NATIONAL COUNCIL FOR SCIENCE AND THE ENVIRONMENT
1776 Eye Street, NW, Suite 750
Washington, DC 20006

WHO's Response to the COVID-19 Pandemic: *Assessment and Recommendations*

Andrew E. Chang

November 10, 2020

TABLE OF CONTENTS

Preface

From the inception of the COVID-19 pandemic, the World Health Organization (WHO) has played a critically important role in providing scientific expertise, medical advice, and technical assistance to public health agencies and the international community at large. This policy paper is an effort to assess WHO's current role in response to this global public health crisis, which has so far resulted in over 50 million COVID-19 cases and more than 1.2 million deaths worldwide. In the United States alone, some 10 million cases have presently been reported, including nearly 240,000 fatalities.

The overall aim of this assessment is to examine what went right and what went wrong during the past several months, both before and after WHO issued their *Public Health Emergency of International Concern* (PHEIC) notice on January 30, 2020. The intent here is to provide policy makers and the public with an objective appraisal of WHO's outreach activities and ongoing interactions with representatives of member states, the news media, civil society organizations, and the public.

Based on the findings of this paper's assessment, the policy maker is presented with a set of specific recommendations that address institutional, process-related, and financing issues that WHO faces at the present moment. In addition, we strongly suggest that the United States government seriously reconsiders its current decision to withdraw from the international agency next year.

The background research and the drafting of this policy paper was carried out by Andrew Chang, a second year law student at Columbia Law School, working this summer as a Science, Law and Policy intern at the National Council for Science and the Environment (NCSE). He was able to review primary documents and other written materials that were related to COVID-19 pandemic and to translate relevant Chinese language reports, bulletins, and news articles. We would like to acknowledge and thank him for his exhaustive and penetrating work on behalf of NCSE*.

A. Karim Ahmed, *NCSE Board Member*
Michelle Wyman, *NCSE Executive Director*

*The views in this paper do not necessarily reflect those of NCSE's member organizations.

Executive Summary

The past several months have put humankind to the test. The COVID-19 pandemic has to date claimed the lives of more than 1.2 million people. The crisis is projected to cause a 5.2 percent contraction of the global economy in 2020 alone, and has disrupted the lives of innumerable individuals around the world. As humanity searches for a return to normalcy – or something close enough to it – public discourse has come to focus increasingly on the topic of health. News and media outlets are replete with stories on the developing pandemic, chronicling everything from the selfless exploits of healthcare heroes, to the incendiary controversy surrounding the use of face masks.

Of the many subjects that have come to capture the public's attention in recent months however, few are as interesting as the World Health Organization (WHO). Hailed at the time of its founding as the "directing and coordinating authority on international health work," WHO has recently come under an unprecedented degree of scrutiny, attracting praise and criticism in equal measure. The United States' decision to withdraw from WHO has incited a good deal of debate, prompting many to question the organization's efficacy along with its very raison d'être.

This three-part report will try to demystify the many narratives presently surrounding WHO, offering insights into: 1) WHO's history, structure, and function; 2) WHO's response to the COVID-19 crisis thus far; and 3) proposed recommendations that WHO should implement in order to strengthen itself in the face of future threats to human well-being.

I. The World Health Organization's History, Structure, and Function

Established in 1948, WHO was founded as the successor to a century-long legacy of international health cooperation. Countries had previously convened for a series of International Sanitary Conferences beginning in 1851, but the results of these early meetings were often mixed and generally left much to be desired. WHO's debut as a specialized agency within the United Nations (UN) was therefore a watershed moment in the development of global health, as the organization was entrusted with wide-ranging authority and elicited buy-in from a record number of countries. Riding high on its status as the undisputed leader in global health, WHO would continue on towards a veritable "golden age," spearheading a campaign against smallpox that culminated in the disease's total eradication in 1980. This feat made history as the first-ever instance of disease eradication achieved through sheer human effort, effectively saving the lives of untold millions.

The agency's run of success was unfortunately cut short in the 1980s however, as a global shift towards free trade abroad and fiscal austerity at home saw the decline of WHO alongside the concurrent rise of the World Bank. The landscape of global health has shifted again in the present day to encompass a number of influential stakeholders in addition to WHO and the World Bank, such as the Bill and Melinda Gates Foundation. WHO has in this sense been forced

to share the international stage with an increasing number of other parties, but make no mistake – the agency continues to play a leading role.

In terms of institutional structure, WHO is comprised of three organs: the *World Health Assembly* (WHA), the *Executive Board* (EB), and the *Secretariat*. The WHA is composed of delegates from all 194 of WHO's member states, and meets once a year in Geneva in order to set organizational policies and finalize the agency's budget. The EB is composed of delegates from 34 WHO member states, and is tasked with putting together a general program of work for the WHA's approval. Finally, the Secretariat is composed of the Director-General (who is elected to serve a once-renewable five-year term), in addition to more than 7,000 administrative staff working at the global, regional, and country levels. The Secretariat is responsible for carrying out the agency's day-to-day operations, and is broadly divided into six fairly autonomous regional offices, a feature that distinguishes WHO from most other UN agencies.

As the self-professed "global guardian of public health," WHO possesses a broad constitutional mandate, in addition to fairly extensive technical and norm-setting capabilities. The agency's primary goal is "the attainment by all peoples of the highest possible level of health." "Health" is in turn expansively defined in the WHO Constitution as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." In practical terms, WHO is empowered to realize its overarching objective in two ways: the agency can draw upon its logistical know-how and scientific expertise to coordinate targeted campaigns, and can also create standards and recommendations for its member states to implement at the country level.

The latter of these two methods merits further discussion: unlike other stakeholders in global health, WHO has the authority to create binding as well as non-binding agreements. The *International Health Regulations* (IHR) serve as a prominent example of a binding agreement made by WHO, and have currently been accepted by a whopping 196 countries. The IHR were created to "prevent, protect against, control and provide a public health response to the international spread of disease," and accordingly set out comprehensive guidelines regarding the proper treatment of international travelers and goods in the midst of a pandemic. The IHR also state minimum standards that countries are obligated to meet in managing their domestic public health systems, and detail the process by which WHO may formally declare a *Public Health Emergency of International Concern* (PHEIC). This agreement played a crucial role in dictating WHO's initial response to the COVID-19 outbreak in Wuhan, China.

II. The World Health Organization's Role Amidst the Ongoing COVID-19 Crisis

On January 5, 2020, WHO posted a bulletin to its website regarding an outbreak of pneumonia of unknown cause in Wuhan, China. Over the course of the following weeks, the agency would post additional updates associating the outbreak with a novel coronavirus, while providing coverage on additional cases detected both inside and outside of China. These notifications underscore WHO's information-sharing function in the early stages of the pandemic, but they do not tell the whole story about the agency's role in coordinating a global response to COVID-19. This report provides greater insight into WHO's work with regards to the ongoing crisis, focusing special attention on the agency's actions early on in December and January. It will offer a more nuanced

take on WHO's activities to date, giving due weight to the organization's successes as well as its shortcomings.

- Although further information is still forthcoming, at least one reputable study identifies "patient zero" in the coronavirus outbreak as a resident of Wuhan who began experiencing symptoms on December 1, 2019. This person was hospitalized on or after December 16, 2019, but it was not until December 27, 2019 that Zhang Jixian, a doctor at Hubei Xinhua Hospital, noticed abnormalities in certain patients' CT scans and decided to notify her superiors.

- This was followed by the Wuhan Municipal Health Commission's issuance of an internal memo to affiliate institutions on December 30, 2019, which warned healthcare personnel to be on the lookout for cases of unexplained pneumonia. One day later, the Wuhan Municipal Health Commission posted a public notice regarding twenty-seven cases of pneumonia of unknown cause to its website. This notice was mentioned on state-run television later that day.

- WHO's China country office got wind of the Wuhan Municipal Health Commission's notice to the public, and promptly issued requests for additional information on both January 1 and January 2, 2020. Chinese authorities responded to these requests on January 3, 2020, leading to the publication of the aforementioned WHO news bulletin on January 5, 2020. WHO also conducted a preliminary field visit to Wuhan on January 20 and 21, 2020, during which the agency's experts learned more about the novel coronavirus' potential for human-to-human transmission.

- On January 30, 2020, WHO Director-General Dr. Tedros Adhanom Ghebreyesus declared the coronavirus outbreak a PHEIC, a formal *global public health emergency* designation under the IHR that authorizes WHO to issue non-binding recommendations for countries to follow.

- In general, WHO played a critically important – if nonetheless imperfect – role in responding to the initial outbreak of COVID-19 in Wuhan. Under the IHR, countries are required to report potential PHEICs occurring in their territories within twenty-four hours following initial detection. Countries have historically been reluctant to comply with this rule however, partly because doing so exposes countries affected by potential PHEICs to possibly disastrous economic sanctions. It is therefore important to consider the strategic dilemma facing Chinese authorities as they mulled over the question of whether or not to spotlight the situation in Wuhan before the international community, as opposed to keeping things domestic and on the down-low.

- Wuhan Mayor Zhou Xianwang's comments on state-run television do seem to suggest a possible reluctance on the part of Chinese authorities to share information during the earliest days of the outbreak – little wonder, when one considers what China stood to lose as the largest exporter of goods in the world. Against this backdrop, WHO's success in detecting the Wuhan Municipal Health Commission's notice on December 31, 2019 (accomplished thanks to innovative, data-driven resources such as the agency's Epidemic

Intelligence from Open Sources initiative), alongside its decisiveness in promptly asking Chinese authorities for more information, helped to augment the strategic situation facing Beijing in order to encourage disclosure. This in turn allowed for a timelier response effort overall.

- In spite of its success in the period leading up to January 5, 2020, WHO's response to the COVID-19 crisis has since suffered from a number of missteps. The agency has come under fire for issuing contradictory and even erroneous statements to the public regarding such topics as human-to-human transmissibility and asymptomatic spread, and has likewise been criticized for being slow to adapt its official position on face masks in light of emerging scientific evidence.

- It can also be said that WHO arguably erred in choosing to delay formal declaration of a PHEIC by at least one week. Under the IHR, the formal PHEIC declaration process requires an Emergency Committee (EC) meeting. The EC is comprised of experts selected by the WHO Director-General, and is expected to provide the Director-General with a recommendation regarding whether or not to declare a PHEIC. The Director-General is obligated to take stock of the EC's recommendation, but has the final say over any PHEIC determination.

- With this in mind, WHO Director-General Ghebreyesus first called for an EC meeting on January 22, 2020, prompting two days of intense discussion after which the Director-General declined to declare a PHEIC. By the time of the meeting however, it was already known that 557 cases of COVID-19 had been confirmed in China, including 17 deaths. Moreover, persons infected with the disease had been detected in a handful of countries outside of China, and early estimates suggested that the virus was fairly contagious.

- The proper determination is of course much more clear-cut in hindsight, but one could argue quite forcefully that more than enough information was available by January 22, 2020 to support formal declaration of a PHEIC. WHO's decision to forestall a formal PHEIC declaration until January 30, 2020 is therefore rather questionable.

- Overall, WHO's actions during the early stages of the crisis paint a generally mixed picture, but the agency nonetheless continues to contribute powerfully and positively to the response effort. The organization has to date raised over $200 million through its Solidarity Response Fund to combat the COVID-19 crisis, and has otherwise shipped millions of items of personal protective equipment (PPE) to healthcare personnel in over one hundred countries.

- WHO has exercised its norm-creating power to provide member states with comprehensive guidance documentation, and has also played a significant part in coordinating the global search for viable treatments and vaccines. WHO's response to the pandemic has thus far fallen short of perfection, but the agency has at all times played a necessary and vital role in the battle against COVID-19.

III. Proposed Recommendations for Strengthening the World Health Organization

Global health is likely to remain a salient issue even after the COVID-19 pandemic is successfully contained. Therefore, WHO must seek to powerfully reassert itself as the foremost authority on international health. The agency has celebrated many successes throughout its storied history and is uniquely empowered to drive progress with regards to human well-being, but is set back by a host of internal and external barriers to growth. This report provides a game plan and proposed recommendations – both near- and longer-term – for WHO to realize its full potential, prescribing possible solutions to its existing vulnerabilities. It will also briefly discuss the United States' decision to withdraw from WHO, outlining the spillover effects that will likely attend that country's exit from the agency.

Near-Term Recommendations:

- *Refine Public Relations Policies*: WHO should adjust certain facets of its COVID-19 response strategy in order to gain greater legitimacy in the public view. In the first instance, the agency must streamline its public relations policies: WHO and WHO personnel have been criticized for making misleading public statements on a number of occasions, and these comments have significantly tarnished the organization's reputation. WHO must make every effort to ensure that public-facing communications are founded upon sound scientific evidence.

- *Adopt the Precautionary Principle*: Where scientific data is as yet inconclusive, WHO should acknowledge such uncertainty and adopt the *precautionary principle*. This concept – often employed in the field of international environmental law – contends that where there is a potentially serious threat to human health, the mere absence of scientific certainty should not bar the implementation of preventive measures. Applying the precautionary principle in the context of public-facing communications should prove beneficial to WHO.

- *Utilize Carrots and Sticks*: WHO would do well to encourage effective national responses to COVID-19 by recognizing countries that have done well in containing the disease, while exerting pressure on countries that have fumbled in their efforts. This strategy will incentivize individual countries to take the virus more seriously on a domestic level, although WHO must be careful at all times not to alienate national governments.

Medium- and Long-Term Recommendations:

- *Reform Financial Mechanisms*: WHO's financing scheme is in dire need of an overhaul. The agency relies on two sources of funding: mandatory *assessed contributions* (ACs) that member states are required to pay, in addition to *voluntary contributions* (VCs) that may be given at the discretion of member states or private actors. At present, WHO suffers from a lack of sufficient funding. The agency must therefore demonstrate greater financial accountability in order to increase and diversify its access to contributions.

- *Revisit the "Zero Nominal Growth" Policy*: In 1993, WHO adopted a "zero nominal growth" policy that effectively "froze" ACs at their then-existing levels. As a result of this policy, VCs have come to comprise an ever-increasing share of WHO's funding, to such an extent that they now account for *more than eighty percent* of the agency's overall budget. This reliance on discretionary cashflows has greatly inhibited WHO's ability to plan forward in time. Moreover, VCs are often earmarked for specific projects or geographical regions, and therefore greatly constrain WHO's capacity to set the agenda for global health work. For these reasons, it is imperative that the agency calls upon its member states to revisit the wisdom of zero nominal growth in a post-COVID-19 world.

- *Redesign the Global Health Emergency Declaration Process*: WHO should also take steps to redesign the process for declaring a PHEIC. The current declaration process suffers from a lack of flexibility as well as transparency. The Director-General is faced with the difficult task of either declaring a full-fledged PHEIC or nothing at all, while WHO's internal EC meetings have been inordinately opaque. In order to address these long-standing issues, WHO should consider implementing a multi-tiered PHEIC declaration system that provides for intermediate alert designations, while providing written transcripts of EC deliberations.

- *Promote Institutional Unification*: With regards to organizational structure, WHO must take action to cultivate greater institutional unity. The agency's fragmented internal structure, consisting of six fairly autonomous regional offices alongside global headquarters in Geneva, has historically hindered WHO from operating in an efficient and cohesive manner. Accordingly, work should be done to strengthen chains of command and accountability across the global, regional, and country levels.

- *Improve Relations with Civil Society*: WHO should expand its engagement with civil society organizations (CSOs) working in public health, as doing so will bolster the agency's capacity to execute campaigns in ways that are sensitive to local mores. WHO can accomplish this by easing up its conditions for conferral of official relations status, while leveraging technology in order to elicit greater participation from CSOs.

