) email correspondence; Aaron Shull email correspondence (2020).
[53] Ibid.

Political factors have been at work, such as US-led sanctions against Iran, Cuba, and Venezuela, that could have impeded efforts in those countries to confront the coronavirus effectively. In addition, resources such as personal protective equipment (PPE) and hospital bed capacity are critical explanatory factors to explain coronavirus response successes and failures as determined by overall number of infection cases, testing capacity, patient recoveries, and deaths.

At the nation-state level, Germany is an example of a country whose healthcare policies, which are geared towards preparation efforts, resulted not only in lower percentages of deaths but also in a capacity to assist other European countries such as Italy in efforts to cope with the pandemic. In the 2019 *Global Health Security Index* results, Germany had the highest "health capacity" of all countries measured in terms of "hospitals," "community care centres", and "clinics."[54]

At the international level, there has been much debate around the strengths and shortcomings of the efforts by the World Health Organization (WHO) to coordinate and provide monitoring and oversight capabilities to ensure conformance with its International Health Care Regulations (2005).[55] With finite resources and other national interests in competition with "heath security", nation-state leaders have in the past often ranked "health security" lower than other national interest concerns. One notable achievement of the WHO has been its ability to assist with the implementation of the 'COVID19 Technology Access Pool (C-TAP)', proposed in March by the president of Costa Rica.[56] This regime has as its goal coordinated efforts to marshal economic and intellectual resources in pursuit of the development of a COVID-19 vaccine while simultaneously working to protect intellectual property rights.

Opportunities

In many cases, countries in Asia have been more resilient to the novel coronavirus pandemic than countries in other regions of the world. This begs the question about the role that cultural and other "nation-state" factors play in terms of emergency preparedness. For example, countries with cultures that have more pronounced "deference to authority" dynamics, as Samuel Beer puts it, might do better at crafting or enhancing preparedness infrastructure and protocols than those countries where such "deference to authority" has frayed at the edges, unraveled outright, or is perceived as antithetical to the prevailing social ideology (norms and values) of a country.[57]

It is pertinent to note the importance of experiential knowledge and its links to health security "capacity" factors; which echoes how experiential knowledge contributes to higher levels of "societal" and "governmental" resilience to terrorism. The perceived relaxed attitude given lack of experience in the West, with the

[54] Ibid.
[55] The World Health Organization, "Strengthening health security by implementing the International Health Regulations (2005)", https://www.who.int/ihr/about/en/#:~:text=The%20International%20Health%20Regulations%2C%20or,and%20report%20public%20health%20events., (Accessed on June 12, 2020)
[56] The World Health Organisation, "COVID-19 technology access pool", https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/COVID-19-technology-access-pool (Accessed on June 12, 2020)
[57] Samuel H. Beer, 1982, Britain Against Itself: the political contradictions of collectivism" New York: Norton Press.

exception of Germany and the Czechs, helps to contribute to complacency and poorly thought out preparedness measures. For example, Asian populations had to cope with the SARS outbreak, Middle East Respiratory Syndrome, the H1N1 strain of the flu, dengue fever and other afflictions, but did so ever-more effectively. Compounding the problem even more is the shortage in supply of PPEs that became evident early on in the COVID-19 crisis, which some analysts have at least in part, attributed to globalisation, specifically "offshoring," "outsourcing," and long supply chains.[58] There are two contributing factors to levels of preparedness: (1) differences in response effectiveness between federalist systems and unitary government systems in Western style liberal democracies; (2) differences in regime type, namely between liberal and illiberal democracies, and authoritarian governments.

There is also the question of whether positive externalities related to effectiveness and efficiency might characterise the formulation and integration phases of COVID-19 response, at least in some, but certainly not all, authoritarian systems. In related fashion, but seen across western style liberal democracies, illiberal democracies and authoritarian systems, there is the issue of makeshift, incomplete and false information and the paucity of reliable information about the sources and origins of the novel coronavirus and appropriate medical treatments. For example, Yemen's Houthi government in Sana'a illustrates how political concerns can derail efforts to make information about coronavirus infection rates more transparent. In one *Washington Post* account, we are told, "rebel health officials strictly control coronavirus testing, releasing results only if they are negative .... doctors and nurses in the north have been detained, and others have had their phones taken away to prevent them from discussing the epidemic...."[59]

Efforts must be made to craft accurate databases for individual countries, which are detailed enough to account for infection spread, and are granular enough to reach down to district and village levels. The COVID-19 pandemic constitutes a watershed event that will irrevocably change how policymakers approach the issue of "health security" as analysts now understand the imperative of effective public policy agenda setting, formulation, and implementation, with interdisciplinary approaches in mind, and emphasis on coordinated "multisector global strategies" within and across countries.

