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# 1 Introduction

COVID-19 has been a harsh test for public health systems, research and innovation ecosystems, economic policy regimes, regional entities such as the European Union, and global governance arrangements. Two years after its outbreak, it is possible to start taking stock of successes and failures. Successes certainly include global scienti c cooperation to identify the virus and its variants, the discovery and development of vaccines, the economic support put in place in advanced countries and, speci cally, the cooperative EU response to the shock. But the failures have also been signi cant. ey include a lack of preparedness, a muted response to the rst alerts, the hoarding of specialised equipment and vaccine nationalism. e emergence of the Omicron variant in November 2021 was a stark reminder of the high overall cost of the persistence globally of extremely unequal access to vaccines and treatments.

**Public health should have been an easy area for successful collective action but the initial response to COVID-19 was slow and fragmented**

In this Policy Contribution, we seek to understand the reasons for these failures of global collective action. As shown by *ex-ante* research (Barrett and Hoel, 2007), recently emphasised by Brown and Susskind (2020) among others, and quanti ed by Argawal and Gopinath (2021), public health is a global common and should have been an easy area for successful collective action: incentives to cooperate are strong; cooperation practices are rooted in history; there exists a strong epistemic community; and last but not least, collective action can rely on a long-established multilateral institution with a strong mandate, a proven track record and the tools needed – at least in principle – to tackle pandemics. And yet the initial response to the emergence of the virus was dramatically slow, and fragmentation rather than coherence and coordination prevailed after the pandemic outbreak. e very institution that should have promoted cooperation ended up as a battle eld.

e observed failures in prevention, alert, mitigation and equitable and e cient vaccine distribution raise important analytical and policy questions that we want to investigate. It is important for the future to understand whether geopolitical rivalry, domestic politics, concerns over sovereignty, misplaced sel shness, institutional decay or other factors have trumped incentives to cooperate. Beyond the public health domain, lessons drawn from this analysis are actually of wider relevance for global governance.

We rst document where and how international cooperation has been lacking since the start of the pandemic. Our purpose here is not normative, but positive. We are not trying to make the case for collective action, but to nd out why it has failed to deliver. And we focus exclusively on the international dimension rather than on national responses to the crisis.

To this end, we rely on a framework for analysis developed in the context of a broader project on the evolution of global collective action (Papaconstantinou and Pisani-Ferry, 2021). We draw on it to put global health governance in context and assess its relative strengths and weaknesses. And we use this framework to determine which di culties played a predominant role in the shaping of the global community's response to the pandemic.

Section 2 starts the analysis by de ning its scope: our focus is on public health and more speci cally the di erent aspects of pandemic prevention and control during the COVID-19 crisis. Section 3 maps the response by summarising the timeline of decisions taken and attempts a rst assessment of how the main institutions in this area have responded. Section 4 introduces the broader analytical framework that enables us to put those responses into the context of the discussion about the di culties and the evolution of global governance arrangements across di erent policy areas. Section 5 is our attempt to understand the policy response during the pandemic in light of this broader framework. We nish in section 6 with conclusions and policy recommendations.

# 2 Scope: pandemic prevention and control

Let us start by de ning the scope of our analysis. Health is broader than public health and broader than health security, which itself is broader than pandemic prevention and control. We focus on the COVID-19 crisis, and limit our analysis to ve distinct, partially overlapping and partially successive sequences of pandemic prevention and control.

e rst is the before phase (Phase 0); this includes pandemic preparedness and the policies in place aimed at better preparing societies to handle pandemics and to contain and manage them quickly once they occur. It covers the period before the outbreak of the contagion in early 2020.

e second phase is Phase 1 of the actual outbreak: the period when national and international authorities attempted to contain the initial outbreak by issuing alerts, and by instituting travel bans and quarantines. Phase 1 can be thought of as occurring between the rst alerts until the o cial recognition of the pandemic on 11 March 2020.

Phase 2 is about response and containment. It is the immediate crisis response to a developing pandemic, including the production and distribution of personal protective equipment (PPE), medical equipment and drugs. It also involves the ramping up of the capacity of health systems to cope with infections and hospitalisations. is developed over the rst semester of 2020, covering the rst wave; elements that developed rst during that period, including monitoring measures, testing and information-sharing continue until today.

e next phase (Phase 3: Protecting) ushers in the era of vaccine research and discovery. It includes public nancing (such as by the United States and the EU) and of course diverse and decentralised e orts to develop, test and produce vaccines and drugs. It can be considered to have started in January 2020 and to have lasted until vaccine approval by health authorities.

Finally, Phase 4 is about exit. is is the phase we are in today. While many elements from previous phases remain at the core of the international e ort (from information sharing, lockdowns and travel restrictions, to funding of treatments and vaccines), the emphasis has shifted to the global rollout of vaccines, maximising vaccination reach and developing more e ective treatments. Table 1 summarises these phases. Each of these sequences involved national as well as global or regional action. We are interested in this second, purportedly cooperative, aspect.

