THE FLAWS OF GLOBAL HEALTH GOVERNANCE AS ILLUSTRATED BY THE COVID-19 VACCINE DISTRIBUTION*

*AS FALHAS DA GOVERNANÇA GLOBAL DA SAÚDE ILUSTRADAS PELA DISTRIBUIÇÃO DE VACINAS COVID-19***

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Abstract: Global cooperation during times of crisis is necessary to procure effective responses and to uphold the universal human right to health. However, the COVID-19 pandemic has highlighted weaknesses within global health governance, particularly relating to the COVAX program and vaccine distributions. This paper sets out to describe and critically analyze the flaws within these frameworks. A narrative literature review was conducted to gather a widespread of information about weaknesses of the COVAX program. Additionally, the contrasting realities within Brazil and Canada were described to illustrate the differences between the two nations. The primary themes extracted from literature included a shift to multilateralism, nationalism, and protectionism. Furthermore, fragmentation within international institutional frameworks and their power distribution created grey-areas and impeded effective responses. This paper suggests measures to reinforce the authority of global health governance, including revisiting response policies, incentivizing global cooperation, and encouraging nations to recommit to global cooperation.

Keywords: Global Health Governance, COVID-19 vaccine, COVAX program, vaccine inequality; Brazil; Canada.

Resumo: A cooperação global em tempos de crise é necessária para obter respostas eficazes e para defender o direito humano universal à saúde. No entanto, a pandemia COVID-19 tem destacado fraquezas na governança global de saúde, particularmente relacionadas ao programa COVAX e distribuições de vacinas. Este artigo se propõe a descrever e analisar criticamente as falhas dentro dessas estruturas. Uma revisão da literatura foi conduzida para reunir uma ampla informação sobre fraquezas do programa COVAX. Além disso, as realidades contrastantes no Brasil e no Canadá foram descritas para ilustrar as diferenças entre as duas nações. Os temas principais extraídos da literatura incluíram uma mudança para o multilateralismo, nacionalismo e protecionismo. Além disso, a fragmentação nos quadros institucionais internacionais e a sua distribuição de poder criaram zonas cinzentas e impediram respostas eficazes. Este artigo recomenda medidas para reforçar a autoridade da governança global em saúde, incluindo a revisão de políticas publicas de resposta, incentivando a cooperação global e incentivando as nações a se comprometerem com a cooperação global.

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Palavras-chave: Governança Global da Saúde, Vacina COVID-19, programa COVAX, desigualdade vacinal; Brasil; Canada.

Introduction

The World Health Organization (WHO) first declared the outbreak of COVID-19 a public health emergency of international concern on January 30th, 2020, and a global pandemic on March 11th, 2020 (Cucinotta & Vanelli, 2020; WHO, 2020). The institution's declaration sounded the highest level of alarm under international law because of a concern for the highly transmissible nature of the illness as well as an initial lack of action by affected nations (Cucinotta & Vanelli, 2020; WHO, 2020). Subsequently, countries across the globe rapidly implemented containment measures, including lockdown procedures, travel restrictions, as well as physical distancing, masking, and hand-hygiene regulations (IMF, 2021). Despite these substantial processes, the virus continued to spread, evolve, and infect populations through multiple waves of outbreaks (Saaliq, 2020). Further, healthcare systems collapsed under the pressure of very limited intensive care beds and insufficient clinical supplies including cylinders of oxygen and ventilating machinery (Saaliq, 2021). Production of infection-preventative equipment also could not meet the sudden high demands thus leaving healthcare services under-equipped and unprepared to face the pandemic (Soherwordi, 2020). As of July 2021, there have been over 190 million confirmed cases of COVID-19 and the virus has taken approximately 4 million lives globally (Worldometer, 2021).

This illness differed from other viral respiratory outbreaks, such as the 1918 Spanish flu epidemic, the 2002-2004 severe acute respiratory syndrome or the 2012 middle east respiratory syndrome, because of its ability to silently persist in the human body thus exponentially increasing its transmissibility (Pitlik, 2020; Ries, 2020). Infected individuals could present as asymptomatic or have very mild symptoms, thereby making it difficult to identify, contain, and contact trace the illness (Pitlik, 2020; Ries, 2020). The highly transmissible nature of COVID-19 allows the virus to quickly spread globally and affect almost every country in the world (Vara, 2020). Evidently, the transnational impact of the illness highlighted a need for a globally coordinated response by international institutions (Hassan et al., 2020). Global health governance, therefore, had a major role to play in the response to fighting COVID-19.

Global health institutions are essential for the effective coordination of responses to international health concerns (Economic and Social Council, 2021). However, the COVID-19 pandemic has highlighted certain gaps within these institutions' framework, such as its inability to ensure equal distribution of COVID-19 vaccines (Ravelo, 2021).

Seeing the inequities that persisted with the COVID-19 vaccine distributions despite the presence of international intuitions' frameworks and policies, the paper sets out to answer to the following research questions: What were the weaknesses in these organizations that rendered them unable to adequately support countries in accessing the vaccine fairly? Was it truly a lack of effectiveness on the part of global health governance institutions or was it the fault of individual state politics? Additionally, how are these inequities highlighted when comparing the realities of Higher-income countries (HICs) and Lower- and middle-income countries (LMICs) relating to vaccine distribution? At a higher level, this brings into question whether global health institutions were effective in coordinating a response to the pandemic. Are these institutions truly necessary for effectively overcoming international health crises, or does this pandemic call into question their role as global authorities?

This article puts forward that although global health institutions are essential for coordinating responses to international crises, they continue to possess deficient frameworks that lend to their own failure, as illustrated by the inequities in COVID-19 vaccine distributions. The pandemic has revealed weaknesses at a global level, where clashes between cooperation and protectionism, and political beliefs and civic duty are becoming more evident.

The objective of this paper is to review currently available literature (since January 2020 to August 2021[3]) regarding the COVAX program and inequalities in COVID-19 vaccine

3 To investigate the research questions, the study conducted a narrative literature review of the LexisNexis and Google Scholar databases. This is the best method to answer the research questions because it allows a widespread of information to be considered and included in the paper's analysis. LexisNexis includes the legal research point of view, analyzing the international institution's framework from the perspective its policies, and including information about equality and accessibility from a legal perspective. The information retrieved from this database is useful to capture the gaps within global institutions frameworks and policies, as well as to comment on the consequences the pandemic may pose on the future of global health governance. Google Scholar, on the other hand, allows the study to include a social and political perspective in the analysis. This point of view is especially helpful when comparing HIC and LMIC countries and answering the question of how do the inequalities manifest in the current pandemic. Publicly available data, such as conferences and press articles were also considered to ensure important information that are not included in these databases were also considered in the analysis. This pandemic highlighted how crucial politics and the media were in the acceptance and response to the virus, therefore necessitating their inclusion in the review. Overall, this approach allows a diverse set of information to be considered when answering the research questions.