RESULTS & RECOMMENDATIONS

The issue of "next steps" involves plans to ensure that pandemics and related events, and other calamitous conditions, which may come about as a result due to the chemical, biological, radiological, or nuclear conditions nowadays, are anticipated and appraised effectively to provide insight or "foresight" into lurking catastrophes. It follows that "global health systems" and "response plans" prepare carefully crafted responses to the challenges posed by a range of factors with potential to cause damage and to "disrupt emergency management efforts".

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[58] Robert Costa and Aaron Gregg, "Trump's lagging response widens rift with city and state leaders", *The Washington Post,* March 23 2020, https://www.pressreader.com/usa/the-washington-post/20200323/281483573468335

[59] Sudarsan Raghavan, "Yemeni rebels accused of masking virus's spread", *The Washington Post*, June 4, 2020

1. **Conforming to International Evaluations:** The WHO and its officials need to determine how to compel nation-state leaders to conform more readily to the "Joint External Evaluations mechanism".[60]

2. **Increased Use of Telemedicine:** Virtual healthcare, which has now become even more significant within the context of the coronavirus pandemic, should be expanded for use in conjunction with more standard on-site medical measures to produce enhanced diagnostics capabilities. The idea would be to make use of virtual space to appraise symptoms of disease and arrange for testing if necessary.

3. **Developing Enhanced Early Warning Systems:** Enhanced early warning systems should be developed, perhaps utilising the "amber system" of color codes that was a hallmark of the early post 9/11 era in the United States.[61]

4. **Reforming Care Systems and Law Enforcement:** The coronavirus should serve as a watershed event for reforms in the care system and internment facilities. Overcrowded conditions in old-age homes, orphanages and prison facilities should take on a new urgency beyond moral and ethical dimensions. It should become a national security concern of its own, with more emphasis on setting up frameworks to ensure there is no overcrowding in care homes to protect vulnerable populations.

   Perhaps, the same could be said about the coronavirus pandemic and the murder of George Floyd as a watershed event for basic overhaul of the US law enforcement system, with less emphasis placed on the threat or use of force that stems from an "us vs. them" mindset, and more on law enforcement systems that view police primarily as mediators and negotiation experts, whose primary task is to defuse conflict.

5. **Building Anticipatory Governance Systems:** To encourage the creation and integration of "anticipatory governance" units into government decision-making processes at national levels, and at state, provincial, or departmental levels in countries. One way to approach the goal of more effective "health security" is for the WHO, supported by the UN, nation-states, and other international government organisations, to help efforts to integrate "anticipatory governance" into the formal decision-making processes of nation states.

   Anticipatory governance revolves around the central idea that policy analysts work to appraise threats to specific complex systems. Complex systems analysis, sometimes known as complex adaptive systems, seeks to view an operational environment, usually defined as a nation-state or region, as a holistic system where change in one part of that

[60] World Health Organization, 2017, *International Health Regulations (IHR): Joint External Evaluation (JEE): Country Implementation guide,* https://apps.who.int/iris/handle/10665/259605
[61] Satheesh Pillai email correspondence, May 30, 2020

system elicits change in other parts of the system.[62] For example, if we view the US as a complex system, the large number of people who have come out of self-isolation to protest the George Floyd murder by the Minneapolis police probably constitute a "setback" in the fight against coronavirus because in the process of mass protest, many have infected others or have been infected by coronavirus. Thus, a change in one variable holding others constant (*ceteris paribus*; in this case breaches in self-isolation and "social distancing") has "first order" effects, namely the spread of the virus, and hence a "feedback loop" whereby virus contagion is enhanced. In turn, there are "second order" effects such as additional pressures on health care resources and "third order" effects on the economy through extended problems with the reopening of business.[63]

Pandemic containment, with carefully prepared intervention teams, designed to tackle problems at specific stages of disease progression, and working sequentially or in some cases simultaneously, provide effective and sustained ways to implement particular policies, by contrast to the reactive, largely inchoate policies in place in the US and many other parts of the world.[64]

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[62] Sheila R. Ronis, 2007, *Timelines into the Future: Strategic Visioning Methods for Government Business and Other Organizations*, Lanham, MD: Hamilton Books; Leon Fuerth and M.H. Faber (2012), *Anticipatory governance practical upgrades: equipping the executive branch to cope with increasing speed and complexity of major challenges,* Washington, DC: National Defense University, Center for Technology & National Security Policy; Nicholas Henry, 2013, *Public Administration and Public Affairs*, Edition No. 1 New York: Pearson Education Inc.