Table 1: A multi-stage response

Source: Bruegel.

# 3 Mapping the response

Table 2 summarises our assessment of the global response in each of the five phases. Phase zero was characterised by denial and neglect. There was persistent underestimation of the risks of new pathogens and pandemics, in spite of the scientific community having repeatedly sought to alert decision-makers about the growing risk of pathogen outbreaks and the likelihood of pandemics (Figure 1). Each epidemic episode resulted in a "*panic and neglect*"

public-health events and setting up core capacities to deal with outbreaks[1]. The IHR also created a new crisis coordination instrument by giving the WHO the right to declare a 'Public Health Emergency of International Concern' (PHEIC), to which states have a legal duty to respond promptly. The instrument has been used six times since its creation in 2007, including for COVID-19 in 2020.

Critically, however, the WHO is not equipped with enforcement powers and proper accountability mechanisms. Shortly before the outbreak of the pandemic, evaluations confirmed underinvestment in global health security, in particular, but not exclusively, in low- and middle-income countries. A 2019 study based on the available joint external evaluations (JEE) of health emergency readiness conducted under the WHO concluded, "*First, no country is fully prepared to manage disease epidemics. Second, the number of preparedness gaps, and the resulting to-do list of actions to take to fill them, is overwhelming: more than 7000 priority tasks await action. Third, JEEs have diagnosed preparedness gaps well, but few of these gaps have been filled*" (Shahpar *et al*, 2019).

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Warnings were issued. As noted by IPPPR (2020a), between 2007 and 2019, at least 11 high-level panels and commissions made specific recommendations to improve global pandemic preparedness. Many concluded that the WHO needed a stronger role as a coordinating organisation, and was critically in need of secure funding. Yet IPPPR (2020a) noted that "*despite the consistent messages that significant change was needed to ensure global protection against pandemic threats, the majority of recommendations were never implemented*".

In phase 1, there was a sharp contrast between the speed and quality of scientific cooperation and belated decision-making. IPPPR (2020a) put it bluntly: "*The chronology of the early events shows two worlds operating at very different speeds. One is the world of fast-paced information and data-sharing.* [..] *The other world is that of the slow and deliberate pace with which information is treated under the IHR (2005), with their step-by-step confidentiality and verification requirements and threshold criteria for the declaration of a PHEIC, with greater emphasis on action that should not be taken, rather than on action that should*".

Scientific findings were indeed disseminated remarkably quickly in relation to COVID-19. After the discovery of the virus was announced officially on 9 January 2020, Chinese sequencing data was shared already on 11-12 January with foreign health institutions, which replicated it within days. The PCR (polymerase chain reaction) test for COVID-19 was developed equally swiftly.

In contrast, the declaration of a PHEIC was made only on 30 January, a full month after Taiwan had expressed its concern about cases in Wuhan and requested from the WHO information on a new "*atypical pneumonia*"[2]. After the virus had begun to spread from country to country, case-monitoring remained patchy and reported deaths underestimated actual mortality. COVID-19 was only declared a pandemic on 11 March 2020.

As a result, countries reacted in an uncoordinated way with a series of emergency measures, ranging from travel bans to closure of economic activities. Informed by previous public health events such as SARS, Asian countries put in place containment measures quickly. Western countries, lacking recent experience of severe infectious diseases, struggled to deploy surveillance and containment measures. Low-income countries were quickly overwhelmed as health systems were already under pressure and short of essential equipment.

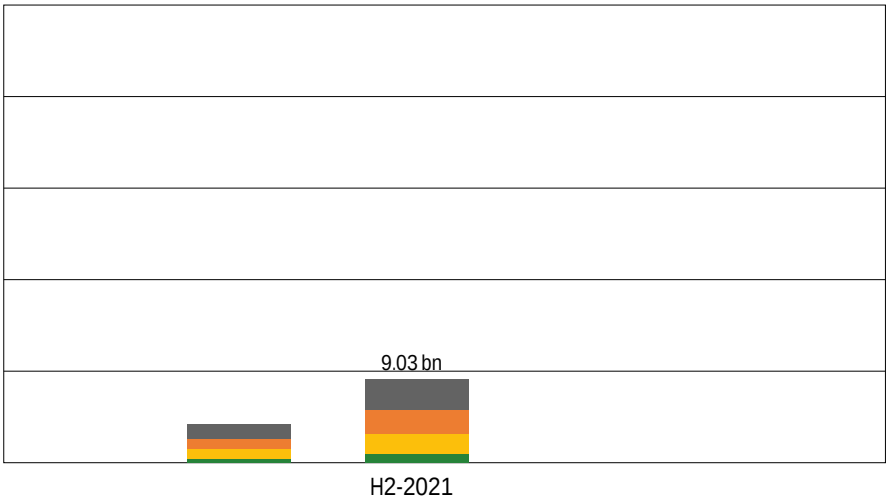
In Phase 2, coordination on an overall COVID-19 response started in earnest, but was much less effective in health terms than in relation to the COVID-19-related economic shock. An overall framework was developed early; in April 2020, the United Nations proposed a response strategy for COVID-19. This was based on five pillars: health (protecting health services and systems); social protection and basic services (protecting people); economic