This search included a title and abstract scan using the key terms: "COVID-19 Vaccine Selfishness"; "COVID-19 Vaccine Inequality"; "COVAX insufficiencies"; "Brazil and COVAX"; "Canada and COVAX"; "Global

distributions to extract reoccurring themes that answer the described research questions. The paper will also review the realities within Canada and Brazil as case studies, to describe the differences in vaccine distributions in HICs and LMICs, respectively. Canada was chosen to represent a HIC with adequate access to vaccine supplies; the country was able to acquire enough doses to meet its population's needs. As of July 2021, there approximately 70% of the Canadian population have received at least one dose, and 50% are fully vaccinated, with approximately 48 million total doses administered (*Vaccines for COVID-19: Shipments and deliveries*, 2020). In contrast, Brazil was chosen to represent a LMIC because it was highly affected by COVID-19, due to high case numbers, a lack of supplies and public health infrastructure, and a situation aggravated by having a highly negationist government (Mascayano et al., 2021). As such, these two countries model two drastic realities that sheds light on the inequalities perpetuated by unequal COVID-19 vaccine distributions and insufficient global health governance frameworks. Further, this paper aims to be a commentary that highlights the inequalities, to describe the effect of the pandemic on the discipline of global health and governance, and ultimately to formulate some suggestions to fill the identified gaps and improve responses to future health crises[4].

To clarifying the conducted research, this study was structured in five sections: first section gives an overview on the Right to Health, what means Global Health Governance and the response to COVID-19 by the Global Health Institutions. Then, the second section analyzes the results of the COVAX Program, and the third section focuses on the Case Studies: Brazil and Canada. In section 4, the paper discusses in details the primary three flaws

health governance and COVID-19 vaccines"; "Vaccine nationalism". Any result with a date prior to 2021 were filtered and not considered. Of these searches, the top results that also complied to the study's boundaries, as described below, were assessed, and included in the analysis. The study then conducted a thematic analysis on the top results. These articles were analyzed and categorized by their overarching themes for vaccine distribution. Themes will be described in the following section, and then further analyzed in the discussion. Moreover, the analysis was taken from the perspective of the involvement of international institutions, specifically as the COVAX program, and COVID-19 vaccine distribution. The involvement of other nation-specific frameworks and politics were not included.

4 To add to the discussion of this paper, an observation has been made regarding the difficulty to have clarity in literature during times of crisis. To obtain the results for this paper, it was difficult to rely solely on journal articles as there seemed to be a lag in describing and critically analyzing the realities and outcomes of the project. Furthermore, the reports detailing the execution of the program were often authored by the program itself, depicting an inherently biased and optimistic perspective. The literature surrounding project often seemed very idealistic and described the program as an innovative collaboration that will bring the pandemic to an end. Within literature, it is difficult to find narrative literature that criticizes global health governance itself; rather the data focuses on the implications on global institutions and international relations. Perhaps this gap can be justified due to how recently these issues occurred. It would suggest that literature requires time to retrospectively analyze the events. During the crisis, it is as though literature stands within the eye of the cyclone, surrounded by the storm that is occurring, but not grasping and able to fully describe the bigger picture just yet. With time, different perspectives can be considered and then literature will be able to clearly describe and analyze the crisis.

of the COVAX program: the lack of cooperation and solidarity, the institutional fragmentation and the rigid structure of global health institutions. Finally, the article gives some suggestions that may untangle the flaws of GHG, as a) Ensuring Governments have Strong Pandemic Response Policies; b) Ensuring Strong Infrastructure to Support LMICs c) Incentivizing Cooperation and Solidarity d) Recommitting Member States to International Agreements.

1. Right to Health, the Global Health Governance (GHG) and its Institutions response to COVID-19

1.1 Right to Health: A Universal Human Right and a Sustainable Development Goal

The universal right to health is a central part of ensuring life with dignity (OHCHR, n.d.). This right, under international human rights law, is the universal standard that all individuals must be able to obtain a standard level of health care, as well as an obligation for states to provide and to coordinate a functioning public health system (*The Right to Health*, n.d.). This concept has been described in numerous international documentations, including the Constitution of the WHO (1946), the Universal Declaration of Human Rights (1948), and the International Covenant on Economic, Social and Cultural Rights (1976) (ICESCR), among others (OHCHR, n.d.).

Seen as the primary instrument for protecting right to heath in international human rights law, Article 12 of the ICESCR states that "The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health" (*International Covenant on Economic, Social and Cultural Rights*, n.d.; OHCHR, n.d.). The steps to achieve this right includes "the prevention, treatment and control of epidemic, endemic, occupational and other diseases" (*International Covenant on Economic, Social and Cultural Rights*, n.d.). Moreover, a key feature of this right is non-discrimination; health-related services "must be provided without any discrimination" (OHCHR, n.d.). According to the Universal Declaration of Human Rights, discrimination includes "any distinction, exclusion or restriction made on the basis of various grounds which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise of human rights and fundamental freedom" (OHCHR, n.d., Weiwei, 2004). To execute an action with equality in mind, there must be an "absence of discrimination"; therefore, an unequal

distribution of health resources would constitute a discriminatory action (Weiwei, 2004). To further this point, a country's financial status does not absolve it from actualizing this right (OHCHR, n.d.). A state must provide the equitable access to health care to the highest of its ability with the resources it possesses, as it must "move towards meeting their obligations to respect, protect and fulfill" (OHCHR, n.d.). All countries must actively work to uphold this right to health, regardless of their financial status, and their citizens must have access to health care (OHCHR, n.d.).