- *Address the Threat of Future Zoonotic Diseases*: COVID-19 will not be the last global health emergency to affect humankind. If anything, the past few decades have seen a resurgence in outbreaks of zoonoses – that is, diseases that are naturally transmissible from animals to humans. This trend will likely continue as factors such as deforestation and population growth reduce the natural buffer between human beings and the wilderness. Given this outlook, WHO must endorse an infectious disease prevention strategy that takes stock of closely-related environmental issues including habitat loss, air pollution, and the wildlife trade.

<u>WHO and the United States:</u>

- *The United States' Membership in WHO*: The United States should strongly reconsider its present decision to withdraw from WHO. As the agency's single largest funder, the United States' withdrawal will exacerbate WHO's pre-existing financial woes, reducing

the organization's operational capacity while setting back decades of international health cooperation. The United States will likewise suffer from reduced access to international health-related information and expertise, while ceding its historically great influence in global health to other countries.

Introduction

The past several months have put the global health community to the test. The World Health Organization (WHO) has come under particular scrutiny as the focal point of a great controversy, attracting more than its fair share of defenders and detractors. The overarching objective of this paper is twofold. Firstly, it will endeavor to clarify WHO's actions amidst the ongoing COVID-19 crisis, presenting the agency's successes alongside its shortcomings. Secondly, it will provide a series of recommendations for WHO to implement moving forward, designed to bolster the agency as it seeks to reassert itself in a post-COVID-19 world.

This paper will proceed in three parts. The first section will offer a foundational synthesis of WHO's historical origins, structure, and legal mandate. It will likewise detail the provisions and processes contained within the International Health Regulations (IHR), before providing a detailed evaluation of WHO's institutional strengths and vulnerabilities. The second section will examine WHO's role amidst the developing COVID-19 crisis, deconstructing and analyzing the organization's actions up to the present day. This part of the paper will focus particular attention upon the initial outbreak in Wuhan, China, underscoring challenges that WHO confronted early on in the pandemic. The third and final section will set out a number of recommendations for WHO to consider as it aims to strengthen its international standing and internal efficacy. This section will necessarily touch upon the United States' decision to withdraw from WHO, outlining the effects and consequences that will likely attend that country's exit from the agency.

Part 1: WHO's History, Structure, and Function

Possessing a storied history, global reach, and a broad constitutional mandate, WHO persists to this day as a unique actor on the international stage. The organization has long commanded a prominent role within the architecture of global health, although internal and external obstacles to growth have repeatedly hindered the agency from realizing its full potential. This section will provide a preliminary synthesis of WHO's historical development, modern structure, and authority under the strictures of international law. It will thereafter detail WHO's institutional strengths and vulnerabilities, thereby providing a foundation from which to evaluate the organization's response amidst the COVID-19 crisis.

I. History

The core understandings and principles undergirding WHO far predate the organization's creation in the 1940s. The agency's roots may be traced back to the first International Sanitary Conference convened in Paris on July 23, 1851, where delegates representing twelve countries sought to standardize quarantine regulations in the wake of recurrent and extremely deadly outbreaks of cholera.[1] Governments of the time recognized that the patchwork of precautionary regulations promulgated by individual states was both ineffective in mitigating the spread of infectious disease and unduly burdensome upon international trade.[2] This initial meeting was followed by the conferral of thirteen additional International Sanitary Conferences between 1859 and 1938.[3] The impacts of the earlier conferences were rather muted as a result of political and scientific disagreements among state delegates.[4] The seventh conference in 1892 signified a

marked breakthrough in global health cooperation however, overseeing the ratification and entry into force of the first international sanitary convention, which concerned cholera.[5] Fast on the heels of this triumph in global health was the founding of the International Sanitary Office of the American Republics (later named the Pan American Sanitary Bureau, or PASB) in 1902, the first international health bureau with headquarters in Washington, D.C.[6] This was followed in 1907 by the creation of the Paris-based Office International d'Hygiène Publique (OIHP) under the auspices of the Rome Agreement, which operated in tandem with its American counterpart to collect data on public health and monitor compliance with international sanitary conventions.[7]

Established in the wake of the First World War, the Geneva-based League of Nations Health Organization (LNHO) emerged in 1922 as another major actor in the infrastructure of global health, carrying forward its host organization's mission to "endeavour to take steps in matters of international concern for the prevention and control of disease."[8] The LNHO was founded under the specter of the 1918 influenza pandemic, which is estimated to have infected one third of the global population at the time (approximately 500 million persons), causing around fifty million deaths.[9] The pandemic is said to have caused roughly 675,000 deaths in the United States alone, an order of magnitude above that country's combat losses during the Great War.[10] Formed in the aftermath of this catastrophic event, the LNHO was initially touted as the premier institution for global health, set to subsume the OIHP within its administrative framework. The United States ultimately vetoed this merger between the two entities however, causing the LNHO, the OIHP, and the PASB to co-exist as the triumvirate of global health for nearly thirty years.[11]

The outbreak of the Second World War brought about a general cessation of global health work, but the end of hostilities provided an opportunity for unprecedented cooperation. The first steps toward change were taken in San Francisco in 1945, when the Brazilian and Chinese delegates to the United Nations Conference on International Organization proposed the creation of a specialized health agency within the nascent United Nations (UN).[12] The proposal was met with unanimous approval, and the Constitution of the World Health Organization was drafted and signed one year later by sixty-one delegates to the International Health Conference hosted in New York City.[13] Under Article 80, the WHO Constitution would enter into force only upon ratification by twenty-six UN member states.[14] This threshold was met on April 7, 1948 – a day subsequently memorialized as World Health Day – when WHO emerged as the first specialized UN agency.[15] Absorbing the LNHO, the OIHP, and the PASB within its broad institutional ambit, WHO was uniquely empowered to fulfill its duty as the "directing and coordinating authority on international health work."[16]

Since its formation in 1948, WHO has played a vital role in spearheading the development of global health. Notable accomplishments include the promotion of mass campaigns against yaws and syphilis, as well as the complete eradication of smallpox in 1980 – the first disease ever eliminated through human effort.[17] The so-called "golden age" of WHO under Director-General Halfdan Mahler reached its zenith with the agency's adoption of the Declaration of Alma-Ata in 1978, which called upon the world community for the attainment of health for all by the year 2000 through the provision of primary health care.[18] This vision for global health was left largely unfulfilled however, as WHO began to cede influence to the World Bank during the 1980s. The rise of neoliberal economics predicated upon privatization, deregulation, and fiscal austerity constituted a marked shift from the brand of multilateralism under which WHO was founded,

prompting the agency to effectively "share the stage" of global health leadership with the World Bank.[19] The configuration of global health has shifted once again in the present day to encompass a multitude of stakeholders including intergovernmental institutions, private industry, and civil society, and yet WHO has endured as a perennially influential and authoritative actor.[20] Indeed, it is no great exaggeration to characterize WHO as the ultimate successor to a global health legacy over a century in the making. How it carries the banner forward will have major implications upon innumerable lives in the future.

II. Structure

WHO bears a unique organizational structure that is designed to assist the agency in accomplishing its extraordinarily expansive mission. This very structure also belies some of the challenges intrinsic to WHO, as may be expected of an organization that must continually navigate the interstice between science and politics. This sub-section will provide an overview of the three governing organs that collectively constitute WHO – namely, the World Health Assembly, the Executive Board, and the Secretariat. This section will thereafter provide insight into WHO's system of regional offices, as well as the agency's relations with other stakeholders in the global health community.

a) The World Health Assembly

As WHO's primary decision-making body, the World Health Assembly (WHA) is comprised of representatives from 194 member states (all UN member states with the exception of Liechtenstein, plus Niue and the Cook Islands).[21] Under Chapter V of the WHO Constitution, each member state may be represented by no more than three delegates along with their accompanying advisors, with delegates to be chosen "from among persons most qualified by their technical competence in the field of health."[22] Delegates to the WHA convene every May for a regular annual session, and may otherwise agree by a simple majority to convene additional special sessions as needed.[23]

During its regular session meetings, the WHA sets WHO policies, reviews organizational reports and activities, and finalizes the agency's budget.[24] The WHA is also tasked with electing Executive Board members and a Director-General once every three years and five years, respectively.[25] Regular session proceedings are held both in plenary and in committee settings: Committee A meets to discuss technical matters, whereas Committee B is principally concerned with financial and administrative issues.[26] Crucially, the WHA is empowered to issue non-binding resolutions in addition to legally binding conventions, the latter of which requires a two-thirds vote of its members.[27] The WHA's voting mechanism is likewise noteworthy in that it operates according to the principle of one country, one vote.[28] This uniform allocation of voting power is distinguishable from unevenly-weighted schemes such as that employed by the World Bank, instilling the WHA with a comparatively egalitarian character.

In addition to its official member states, the WHA may authorize other territories and organizational entities to attend WHO proceedings in a non-voting capacity. Observer status may be conferred via Article 8 of the WHO Constitution regarding associate membership, WHA Resolution 27.37 regarding the Palestinian and Occupied Territories, or at the behest of the

Director-General according to the WHA Rules of Procedure.[29] Current WHA observers include Puerto Rico, the Holy See, and the International Federation of Red Cross and Red Crescent Societies, among others.[30] Taiwan was likewise granted observer status between 2009 and 2016 under the name "Chinese Taipei," but this designation has since been revoked in light of China's assertion of a "one China" principle following the first-term election of Taiwanese President Tsai Ing-wen.[31]

b) The Executive Board

Constituting the second of WHO's three governing organs, the Executive Board (EB) is primarily responsible for "giv[ing] effect to the decisions and policies of the Health Assembly."[32] Specific duties include preparing a general program of work for the WHA's consideration and approval, in addition to advising the WHA on particular questions.[33] The Board is comprised of thirty-four individuals representing as many member states, elected by the WHA to serve renewable three-year terms.[34] Geographical diversity is a key criterion affecting the EB's composition.[35] The EB is constitutionally compelled to convene at least twice a year, and wields the authority to elect its own chairman (currently Dr. Harsh Vardhan of India).[36] In the event of urgent health events necessitating immediate action, the EB is authorized to employ ameliorative emergency measures "within the functions and financial resources of the Organization."[37]

c) The Secretariat

Overseeing WHO's day-to-day operations, the Secretariat is comprised of the Director-General and more than 7,000 technical and administrative staff working at the global, regional, and national levels.[38] The Director-General is nominated by the EB and appointed by the WHA to serve a once-renewable five-year term, and acts as WHO's chief technical and administrative officer.[39] Acting as the public face of the global health community, the Director-General is charged with ensuring the "efficiency, integrity, and internationally representative character of the Secretariat."[40] Article 37 of the WHO Constitution explicitly forbids the Secretariat from acting under conflicts of interest, directing member states to "respect the exclusively international character of the Director-General and the staff and not to seek to influence them."[41] The current Director-General is Dr. Tedros Adhanom Ghebreyesus, who formerly served as Ethiopia's Minister of Health and Minister of Foreign Affairs.[42]

d) The Regional Offices

Featuring thousands of personnel working around the world, the Secretariat's internal structure is defined in large part by its system of six regional offices. These offices include: the Regional Office for Africa (AFRO) headquartered in Brazzaville, Republic of the Congo; the Regional Office for Europe (EURO) headquartered in Copenhagen, Denmark; the Regional Office for the Eastern Mediterranean (EMRO) headquartered in Cairo, Egypt; the Regional Office for South East Asia (SEARO) headquartered in New Delhi, India; the Regional Office for the Western Pacific (WPRO) headquartered in Manila, Philippines; and the Regional Office for the Americas (AMRO) headquartered in Washington, D.C., United States.[43] Interestingly, the Pan American Sanitary Bureau (PASB) was granted the AMRO designation by agreement in 1949, such that

the body operates in the present day as both the independent Pan American Health Organization (PAHO) and as a WHO regional office.[44]

Unlike other specialized agencies under the UN, WHO affords its regional offices a considerable degree of autonomy. Each office is led by a committee comprised of representatives from member states and associate member states located in the region concerned, which can create policies to address issues of an "exclusively regional character" and designate a Regional Director with the EB's approval.[45] The fragmentation of authority effected under the regional office system has been a source of long-standing controversy, causing some critics to label WHO as "not one but seven WHOs."[46] The need for locally-tailored support on health issues has nonetheless compelled the proliferation of over 140 WHO field offices in various countries and territories. Each country office is in turn led by a WHO Representative, who is not a national of that state.[47] Under the UN Convention on Privileges and Immunities of the Specialized Agencies, WHO experts and officials operating in their formal capacities are afforded certain diplomatic immunities in 129 states.[48]

e) Relations with Other Stakeholders

As the landscape of global health has expanded in the modern day to embrace a variety of stakeholders, WHO has adapted by engaging with an assortment of intergovernmental organizations and non-state actors. WHO has from its inception operated as part of the UN Economic and Social Council (ECOSOC), and regularly cooperates with other UN agencies such as the Office for the Coordination of Humanitarian Affairs (OCHA), the World Food Programme (WFP), and the Food and Agriculture Organization (FAO).[49] The organization has also aligned with other major actors such as the World Bank and the Bill and Melinda Gates Foundation to back the creation of Gavi, the Vaccine Alliance (GAVI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria – the latter of which was administered through WHO before gaining full autonomy in 2009.[50] WHO has also forged a network of collaborating centers encompassing hundreds of research institutes and universities worldwide. The Global Outbreak Alert and Response Network (GOARN) embodies a discrete application of this network aimed at providing resources in response to international outbreaks of infectious disease.[51] Finally, WHO engages with a number of civil society and non-governmental organizations (CSOs and NGOs) according to its Framework of Engagement with Non-State Actors (FENSA). Under FENSA, the EB may grant CSOs and NGOs "official relations" status provided that they fulfill specified criteria; all other cooperation is considered informal in character.[52] At present, 217 entities enjoy official relations status with WHO.[53] Entities granted official relations status are able to participate in WHO meetings but are unable to vote, underscoring the agency's state-centric focus.