1 [illegible]

2 [illegible] -19', 11 [illegible] 2020, https://www.cdc.gov.tw/En/Bulletin/Detail/PAD-lbwDHeN_bLa-viBOuw?typeid=158.

egories. e bottlenecks are downstream, and they seem to be of two sorts: issues of procurement, distribution, and logistics; and vaccine take up, with a likely higher degree of vaccine hesitancy in low-income countries.

## Figure 3: Vaccine production in 2021 and outlook for 2022 and 2023 (billions of doses)




Source: UNICEF Covid-19 Vaccine market Dashboard, available at https://www.unicef.org/supply/covid-19-vaccine-market-dashboard.

By the autumn of 2021, lack of funding was no longer the binding constraint that determined access to vaccination. ACT-A was still short of budget but had prioritised vaccination over diagnostics, treatment and the strengthening of public health systems (Figure 4).

## Figure 4: Allocation of ACT-A funding in 2021

Source: WHO; see https://www.who.int/publications/m/item/access-to-covid-19-tools-tracker. Note: data updated on 13 January 2022.

For Africa, which has the lowest vaccination rates, there is a double penalty. First, financial commitments proved insufficient to reach the WHO-set targets to vaccinate 40 percent of the population by end 2021 and the target of reaching 70 percent by mid-2022 is unlikely to be met. In addition, commitments do not translate into deliveries. By autumn 2021, the main immediate bottleneck was upstream and resulted from a combination of factors: production lags on the side of producers, the slow and unpredictable shipments of vaccines donated by developed countries (in comparison to commitments),

and organisational problems within COVAX[5].

e poor result in terms of vaccine provision globally[6] can only be regarded as a failure of collective action. In May 2021, the IMF estimated it would cost the world $50 billion to reach the vaccination targets (Agarwhal and Gopinath, 2021). By not responding to the IMF call, developed countries chose in e ect persistent circulation of the virus among unvaccinated populations at the risk of more virulent mutations. e emergence of Omicron was the consequence of the vaccine divide and jeopardises the gains the health community made against the virus by providing very innovative e ective vaccines early in the pandemic.

e story overall is therefore one of remarkable successes and notable failures. Was this a question of incentives for cooperation, the e ect of pervasive distrust in institutions, nancing channels and partner governments, or the consequence of geopolitical rivalry?

# 4 Accounting for failure and success in global collective action: an analytical grid

Papaconstantinou and Pisani-Ferry (2021) examined nine policy elds to assess what characteristics success or failure in global collective action can be ascribed to[7]. eir conclusion was that the observed outcome cannot be accounted for satisfactorily either by the pure economic approach that focuses on the nature of the underlying game and the resulting incentive to cooperate, or by the pure legal approach that starts from an assessment of the strength of the international rules and the formal authority of the international institution(s) in charge.

Contrary to what economic logic would suggest, failures or successes in global governance can hardly be ascribed to the sole nature of the underlying game with the di erent strategies of di erent players not leading to a cooperative outcome, and the corresponding di culty of the collective action problem. Strong (climate, migration, taxation) or weak (health, nancial safety nets, competition) incentives to free-ride can be found in the nine elds examined. But the objective degree of di culty in cooperating is by itself no guide to the outcome. It is neither about the strength of incentives nor the strength of compulsion.

It seems, for example, obvious that all countries should be able to rely on a single global nancial safety net. Yet this is less and less the case: a growing number of countries have chosen to rely on self-insurance (through the accumulation of foreign-exchange reserves) or on regional safety nets. Conversely, a global competition regime may look impossible to achieve without an implausible agreement bestowing authority to block mergers onto a

were laid out in the General Agreement on Tari s and Trade. Countries could disagree and ght with one another over sectoral issues, while still playing by the same rules. Donald

vaccines (Brown and Susskind, 2020). Provision of these bene ts the whole world and, in

In Phase 2 – at the time of the outbreak – there was no real game to speak of anymore. As virtually all countries were attempting to cope with the same danger, interactions between them played a secondary role. ere was certainly a competition for scarce resources, including masks, PPE, ventilators and tests, in which some countries outbid partners and practiced hoarding. Such behaviour was unfortunate, especially for low-income countries, which were left deprived of critically important resources. But it a ected the distribution of cases and deaths more than the overall outcome.