The United Nations (UN) also emphasized the importance of access to adequate healthcare within its Agenda 2030, established in 2015 (*Sustainable Development Goals*, n.d.). Agenda 2030, developed by the UN General Assembly, is an action plan to complete the goals set by the previous Millennium Development Goals, as well as to further establish goals that aim to equally improve living conditions for everyone across the world (Health, 2020). This framework commits participating nations to work toward "more equitable, peaceful, resilient, and prosperous societies – while living within sustainable planetary boundaries" (Health, 2020). The agenda is composed of 17 broad and interdependent goals, known as Sustainable Developmental Goals (SDG), that address a range of issues, including: poverty, hunger, health and well-being of populations, quality of education, gender equality, clean water and sanitation, access and development of affordable clean energy, economic growth, innovation, sustainability, climate control and environmental sustainability, and strong institutions (Health, 2020).

Health is encompassed in SDG 3, which is officially known as "Ensure healthy lives and promote well-being for all at all ages" (*Sustainable Development Goals*, n.d.). This goal aims to encourage populations to lead healthy lifestyles at all ages (*Sustainable Development Goals*, n.d.). It aims to reduce maternity mortality, end child preventable deaths, end epidemics of communicable diseases, reduce the mortality of non-communicable diseases, promote mental health, address substance abuse, reduce traffic-related incidents, improve access to reproductive health care, improve health education, attain universal health coverage, and reduce deaths from hazardous chemicals and pollution (*Sustainable Development Goals*, n.d.). A highlight of the goal, which relates to right to health, is its emphasis in reducing the burden of diseases by improving universal access to essential health services as well as to vaccines and medications (*Sustainable Development Goals*, n.d.). It highlights the need for equitable access to healthcare to improve a population's health conditions, thus lending to a non-discriminatory approach (*Sustainable Development Goals*, n.d.). Further, to realize this

goal, there have been four "means to achieve" defined, including "implement the WHO Framework Convention on Tobacco Control"; "support research, development and universal access to affordable vaccines and medicines"; "increase health financing and support health workforce in developing countries"; and "improve early warning systems for global health risks" (*Sustainable Development Goals*, n.d.). The inclusion of ensured accessibility to affordable medication in this international framework accentuates the importance of right to health care.

1.2 GHG: A Shift Towards Global Cooperation

GHG is a concept that has been evolving and becoming distinct from international health, especially during the last decade (Lee & Kamradt-Scott, 2014; Pas et al., 2017). The discipline of global health governance is focused on addressing the health of the global population in an equitable manner (Beaglehole & Bonita, 2010). Whereas international health mainly focuses on infectious diseases and issues directly related to an individual's health, global health encompasses other issues that indirectly affect a person's well-being, such as environmental issues (Lee & Kamradt-Scott, 2014). According to Fidler (2010), GHG is defined as "the use of formal and informal institutions, rules, and processes by states, intergovernmental organizations, and non-state actors to deal with challenges to health that require cross-border collective action to address effectively". This type of transnational governance is different from actions taken by individual state nations in that there is no singular power or governmental body at the international level; rather, it is a mosaic of formal and informal institutions, processes, and agreements that govern how international responses transpire (Pas et al., 2017). These institutions are an embodiment of shared beliefs, norms, and ideally, enforce a notion of fair democratic power (Lee & Kamradt-Scott, 2014).

GHG is founded on a multidisciplinary approach, including public health, international relations, international law, and human rights (Lee & Kamradt-Scott, 2014). It includes an underlying theme of "good governance", which includes sustainable human development and poverty alleviation, and contrasts other international processes that focus on efficiency and market effectiveness for economic growth (Lee & Kamradt-Scott, 2014). Rather, global health governance is focused on helping "the whole health of the planet above the concerns of particular nations" (Lee & Kamradt-Scott, 2014). That is, GHG is the

organization of processes to address transboundary health problems with the aim to uphold basic human rights (Lee & Kamradt-Scott, 2014).

1.3 Global Health Institutions Response to COVID-19

When considering the current pandemic, there was a clear need for global institutions to work towards good health and well-being for all (Moon & Kickbusch, 2021). To directly address the virus, implementing a just and effective vaccination program was necessary (Moon & Kickbusch, 2021). The effort to ensure equitable access to vaccines is essential for combatting and terminating the pandemic (Torreele & Amon, 2021). If certain population are left without access to vaccines, they become a breeding ground for the virus to infect and evolve; such an event would increase the risk of a mutated strain that is resistant to the available vaccines (Economic and Social Council, 2021; Torreele & Amon, 2021). A failure to ensure equity in vaccine distribution certainly leads to new outbreaks, increased cases, and deaths (Economic and Social Council, 2021). Further, vaccines normally take many years to develop and be delivered to the target populations; however, the pandemic requires urgent responses and accelerated processes (Torreele & Amon, 2021). Without a strong and organized global effort, founded on cooperation of state nations and an allegiance to equity, the pandemic will not end as a whole; rather, it could cause countries to continuously regress into multiple waves of outbreaks (ANI, 2021).

Accordingly, the WHO established the COVID-19 Vaccines Global Access (COVAX) program in collaboration with the Gavi, the Vaccine Alliance and the Coalition for Epidemic Preparedness Innovations (CEPI) (WHO, 2021). This initiative aims to support the research and development of COVID-19 vaccines as well as to ensure equitable access to these vaccines, especially through the assistance of lower- and middle-income countries (LMICs) (WHO, 2021). The scheme included higher-income countries (HICs) subsidizing the cost of vaccines for LMICs (WHO, 2021). Further, this program includes guidelines for further distributing supplies equitably within populations, by giving priority to frontline working, elders, and populations with underlying health conditions that increase their risk of fatality due to COVID-19 (WHO, 2021). Approximately 60% of the world's population has joined the COVAX program, and as of July 2021, there have been 100 million doses of the vaccines delivered to 135 countries (Fulker, 2021).

The initial doses of the program were funded and produced by CEPI, and the program subsequently acquired other donors and producers (Sharun & Dhama, 2021). This program includes a participation plan for both HICs and LMICs. Countries who possess financial resources are able to participate in the program and receive enough doses to vaccinate about 10-50% of their population, however their contribution must also include an amount that will be delivered to LMICs (Ravelo, 2021). The program also includes funded countries, including LMICs who do not have the financial resources to acquire necessary doses (Ravelo, 2021).

Despite this promising program, as the world began seeing another rise in COVID cases, the distribution of vaccines was far from equitable (Ekström et al., 2021). It was reported that there were 832 million vaccine doses administered; however, 82% of those doses were given to HICs (Economic and Social Council, 2021). Consequently, LMICs are relatively less able to recover from the pandemic, as they are left to remain unvaccinated due to supply deficits (Ekström et al., 2021; Mascayano et al., 2020).