III. Function

Designed as the undisputed leader in global health, WHO wields an extraordinarily expansive constitutional mandate. This mandate is encapsulated in Article 1 of WHO's Constitution, which sets the agency's fundamental goal as "the attainment by all peoples of the highest possible level of health."[54] "Health" is in turn defined in the preamble to WHO's Constitution as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[55] This all-encompassing mission powerfully informs WHO's constitutionally-

enumerated functions, which include acting as the ultimate authority in global health; assisting states in strengthening their health services upon request; furnishing technical assistance and aid in response to health emergencies; spearheading work to eradicate epidemic diseases; promulgating agreements pertaining to global health; and educating the general public on health-related issues.[56] In practical terms, these directives have translated into a variety of both technical and normative actions and initiatives. Examples of WHO's operations range from working on-the-ground to provide poliovirus vaccinations in India and Nigeria, to regularly updating a Model List of Essential Medicines for reference by national drug registries.[57]

Commensurate with the scope of its overarching mission, WHO possesses the exceptional capacity to utilize what may be construed as both hard and soft law. Granted that certain observers may regard the idea of "hard" international law with a measure of skepticism, it nonetheless remains the case that WHO is uniquely empowered to adopt binding as well as non-binding instruments. More specifically, Article 23 of WHO's Constitution authorizes the agency to issue recommendations that are not legally binding upon member states, while Articles 19 and 21 enable the WHA to adopt binding conventions and regulations, respectively.[58] It is, however, imperative to note that the non-binding nature of WHO recommendations does not altogether defeat the usefulness or influence of such instruments. For example, the Pandemic Influenza Preparedness Framework (PIP Framework) was adopted by WHO in 2011 as a non-binding resolution, but has played a tremendous role in facilitating the international sharing of influenza samples and in ensuring greater access to vaccines.[59]

WHO has thus far exercised its capacity to create hard law only sparingly, but in each instance to great effect. The WHO Nomenclature Regulations enable the agency to make and revise international nomenclatures of diseases and causes of death, thereby allowing for standardized comparisons of morbidity data between different states.[60] The Framework Convention on Tobacco Control likewise constitutes a binding instrument aimed at "reduc[ing] continually and substantially the prevalence of tobacco use and exposure to tobacco smoke."[61] Finally, the International Health Regulations (IHR) constitute a binding agreement of paramount importance for the purposes of this report, and accordingly merit closer consideration.

a) The International Health Regulations

Embodying the latest in a line of infectious-disease control agreements dating back to the ratification of the first-ever international sanitary convention in 1892, the IHR were most recently revised and adopted by the WHA in 2005, entering into force in 2007.[62] The instrument is currently binding upon a total of 196 states, including all 194 WHO member states.[63] The IHR seek to "prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade."[64] The "all-hazards" approach espoused in the current edition of the IHR signifies a marked break from previous iterations of the agreement, which applied only to specifically designated diseases such as cholera, plague, and yellow fever.[65] This remarkable shift to cover any disease of international concern was prompted by the severe acute respiratory syndrome (SARS) outbreak first identified in China in 2002.[66]

Drafted with the aim of balancing public health, trade, and human rights, the IHR provide substantial guidance to states parties regarding acceptable public health protocols for engaging with travelers, conveyances, and goods in international transit.[67] Of equal if not greater importance, the IHR also prescribe minimum core capacities necessary at the local, intermediate, and national levels to effectively "detect, assess, notify and report" infectious disease outbreaks.[68] Under the convention's terms, states parties were obligated to augment their domestic legal and public health systems in order to comply with these core capacities by 2016.[69] The fact that none of WHO's six operational regions reported full compliance with these standards in 2019 provides a sobering view of the practical challenges facing the IHR.[70]

Among the IHR's remaining provisions, the rules for declaring a *Public Health Emergency of International Concern* (PHEIC) are particularly significant. According to this mechanism, a state party is obligated to designate a National IHR Focal Point that will be continually accessible for communications with a WHO-designated IHR Contact Point.[71] The National IHR Focal Point is responsible for notifying WHO "within 24 hours of assessment of public health information, of all events which may constitute a public health emergency of international concern within its territory."[72] The determination regarding whether a potential PHEIC exists is to be made by the state party affected, according to a formal decision instrument that considers: a) the type of disease; b) the impact upon public health; c) whether the event is unusual or unexpected; d) the risk of international spread; and e) the risk of subsequent restrictions upon travel or trade.[73] Crucially, WHO is empowered to accept and consider reports from sources other than the state party affected regarding a potential PHEIC.[74] In such cases, WHO requests verification of the external report by the state party affected, which must then respond to WHO's inquiry within twenty-four hours.[75]

Upon receiving verified notice of a potential PHEIC, WHO offers to assist the state party affected in evaluating the potential for international disease spread.[76] WHO is at this juncture unable to unilaterally disclose information concerning the potential PHEIC to other states parties, but may do so if the state party affected rejects its offer of assistance, or if the risk of international disease spread is extraneously great.[77] Information may also be unilaterally disclosed to states parties upon formal declaration of a PHEIC, a process that is initiated and controlled by WHO's Director-General. Prior to declaring a PHEIC, the Director-General is required to assemble and consult with an Emergency Committee (EC). The EC is comprised of individuals selected by the Director-General from a standing IHR Expert Roster.[78] Members of the EC are to be chosen "on the basis of the expertise and experience required," and the Director-General must select at least one expert nominated by the state party affected.[79]

The Director-General is obligated to take stock of the EC's advice and deliberations, but ultimately wields full discretion over whether to declare a PHEIC.[80] In making the final determination, the Director-General is also obligated to consider: a) information furnished by the state party affected; b) the formal decision instrument contained in the IHR; c) scientific principles and evidence; and d) the risk to international health and traffic.[81] Upon formal declaration of a PHEIC, the Director-General is empowered to issue non-binding temporary recommendations in order to mitigate the spread of infectious disease.[82]

To date, WHO has declared a total of six PHEICs. These include: 1) the 2009 H1N1 influenza declaration; 2) the 2014 polio declaration; 3) the 2014 Ebola declaration; 4) the 2016 Zika declaration; 5) the 2019 Ebola declaration; and 6) the 2020 COVID-19 declaration.[83]

b) The World Health Organization's Strengths

Created as the definitive leader on global health, WHO is empowered to address some of the most pernicious threats to human well-being. The agency's capacity to effectively implement targeted campaigns is incontrovertible: WHO's leading role in the eradication of smallpox is a feat worthy of repeated mention, as its surveillance, containment, and vaccination programs helped to eliminate a disease estimated to have caused 300 million deaths between 1900 and 1980.[84] Furthermore, WHO's ongoing work in promulgating a standardized lexicon of epidemiological terminology plays a critical role in facilitating the efficient exchange of scientific information. At the same time, WHO is itself a repository of unparalleled public health expertise, as evidenced by the impressive cast of national health ministers and ambassadors serving as state delegates to the WHA.[85] WHO's expansive network of country offices likewise affords tremendous opportunities for epidemiological data collection and locally-tailored public health initiatives, circumscribed as these efforts may be by considerations for state sovereignty.

From a norm-setting perspective, WHO is distinguishable from other actors in the global health community for its unrivaled capacity to create law. As previously detailed, WHO's authority to promulgate non-binding soft law is useful for the normative value in most cases intrinsically attached to such instruments. Non-binding recommendations may also become binding over time, either through formalization into a full-fledged convention, or through crystallization into the corpus of customary international law.[86] The agency's authority to create binding hard law merits still greater attention however, particularly on account of the powerful default rules attending such instruments. More specifically, Articles 20 and 22 of WHO's Constitution provide that member states must "take action" regarding binding agreements adopted by the WHA within eighteen months' time, after which any notices for rejection or reservation will have no effect.[87] In the event that a state party declines to accept an agreement during the allotted eighteen-month period, moreover, it is obligated to affirmatively provide the Director-General with a statement of its reasons for doing so.[88] Additionally, Article 62 of WHO's Constitution requires member states that accept binding as well as non-binding instruments to issue annual progress reports regarding their domestic implementation.[89] These powerful provisions are rarely seen even in the wider universe of international law, testifying to the strength of WHO's institutional capabilities.

WHO's ability to prevent the spread of infectious disease through the provision of technical and normative guidance is amply illustrated by the 2017 containment of an Ebola outbreak in the Democratic Republic of the Congo (DRC). Following initial detection of undiagnosed illnesses and deaths occurring in the Likati Health Zone, the DRC's Ministry of Health issued a formal notice regarding the situation to WHO on May 9, 2017.[90] An interdisciplinary team including WHO personnel was deployed the very next day, reaching the affected region on May 13, 2017.[91] The DRC's health authorities were able to confirm the presence of *Zaire ebolavirus* in a sample sent from Likati while the interdisciplinary team was still en route to its destination, thereby facilitating a process of on-site contact tracing that was both efficient and extensive.[92]

Importantly, the DRC government had in the years preceding the outbreak reformed portions of its public health infrastructure so as to better reflect the core capacities specified in the IHR, particularly with regards to epidemiological training.[93] These changes played a substantial role in bolstering the response effort, as did supplementary funding provided via WHO's Contingency Fund for Emergencies (CFE).[94] By May 29, 2017, DRC's health authorities had approved the use of an experimental vaccine for individuals at highest risk of contracting the virus, having coordinated with WHO on a plan for transporting doses from Geneva through a cold chain.[95] These measures ultimately proved unnecessary, however, as other mitigation efforts proved sufficient to stop the outbreak outright. WHO declared an end to the outbreak on July 2, 2017: thanks to the agency's concerted efforts alongside the DRC's Ministry of Health and other global health actors, only eight infections and four deaths had occurred.[96]

c) The World Health Organization's Vulnerabilities

For all of its strengths and successes, WHO nonetheless bears certain vulnerabilities and weaknesses that hinder the agency from realizing its full institutional potential. In the absence of continued vigilance on the part of WHO and its member states, even past victories may give way to undesirable outcomes: in spite of the successful containment of the 2017 Ebola outbreak in the DRC, a subsequent outbreak in that country has claimed 2,287 lives since 2018.[97] The structural issues underlying incidents of this kind may be broadly conceptualized along financial and political dimensions.

In the first instance, WHO faces a funding structure that – for lack of a better term – is frozen in time. WHO's biennial program budget is financed through two distinct types of instruments: mandatory assessed contributions (ACs) that are calculated according to each individual member state's wealth and population size, in addition to discretionary voluntary contributions (VCs) that may be provided by state or non-state entities.[98] Due in part to the rise of neoliberal economics, WHO began to witness very serious restrictions to its funding beginning in the early 1980s. This blow to financing was first given effect through the WHA's adoption of a "zero real growth" policy that froze ACs in terms of real dollars, allowing for adjustments to states' membership dues only insofar as they reflected changes in inflation and exchange rates.[99] Restrictions on fundraising became even more pronounced with the WHA's adoption of a "zero nominal growth" policy in 1993, which totally decoupled ACs from inflation and exchange rate fluctuations.[100]

The implementation of zero nominal growth has caused WHO to increasingly rely on VCs for funding, to such an extent that *discretionary financing now accounts for over eighty percent of WHO's budget*.[101] VCs must be conferred for purposes consistent with WHO's institutional objectives, but are overwhelmingly earmarked for specific projects or geographical areas.[102] This has had the effect of significantly restricting WHO's capacity to direct the global health agenda, leading some commentators to identify the modern-day agency as a "donor-driven organization."[103] The inherent unpredictability of discretionary cashflows further exacerbates WHO's operational woes, constraining the agency's ability to plan forward in time. WHO's program budget for the biennium 2020-2021 provides for a total of roughly US$ 5.8 billion in combined funding through ACs and VCs.[104] This sum is less than the United States Centers for Disease Control and Prevention's budget request for fiscal year 2021 only, further underscoring

the fact that WHO's funding is wholly incommensurate with the scope of its constitutional mandate.[105]

In addition to funding, WHO is in at least some instances inhibited from carrying out its objectives by a number of purely political factors. Structural issues include the alleged politicization of the Director-General appointment process, in addition to the considerable influence that member states may exert over personnel decisions at regional and country offices.[106] Political impediments to the efficient functioning of the IHR are particularly concerning, however, especially in light of the incentives that states parties may have to suppress information regarding the presence of a potential PHEIC within their borders. Crucially, the IHR permits states parties to unilaterally implement health measures beyond those prescribed by WHO in its temporary recommendations, provided that explanations are furnished for any additional measures that unduly burden international traffic.[107] Accordingly, a state party that is affected by a potential PHEIC and that chooses to disclose this information to WHO may fall victim to overly-reactionary and excessively punitive economic sanctions from other countries.[108] A state party affected by a potential PHEIC may therefore be likened to a player in a prisoner's dilemma, confronted with powerful disincentives to disclose information that may trigger fatal delays in mounting a global health response.[109]

Some of the most pronounced challenges facing WHO are put into stark relief by the agency's bungled response to the 2013-2016 West African Ebola outbreak. The outbreak is believed to have begun in December of 2013 with the infection and subsequent death of a one-year-old Guinean boy.[110] Local health authorities were at the time unable to detect the presence of Ebola, and Guinea's Ministry of Health did not notify WHO of a confirmed outbreak of the disease until March 23, 2014.[111] The virus had by this time spread to neighboring Liberia and Sierra Leone, and had caused over fifty deaths.[112] The delay in notifying WHO of the outbreak was undoubtedly due in part to the affected states' weak domestic public health systems, which fell far short of the IHR's core capacities for disease surveillance and response.[113] Economic considerations are also alleged to have caused a delay in reporting, as evidenced by Guinea's contemporaneous hopes for the Simandou iron ore project.[114] These roadblocks to an effective global health response were thereafter joined by WHO's own blunders, including the agency's decision to postpone formal declaration of a PHEIC until August 8, 2014.[115] WHO's initial response to the outbreak was further frustrated by a lack of emergency funding, alongside a substantial lack of coordination between its global, regional, and national offices.[116] The 2013-2016 West African Ebola outbreak's designation as a PHEIC was not lifted until March 26, 2016, when the reported death toll in Guinea, Liberia, and Sierra Leone had reached 11,310.[117]

Part 2: WHO's Role Amidst the Ongoing COVID-19 Crisis

On January 5, 2020, WHO issued a Disease Outbreak News bulletin on its website regarding "cases of pneumonia of unknown etiology" detected in Wuhan, China.[118] The cause of these cases was subsequently attributed to a novel coronavirus, ultimately dubbed "severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2).[119] Individuals infected with the virus presented symptoms including fever, fatigue, dry cough, severe pneumonia, septic shock, and multiple organ failure – symptoms of a disease that WHO would come to name COVID-19.[120]

As of the time of writing, over 50,000,000 cases of COVID-19, including over 1,200,000 deaths, have been confirmed in over 180 countries.[121] The disease has caused over 240,000 deaths in the United States alone, constituting a global health threat of extreme proportions.[122] The apparent persistence of COVID-19-related symptoms even among survivors of the disease's acute phase presents still another challenge, with longer-term implications upon healthy living and worker productivity.[123] This section will evaluate WHO's role amidst the ongoing response to COVID-19. It will begin by establishing a chronology of key events during the early stages of the crisis, starting with the initial identification of affected persons by Chinese health authorities towards the end of 2019. It will thereafter analyze WHO's actions during three discrete periods of time: 1) the period prior to the agency's issuance of a Disease Outbreak News bulletin on January 5, 2020; 2) the period between issuance of the bulletin and WHO's declaration of a PHEIC on January 30, 2020; and 3) the period following formal declaration of a PHEIC.