[63] Sheila R. Ronis, 2007, *Timelines into the Future: Strategic Visioning Methods for Government Business and Other Organizations,* Lanham, MD: Hamilton Books; Leon Fuerth and M.H. Faber (2012), *Anticipatory governance practical upgrades: equipping the executive branch to cope with increasing speed and complexity of major challenges,* Washington, DC: National Defense University, Center for Technology & National Security Policy

[64] John Paul Lederach, 1997, *Building Peace: Sustainable Reconciliation in Divided* Societies. Washington, DC: United States Institute of Peace Press; Edward A. Kolodziej, 1996, "Thinking About Coping: Actors, Resources, Roles, and Strategies." in *Coping with Conflict After the Cold War* (Eds.) Edward A. Kolodziej and Roger E. Kanet. Baltimore, MD: Johns Hopkins University Press, 363-393; Edward A. Kolodziej and William Zartman, 1996, "Introduction: Coping with Conflict: A Global Approach." in *Coping with Conflict After the Cold War* (Eds.) Edward A. Kolodziej and Roger E. Kanet, Baltimore, Maryland: Johns Hopkins University Press, 3-32.

CONCLUSION

The COVID-19 pandemic has made public health the centre of all strategic calculus. It is, therefore, apt that 'addressing the public health crisis' is the very first working group in this initiative to bring global think tanks together to aid and augment the work of policymakers, decision-makers and health workers.

Recommendations from all working groups address specific sets of issues that they have been assigned, but they point towards a larger common need—the revitalisation and strengthening of global health governance through international institutions like the World Health Organization. Even as the world is occupied by the immediacy of responding to the pandemic, we must use this moment to galvanise global resolve for a reformed and strengthened global health framework.

Another urgent imperative in these challenging times remains access to universal health coverage across the world. This is a global goal enshrined in the Sustainable Development Goals and is also the first line of defence and the most important instrument while dealing with a large-scale health emergency. The recommendations provided by the sub-group working on universal health coverage are a much-needed first step towards realising this goal.

Creating a global repository of information, knowledge and best practices gained by different countries and regions during the battle against the novel coronavirus must be treated as a global public good. All information is important, and a transparent sharing and mapping of successes and failures by various actors and regions must be documented and made available for the global community to draw upon in its current and future response to health crises. This is an important recommendation of this report.

Post the 2008 economic crisis, there was an assessment of banks to determine if they had sufficient reserves to cover their loans and liabilities. A similar audit is needed for developing and developed countries to assess health preparedness for the next wave and the next pandemic. The recommendations made in this report are an effort towards building such an assessment system for the public health care system.

Of course, it would be impossible to fulfil any of these goals without technology and innovation. Telemedicine and telehealth are recurring themes throughout the report. The pandemic might well be the catalyst that will migrate the world and its citizens on to the digital sphere in a way never expected or imagined before. But, like the real world, even the virtual comes with inbuilt differences between the 'digital haves' and 'have-nots'. This is why '#Tech4All—bridging the digital divide' is an imperative and must be attended to by the global community urgently.

Perhaps the ramping up of research and development, and the production and distribution of COVID-19 vaccines must be the top priority for policy planners, research companies, big and small pharma, and political leaders in the coming months. Although there are many projects in the pipeline, what is still missing is a coordinated public policy response[65] that ensures that enough projects will be supported through all the phases of development and clinical trials, to ensure that 'vaccines for all' becomes a reality.

This report seeks to outline implementable measures and is geared towards active steps that can be taken in response to the current health emergency. These 'action-oriented' recommendations include both immediate solutions for the short-term as well as broader suggestions for long-term systemic changes. We hope that they prove useful not only to policymakers and decisionmakers, but also provoke further research and discussions within the global think tank community.

[65] Reinhilde Veugelers, Georg Zeichmann, "Racing against COVID-19: a vaccines strategy for Europe", *Bruegel*, April 21, 2020, https://www.bruegel.org/2020/04/COVID-19-vaccines-strategy/