This lack of equity reveals an inadequate and deficient policy system that allows inequities to be perpetuated (Sharun & Dhama, 2021). It enables the gaps that exist between HICs and LMICs to not only persist, but also to widen (Sharun & Dhama, 2021). Relative to HICs, LMICs are more prone to have continuous high infection rates, resulting in higher mortality rates, thus increasing the overall disruption within the country (Upadhyay et al., 2021). To end the pandemic globally, there must be universal immunity to the virus; that is, the COVID-19 vaccine must be available for all (Sharun & Dhama, 2021).

2.Results of the COVAX Program

The literature review found that although the COVAX program was able to deliver doses of the COVID-19 vaccine to LMICs countries, ultimately aiding the universal access to the treatment, it faced many challenges that delayed its success and allowed inequalities between nations to deepen. The goal of the program was “for the 92 poorest members to receive as many vaccines as quickly as the 98 richest” (Hoflinger et al., 2021). However, this was not the case; in fact, in April 2021, there was a total of 832 million vaccine doses administered globally, of which 82% were distributed to HICs (Economic and Social Council, 2021). This unequal distribution created a grim contrast between nations, where 1 in 4

individuals were vaccinated in HICs, but only 1 in 500 were vaccinated in LMICs (Economic and Social Council, 2021). These more affluent countries were able to collect supplies that met 150-500% of their population's predicted needs (Ekström et al., 2021). In fact, within affluent countries, it is reported that low-risk individuals were able to access a variety of vaccines, whereas LMICs were unable to fully vaccinate their essential workers (Upadhyay et al., 2021).

The COVAX program initially experienced a delayed roll-out due to production and administrative challenges (Rouw et al., 2021; Sawal et al., 2021). First, there was a lack of funding; the cost for manufacturing and delivering were partially covered by state and private donors, however, there remained a sum that needed to be paid by the respective recipient nations (Ravelo, 2021). When there were delays in funding due to this structure, vaccine shipments were equally delayed (Ravelo, 2021; Rouw et al., 2021).

As the recipient countries were gathering sufficient funds to access vaccines through the COVAX program, the global supplies were already being purchased through private arrangements between pharmaceutical companies and HICs (Sharun & Dhama, 2021). Further, these countries were hoarding amounts of doses that surpassed their population needs and reduced the global supply available (*Covax*, 2021). These HICs were positioned to enter negotiations individually, outside of the COVAX program (*Covax*, 2021). In fact, in March 2021, of the 6 billion doses were available; of that total, 4.6 billion were purchased privately by HICs and only 1.1 billion were available to be distributed through the program (*Covax*, 2021). This privilege was not universal; LMICs ability to enter negotiations was variable, and even once these nations gathered the financial resources to purchase vaccines, the supplies were already bought (Sharun & Dhama, 2021; *Covax*, 2021). This circumstance could not have been prevented by the COVAX program because the international institution does not hold any power to prevent such private arrangements from occurring (Sharun & Dhama, 2021). The program depends on a cooperation from different nations, but it cannot force it (Sharun & Dhamma, 2021). These private negotiations undermined the sense of global collaboration and solidarity, and conformed to a unilateral rhetoric, defined as a notion of "every state for themselves". The problem of supply chain constraints is also exacerbated by limited amounts of raw material, which again slows the distribution process for nations depending on the program (Ravelo, 2021).

The structure of vaccine production also contributed to the unequal access to COVID-19 vaccines. During the last decade, there have been major shifts in intellectual

property (IP), where pharmaceutical companies are pushing for more IP rights protection (Torreele & Amon, 2021). These measures allow these companies to monopolize the market, and consequently setting barriers to access treatment (Torreele & Amon, 2021). Pharmaceutical companies and patent-holders have a control in setting the conditions for vaccine prices, thus enabling them to "price out" LMICs and impeding access to vaccines (Eström et al., 2021). This represents a move towards the financialization of the pharmaceutical company, rather than operating at a needs-based level (Legge & Kim, 2020). To further define this term, it refers to the focus of these pharmaceutical companies onto corporate strategies, especially for buying and selling companies for the gain of intellectual properties (Legge & Kim, 2020). It is a shift from this industry from innovation to trading and economic gain, thus highlighting the tensions between public health and the private sector (Legge & Kim, 2020). These characteristics were seen during the COVID-19 pandemic, where pharmaceutical companies were unwilling to submit clinical trial data to the vaccine program, causing delays in the process (Ravelo, 2021). Further, there was a lack of transfer of knowledge to LMICs (Ravelo, 2021). With intellectual rights being safeguarded only within certain countries, it limits possible number of doses that can be produced (Legge & Kim, 2020). There is a lack of recognition from the industry that medical products are in fact health goods, and that there is a right to access to health (Legge & Kim, 2020). The international frameworks do not have the power to override agreements and trade deals that support knowledge sharing (Legge & Kim, 2020).

The role of the COVAX program has been criticized in literature. In some articles, the program is seen as lacking an infrastructure for responding to vulnerable populations (McAdams et al., 2020). The framework includes a prioritization of high-risk populations: frontline healthcare workers, elder populations, and high-risk adults due to comorbidities (WHO, 2021). However, with this prioritization framework, it neglects to include vulnerable populations living in poverty, who despite lockdown measures, must remain in crowded housing conditions or who were forced to go to work due to their financial situation (Mascayano et al., 2021). As such, the framework is limited by the detailed execution of the distribution; rather, it depends on the recipient nation to plan and organize distribution. To contrast this point, other articles criticize the framework for solely addressing LMICs (Legge & Kim, 2020). The article states that the program's objective is to provide vaccines for all; thus, at the time of the pandemic where every nation is in need of accessing the vaccine, the program should be addressing the needs of every nation (Legge & Kim, 2020). The program

should be a collaboration between different nations supported by an alliance of governments. According to this article, the objective of the program is not to be an aid project that only targets LMICs (Legge & Kim, 2020). This latter argument brings into question the concepts of equality and equity. The justification for the second article can be based on the concept of equality, where everyone is given the same resources and opportunities. With this logic, the program is aiding all countries to access vaccine supplies and ignoring the advantages HICs may have due to their financial position and their ability to make bilateral agreements. On the other hand, equity recognizes that different nations live in different circumstances, and then resources are allocated to reach an equal outcome; that is, the project consists of a collaboration to allow those nations with less of an opportunity to gather adequate supplies to gain relief from the pandemic, as would HICs. As such, the function of the program can be interpreted differently given the perspective that was taken.