I. Chronology of Events

Efforts to definitively establish the first-ever incidence of COVID-19 in a human being are still underway as of the time of writing, but a clinical study conducted by Chinese researchers identifies the index case as a Wuhanese man who began exhibiting symptoms on December 1, 2019 and who was admitted to hospital on or after December 16, 2019.[124] Interestingly, the man did not report any prior contact with the Huanan seafood market, a wet market later identified by media outlets and the Chinese Center for Disease Control and Prevention (CCDC) as a hotbed for disease transmission during the early stages of the outbreak.[125]

According to reports from Chinese media outlet Caixin, a bronchoalveolar lavage fluid sample obtained from a patient at the Central Hospital of Wuhan was sent to the city of Guangzhou for testing on December 24, 2019, resulting in the tentative identification of what appeared to be a novel coronavirus three days later on December 27, 2019.[126] On that same day, a respiratory doctor at Hubei Xinhua Hospital named Zhang Jixian observed abnormalities in a number of her patients' CT scans and subsequently notified her superiors.[127] The hospital thereafter shared Zhang's observations with the Wuhan branch of the CCDC, prompting the agency to conduct an epidemiological investigation.[128] This was followed by the Wuhan Municipal Health Commission's distribution of an internal memo to its affiliate institutions on December 30, 2019, which warned healthcare personnel to be on high alert for cases of unexplained pneumonia.[129] The Wuhan Municipal Health Commission thereafter issued a public notice regarding twenty-seven confirmed cases of pneumonia via its website on December 31, 2019.[130] This information was nationally broadcasted later that day on the state-owned China Central Television (CCTV) network.[131]

WHO's China country office caught hold of the Wuhan Municipal Health Commission's notice to the public on December 31, 2019 and thereafter issued requests for additional information on both January 1 and January 2, 2020.[132] At the same time, WHO activated its Incident Management Support Team to facilitate internal coordination in the event of a public health emergency, and informed its partners in GOARN about the developing situation in Wuhan.[133] Chinese authorities responded to WHO's requests for additional information on January 3, 2020, prompting the agency to publish reports to the international community two days later via an

update to its IHR Event Information System accessible by member states, in addition to a Disease Outbreak News bulletin aimed at the general public.[134]

The proceeding days saw continued information-sharing from China to WHO, as evidenced by the latter party's January 9, 2020 statement linking a novel coronavirus to the hitherto-unexplained pneumonia, in addition to its January 11, 2020 post on social media confirming receipt of the novel coronavirus' genomic sequence from Chinese authorities.[135] WHO also issued a package of guidance documentation for use by member states between January 10 and January 12, 2020.[136] The release of these documents was bookended by the first confirmed death arising from the novel coronavirus on January 9, 2020, in addition to the Thailand Ministry of Public Health's confirmation of the first case of novel coronavirus infection detected outside of China on January 13, 2020.[137] On January 18, 2020, thousands of families in Wuhan's Baibuting community reportedly congregated to celebrate their annual "Ten Thousand Families Banquet," due in part to a lack of scientific consensus regarding the novel coronavirus' potential for human-to-human transmission.[138] Chinese health authorities later underscored the novel coronavirus' potential for human-to-human transmission on January 20, 2020, the same day on which Chinese President Xi Jinping first publicly called for decisive action in order to curb the spread of the outbreak.[139]

WHO conducted its first field visit to Wuhan on January 20 and 21, 2020, during which a team of experts learned more about the novel coronavirus' potential for human-to-human transmission and otherwise advised adherence to recommended infection control procedures during the Chinese New Year period.[140] The Chinese government imposed a *cordon sanitaire* over Wuhan on January 23, 2020, restricting residents' ability to leave the city.[141] On that same day, WHO Director-General Tedros Adhanom Ghebreyesus declined to declare the emerging outbreak of novel coronavirus a PHEIC, following the recommendation of an IHR EC comprised of fifteen international experts.[142] By this time, novel coronavirus infections had been detected in a number of countries and territories outside of China, including a laboratory-confirmed case in the United States on January 20, 2020.[143] Director-General Ghebreyesus subsequently met with Chinese President Xi Jinping in Beijing on January 27 and 28, 2020, during which the Chinese government agreed to continued information-sharing and authorized the creation of a WHO-China Joint Mission that was subsequently deployed to China on February 16, 2020.[144] The Director-General reconvened the EC for a second meeting on January 30, 2020, after which a PHEIC was formally declared.[145]

II. Analysis

To date, WHO has navigated operational and political challenges to direct a much-needed – though imperfect – global response to COVID-19. The agency's actions during and in the wake of the initial outbreak in Wuhan are certainly not beyond reproach, and yet it would be equally fallacious to deny WHO's invaluable contributions to the ongoing relief effort. This sub-section will analyze the efficacy of WHO's response to COVID-19 thus far. It will begin by examining the agency's actions prior to its issuance of the first Disease Outbreak News bulletin on January 5, 2020, and will thereafter evaluate actions taken between January 5, 2020 and the declaration of a PHEIC on January 30, 2020. Finally, this sub-section will assess the agency's actions after January 30, 2020, including its ongoing efforts in the present day.

a) Phase 1: Period leading up to Disease Outbreak News bulletin on January 5, 2020

In general, WHO acted commendably in engaging with Chinese health authorities early on in order to elicit more information regarding cases of unexplained pneumonia detected in Wuhan. It is important at this point to acknowledge certain features of the Chinese public health system which, together with the courage and diligence exhibited by Chinese healthcare professionals, enabled what appears to be a vastly improved domestic response relative to China's handling of the 2002-2004 SARS outbreak. Using the WHO's State Parties Self-Assessment Annual Reporting Tool (SPAR), China in 2019 reported a self-assessed score of 93% with regards to domestic implementation of the IHR's core capacities, compared to an average global score of 64%.[146] Objective examination of China's public health infrastructure supports the view that the country's capacity to detect and contain the spread of infectious disease has indeed improved since its experience with SARS, as evidenced by changes to the National Notifiable Disease Surveillance System (NNDSS) from 2004 onwards, including a switch to fully digital, real-time reporting and integration across almost all medical institutions at or above the township level.[147] Revisions to the Law on the Prevention and Treatment of Infectious Diseases have further bolstered China's ability to detect early disease outbreaks, particularly insofar as government and medical administrators are obligated to openly and honestly disclose information regarding suspected cases of infectious disease to their superiors, under threat of demotion, dismissal, or even criminal prosecution.[148] These elements of China's public health system played an important role in prompting a reasonably timely domestic response to the first cases of COVID-19 in Wuhan, a city with a population of over eleven million.[149]

In spite of the relatively early detection of COVID-19 in Wuhan, certain facets of the official response suggest a possible reticence on the part of government officials regarding the broad dissemination of information concerning the cases of unexplained pneumonia. This possible desire to initially limit information disclosure may be gleaned from the story of Li Wenliang, an ophthalmologist at the Central Hospital of Wuhan who posted messages about "seven confirmed cases of SARS" via social media platform WeChat on December 30, 2019.[150] Li was subsequently admonished by the Wuhan Public Security Bureau on January 3, 2020 for "publishing untrue statements," although he was later vindicated in the public view by the Supreme People's Court on February 4, 2020.[151] The Chinese health authorities' delay in responding to WHO's repeated inquires for additional information regarding the cases of unexplained pneumonia on January 1 and January 2, 2020 also merits some measure of scrutiny, particularly given that states parties are obligated to respond to WHO requests for information verification within twenty-four hours, under Article 10 of the IHR.[152] Finally, Wuhan Mayor Zhou Xianwang has personally expressed regret for not releasing information in a more timely manner, emphasizing that such disclosure required authorization from higher levels of the Chinese government.[153] This claim is supported by Article 38 of the Law on the Prevention and Treatment of Infectious Diseases, which restricts the ability of local governments to announce infectious disease outbreaks.[154]

As with any state, China faces powerful disincentives to abiding by the IHR's provisions regarding notification of a potential PHEIC. Apart from the political or reputational fallout that may accompany disclosure of an infectious disease outbreak, affected states parties must grapple

with the risk of economic damage that may arise from international trade and traffic sanctions. For instance, Nigeria reported a forty percent drop in consumer demand in its largest city of Lagos following reports of twenty infections during the 2013-2016 West African Ebola outbreak.[155] The pressure facing Chinese authorities during the Wuhan outbreak's early stages must have been particularly great: China is the world's largest exporter of goods, and the 2002-2004 SARS outbreak is estimated to have cost the global economy over US$ 40 billion.[156] Against this backdrop, the WHO China country office's ability to promptly detect the Wuhan Municipal Health Commission's public notice regarding viral pneumonia on December 31, 2019 – ostensibly in the absence of a separate communiqué from the National IHR Focal Point – is of potentially crucial significance. WHO's ability to track local infectious disease updates through initiatives such as its Epidemic Intelligence from Open Sources (EIOS) platform reflects the agency's successes in utilizing big data to safeguard global health.[157] The WHO China country office's diligence and tenacity in repeatedly requesting more information into the situation in Wuhan allowed the agency as a whole to exert influence early on in the crisis, establishing a channel of communication between Beijing and Geneva while potentially altering the strategic calculus facing Chinese authorities.

b) Phase 2: Period between January 5, 2020 and PHEIC declaration on January 30, 2020

The "second phase" of the initial outbreak between January 5, 2020, and January 30, 2020 yields a generally mixed assessment of WHO's actions in approaching an impending global health crisis. From one perspective, WHO acted effectively in promoting the continued sharing of information from China to the global community, and was otherwise very proactive in providing member states with technical guidance and in mobilizing expert networks. Conversely, the agency's mixed communications to the public regarding the human-to-human transmissibility of SARS-CoV-2 arguably constitute WHO's first significant misstep in its management of the global response effort. During a press briefing on January 14, 2020, WHO's COVID-19 Technical Lead Maria Van Kerkhove stated that limited human-to-human transmission of the novel coronavirus was "certainly possible."[158] On the same day, the agency released a post on its official Twitter account stating that "Chinese authorities have found no clear evidence of human-to-human transmission."[159] The seemingly contradictory nature of these two messages caused considerable public confusion and undermined WHO's credibility at a pivotal stage in the development of the crisis. The incident vividly illustrates the challenges that WHO faces when issuing public health recommendations in the face of imperfect information: excessively cautious reports risk causing undue injury to international trade and individual liberties, whereas insufficiently cautious statements effectively facilitate increases in disease spread.

Director-General Ghebreyesus' decision to not declare a PHEIC on January 23, 2020 may be construed as WHO's second major misstep during the early stages of the COVID-19 crisis. By the time the first Emergency Committee (EC) meeting was convened on January 22, 2020, Chinese authorities had released epidemiological evidence regarding 557 confirmed cases of infection caused by the novel coronavirus, including seventeen deaths.[160] Members of the EC were also briefed on the appearance of confirmed cases in Japan, South Korea, and Thailand.[161] Human-to-human transmission was known to be occurring, and R0 was estimated at 1.4-2.5.[162] The EC's decision to not recommend declaration of a PHEIC on January 23, 2020 in spite of this relatively alarming information suggesting international spread, high incidence of transmission,

and what appeared to be a three percent mortality rate reflects certain vulnerabilities inherent to the process of EC deliberation. More specifically, the tremendous opacity of EC meetings may hinder attempts at global health cooperation by enabling politically-motivated arguments to carry outsized influence: EC deliberations are not recorded in any way, and even the names of experts selected by the Director-General to serve on ECs were not publicly disclosed until 2014.[163] Similarly, the binary nature of the PHEIC-declaration decision means that EC members are oftentimes confronted with a strategically difficult situation, wherein an erroneous recommendation in either direction could trigger painful consequences.

Even in view of the EC's recommendation against declaration of a PHEIC on January 23, 2020, Director-General Ghebreyesus was obligated to consider other factors prior to settling upon a final decision on the matter, including: a) information furnished by the Chinese authorities; b) the formal decision instrument contained within the IHR; c) scientific principles and evidence; and d) the risk to international health and traffic.[164] The formal decision instrument contained within the IHR is in turn arranged in the form of a flow chart, along which declaration of a PHEIC is recommended so long as any two of the following conditions are satisfied: a) the event has a serious impact on public health; b) the event is unusual or unexpected; c) a significant risk of international spread exists; and d) there is a significant risk of international travel or trade restrictions.[165] Viewed in this light, a balanced assessment of all the foregoing factors would more likely than not tilt in favor of a formal PHEIC declaration on January 23, 2020, particularly if each element considered is given approximately equal weight. The Director-General's decision to forestall formal declaration of a PHEIC for an additional week was therefore of dubious advisability, although it must be conceded that the proper determination likely appears much more clear-cut in hindsight than it did at the time. Moreover, it is important to acknowledge that while WHO erred in delaying formal declaration of a PHEIC by one week, the total elapsed time between the agency's first obtaining notice of a potential PHEIC and its formal PHEIC declaration was considerably lower than was the case for previous emergencies. It took less than one month for WHO to declare the COVID-19 outbreak a PHEIC after first obtaining notice of the cases of unexplained pneumonia on December 31, 2019, whereas the agency required more than four months following initial notification from member states to designate Ebola outbreaks as PHEICs in both 2014 and 2018.[166]

c) Phase 3: Period after January 30, 2020

Since its declaration of a PHEIC on January 30, 2020, WHO has continued to play an indispensable role in directing the global health response to COVID-19. The agency's actions have not altogether escaped criticism, however. WHO's communications regarding the Chinese response to the initial outbreak in Wuhan have been decried as excessively laudatory, for instance: the WHO-China Joint Mission's official report praises China's work in implementing "perhaps the most ambitious, agile and aggressive disease containment effort in history," and makes no mention of the human rights concerns that may be implicated by the imposition of *cordon sanitaire*.[167] The agency's reluctance towards spotlighting shortcomings in the Chinese response is objectively troubling, although utilization of a conciliatory approach may have been necessary to ensure a continued flow of information from China during the nascent stages of the Wuhan outbreak.

In addition to WHO's excessively sanguine appraisal of China's response to the early outbreak, the agency's personnel have occasionally made confusing or even erroneous statements regarding the disease, as in the case of public comments regarding the possibility of asymptomatic spread.[168] In spite of these snafus, WHO has played an undeniably significant role in responding to the crisis on both a technical and normative level. The agency has shipped millions of personal protective equipment items to more than 130 countries, and has raised more than US$ 200 million to support local relief efforts through its COVID-19 Solidarity Response Fund.[169] WHO has also spearheaded Solidarity, an international clinical trial aimed at expediting the search for an effective COVID-19 treatment.[170] The organization has likewise contributed towards vaccine development and distribution, promulgating a Global Target Product Profile that details minimum safety standards for vaccine candidates, while aligning with other actors to facilitate equitable access to doses once they become available.[171] Finally, WHO has continued to update guidance for member states in the fight against COVID-19, and has hosted regular press briefings in order to keep the general public apprised of new developments. WHO has made a significant impact during the crisis thus far, and can be expected to continue contributing positively and powerfully as it confronts one of its most pressing emergencies to date.

Part 3: Recommendations for Strengthening WHO

Upon assuming the position of Director-General in 2017, Dr. Tedros Adhanom Ghebreyesus disavowed the idea of organizational reform, stating that "WHO staff are reformed out."[172] Two years later, he announced the rollout of sweeping reform measures, described as "the most wide-ranging … in the organisation's history."[173] This stark about-face reflects a simple reality: WHO has not yet achieved its full potential as the leading authority on global health. The agency has accomplished a great deal throughout its storied history, but remains unduly burdened by internal inefficiencies and external barriers to growth.

As a watershed moment in the development of global health, the COVID-19 crisis presents an opportunity for WHO to reassert itself as the foremost bulwark against infectious disease, to redefine itself in the public eye as an irreplaceable institution that must be empowered to meet future threats. This section will offer insight into tangible steps that WHO should take in order to strengthen its standing in a post-COVID-19 world. It will begin by offering recommendations designed to bolster the agency's stature in the near term, as it continues to coordinate the global response against COVID-19. It will thereafter provide medium-term measures designed to facilitate WHO's sustained growth beyond the ongoing crisis, detailing funding-related, procedural, and structural changes that should be implemented. It will then posit long-term suggestions for WHO, intended to strengthen worldwide preparedness in the face of real and recurrent risks to the future of global health. Finally, this section will focus on the United States' decision to withdraw from WHO, evaluating the possible global and domestic externalities that may arise should that country succeed in exiting the agency.

I. Short-term recommendations

As previously detailed, WHO has thus far acted commendably in mobilizing and engaging with other UN specialized agencies, expert networks, and other stakeholders in the global health

community to coordinate a multi-pronged response to COVID-19. The agency's constant communications with member states and the general public also merit recognition. These actions and initiatives should continue to be implemented throughout the ongoing crisis, and yet there remains much that the agency can do even at this juncture to strengthen its institutional efficacy. Specifically, WHO and WHO personnel have on a number of occasions issued confusing or even incorrect statements regarding the transmissibility of SARS-CoV-2, and have otherwise exhibited a certain conservatism in the formulation of guidance documentation that has led to insufficiently preventative recommendations. In addition to the aforementioned mixed messaging regarding human-to-human transmissibility, WHO has also come under criticism for a staff member's comments seemingly denying the possibility of asymptomatic spread, which necessitated further statements clarifying the matter.[174] The agency has also been criticized for being too lax in its views regarding face masks and aerosol transmission, as well as for being too slow in updating these positions to reflect emerging scientific evidence.[175] Such incidents have severely undermined public confidence in WHO. From one perspective, the agency's reluctance to update its interim guidance in the absence of compelling scientific proof is understandable, particularly in light of past criticism concerning non-evidence-based recommendations.[176] Given the significant downside risks associated with understating potential health threats in the midst of a PHEIC, however, WHO should look to loosen the stringency of its conventional guidance-formulation requirements during this time. Application of the *precautionary principle*, commonly found in international environmental law agreements, seems particularly prudent. The principle states that, "in cases of serious or irreversible threats to the health of humans or ecosystems, acknowledged scientific uncertainty should not be used as a reason to postpone preventive measures."[177] Allowing a presumption of caution to guide WHO's COVID-19-related recommendations moving forward constitutes a strategically advisable decision: the agency stands to save lives while gaining a great deal reputationally if such caution is later proven as warranted, and cannot be expected to face too much public ire in the event that its non-binding recommendations later prove to be excessively cautious.

In addition to adoption of the precautionary principle with regards to COVID-19-related correspondence and guidance, WHO should streamline its internal communications procedures in order to avert further public relations gaffes and retractions. The agency would do well to remind public-facing staff members that they are effectively speaking on behalf of WHO, and should ensure that all outgoing communications are well-aligned and not contradictory in nature. Extending beyond the realm of public relations, WHO should also consider employing a more aggressive combination of carrots and sticks in its dealings with member states, so as to promote a more robust recovery process. Particular emphasis should be placed upon recognizing countries and territories that have done well in containing the virus domestically, as well as spotlighting the particular policies that may have contributed to these successes: WHO personnel have already praised certain member states in their press briefings, but more formal recognition mechanisms are advisable. WHO should also consider exerting international pressure upon member states that continue to falter in their responses to COVID-19 through strategies such as naming and shaming, although it must take care to avoid alienating these countries in the process. The reality is that states' domestic responses to COVID-19 are powerfully influencing their reputations abroad.[178]

II. Medium-term recommendations

In the medium term, WHO must continue to develop itself into a compelling source of soft power that member states will be incentivized to engage with. Global health will in all likelihood remain a highly salient issue even after the COVID-19 crisis runs its course, and it is imperative that WHO reasserts itself as a dominant player in the field. To this end, the agency must take steps to cultivate a mutually-reinforcing cycle of greater legitimacy, accountability, and ability to access funding. It can do so by addressing deeply-engrained issues relating to funding, the PHEIC-declaration process, and overarching structure, which will be considered in turn:

a) Funding

In a post-COVID-19 world, WHO's member states must be made to strongly reconsider the advisability of zero nominal growth. This policy has greatly constrained WHO's ability to set the global health agenda and to flexibly respond to emerging health risks, and should no longer be viewed as tenable. In encouraging member states to revisit their 1993 decision regarding the adoption of a zero nominal growth approach to assessed contributions, WHO should underscore the devastating economic costs that may accrue as a result of a global infectious disease outbreak. As a result of COVID-19, the World Bank has forecasted a baseline contraction in global GDP of 5.2 percent in 2020.[179] Moreover, advanced economies are expected to witness a greater contraction than emerging economies, meaning that wealthier states have much to lose in the event of a pandemic.[180] In making the case for increasing assessed contributions (ACs), WHO must also assure member states of its capacity to utilize funds in an efficient and transparent manner. The agency has in the past come under fire for misallocation of funds: an internal audit of the six regional offices revealed fifty-five cases of fraud in 2018.[181] In an effort to combat financial malfeasance, WHO has requested external audits to supplement its internal efforts, and has likewise established a publicly-accessible WHO Programme Budget web portal to increase transparency with regards to its annual expenditures. These measures should continue moving forward, and WHO should likewise promulgate and enforce a zero-tolerance policy for misuse of funds. Moreover, the switch to work-from-home precipitated by COVID-19 presents an opportunity for cost-savings even beyond the present crisis. Where practicable, WHO should consider continuing to host its meetings virtually, in an effort to substantially reduce its travel-related expenditures.

In addition to making the case for reconsideration of zero nominal growth, WHO would do well to ramp up collection of unearmarked funds from non-state actors. The recent creation of the WHO Foundation, a legally independent grant-making body designed to facilitate contributions from private individuals and corporate donors to WHO, represents a promising mechanism for diversifying funding moving forward.[182] A net increase in voluntary contributions (VCs) should by no means justify keeping member states' ACs at their present levels however, as doing so would risk the further proliferation of earmarked funding, thereby degrading WHO's agency and capacity to respond to unanticipated events. It is also imperative that donations received through innovative channels such as the WHO Foundation are accepted and utilized according to the highest possible ethical standards.

b) The PHEIC-declaration process

As it presently stands, the WHO's PHEIC-declaration process is seriously impaired by a lack of flexibility and transparency, and should accordingly be restructured from the ground up. In the first instance, the current framework strongly incentivizes states to suppress disclosure of information regarding potential PHEICs occurring in their territories, leaving honest declarants vulnerable to unduly burdensome economic sanctions from other countries. In the wake of COVID-19, WHO should underscore the role that timely reporting can play in averting greater damage to individual economies, thereby incentivizing disclosure of information from affected states parties in the future. More importantly, WHO should also consider using its hard law-creating authority to fundamentally ameliorate or resolve the strategic dilemma currently facing a state party affected by a potential PHEIC. For instance, this may involve the adoption of a binding instrument effectively limiting the amount of economic loss that a state party experiences when it makes a timely, good-faith effort to share information regarding a suspected PHEIC.

Additionally, the current PHEIC-declaration process has been maligned for its binary character, as the Director-General and the EC are compelled to decide between two diametrically-opposed options.[183] This has led to internal support for a tiered system for making PHEIC declarations, which should be implemented promptly as a means of ensuring a more flexible response to infectious disease outbreaks.[184] Similarly, the incredible opacity of EC deliberations constitutes a substantial problem that should be remedied with all due haste. Commentators have long argued for greater transparency into the EC's discussions, with some suggesting that meetings be videotaped and edited where necessary prior to public release.[185] At the very least, WHO should consider releasing written transcripts of EC meeting proceedings, with redactions where necessary for security-related reasons. These measures will help to prevent politically-motivated considerations from playing an outsized role in influencing EC decisions, thereby increasing WHO's institutional legitimacy.

c) Structural recommendations

As may be expected of a large bureaucratic body, certain facets of WHO's current structural configuration limit the agency's overall effectiveness. The Secretariat's fragmentation into six discrete, fairly autonomous regional offices functions as both a blessing and a curse, allowing for locally-tailored initiatives at the cost of agency-wide accountability and cohesiveness. Each regional office is beholden to the demands of their constitutive member states, resulting in priorities and perspectives that are at times at odds with global headquarters in Geneva.[186] In order to mitigate against these structural vulnerabilities, WHO should first re-evaluate the assignment of certain member states to particular regional offices: current assignments are dictated entirely by geographical considerations, and often conceal marked differences in economic development and other metrics that exist between countries.[187] Additionally, WHO should modify its internal policies and procedures so as to promote greater accountability, particularly between the regional and global offices. Director-General Ghebreyesus has recently taken certain measures to facilitate greater organizational buy-in on the part of WHO's regional directors, and has likewise laid the foundation for a "Mobility programme" designed to rotate staff members across different regional offices.[188] These actions and initiatives should help in bolstering organizational unity, but more targeted interventions may be warranted.[189]

Alongside internal adjustments, WHO should expand its engagement with civil society organizations (CSOs) and other relative newcomers to the global health system. A greater willingness to formally recognize and collaborate with these bodies will allow for more efficient implementation of technical campaigns that are sensitive to local norms and cultural practices. Greater engagement with these entities may likewise yield dividends with regards to disease detection and response, given that WHO is authorized to consider information regarding potential PHEICs from non-state actors under the IHR. WHO's current framework for establishing official relations with non-state actors is unjustifiably restrictive, in many cases requiring two years of informal coordination before such status may be conferred.[190] Even after official relations status has been obtained, many non-state actors find themselves financially unable to make use of their privilege to attend WHA meetings.[191] Accordingly, WHO should reduce the requirements necessary for conferral of official relations status, and should once again consider virtual means of allowing civil society organizations to engage in key proceedings.

III. Long-term recommendations

COVID-19 will almost certainly not be the final threat to global health. Over the past few decades, humanity has witnessed a marked resurgence in zoonoses, formally defined as diseases that "are naturally transmissible from vertebrate animals to humans."[192] SARS-CoV-2 has been confirmed as sharing remarkable genomic identity to other coronaviruses derived from bats, and other viruses such as MERS and Ebola were also initially transmitted from so-called "reservoir animals" that host a wide range of pathogens.[193] Urbanization and human population growth have forced increasing numbers of people into liminal spaces bordering the wilderness, effacing the natural barrier that has previously existed between human beings and animals. At the same time, extraordinary advances in international trade and traffic have made it easier than ever for zoonotic diseases to spread across national borders. The world cannot enjoy the fruits of international commerce without confronting this inconvenient truth.

In the long term, WHO must insist upon a strategy of disease control and prevention that transcends purely epidemiological considerations. It must make clear to member states that infectious diseases are inextricably linked to a greater constellation of environmental issues including deforestation, food scarcity, and the loss of biodiversity. As an example, a study conducted in the United States has shown that a 1 $\mu g/m^3$ increase in $PM_{2.5}$ is associated with an 8% increase in COVID-19 mortality.[194] This association between air quality and COVID-19 mortality in turn implicates questions surrounding environmental justice, insofar as lower socioeconomic status is tied to greater exposure to airborne pollutants in many parts of the world.[195] For these reasons, WHO should make use of all the instruments at its disposal – including its hard law-creating authority – to promulgate a holistic understanding of infectious disease control grounded in notions of equity and an overarching right to health. Nothing short of this expansive commitment will ultimately prove sufficient.

IV. WHO and the United States

The United States' current decision to withdraw from WHO, pursuant to the terms stipulated in a 1948 Congressional Joint Resolution, constitutes a grievous threat to global health that should be strongly re-considered. The United States is by far the largest single contributor of funding to the

WHO, with its combined ACs and VCs having accounted for roughly twenty percent of the agency's budget for the 2018-2019 biennium.[196] Loss of this funding would severely undercut WHO's operational capacity and international authority, effectively undoing decades of progress on international health cooperation. Withdrawal from WHO would also weaken the United States' long-term strategic position. The void left by the United States' withdrawal will allow other countries to exert themselves as leading financiers of global health, capturing a source of considerable and fast-growing soft power that has hitherto belonged to Washington, D.C. Loss of funding from the United States will also hinder WHO's ability to monitor, detect, and respond to future PHEICs, which may ultimately cause significant damage to both the American people and the American economy.

Concluding Remarks

WHO is in the midst of a great test, grappling with developments that will have lasting implications upon the landscape of global health. The agency's response to COVID-19 has thus far been less than perfect, hampered by procedural constraints and recurring gaffes in communication. It is nonetheless difficult to deny the good that the agency has managed to achieve throughout the ongoing crisis, from its crucial role in exerting pressure upon Chinese medical authorities in early January, to its ongoing efforts in spurring vaccine and treatment development. The bottom line is that WHO is an agency worth supporting. It is the heir to a legacy of international health cooperation dating back well over a century, and will become indispensable in the face of ever-increasing risks to human well-being. It is an agency that will only grow in influence even after COVID-19 has run its course, and individual countries – including the United States – would do well to invest in its tremendous potential.

ANNEX 1: WHO and Equitable Access to a COVID-19 Vaccine

Introduction

As the search for a COVID-19 vaccine continues, the World Health Organization (WHO) will have to take decisive action to ensure that doses – once available – are distributed in an equitable and timely manner. The agency's current work in supporting the Access to COVID-19 Tools (ACT) Accelerator's vaccine division warrants some degree of recognition, but further initiatives will be required in order to guarantee that low income countries (LICs) and lower-middle income countries (LMICs) are not deprived of access to sufficient doses. This annex is intended to detail WHO's ongoing COVID-19 response efforts in lower-income countries, emphasizing the agency's actions related to vaccine development and distribution. It will begin by highlighting the need for equitable access to a COVID-19 vaccine in light of pronounced vulnerabilities facing lower-income states, and will thereafter outline WHO's work in co-leading the COVID-19 Vaccines Global Access (COVAX) financing system. This annex will then offer recommendations for implementation by WHO, intended to assist the agency as it seeks to enhance access to vaccines in both the near and longer term.

I. The Need for Equitable Access

The hunt for a COVID-19 vaccine is proceeding at a breakneck pace. Vaccine development normally requires years to complete, as candidates must pass through multiple clinical trial phases.[*] Nonetheless, scientific ingenuity and regulatory coordination have allowed for a general fast-tracking of the process in the case of COVID-19.[197] More than 130 vaccines for COVID-19 are currently being developed, of which eleven have entered into phase III clinical trials.[198] On August 11, 2020, Russia's Ministry of Health approved for use by "a small number of citizens from vulnerable groups" a COVID-19 vaccine that had not yet completed a phase III clinical trial, a move that elicited substantial controversy.[199] The amount of time needed before a vaccine passes a phase III clinical trial and is approved for unrestricted public use remains an open question, but the global health community would do well to have an equitable distribution mechanism ready in advance of such an event.

Upon the release of a COVID-19 vaccine for unrestricted public use, international demand for doses will almost certainly outstrip supply.[200] There is simply insufficient manufacturing capacity to create enough doses for the entire human populace from the outset, even in light of ongoing efforts to bolster potential production output.[201] A viable, fully tested COVID-19 vaccine will therefore enter into play as a scarce resource in the international arena, likely prompting – in the absence of any willful intervention to the contrary – a frenzied scramble as individual states endeavor to secure as sizeable a stockpile of doses for their own citizens as possible. The incentives for states to act in such a self-interested fashion are considerable: COVID-19 has thus far caused over 1,200,000 deaths worldwide while significantly damaging

[*] Phase I clinical trials are conducted on small groups of people to establish safe dosage guidelines and to identify potential side effects. Phase II clinical trials are conducted on larger groups of subjects to evaluate efficacy while monitoring for adverse effects. Phase III clinical trials are conducted on still larger groups consisting of thousands of subjects, and generally constitute the final "check" prior to regulatory approval.

the global economy, such that any country that succeeds in protecting its people through early vaccination stands to gain a great deal.[202]

Unfortunately, states do not face a level playing field with regards to vaccine access. Under a conventional free market for a scarce COVID-19 vaccine, high income countries (HICs) and higher-middle income countries (HMICs) will enjoy a substantial advantage over lower-income countries in terms of securing doses for their citizens. This outcome is to be expected in light of fundamental principles of supply and demand, and indeed has already come to pass in the global market for testing kits, personal protective equipment (PPE), and COVID-19 treatments such as remdesivir.[203] At present, actors such as the United States and the European Union have already entered into advance purchase agreements with a number of pharmaceutical firms, reserving early access to hundreds of millions of potential vaccine doses.[204] This market-driven imbalance in vaccine allocation is further exacerbated by the geographical distribution of COVID-19 vaccine production facilities, many of which are situated in HICs. This is problematic because state governments may choose to restrict exports of domestically-produced vaccine doses, as the Australian government did during the 2009 H1N1 pandemic.[205]

In the absence of international cooperation in order to ensure equitable distribution of a COVID-19 vaccine, LICs and LMICs will be vulnerable to potentially calamitous risks. Latin American countries such as Brazil and Mexico have to date reported a great number of deaths arising from COVID-19.[206] In contrast, case counts in many parts of Sub-Saharan Africa (SSA) have remained relatively low as a likely result of demographic factors, insufficient testing capacity, and early actions taken by national governments, but the region remains at significant risk of a more pronounced outbreak.[207] The vast disparity in domestic public health capacities between higher- and lower-income states likewise merits some degree of consideration. Wealthy states boast significantly greater numbers of experienced medical personnel, intensive care unit (ICU) beds, and ventilators compared to LICs and LIMCs: in May 2020, ten African countries had no ventilators at all.[208] This gaping difference in public health infrastructure means that "flattening the curve" of infections to a manageable level is a much taller order in LICs and LIMCs relative to wealthier states. Consequently, lower-income states will be more reliant than their wealthier counterparts upon mass vaccinations as a means of quelling further disease spread following pronounced outbreaks of COVID-19.