3.Case Studies: Brazil and Canada

In the following section, the cases of Brazil and Canada will be considered to illustrate the real-life implication of the flaws described above. The data are updated until the July 31st, 2021.

Brazil represents a LMIC that was deeply affected by the pandemic. The main themes that are highlighted in the country are a lack of power for international institutions to manage local politics, a lack of infrastructure in the country to effectively execute a massive vaccination program, and inability to have deliveries made due to supply chain constraints (*Brazil struggles with COVID-19 vaccine roll-out*, 2021).

As a year of the pandemic past, the country had the second highest in the number of cases and deaths, and the highest number of deaths per day (Boschiero et al., 2021). From the perspective of GHG, there was a lack of support to ensure the country's public health infrastructure could coordinate an effective response (Boschiero et al., 2021). The country's public health care system was poorly managed and plagued by non-stringent and ineffective policies; stay-at-home measures and social distancing were not well-executed, allowing the virus to rampage throughout the country (Carvalho et al., 2021). Additionally, the country's leadership was notorious for disbelieving in the virus and failing to take measures in a timely manner to prevent the spread, consequently prolonging the negative effects of the pandemic

(Boschiero et al., 2020). For example, the government was presented with the opportunity to purchase 70 million doses of the Pfizer vaccine and supplies of CoronaVac, which was enough doses to inoculate 50% of the Brazilian population; however, they refused the terms of the agreement and did not act on the opportunity (Boschiero et al., 2020). The country was eventually able to acquire doses, mainly relying on the CoronaVac deal, however Brazil remained behind compared to other countries of similar economic standing (Boschiero et al., 2020). Approximate 40% of the population has received at least one dose of the vaccine until July 2021, which remains too small of a proportion to lessen the effects of the virus (*Brazil passes 550,000 Covid-19 deaths*, 2021). The government also supported and until July 2021 still support the use of hydroxychloroquine as a miracle drug, based on studies in France and Brazil that have both been highly criticized and even suspended due to suspicion of fraud (Grens, 2020). Again, effective measures for treatment were blocked by governmental decisions that prolonged the negative impact of the pandemic. The question of power clashes between national and international authorities arises, where international programs cannot force recipient countries to undertake certain actions. National politics greatly affect the country's ability to respond to the pandemic, as seen in Brazil, where large populations were left unvaccinated and consequently suffered high number of cases and deaths (Boschiero, 2021).

Through the COVAX program, Brazil was able to acquire 10,672,800 doses of the AstraZeneca vaccine (Gavi, 2021). The Ministry of Health reported challenges acquiring this number of doses, relating to difficulties in authorizing the vaccines, production costs, and distribution of the shipments (Boschiero, 2020). At the time that we are writing the article, approximately 3.1 million Brazilians are eligible to receive the second dose, but do not have access to it because of a lack of supply (Ionova, 2021). The country is reliant on the shipments made by China's Sinovac, there is a lack of raw material and a delayed production time, thus leaving the population pending for full immunization (Ionova, 2021). It is worrisome to have a large population in this state, a population who has already suffered so many losses, especially now as new variants emerge, and they are left not fully protected (Ionova, 2021).

To contrast this scarce-vaccine reality, Canada exemplifies how HICs were able to pre-order vaccines to immunize their population many times over. From the perspective of global health governance, the reality in Canada illustrates nationalism and stockpiling, as well as higher accessibility to negotiations and private arrangements.

Canada was described as a "vaccine nationalist" because it undertook measures to protect itself more than its actual need. Canada was the only G7 member who took advantage of the COVAX program as well as bilateral deals to order a large quantity of vaccines (Sharun & Dhama, 2021). In fact, Canada was able to pre-order enough doses to inoculate its total population nine times over vaccines (Sharun & Dhama, 2021). Through the COVAX program, it received a total of 1.9 million doses of the AstraZeneca through this program (Gavi, 2021).

This strategy was highly criticized by literature, stating that Canada is stealing vaccines from LMICs (Ellsworth, 2021; Guenot, 2021). When ordering both from the COVAX program and private agreements, Canada is lessening the resources available and delaying distribution to vulnerable populations (Ellsworth, 2021). The country was criticized for hoarding the resources and prioritizing themselves many times over while other countries are scrambling to meet their populations' needs (Ellsworth, 2021). The program should serve countries who cannot access vaccines in general, not those who are accessing them in a variety of modes (Ellsworth, 2021). Literature that defends Canada's actions argue that using both private agreements and internationally driven efforts was strategic as the country had initially experienced troubles with the delivery of vaccines (Guenot, 2021). These articles argue that Canada was a financial donor to the program, and as of June 2021, it had pledged 384 million dollars to the program (Guenot, 2021). Of the sum contributed, approximately 50% was earmarked to obtain doses for the Canadian population (Guenot, 2021). Furthermore, the program was initiated to help countries obtain vaccine doses; given that Canada needed doses, especially due to its slow roll-out, and its financial contribution to provide doses for countries in-need, it is justified as a strategic move of helping oneself while also helping others (Guenot, 2021). The COVAX framework did not discourage HICs from acquiring doses through the program, and so, the strategic move by Canada was technically permissible, although not the most cooperative step in the global scope where vaccine shortages exist.

When comparing the two realities, it is evident that the pandemic did not affect the world equally. Despite the COVAX program's mission to increase accessibility to the vaccine, HICs have the privilege and resources to protect themselves, while other nations struggled to meet their populations' needs. The COVAX program was optimistically planned to be an equalizing force; it was a resolution to immunize populations and bring an end to this pandemic (WHO, 2021). However, what the program highlighted was that all nations are not

"in the same boat" during this pandemic. Although the virus is affecting the entire globe, countries are positioned differently to respond (Broschiero et al., 2021). Further, the international program does not have the power to dictate how individual nations should respond, or what strategies they must undertake (Broschiero et al., 2021). Consequently, these programs must work around the decisions taken by individual nations, positioning certain nations at a relative advantage compared to others (Broschiero et al., 2021). As such, it can be said that the global population remain in the same storm but are equipped with immensely different boats. That is, while HICs can acquire relief in multiple of forms, LMICs can only grab the limited resources available to them, an amount that is not sufficient to entirely meet its populations' needs.

4. Discussion on the primary 3 flaws of the COVAX program

"We are as weak as our weakest link"; this saying portrays the importance of the COVAX program well (Sawal et al., 2021). Without the immunization of populations within all countries, the effects of the pandemic will continue to be felt globally well (Weintraub et al., 2020). Not only does it pose a health risk, due to the possibility of emerging variants, but global trading is also impacted, because of the prolonged depressed economies and disruptions due to lockdown measures well (Weintraub et al., 2020). Thus, nations are interdependent, and to truly overcome the COVID-19 pandemic, they must act with cooperation and solidarity.

Furthermore, this universally driven approach to responding to the pandemic conforms to the principles of human rights. For example, a mean to achieve SDG 3 includes supporting the accessibility of affordable vaccine and medication (*Sustainable Development Goals*, n.d.). As the COVAX program aims to "guarantee rapid, fair and equitable access to COVID-19 vaccines worldwide", ensuring that vaccines are made accessible and not done in a profitable manner (Cheater, 2020). The program upholds the principle that distribution should be conducted to serve those who are most vulnerable and at the centre of the outbreaks (Cheater, 2020). Evidently, it is a program whose objectives aligns with upholding universal human rights to health and SDG 3.

The transnational vaccine delivery program inevitably requires internationally driven coordination, as well as cooperation from individual states. However, when considering the failures of the program, as described in the previous section, there are clear flaws in the

frameworks that must be addressed. The primary flaws that are highlighted in literature can be summarized in the following themes: (1) lack of cooperation and solidarity, (2) institutional fragmentation, (3) the rigid structure of global health institutions.

4.1 Lack of Cooperation and Solidarity from HICs and Pharmaceutical Companies

The actions of HICs and the pharmaceutical company suggest a movement towards protectionism and unilateralism. Protectionism is the use of policies and processes to restrict international trading and protect domestic industries (Legge & Kim, 2020; Torreele & Amon, 2021). Pharmaceutical companies demonstrated these notions of protectionism in their reluctance to share information regarding vaccine distribution to LMICs (Legge & Kim, 2020; Torreele & Amon, 2021). Unfortunately, this move was not new and is consistent with previous responses to epidemics. The monopolizing effect of the pharmaceutical company was felt during the H1N1 pandemic, where a vaccine was quickly produced but not well distributed (McAdam et al., 2020). Pharmaceutical companies took orders of the vaccine from HICs and crowded out other countries (McAdam et al., 2020). Production was mainly based within HICs and so access to treatment was limited within a global perspective (McAdam et al., 2020). With this model, the vaccine was not distributed based on the transmission of the illness, rather it was delivered based on purchasing power (McAdam et al., 2020). To contrast this point, the production of antiretrovirals for HIV was facilitated by the transfer of knowledge to LMICs (Torreele & Amon, 2021). Treatment was made more accessible by overriding pharmaceutical patents, including compulsory licenses, and up-regulating production within affected countries (Torreele & Amon, 2021). This strategy improved available supplies and accessibility to treatment (Torreele & Amon, 2021). Unfortunately, when considering the COVID-19 pandemic, the trend leans closer to the response of the H1N1 pandemic. But why did history repeat itself; were lessons not learned from the H1N1 pandemic? From the perspective of the COVAX program, bodies of knowledge must participate in a voluntary and cooperative manner; as such, the program itself cannot dictate individual opinions and policies (Krishtel & Malpani, 2021). The World Trade Organization proposed a temporarily waiving intellectual property rights for COVID-19 vaccines; this initiative however is separate from the COVAX program, which remains dependent on individual state members approval and participation (Krishtel & Malpani, 2021). The program

is in a fragile position, where its viability depends on the cooperation of individual states (Krishtel & Malpani, 2021).

This situation can also be examined from a neoliberal perspective; specifically, looking at strategies that favour removing trade barriers, regulations, and promoting privatization (Sell, 2020). This notion creates a competition within free markets, and intangible assets IP have become great financial instruments (Phillips, 2021; Sell, 2020). Within this neoliberal perspective, it is fair to capitalize on the intangible asset, thus maximizing its value and generating greater returns (Phillips, 2021; Sell, 2020). The competitive market can be an incentive to promote development, research, and innovation (Phillips, 2021; Sell, 2020). Therefore, pro-health initiative such as waving licensing and making essential medication more affordable and accessible does not fit within this neoliberal structure; it would lessen the profits and reduce its value (Phillips, 2021; Sell, 2020). This capitalistic reality intersects with the human rights for access to health. There must be a strategy developed to just middle is reached, where innovation is incentivized but not at the expense of access to health care.

Moreover, the HICs response to the pandemic suggest a shift towards unilateralism. Unilateralism is defined as an approach undertaken by states to benefit oneself and have a disregard for other parties (Shrestha et al., 2020). This notion was exemplified during the pandemic when HICs quickly took advantage of their position to hoard and stockpile doses of the vaccine. It seems to be contrary to the logical response to a pandemic, since a collective effort to fighting the virus, while overcoming disparities seems to be the best course of action (Torreele & Amon, 2021). Historically, nations have tendency to participate in international collaborations, and taking on multilateral strategies, when there are times of crisis (Skidmore, 2005). For example, the need for the formation of international institutions to combat transnational problems, like the United Nations, was reinforced in at the end of the Second World War. Additionally, during the Cold War, alliances between the United States and European counties were formed with the objective to mitigate the Soviet Union threats (Skidmore, 2005). Times of crisis present a common enemy for nations, and thus motivates transnational cooperation and multilateral practices (Skidmore, 2005). Interestingly, this is not necessarily the case with COVID-19. Although the virus can be seen as a common enemy that has affected virtually every country in the world, the stockpiling and nationalistic approach towards vaccine distribution suggest a change in methodology. Those nations with the power to put their population first and excessively meet their requirements are doing so without a

regard for limited supplies and subsequently the countries who lack access to treatment (Economic and Social Council, 2021). Even countries who are donating vaccines to LMICs are doing so only after ensuring they've secured enough doses to inoculate their populations many times over (Boschiero et al., 2021).