Economic considerations further underscore the need for LICs and LIMCs to have equitable access to a COVID-19 vaccine. A lack of fiscal resources has made sustained lockdowns untenable in countries such as Benin, while falling commodity prices, reduced inflows of money from remittances, and a marked downturn in international tourism have further squeezed national economies in lower-income states.[209] High rates of participation in the "informal economy" in regions such as Latin America and SSA mean that large numbers of people are also ineligible for social welfare benefits, putting these individuals at risk of food insecurity while potentially undermining the efficacy of state-mandated lockdown measures.[210] An undue delay in deployment of a COVID-19 vaccine to LICs and LIMCs will only intensify these pressures, resulting in great harm to both lives and economic livelihoods.

In sum, there exists a real and significant need for equitable access to a fully tested COVID-19 vaccine at the moment of its being approved for public use. This is not to say that wealthy states

should relinquish all of their claims to early doses in order to ensure that citizens of LICs and LIMCs are fully immunized; rather, states should coordinate to make sure that high-risk groups in their respective territories such as healthcare personnel are promptly given access to initial doses. To the extent that COVID-19 will remain a perennial threat to all of humankind until it is eradicated in every country, states would do well to share a COVID-19 vaccine equitably instead of succumbing to the siren's call of self-interest.

II. WHO's Ongoing Efforts

WHO is well positioned to take a leading role in ensuring equitable access to a COVID-19 vaccine. The agency has thus far taken substantial steps to support the pandemic response effort in LICs and LIMCs, providing detailed guidance documentation to member states while procuring and distributing millions of PPE items and testing kits.[211] WHO has likewise deployed surge teams to countries such as South Africa, and has hosted virtual and in-person trainings in order to strengthen local capacity.[212] The agency's Solidarity clinical trial for treatments is aimed at finding a viable therapeutic for COVID-19, while its target product profile (TPP) for vaccines has provided developers with preferred and minimum guidelines to consider.[213] These actions and resources have contributed mightily to the global response to COVID-19, and are especially important in light of continuing uncertainty regarding the efficacy and effective duration of a COVID-19 vaccine once fully tested and approved for unrestricted public use.[214]

Crucially, WHO has not stood idly by with regards to enhancing equitable access to a COVID-19 vaccine. The agency's efforts in this area have largely centered around the creation and promotion of the COVID-19 Vaccines Global Access (COVAX) mechanism, developed as part of the Access to COVID-19 Tools (ACT) Accelerator global collaboration framework launched in April 2020.[215] COVAX is intended to "accelerate the development and manufacture of COVID-19 vaccines" while "guarantee[ing] fair and equitable access for every country in the world," and is co-led by WHO in partnership with Gavi, the Vaccine Alliance (GAVI) and the Coalition for Epidemic Preparedness Innovations (CEPI).[216] The entity seeks to secure sufficient capital from states to establish a formal COVAX Facility, which will negotiate advance purchase agreements with an expertly-chosen selection of vaccine candidates in order to procure a targeted two billion doses of safe and effective vaccines by the end of 2021.[217] These doses will then be equitably distributed in sufficient quantities to immunize roughly twenty percent of each participating states' population, with the remaining ten percent or so of all doses received to be retained by the facility as an emergency stockpile.[218] COVAX has thus far been presented to states as something akin to a COVID-19 vaccine "insurance policy," insofar as participating countries will have access to a diversified portfolio of vaccine candidates that may make a significant difference should bilateral deals fall through.[219] The financing mechanism's capacity to pool international demand and purchasing power reduces the risk facing vaccine developers by guaranteeing a market for viable end products, and otherwise mitigates against the risk of pricing escalations that would likely arise in a competitive free market.

Apart from pooling demand in order to alleviate the classic strategic dilemma surrounding scarce resources, the COVAX Facility is also intended to facilitate equitable access to a COVID-19 vaccine through GAVI's COVAX Advance Market Commitment (AMC). This auxiliary financing instrument will support vaccine manufacturing and distribution to LICs and LMICs by

utilizing official development assistance (ODA) funds contributed from HICs and HMICs, thereby ensuring that lower-income states will be able to reap the benefits of COVAX participation.[220] At present, the COVAX AMC has raised roughly US$ 1.8 billion against a US$ 2 billion target from sovereign states as well as the private sector.[221] Notably, vaccine manufacturer AstraZeneca has already signed a memorandum of understanding with the COVAX AMC, reserving 300 million doses of its COVID-19 vaccine for the entity should approval be granted.[222] COVAX appears to have generated a good amount of support more generally, as more than 180 countries have thus far become involved in the financing instrument.[223]

III. Further Recommendations

In spite of the impressive scope of its ongoing efforts, WHO will have to take further action to ascertain equitable access to a COVID-19 vaccine once approved for general use. "Vaccine nationalism" will more than likely have devastating consequences for LICs and LIMCs; accordingly, WHO should make every effort to promote a spirit of international vaccine sharing and effective dose deployment. As outbreaks of zoonoses such as COVID-19 become increasingly frequent, now is the time to develop frameworks and strategies that will allow for the fair and efficient global allocation of newly-developed vaccines.

In the near term, WHO would do well to secure more formal commitments from wealthy states to participate in COVAX. In the words of WHO Chief Scientist Soumya Swaminathan:

> A vaccine that is affordable and accessible to all will help us address systemic health inequalities. We need all countries to support COVAX to achieve this goal and bring an end to the acute phase of the pandemic.[224]

Roughly ninety-four countries with the capacity to self-finance participation have thus far made binding commitments to join COVAX, alongside more than ninety lower-income states.[225] Self-financing governments were initially invited to make binding commitments to join COVAX by August 31, 2020, but it appears that this deadline to join has effectively been tolled so as to accommodate later sign-ons.[226] In order to secure further commitments from self-financing states, WHO should continue to underscore COVAX's insurance-like properties in addition to its potential to achieve a strategically optimal allocation of doses worldwide at a reasonable price point, while reminding states that the COVID-19 pandemic will continue to disrupt previous modes of living until it is eradicated everywhere. The agency can also consider recognizing states that definitively commit to backing COVAX, while potentially naming and shaming states that pursue excessive quantities of doses through bilateral deals only. These measures are particularly important because COVAX's capacity to spur vaccine development and to secure doses at a reasonable price point is deeply connected to the total demand and purchasing power that the mechanism is able to aggregate.

Aside from doing all that it can to ensure that an equitable share of early COVID-19 vaccines is reserved for LICs and LIMCs, WHO must take steps to guarantee that doses received through COVAX are deployed effectively and efficiently at the country level. Part of this effort should entail utilizing networks such as the WHO-founded African Vaccine Regulatory Forum

(AVAREF) to promote regulatory harmonization between different states, as varying requirements from national regulatory authorities can become a major impediment to timely vaccine distribution.[227] WHO should also work alongside other actors such as GAVI to make sure that LICs and LIMCs have the requisite cold chain infrastructure in place to receive vaccines from manufacturing facilities.[*] This may be a challenging task in light of the fact that cold chains are heavily reliant upon electricity, so guidance should be given to governments as needed with regards to redesigning existing cold chain systems or outsourcing vaccine logistics to private firms.[228] Finally, WHO should consider escalating its ongoing efforts to combat vaccine hesitancy, defined as "the reluctance or refusal to vaccinate despite the availability of vaccines."[229] The agency should by no means coerce persons living in LICs and LIMCs into receiving a COVID-19 vaccine, but must do all that it can to guarantee that individuals will not reject valuable doses on the basis of scientifically unfounded conjecture. Part of this process will involve engaging with community leaders and healthcare workers in high-risk areas to clarify the benefits and risks of vaccination.

In the longer term, WHO should take the initiative to develop a binding and expansive international convention on vaccine sharing. No such agreement presently exists, such that equitable access to a so-called "global public good" continues to be stymied by assertions of sovereignty and nationalistic tendencies.[230] The free market dynamic that has long defined the global allocation of vaccines has historically led to pronounced inefficiencies and many cases of otherwise-preventable deaths. A viable agreement on vaccine sharing must take stock of the interests of multiple stakeholders, including but not limited to pharmaceutical firms and national governments. Such a convention may be difficult to broker, but successfully doing so will mark a great achievement for humankind.

Conclusion

WHO has thus far done well in facilitating more equitable access to a COVID-19 vaccine for LICs and LIMCs. The agency's work in co-leading COVAX is particularly promising, although more must be done at this juncture to elicit binding commitments from wealthy states to participate in the financing mechanism. WHO would also do well to support governments in harmonizing national regulatory requirements and in improving cold chain infrastructure, while engaging with local actors in order to combat vaccine hesitancy. Finally, the agency must take steps towards developing a binding international convention on vaccine sharing, particularly as the threat of zoonotic diseases continues to loom large. LICs and LIMCs are significantly less well equipped to handle pronounced outbreaks of COVID-19 relative to their wealthier counterparts, so action must be taken now to guarantee that a sufficient quantity of vaccine doses will be made available to these states as soon as possible.

[*] A "cold chain" is a system for storing and transporting vaccines within a limited temperature range from the place of manufacture to the place of use. The system helps to ensure that vaccines maintain their potency.

References

[1] Norman Howard-Jones, *The scientific background of the International Sanitary Conferences 1851-1938* (Geneva: World Health Organization, 1975), 12-16, https://apps.who.int/iris/bitstream/handle/10665/62873/14549_eng.pdf?sequence=1&isAllowed=y.

[2] David P. Fidler, "From International Sanitary Conventions to Global Health Security: The New International Health Regulations," *Chinese Journal of International Law* 4, no. 2 (2005): 328-329, https://doi.org/10.1093/chinesejil/jmi029.

[3] Howard-Jones, *International Sanitary Conferences 1851-1938*, 93-98.

[4] Ibid, 9.

[5] Ibid, 64-65.

[6] *Transactions of the First General International Sanitary Convention of the American Republics* (Washington, D.C.: Government Printing Office, 1902), https://iris.paho.org/bitstream/handle/10665.2/28601/1_2.pdf?sequence=1&isAllowed=y.

[7] International Agreement signed at Rome, 9 December 1907, December 9, 1907, https://digitallibrary.un.org/record/1487145?ln=en.

[8] Covenant of the League of Nations art. 23, June 28, 1919, https://avalon.law.yale.edu/20th_century/leagcov.asp#art23.

[9] Jeffery T. Taubenberger and David M. Morens, "1918 Influenza: The Mother of All Pandemics," *Emerging Infectious Diseases* 12, no. 1 (2006): 15, https://doi.org/10.3201/eid1201.050979.

[10] Barbara Jester, Timothy Uyeki, and Daniel Jerrigan, "Readiness for Responding to a Severe Pandemic 100 Years After 1918", *American Journal of Epidemiology* 187 (2018): 2596, https://doi.org/10.1093/aje/kwy165.

[11] World Health Organization, "Origin and development of health cooperation," accessed July 2020, https://www.who.int/global_health_histories/background/en/.

[12] Szeming Sze, *Diary of Szeming Sze*. May 28, 1945, University of Pittsburgh Digital Collections, accessed July 2020, https://digital.library.pitt.edu/islandora/object/pitt%3A31735066261466/viewer#page/1/mode/2up.

[13] Lawrence O. Gostin, *Global Health Law* (Cambridge: Harvard University Press, 2014), 91-92.

[14] Constitution of the World Health Organization art. 80, July 22, 1946, https://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1 [hereinafter WHO Constitution].

[15] World Health Organization, "Origin and development of health cooperation."

[16] WHO Constitution art. 2.

[17] Michael McCarthy, "A brief history of the World Health Organization," *The Lancet* 360 (2002): 1111, https://doi.org/10.1016/S0140-6736(02)11244-X.

[18] Declaration of Alma-Ata: international conference on primary health care, Alma-Ata, USSR, September 6-12, 1978, https://www.who.int/publications/almaata_declaration_en.pdf?ua=1.

[19] *Global Health Watch 2005-2006: An Alternative World Report* (London: Zed Books, 2005), 272-274, https://reliefweb.int/sites/reliefweb.int/files/resources/AF558D1E144DAD0BC1257130005C9B60-medico.pdf.

[20] Gostin, *Global Health Law*, 143-145.

[21] World Health Organization, "Alphabetical List of WHO Member States," accessed July 2020, https://www.who.int/choice/demography/by_country/en/.

[22] WHO Constitution art. 11.

[23] WHO Constitution art. 13.

[24] WHO Constitution art. 18.

[25] Ibid.

[26] World Health Organization, "How the World Health Assembly Works," accessed July 2020, https://www.who.int/mediacentre/events/governance/wha/how_wha_works/en/.

[27] WHO Constitution art. 19.

[28] WHO Constitution art. 59.

[29] Jonathan Herington and Kelley Lee, "The limits of global health diplomacy: Taiwan's observer status at the world health assembly," *Globalization and Health* 10 (2014): 2, https://doi.org/10.1186/s12992-014-0071-y.

[30] Ibid.

[31] Jacques deLisle, "United States-Taiwan Relations: Tsai's Presidency and Washington's Policy," *China Review* 18, no. 3 (2018): 22-24, https://www.jstor.org/stable/26484531.

[32] WHO Constitution art. 28(a).

[33] WHO Constitution arts. 28(d), 28(h).

[34] WHO Constitution art. 25.

[35] WHO Constitution art. 24.

[36] WHO Constitution art. 27.

[37] WHO Constitution art. 28(i).

[38] WHO Constitution art. 30.

[39] WHO Constitution art. 31.

[40] WHO Constitution art. 35.

[41] WHO Constitution art. 37.

[42] World Health Organization, "Dr. Tedros Adhanom Ghebreyesus," accessed July 2020, https://www.who.int/dg/biography.

[43] World Health Organization, "WHO Regional Offices," accessed July 2020, https://www.who.int/classifications/network/ro/en/.

[44] Agreement Between the World Health Organization and the Pan American Health Organization, May 24, 1949, https://www.paho.org/hq/dmdocuments/2017/basic-documents-paho-2017.pdf.

[45] WHO Constitution arts. 50, 52.

[46] The Lancet, "WHO reform continues to confuse," *The Lancet* 393 (2019): 1071, https://doi.org/10.1016/S0140-6736(19)30571-9.

[47] Manish Kumar Yadav, "Structure and Functions of the World Health Organization," *IOSR Journal of Humanities and Social Science* 22, no. 9 (2017): 18-19, https://www.researchgate.net/publication/319480566_Structure_and_Functions_of_the_World_Health_Organization.

[48] Convention on Privileges and Immunities of the Specialized Agencies, November 21, 1947, Annex 2, 33 U.N.T.S. 261, https://treaties.un.org/doc/Treaties/1949/08/19490816%2010-43%20AM/Ch_III_2p-full%20text.pdf.

[49] World Health Organization, "Inter-agency collaboration," accessed July 2020, https://www.who.int/emergencies/partners/inter-agency.

[50] Gostin, *Global Health Law*, 146-161.

[51] World Health Organization, "Global Outbreak Alert and Response Network – GOARN: Partnership in Outbreak Response," accessed July 2020, https://www.who.int/csr/outbreaknetwork/goarnenglish.pdf?ua=1.

[52] World Health Organization, World Health Assembly, *Framework of engagement with non-State actors*, WHA69.10 (May 28, 2016), https://apps.who.int/gb/ebwha/pdf_files/wha69/a69_r10-en.pdf.

[53] World Health Organization, "English/French list of 217 non-state actors in official relations with WHO reflecting decisions of the 146th session of the Executive Board, February 2020," accessed July 2020, https://www.who.int/publications/m/item/non-state-actors-in-official-relations-with-who.

[54] WHO Constitution art. 1.

[55] WHO Constitution pmbl.

[56] WHO Constitution art. 2.

[57] Gostin, *Global Health Law*, 104-106.

[58] WHO Constitution arts. 19, 21, 23.

[59] World Health Organization, *Pandemic influenza preparedness Framework for the sharing of influenza viruses and access to vaccines and other benefits*, WHA 64.5 (May 21, 2011), https://apps.who.int/iris/bitstream/handle/10665/44796/9789241503082_eng.pdf;jsessionid=D4F931D82EFD1CC22B75EF7B2756F34E?sequence=1; Lawrence O. Gostin, et al., "Virus Sharing, genetic sequencing, and global health security," *Science* 345 (2014): 1295-1296, https://doi.org/10.1126/science.1257622.

[60] WHO Nomenclature Regulations 1967, May 22, 1967, https://apps.who.int/iris/bitstream/handle/10665/89478/WHA20.18_eng.pdf?sequence=1&isAllowed=y.

[61] WHO Framework Convention on Tobacco Control, *opened for signature* June 16, 2003, art. 3, https://apps.who.int/iris/bitstream/handle/10665/42811/9241591013.pdf?sequence=1.

[62] World Health Organization, "World Health Assembly adopts new International Health Regulations," last modified May 23, 2005, https://www.who.int/mediacentre/news/releases/2005/pr_wha03/en/.

[63] World Health Organization, "States parties to the International Health Regulations (2005)," accessed July 2020, https://www.who.int/ihr/legal_issues/states_parties/en/.

[64] International Health Regulations (2005) art. 2, June 15, 2007, https://www.who.int/publications/i/item/9789241580496 [hereinafter IHR 2005].

[65] Lawrence O. Gostin and Rebecca Katz, "The International Health Regulations: The Governing Framework for Global Health Security," *The Milbank Quarterly* 94, no. 2 (2016): 266-267, https://doi.org/10.1111/1468-0009.12186.

[66] Gostin, *Global Health Law*, 113.

[67] IHR 2005 pt. 5.

[68] IHR 2005 art. 5.

[69] Ibid.

[70] World Health Organization, "Electronic State Parties Self-Assessment Annual Reporting Tool (2019)", accessed July 2020, https://extranet.who.int/e-spar.

[71] IHR 2005 art. 4.

[72] IHR 2005 art. 6.

[73] IHR 2005 annex 2.

[74] IHR 2005 art. 9.

[75] IHR 2005 art. 10.

[76] Ibid.

[77] IHR 2005 art. 11.

[78] IHR 2005 art. 47.

[79] IHR 2005 art. 48.

[80] IHR 2005 art. 12.

[81] Ibid.

[82] IHR 2005 art. 15.

[83] EURO, "2019-nCoV outbreak is an emergency of international concern," last modified January 31, 2020, https://www.euro.who.int/en/health-topics/health-emergencies/international-

health-regulations/news/news/2020/2/2019-ncov-outbreak-is-an-emergency-of-international-concern.

[84] *Bugs, drugs and smoke: stories from public health* (Geneva: World Health Organization, 2011), 5, https://www.who.int/about/history/publications/public_health_stories/en/; Frank Fenner, et al., *Smallpox and its Eradication* (Geneva: World Health Organization, 1988), 1261-1262, https://apps.who.int/iris/handle/10665/39485.

[85] World Health Organization, *Seventy-third World Health Assembly: List of Delegates and Other Participants*, A73/DIV./1 Rev. 1 (May 20, 2020), https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_DIV1REV1-en.pdf.

[86] Dinah L. Shelton, "Soft Law" in *Handbook of International Law*, ed. David Armstrong (New York: Routledge Press, 2009).

[87] WHO Constitution arts. 20, 22.

[88] Ibid.

[89] WHO Constitution art. 61.

[90] World Health Organization, "Statement on Ebola in the Democratic Republic of the Congo," last modified May 12, 2017, https://www.who.int/en/news-room/detail/12-05-2017-statement-on-ebola-in-the-democratic-republic-of-the-congo.

[91] Sam Halabi, Rebecca Katz, and Amanda McClelland, "International Institutions and Ebola Response: Learning from the 2017 Outbreak in the Democratic Republic of Congo," *St. Louis University Law Journal* 64 (2019): 98, https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1762&context=lj.

[92] Ibid.

[93] Ibid, 108-109.

[94] Ed Yong, "How the Democratic Republic of the Congo beat Ebola in 42 Days," *The Atlantic*, July 3, 2017, https://www.theatlantic.com/science/archive/2017/07/how-the-democratic-republic-of-congo-beat-ebola-in-42-days/532590/.

[95] Amy Maxmen, "Ebola vaccine approved for use in ongoing outbreak," *Nature*, May 30, 2017, https://www.nature.com/news/ebola-vaccine-approved-for-use-in-ongoing-outbreak-1.22024.

[96] AFRO, "WHO declares an end to the Ebola outbreak in the Democratic Republic of Congo," last modified July 2, 2017, https://www.afro.who.int/news/who-declares-end-ebola-outbreak-democratic-republic-congo.

[97] World Health Organization, "10th Ebola Outbreak in the Democratic Republic of the Congo declared over; vigilance against flare-ups and support for survivors must continue," last modified June 25, 2020, https://www.who.int/news-room/detail/25-06-2020-10th-ebola-outbreak-in-the-democratic-republic-of-the-congo-declared-over-vigilance-against-flare-ups-and-support-for-survivors-must-continue.

[98] WHO Constitution arts. 56, 57.

[99] Srikanth K. Reddy, Sumaira Mazhar, and Raphael Lencucha, "The financial sustainability of the World Health Organization and the political economy of global health governance: a review of funding proposals," *Globalization and Health* 14 (2018): 2, https://doi.org/10.1186/s12992-018-0436-8.

[100] Ibid.

[101] World Health Organization, "How WHO is Funded," accessed July 2020, https://www.who.int/about/planning-finance-and-accountability/how-who-is-funded.

[102] Ibid.

[103] Gostin, *Global Health Law*, 124.

[104] World Health Assembly, *Programme budget 2020-2021*, WHA72.1 (May 24, 2019), https://www.who.int/about/finances-accountability/funding/A72_R1-en.pdf?ua=1.

[105] U.S. CDC, *Fiscal Year 2021: Justification of Estimates for Appropriation Committees* (2020), https://www.cdc.gov/budget/documents/fy2021/FY-2021-CDC-congressional-justification.pdf.

[106] Gostin, *Global Health Law*, 121-123.

[107] IHR 2005 art. 43.

[108] Jonathan E. Suk, "Sound Science and the New International Health Regulations," *Global Health Governance* 1 (2007): 1-4, https://www.researchgate.net/publication/257823158_Sound_science_and_the_new_International_Health_Regulations.

[109] Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984), 7-9.

[110] Andra le Roux-Kemp, "International and Operational Responses to Disease Control: Beyond Ebola and Epistemological Confines," *Indiana Health Law Review* 15, no. 2 (2018): 279, https://mckinneylaw.iu.edu/ihlr/pdf/vol15p247.pdf.

[111] World Health Organization, "Ebola virus disease in Guinea," last modified March 23, 2014, https://www.who.int/csr/don/2014_03_23_ebola/en/.

[112] Ibid.

[113] Le Roux-Kemp, "Beyond Ebola," 284-285.

[114] Ibid, 286.

[115] World Health Organization, "Statement on the 1st meeting of the IHR Emergency Committee on the 2014 Ebola outbreak in West Africa," last modified August 8, 2014, https://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/.

[116] Clare Wenham, "What we have learnt about the World Health Organization from the Ebola outbreak," *Philosophical transactions of the Royal Society of London. Series B, Biological sciences* 372 (2017): 3, https://doi.org/10.1098/rstb.2016.0307.

[117] World Health Organization, "Situation Report: Ebola Virus Disease – 10 June 2016," accessed July 2020, https://apps.who.int/iris/bitstream/handle/10665/208883/ebolasitrep_10Jun2016_eng.pdf?sequence=1.

[118] World Health Organization, "Pneumonia of unknown cause – China," last modified January 5, 2020, https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/.

[119] World Health Organization, "Naming the coronavirus disease (COVID-19) and the virus that causes it," accessed July 2020, https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it.

[120] David S. Hui et al., "The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health – The latest 2019 novel coronavirus outbreak in Wuhan, China," *International Journal of Infectious Diseases* 91 (2020): 264, https://doi.org/10.1016/j.ijid.2020.01.009.

[121] World Health Organization, "WHO Coronavirus Disease (COVID-19) Dashboard," accessed November 2020, https://covid19.who.int/.

[122] Ibid.

[123] Angelo Carfi, Roberto Bernabei, and Francesco Landi, "Persistent symptoms in patients after acute COVID-19," *JAMA* (2020): E1-E2, https://doi.org/10.1001/jama.2020.12603.

[124] Chaolin Huang et al., "Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China," *The Lancet* 395 (2020): 500, https://doi.org/10.1016/S0140-6736(20)30183-5.

[125] Ibid, 499.

[126] Zhao Jin Zhao 赵今朝, Xinguan bingdu jiyin cexu suyuan: jingbao shi heshi laxiangde 新冠病毒基因测序溯源：警报是何时拉响的 [Tracing the genetic sequence of the coronavirus: when was the alarm pulled?]. *Caixin* 财新, February 26, 2020, https://web.archive.org/web/20200227094018/http://china.caixin.com/2020-02-26/101520972.html.

[127] Yao Yuan, Ma Yujie, Zhou Jialu, and Hou Wenkun, "Chinese doctor recalls first encounter with mysterious virus," *Xinhua*, April 16, 2020, http://www.xinhuanet.com/english/2020-04/16/c_138982435.htm.

[128] Ibid.

[129] Xu Wen 许雯, Wuhan jikong zhengshi: Dangdi xian buming yuanyin feiyan bingren, fabingshu zai tongji 武汉疾控证实：当地现不明原因肺炎病人，发病数在统计 [Wuhan disease control confirms: local patients with pneumonia of unknown cause, number of cases is being counted]. *Beijing News* 新京报, December 31, 2019, http://www.bjnews.com.cn/news/2019/12/31/668430.html.

[130] "Wuhanshi weijianwei guanyu dangqian woshi feiyan yiqing de qingkuang tongbao 武汉市卫健委关于当前我市肺炎疫情的情况通报" [Wuhan Municipal Health Commission notice on the current situation of pneumonia in our city], December 31, 2019, https://web.archive.org/web/20200109215413/http://wjw.wuhan.gov.cn/front/web/showDetail/2019123108989.

[131] Hubei Wuhan faxian bumingyuanyin feiyan Guojiaweijianwei chuanjiazu yidida Wuhan 湖北武汉发现不明原因肺炎 国家卫健委专家组已抵达武汉 [Hubei Wuhan discovered pneumonia of unknown cause; National Health Commission expert team arrived at Wuhan], CCTV-13, December 31, 2019, http://tv.cctv.com/2019/12/31/VIDE9N8qRty36PkLirFVxMW6191231.shtml.

[132] World Health Organization, "Timeline of WHO's Response to COVID-19," last modified June 30, 2020, https://www.who.int/news-room/detail/29-06-2020-covidtimeline.

[133] Ibid.

[134] World Health Organization, "Pneumonia of unknown cause."

[135] World Health Organization, "Statement regarding cluster of pneumonia cases in Wuhan, China," last modified January 9, 2020, https://www.who.int/china/news/detail/09-01-2020-who-statement-regarding-cluster-of-pneumonia-cases-in-wuhan-china; World Health Organization, Twitter post, January 11, 4:23 p.m., https://twitter.com/WHO/status/1216108498188230657.

[136] World Health Organization, "Timeline of WHO's Response."

[137] Amy Qin and Javier C. Hernandez, "China reports first death from new virus," *The New York Times*, January 21, 2020, https://www.nytimes.com/2020/01/10/world/asia/china-virus-wuhan-death.html; WHO, "Novel Coronavirus – Thailand (ex-China)," last modified January 14, 2020, https://www.who.int/csr/don/14-january-2020-novel-coronavirus-thailand-ex-china/en/.

[138] Hu Bo Yang 胡博阳, Wuhan "Wanjiayan": tamen de danding rangren meifa danding Beijing News, Wuhan 武汉"万家宴"：他们的淡定让人没法淡定 [Wuhan "Ten Thousand Families Banquet:" Their Calm Makes Others Unable to Calm Down], *Beijing News* 新京报, January 21, 2020, http://www.bjnews.com.cn/opinion/2020/01/21/677335.html.

[139] Lily Kuo, "China confirms human-to-human transmission of coronavirus," *The Guardian*, January 20, 2020, https://www.theguardian.com/world/2020/jan/20/coronavirus-spreads-to-beijing-as-china-confirms-new-cases.

[140] World Health Organization, "Mission summary: WHO Field Visit to Wuhan, China 20-21 January," last modified January 22, 2020, https://www.who.int/china/news/detail/22-01-2020-field-visit-wuhan-china-jan-2020.

[141] Zhou Xiao Qi 周小琪 and You Tian Yi 游天燚, Zhiji Wuhan Tianhe jichang: "Fengcheng" qian you 96 jia hangban feiwang quanguo 直击武汉天河机场："封城"前有 96 架航班飞往全国 [Wuhan Tianhe Airport: There Are 96 Flights Across the Country Before Lockdown], *Beijing News* 新京报, January 23, 2020, https://wxn.qq.com/cmsid/WXN2020012301001300.

[142] World Health Organization, "Statement on the meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)," last modified January 23, 2020, https://www.who.int/news-room/detail/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

[143] U.S. CDC, "Coronavirus Disease 2019 Case Surveillance – United States, January 22-May 30, 2020," last modified June 19, 2020, https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e2.htm.

[144] World Health Organization, "WHO, China leaders discuss next steps in battle against coronavirus outbreak," last modified January 28, 2020, https://www.who.int/news-room/detail/28-01-2020-who-china-leaders-discuss-next-steps-in-battle-against-coronavirus-outbreak.

[145] World Health Organization, "Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-

nCoV)," last modified January 30, 2020, https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

[146] World Health Organization, "State Parties Self-Assessment."

[147] Xiang Ren et al., "Systematic review: National Notifiable Disease Surveillance System in China," *Online Journal of Public Health Informatics* 11 (2019), https://doi.org/10.5210/ojphi.v11i1.9897.

[148] Zhonghua renmin gongheguo chuanranbing fangzhifa (中华人民共和国传染病防治法) [Law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases] (amendments adopted by the Standing Comm. Nat'l People's Cong., June 29, 2013), ch. 8 [hereinafter Law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases].