Does this mean that the pandemic challenges the role of GHG as a whole? Not necessarily. In fact, when examining vaccine distribution that did occur, it is evident that transnational arrangements are necessary, especially given that the pandemic will not be over until every country has overcome the virus. The fact remains that nations are vulnerable and mutually depended, and accordingly, doses of the vaccine must be shared, and knowledge must be made available, necessitating collaborations between states (Weintraub et al., 2020). Therefore, this suggest that there cannot be a complete withdrawal from multilateral strategies. The pandemic highlighted that as much as nations are dependent on each other, GHG frameworks are equally reliant on the cooperation of state nations (Weintraub et al., 2020). This suggests a need to reinvigorate the framework, to improve commitments of state members, and ultimately to become resilient to extreme protectionism and nationalism.

4.2. Institutional Fragmentation

The flaws within the COVAX program can be explained by the institutional fragmentation that is inherent within international systems. The theoretical framework presented by Dellmuth et al. (2020) will be used to examine the problem of institution fragmentation. The article describes fragmentation as a state that arises when there are several institutions that are either unlinked or weakly linked (Dellmuth et al., 2020). Institutional fragmentation is anchored within GHG, due to the interdisciplinary nature of its processes there are different spheres at play when executing a response (Lal et al., 2021). It is collective effort that involves a wide range of international and national actors (Lal et al., 2021). For example, international health response includes global health security, which looks at the surveillance of diseases, assessing and communicating risks, and coordinating responses, and there is the universal health coverage, which is concerned with the accessibility to quality health services (Lal et al., 2021). When considering a pandemic, there must be coordination between these two actors to have a cohesive output (Lal et al., 2021). Fragmentation also accounts for the different domains at play for global responses; there is an interplay between

international, national, and local policies that is expected to come together harmoniously (Lal et al., 2021). The problem of fragmentation is normally addressed by international institutions, whether by appointing different actors or procedures to bridge gaps (Lal et al., 2021). However, this consideration was weak within the response to the pandemic, particularly with vaccine distribution.

During the pandemic, the clear self-interested driven behaviour of HICs and the gaps within international frameworks that should have held them accountable for their actions challenged the congruency of the international response (Haass, 2021). There was a gap between international law and a system to hold nations accountable for their contribution to global equity and accessibility to health (Haass, 2021). This can be seen within the example of vaccine knowledge transfer which puts together international human rights, trading, and information rights. The gap that manifested between this discipline was seen as the protectionist measures taken for IP and subsequently the nationalistic stockpiling of doses by HICs. This gap therefore contributes to a discrimination within the universal accessibility to treatment.

The problem of fragmentation is also present between international processes and national policies. Since the international processes are dependent on voluntary cooperation, there is a lack of power on the side of the institution to control the outcome (Lal et al., 2021). Whether it is the bilateral agreements by HICs, or the politics and weakened public health system within certain LMICs, there is a certain limit within which the international institution can operate (Lal et al., 2021). The example of Brazil illustrates an exacerbated reality due to local politics and the denial of COVID-19, a failure to impose adequate measures to lessen the spread, and country's initial reluctance to accept vaccines (Ionova, 2021). The fragmentation exists between the international institution and the politics, because although GHG is an authority within the global scope, it is not a dictatorship that can decide or control local policies (Lal et al., 2021). Nor can the WHO coordinate responses locally for recalcitrant states. Overall, the pandemic has highlighted the fragmented nature of GHG that must be addressed.

4.3. Rigidity within Frameworks

Another theme within GHG was the rigid nature of global health institutions. International institutions were described by Lee & Piper (2020) as being outdated framework that lack financing and inability to enforce power. The article argues that international institutions are for another time where technology did not already interconnect the world (Lee & Piper, 2020). These institutions, and their subsequent programs, are filled with bureaucratic processes, as well as limited jurisdictions due to their ability to only operate within established boundaries, that impedes their ability to coordinate rapid responses (Lee & Piper, 2020). The pandemic highlights this gap in institutional framework, especially in its initial stages of acquiring data and producing doses. The program was financially restricted, and supplies were already being purchased by countries with higher purchasing power (Rouw et al., 2021; Sawal et al., 2021). Thus, the program was constricted by its rigid position within the market and could not respond rapidly, especially compared to HICs. The mechanism for responding to global health emergencies must be improved to ensure these international institutions are well-equipped to operate, especially within this globalized world (Ekstrom et al., 2021).

4.4. Antithesis: The Programs Ability to Distribute Vaccines

It must be acknowledged that, though a little later than promised, the program was able to deliver its promised number of doses. The program initially aimed to deliver 100 million doses by the end of March 2021, and it was able to accomplish this mission at the beginning of July 2021 (Gavi, 2021). There has been documentation released that shows the effectiveness of the program in reducing the burden within LMICs. For example, Uruguay released health reports in June 2021 that described the improvement in case load and deaths experienced because of the COVAX program (Desantis, 2021). The program provided doses of the Coronavac and Pfizer vaccines and saw a 90% decrease in hospitalization and 60% decrease in infection rates (Desantis, 2021). The improvement suggests that the COVAX vaccine did improve accessibility to treatment and aid countries to immunize their population.

However, this does not forego the previously described failures. Rather, it can be said that despite the flaws that exist within the program's framework, the doses were able to be delivered and immunize a portion of the population. That is, despite the lack of financing,

the administrative and production conflicts, the challenges regarding intellectual property, the power division when facing local policies, among other difficulties, the program was eventually able to deliver vaccines to its intended recipients. Additionally, even with the eventual successful distributions, inequalities may continue to arise. The WHO has approved seven vaccines to be part of its program, including the AstraZeneca, Pfizer, Moderna, Sinopharm, Sinovac, and Janssen vaccines (WHO, 2021). However, as populations are preparing to travel again, regulations about which vaccines are recognized and accepted abroad are being released (Cheng, 2021). Most notably, the Sinopharm and Sinovac as well as the AstraZeneca vaccines that were produced in India have not been yet recognized by European and North American countries by July 2021 (Cheng, 2021). These listed vaccines were mostly administered to populations within LMICs, thus creating a two-tier system for vaccines (Cheng, 2021). Populations within HICs received doses that are more likely to be recognized worldwide, whereas populations within LMICs may be restricted in travel. The disparity can be described as producing one vaccine for HICs and one for LMICs. Evidently, this widens the gap between populations and exacerbates the reality of unequal vaccine distribution. The implications include negatively impacting the already suffering economies of these countries. Overall, it must be noted that the program was successfully able to deliver doses to recipient countries; however, many flaws continue to exist, and can potentially cause greater disparity between countries.