[149] Adam Taylor, "Wuhan: The Chinese mega-city at the center of coronavirus outbreak," *The Washington Post*, January 23, 2020, https://www.washingtonpost.com/world/2020/01/23/wuhan-chinese-mega-city-center-coronavirus-outbreak/.

[150] Liu Ming Yang 刘名洋, Duihua "chuanyao" beixunjie yisheng: wo shizai tixing dajia zhuyi fangfan 对话"传谣"被训诫医生：我是在提醒大家注意防范 [Interview with "rumor-spreading" reprimanded doctor: I am reminding everyone to be careful and take precautions], *Beijing News* 新京报, January 31, 2020, http://www.bjnews.com.cn/feature/2020/01/31/682076.html.

[151] Ibid.; Qin Jianhang and Timmy Shen, "Rebuked coronavirus whistleblower vindicated by top Chinese court," *Caixin*, February 5, 2020, https://asia.nikkei.com/Spotlight/Caixin/Rebuked-coronavirus-whistleblower-vindicated-by-top-Chinese-court.

[152] IHR 2005 art. 10.

[153] Zhou Xianwang, interview by Dong Qian, *CCTV-13*, January 27, 2020, https://www.youtube.com/watch?v=o-8rvtceiLI.

[154] Law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases art. 38.

[155] Le Roux-Kemp, "Beyond Ebola," 286.

[156] Jong-Wha Lee and Warwick J. McKibbin, "Estimating the Global Economic Costs of SARS," in *Learning from SARS: Preparing for the Next Disease Outbreak – Workshop Summary*, ed. Knobler et al (Washington, D.C.: National Academies Press, 2004), 107, https://www.ncbi.nlm.nih.gov/books/NBK92473/.

[157] World Health Organization, "Epidemic Intelligence from Open Sources (EIOS)," accessed July 2020, https://www.who.int/eios.

[158] Maria Van Kerkhove, "Media briefing on COVID-19," media release, January 14, 2020.

[159] World Health Organization, Twitter post, January 11, 6:18 a.m., https://twitter.com/WHO/status/1217043229427761152.

[160] World Health Organization, "Meeting of Emergency Committee regarding coronavirus."

[161] Ibid.

[162] Ibid.

[163] Gostin & Katz, "The International Health Regulations," 304.

[164] IHR 2005 art. 12.
[165] IHR 2005 annex 2.

[166] World Health Organization, "Statement on the 1st meeting of the IHR Emergency Committee on the 2014 Ebola outbreak in West Africa," last modified August 8, 2014, https://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/; World Health Organization, "Ebola outbreak in the Democratic Republic of the Congo declared a Public Health Emergency of International Concern," last modified July 17, 2019, https://www.who.int/news-room/detail/17-07-2019-ebola-outbreak-in-the-democratic-republic-of-the-congo-declared-a-public-health-emergency-of-international-concern.

[167] World Health Organization, *Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)* (Geneva: World Health Organization, 2020), 16, https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf.

[168] Jef Akst, "WHO Comments Breed Confusion Over Asymptomatic Spread of COVID-19," *The Scientist*, June 10, 2020, https://www.the-scientist.com/news-opinion/who-comments-breed-confusion-over-asymptomatic-spread-of-covid-19-67626.

[169] World Health Organization, "COVID-19 Solidarity Response Fund for WHO," accessed July 2020, https://covid19responsefund.org/en/.

[170] World Health Organization, "'Solidarity' clinical trial for COVID-19 treatments," accessed July 2020, https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/solidarity-clinical-trial-for-covid-19-treatments.

[171] World Health Organization, *WHO Target Product Profiles for COVID-19 Vaccines* (Geneva: World Health Organization, 2020), https://www.who.int/publications/m/item/who-target-

product-profiles-for-covid-19-vaccines; Gavi, the Vaccine Alliance, *The GAVI Covax AMC: An Investment Opportunity* (Geneva: GAVI, 2020), https://www.gavi.org/sites/default/files/2020-06/Gavi-COVAX-AMC-IO.pdf.

[172] Tedros Adhanom Ghebreyesus, "World Health Organization Director-General's inaugural address" (Speech, World Health Organization, July 3, 2017), https://www.who.int/dg/speeches/2017/taking-helm-who/en/.

[173] World Health Organization, "WHO unveils sweeping reforms in drive towards 'triple billion' targets," last modified March 6, 2019, https://www.who.int/news-room/detail/06-03-2019-who-unveils-sweeping-reforms-in-drive-towards-triple-billion-targets.

[174] World Health Organization, "Live from WHO Headquarters – COVID-19 daily press briefing 08 June 2020," YouTube video, 43:52, June 8, 2020, https://www.youtube.com/watch?v=dZoIOyiZnt8&t=31m42s; World Health Organization, "Live on COVID-19 transmission with Dr Michael Ryan and Dr Maria Van Kerkhove," YouTube video, 43:18, June 9, 2020, https://www.youtube.com/watch?v=7RcJ2yyNkUk&t=1m12s.

[175] Dyani Lewis, "Mounting evidence suggests coronavirus is airborne – but health advice has not caught up," *Nature*, July 8, 2020, https://www.nature.com/articles/d41586-020-02058-1.

[176] Andrew D. Oxman, John N. Lavis, and Atle Fretheim, "Use of evidence in WHO recommendations," *The Lancet* 369 (2007): 1883-1889, https://doi.org/10.1016/S0140-6736(07)60675-8.

[177] Marco Martuzzi and Joel A. Tickner (eds), *The precautionary principle: protecting public health, the environment and the future of our children* (Copenhagen: World Health Organization Regional Office for Europe, 2004), 7, https://www.euro.who.int/__data/assets/pdf_file/0003/91173/E83079.pdf.

[178] Susi Dennison et al., *Together in trauma: Europeans and the world after COVID-19* (Berlin: European Council on Foreign Relations, 2020), 3-11, https://www.ecfr.eu/page/-/together_in_trauma_europeans_and_the_world_after_covid_19.pdf.

[179] World Bank Group, *Global Economic Prospects, June 2020* (Washington, D.C.: World Bank Group, 2020), 3-4, http://doi.org/10.1596/978-1-4648-1553-9.

[180] Ibid.

[181] World Health Organization, *Report of the Internal Auditor*, A72/40 (1 May 2019), 16, https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_40-en.pdf.

[182] World Health Organization Foundation, "Frequently Asked Questions (FAQ)," last modified June 2020, https://www.whofoundationproject.org/wp-content/uploads/2020/06/FAQ-WHOF_June-2020.pdf.

[183] World Health Organization, *Report of the Review Committee on the Roles of the International Health Regulations (2005) in the Ebola Outbreak and Response (2016)*, A69/21 (13 May 2016), 43, https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_21-en.pdf?ua=1.

[184] World Health Organization, "Meeting of Emergency Committee."

[185] Mark Eccleston-Turner and Adam Kamradt-Scott, Transparency in IHR emergency committee decision making: the case for reform, *BMJ Global Health* 4 (2019): 1-3, https://doi.org/10.1136/bmjgh-2019-001618.

[186] Gostin, *Global Health Law*, 121-123.

[187] Ibid.

[188] Tedros Adhanom Ghebreyesus et al., "Transforming for Impact" (Speech, World Health Organization, 6 March 2019), https://www.who.int/dg/speeches/detail/transforming-for-impact.

[189] The Lancet, "WHO reform continues to confuse."

[190] World Health Organization, "Principles Governing Relations with Nongovernmental Organizations," accessed July 2020, https://www.who.int/governance/civilsociety/principles/en/.

[191] World Health Organization, *Web consultation with non-State actors on their involvement in WHO governance, 26 August – 15 September 2019* (Geneva: World Health Organization, 2019), 6-7, https://www.who.int/about/collaborations/web-consultation-with-non-state-actors-on-their-involvement-in-who-governance-report.pdf?ua=1.

[192] World Health Organization, "Zoonoses," accessed July 2020, https://www.who.int/topics/zoonoses/en/.

[193] Roujian Lu et al., "Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding," *The Lancet* 395 (2020): 565-566, https://doi.org/10.1016/S0140-6736(20)30251-8.

[194] Xiao Wu et al., "Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study," (2020): 12, preprint at https://doi.org/10.1101/2020.04.05.20054502.

[195] Anjum Hajat, Charlene Hsia, and Marie S. O'Neill, "Socioeconomic Disparities and Air Pollution Exposure: A Global Review," *Current Environmental Health Reports* 2 (2015): 441-443, http://doi.org/10.1007/s40572-015-0069-5.

[196] World Health Organization, *WHO Results Report Programme Budget 2018-2019: Driving impact in every country* (Geneva: World Health Organization, 2020), 13, https://www.who.int/about/finances-accountability/reports/results_report_18-19_high_res.pdf?ua=1.

[197] Gavi, the Vaccine Alliance, "How quickly can we get a COVID-19 vaccine?," May 25, 2020, https://www.gavi.org/vaccineswork/how-quickly-can-we-get-covid-19-vaccine.

[198] Jonathan Corum et al., "Coronavirus Vaccine Tracker," *The New York Times,* accessed November 2020), https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html.

[199] Jon Cohen, "Russia's approval of a COVID-19 vaccine is less than meets the press release," *Science,* August 11, 2020, https://www.sciencemag.org/news/2020/08/russia-s-approval-covid-19-vaccine-less-meets-press-release.

[200] Roxanne Khamsi, "If a coronavirus vaccine arrives, can the world make enough?," *Nature* 580 (2020): 578-560, http://doi.org/10.1038/d41586-020-01063-8.

[201] Ibid.

[202] World Health Organization, "WHO Coronavirus Disease (COVID-19) Dashboard."

[203] Jane Bradley, "In Scramble for Coronavirus Supplies, Rich Countries Push Poor Aside," *The New York Times,* April 9, 2020, https://www.nytimes.com/2020/04/09/world/coronavirus-equipment-rich-poor.html; Sarah Boseley, "US secures world stock of key COVID-19 drug remdesivir," *The Guardian*, June 30, 2020, https://www.theguardian.com/us-news/2020/jun/30/us-buys-up-world-stock-of-key-covid-19-drug.

[204]Ashley Furlong, "The ultimate geopolitical game – distributing a coronavirus vaccine," *Politico*, July 29, 2020, https://www.politico.com/news/2020/07/29/coronavirus-vaccines-distribution-386032; European Commission, "Coronavirus: Commission concludes talks to secure future coronavirus vaccine for Europeans," July 31, 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1439.

[205] Sam F. Halabi, *The Uncertain Future of Vaccine Development and Deployment for Influenza Pandemics* (Washington, D.C.: O'Neill Institute for National and Global Health Law, 2014), 5, https://oneill.law.georgetown.edu/media/Briefing8HalabiRevised4162014.pdf.

[206] World Health Organization, "WHO Coronavirus Disease (COVID-19) Dashboard."

[207] Philip Schellekens and Diego Sourrouille, "The unreal dichotomy in COVID-19 mortality between high-income and developing countries," *Brookings*, May 5, 2020, https://www.brookings.edu/blog/future-development/2020/05/05/the-unreal-dichotomy-in-covid-19-mortality-between-high-income-and-developing-countries/; Youssef Travaly and Aretha Mare, "Learning from the best: Evaluating Africa's COVID-19 responses," *Brookings*, July 8, 2020, https://www.brookings.edu/blog/africa-in-focus/2020/07/08/learning-from-the-best-evaluating-africas-covid-19-responses/.

[208] Ruth Maclean and Simon Marks, "10 African Countries Have No Ventilators. That's Only Part of the Problem," *The New York Times*, May 17, 2020, https://www.nytimes.com/2020/04/18/world/africa/africa-coronavirus-ventilators.html.

[209] Franck Kuwonu, "As COVID-19 cases rise, African countries grapple with safely easing lockdowns," *Africa Renewal*, June 11, 2020, https://www.un.org/africarenewal/magazine/june-2020/coronavirus/covid-19-africa-cases-rise-along-economic-hardship-countries-grapple-safely-easing.

[210] Paul J. Angelo and Shannon K. O'Neil, "Latin America's Response to COVID-19," media release, April 14, 2020, https://www.cfr.org/conference-calls/latin-americas-response-covid-19.

[211] Pan American Health Organization, "COVID-19 – PAHO/WHO Response, Report 19," August 3, 2020, https://www.paho.org/en/documents/covid-19-pahowho-response-report-19-3-august-2020.

[212] AFRO, "WHO ramps up COVID-19 support to hotspot countries in Africa," August 6, 2020, https://www.afro.who.int/news/who-ramps-covid-19-support-hotspot-countries-africa.

[213] Kai Kupferschmidt and Jon Cohen, "WHO launches global megatrial of the four most promising coronavirus treatments," *Science*, March 22, 2020, https://www.sciencemag.org/news/2020/03/who-launches-global-megatrial-four-most-promising-coronavirus-treatments; WHO, *WHO Target Product Profiles for COVID-19 Vaccines*.

[214] Thomas J. Bollyky and Chad P. Bown, "The Tragedy of Vaccine Nationalism," *Foreign Affairs*, July 27, 2020, https://www.foreignaffairs.com/articles/united-states/2020-07-27/vaccine-nationalism-pandemic.

[215] World Health Organization, "The Access to COVID-19 Tools (ACT) Accelerator," accessed August 2020, https://www.who.int/initiatives/act-accelerator.

[216] World Health Organization, "More than 150 countries engaged in COVID-19 vaccine global access facility," July 15, 2020, https://www.who.int/news-room/detail/15-07-2020-more-than-150-countries-engaged-in-covid-19-vaccine-global-access-facility.

[217] Gavi, the Vaccine Alliance, *COVAX, the act-accelerator vaccines pillar* (Geneva, GAVI, 2020), https://www.gavi.org/sites/default/files/covid/COVAX-Pillar-background.pdf.

[218] Ibid.

[219] GAVI, *The GAVI Covax AMC: An Investment Opportunity*.

[220] Ibid.

[221] Gavi, the Vaccine Alliance, "Japan pledges US$ 130 million to support global access to COVID-19 vaccines," October 8, 2020, https://www.gavi.org/news/media-room/japan-pledges-us-130-million-support-global-access-covid-19-vaccines.

[222] Gavi, the Vaccine Alliance, "Gavi launches innovative financing mechanism for access to COVID-19 vaccines," accessed August 2020, https://www.gavi.org/news/media-room/gavi-launches-innovative-financing-mechanism-access-covid-19-vaccines.

[223] Gavi, the Vaccine Alliance, "The Gavi COVAX AMC Explained," October 13, 2020, https://www.gavi.org/vaccineswork/gavi-covax-amc-explained.

[224] WHO, "More than 150 countries."

[225] Gavi, the Vaccine Alliance, "COVAX Facility convenes first meeting of COVAX Shareholders Council," November 3, 2020, https://www.gavi.org/news/media-room/covax-facility-convenes-first-meeting-covax-shareholders-council.

[226] Gavi, the Vaccine Alliance, *The COVAX Facility: Global Procurement for COVID-19 Vaccines* (Geneva: GAVI, 2020), https://www.gavi.org/sites/default/files/covid/COVAX-Facility-background.pdf.

[227] Halabi, "The Uncertain Future," 8.

[228] Marius Z. Vouking et al., "Interventions to increase the distribution of vaccines in Sub-Saharan Africa: a scoping review," *Pan African Medical Journal* 32 (2019): 2-5, http://doi.org/10.11604/pamj.2019.32.14.17225.

[229] World Health Organization, "Ten threats to global health in 2019," accessed August 2020, https://www.who.int/news-room/feature-stories/ten-threats-to-global-health-in-2019.

[230] Bollyky and Bown, "The Tragedy of Vaccine Nationalism."