5. Suggestions may untangle the flaws of GHG

The pandemic has imposed enormous burdens onto countries around the world and highlighted the pressing weaknesses within GHG that perpetuated inequalities. Important lessons can be drawn from the flaws described in this article, to ensure preparedness during future pandemics. This section will propose some suggestions that may untangle the flaws of GHG.

a) Ensuring Governments have Strong Pandemic Response Policies

GHG must take steps to ensure there is an even playing field in pandemic responses. The primary measure for slowing the transmission of COVID-19 was to undergo lockdown procedures; however, these restrictions are costly and unrealistic for LMICs (Eyawo et al.,

2021). Unlike HICs, these countries are forced to eventually remove lockdown restrictions and return to congregational work, despite the risk of transmission (Eyawo et al., 2021). These populations are therefore vulnerable to more outbreaks while waiting for vaccine shipments to be delivered (Eyawo et al., 2021). This must be considered before delivering vaccines to these recipient countries. There should be a revision in international response frameworks that looks to allocate funds and resources for individual state responses, and ensure countries are positioned to respond to pandemics effectively. These support plans should address numerous topics, such as hesitancy, vaccine choosing, and plans to prioritize and fairly distribute vaccines within local populations. This suggestion looks to support states in a preventative strategy, rather than focus on immunization.

b) Ensuring Strong Infrastructure to Support LMICs

Global vaccine programs are unable to reach its objective if the recipient countries do not have the necessary infrastructure to manage aid resources. It is suggested that international response programs ensure the recipient country's public health services can manage the resources. When extrapolating from the example of Brazil, there were many policies that were not effective and that worsened the conditions for its populations (Broschiero et al., 2021). There must be an accountable force internationally that can intervene within these circumstances and help revitalize health policies. This could take the form of a treaty that specifies compliance to a standardized response to epidemics, including an arrangement for shared sovereignty of health crisis response between state nations and international institutions. For this to succeed, nations will have to follow the instructions mandated by international frameworks. Another method can be supporting emergency waivers for intellectual property, as well as removing the need for export and import licenses, to promote knowledge sharing and rapid distributions between nations. This strategy would also help to address the fragmentation that exists between international and national powers.

c) Incentivizing Cooperation and Solidarity

The COVAX program was deeply dependent on the cooperation of state members. How can global cooperation be promoted for actors who do not depend on global strategies? To answer this question, the global governance institutions should incentivize participation

and generate financially attractive modes that benefit both the global community as well as the participating nations. A proposed method in literature is increasing the fungibility of COVAX investments; that is, decreasing the risk by using investments to develop a variety of output (McAdams et al., 2020). This is attractive for HICs because their profitability is not jeopardized if one output fails, rather they can rely on the other developments. This suggestion utilizes the perspective of health resources as trading goods within the benefit of global cooperation.

d) Recommitting Member States to International Agreements

Though countries claim to be committed to principles of solidarity, the pattern between different outbreaks show a consistent return to competition for supplies (McAdams et al., 2020). Further, unlike other times of global crisis, the pandemic highlighted the tendency for countries to undertake unilateral procedures. Therefore, initiatives should be undertaken that aims to promote mutual understanding between nations and promote a collaborative and stable international relations environment. To execute this recommendation, cultural exchange agreements or other formal and informal international procedures can be procured to allow states to recommit to projects and goals that promote welfare and recommit to the principles of cooperation.

Conclusion

The COVID-19 pandemic highlighted gaps within global governance frameworks that perpetuate inequalities, especially when considering vaccine distributions (Ravelo, 2021). It is clear that completely overcoming the pandemic requires a collaborative effort by countries around the world, however, the current state of GHG continues to have gaps that allow inequalities to occur (Ravelo, 2021). Though the COVAX program was able to deliver 100 million doses around the world, there were weaknesses within the program's infrastructure that either delayed or impeded responses (Sharun & Dhama, 2021). Because of this, HICs were able to acquire vaccines to meet the needs of their populations many times over, whereas LMICs continued to struggle to inoculate their populations (Ekström et al., 2021). The disparity in access to the vaccine was due to many challenges, including administrative challenges, including funding, raw material availability, and production

capacity; HICs ability to enter private bilateral deals and hoard vast supplies of the vaccine; and obstructions within IP rights and transfer of knowledge, which slowed production capacity and processes (Rouw et al., 2021; Sawal et al., 2021; Sharun & Dhama, 2021). These challenges highlight the themes of a shift towards nationalism and unilateralism, weaknesses in international authorities due to fragmentation, and the general rigid structure of international institutions. The paper suggests international institutions to fortify their relationship with recipient nations and aiding these countries to enhance their response strategies. Furthermore, the topic of global cooperation must be revisited; participation within global health governance should be incentivized to encourage participation. Lastly, in preparation for the next pandemic, initiatives must be undertaken to encourage global solidarity and to recommit state members to these principles of cooperation.

This paper was limited to vaccine distribution by the COVAX program; however, it is acknowledged that there are many different avenues that have not been considered. The scope of the paper was specifically to global scope of the vaccine distribution program however, future research should consider the distribution within populations as well. For example, how did the infrastructure of the COVAX program interact with the public health policies within the recipient country to equally distribute vaccines to vulnerable populations? How were populations, who are not visibly at risk, but require immunization, such as those suffering from mental health illnesses, prioritized to receiving their dosages? Another important consideration would be vaccine hesitancy; though shipments are made to countries, the populations must be willing to receive their treatments. Future research should examine the interaction between global health governance and shifting population beliefs surrounding public health issues. Lastly, the implications of having certain vaccines accepted should be researched. It is important to investigate the implications of distributing different types of doses and whether it creates further disparities between populations.

Initiatives such as the COVAX program are essential to uphold the human right to health, and to achieve SDG 3. Though the pandemic illustrated flaws within these systems, it also demonstrated the interconnectedness of the nation, and the necessary role of multilateral strategies, without which it would be difficult to effectively respond to the pandemic (Lal et al., 2021). GHG is a source of order within disorder; to remain this way, these institutions must be able to be flexible and evolve in relation to the challenges with which they are faced. These improvements will ultimately better position these global health institutions to respond to future health crises.

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