e game in Phase 3 was entirely di erent. e issue then was no longer to protect everyone in order to protect each and every individual, but to muster enough nancial and individual forces to develop and produce vaccines. is could have been the result of a collective e ort organised under the auspices of the WHO. But self-interest could also drive any country that was large enough and su ciently scienti cally developed to do it by itself. is is actually what happened with Operation Warp Speed, the US government endeavour which, together with lower-scale European initiatives, resulted in the development and accelerated production of mRNA vaccines. e game here was what theorists call a best shot game, where the outcome is determined by whoever makes the best e ort. Unsurprisingly, it was the US that played this role, to the bene t of the other countries.

e last phase (in which we are in at time of writing) is best characterised by a game of *summation with threshold*. Health experts no longer consider that the virus can be eradicated, but they emphasise the need for joint containment. e more countries reach a minimum level of vaccination, test and treatment, the lower the risks of new variants spreading and escaping control. Accordingly, the aim of the WHO's vaccination strategy (World Health Organisation, 2021) was to vaccinate 40 percent of the population in all countries by end-2021 and to reach 70 percent in all countries by mid-2022 (the rst was missed and the second is unlikely to be reached).

Game-theoretical approaches therefore contribute to characterising collective action challenges in the various phases of the pandemic. But they do not su ce to explain why coordination of e orts has been so hard to achieve throughout.

Turning to vertical aspects, Table 6 applies to public health the six ingredients identi ed in the previous section. In the pandemic, the rst two, joint identi cation of the problem and shared expertise, were clearly present (green in Table 6), as demonstrated especially in the scienti c and institutional response. is was less the case with the next two ingredients, common action principles and transparent reporting mechanisms (orange in Table 6). For these, the record is mixed, as shown by the di culties in agreeing on common measures and in accurately reporting the various elements of pandemic management. Finally, there have been signi cant problems with the last two (red in Table 6): there is no accepted outcome-evaluation process to assess results and adapt instruments, while trust issues continue to hamper the work of the WHO.

## Table 6: Applying the six ingredients to public health

| e six ingredients | Public health score |
|---|---|
| Joint identi cation of the problem that collective action must address | |
| Shared expertise | |
| Common action principles: "don't do" requirements and coherent commitments | |
| Transparent reporting mechanisms | |
| An overall outcome evaluation process to assess results and adapt instruments | |
| A trusted institution (or institutions) | |

Source: Papaconstantinou and Pisani-Ferry (2021).

Moreover, the obstacles to collective action in pandemic preparedness and response also include a number of complementary issues:

- **e importance of sovereignty**. Public health is at core a sovereignty issue. A state's responsibility for the health of its citizens cannot be easily shared. Despite the externality argument, it has proved for example very di cult for some national governments to export vaccines before they ensure su cient provision for their own citizens.
- **Budgetary cost**. Maintaining public health in the face of a pandemic, while ensuring resilient health systems and proper preparedness, is costly. e budgetary pressures favour non-cooperative 7 (ts ts)-4 s(a)79oph (o)4 (us anf com)4.1 (emi5.1 (a)7 it)1 (o colle)-3 (ctiv)3 (e acti (. )]TJ

community. e following areas might call for new governance models: (i) entrusting the WHO with new responsibilities, such as the transfer of the ACT-A competence on medical counter-measures; (ii) implementing the needed 'whole of government approach'; and (iii) making the WHO the nancial authority to nance global health security.

## A stronger WHO

A global public good requires a trusted institutional set up with supranational powers and adequate resources. e WHA initiative could lead to signi cant measures to strengthen WHO leadership. Both the Independent Panel for Pandemic Preparedness and Response and G20 High Level Independent Panel (G20 HLIP, 2021) have made recommendations on this. e new convention could replace the current voluntary peer-review process of national preparedness plans with transparent regular audits carried out by the WHO, as is the case in other elds, such as nancial stability. Indeed, the International Monetary Fund regularly carries out standardised Financial Stability Assessments comprising for each country an evaluation of potential risks, an assessment of national nancial stability policy frameworks and an assessment of the authorities' capacity to manage and resolve a crisis. In 2010, they were made mandatory for the 25 countries that are home of systemically important nancial institutions[11]. e same logic should apply in the eld of public health.

e WHO should also be given strengthened investigative powers in case of outbreaks. As indicated by experience, reliance on information provided voluntarily by member states can result in losing precious time at the critical moment when containment is still possible.

e WHO should also remain the single coordination authority for surveillance and the single institution entrusted with the responsibility of declaring a Public Health Emergency of International Concern. Such changes would turn the WHO into an independent standard-setting and surveillance authority for preparedness, prevention and response. A new Pandemic Treaty would confer on the WHO the legitimacy needed to act in the name of global public health, and it would equip it with the extraordinary competences required to counter extraordinary threats. ese are responsibilities and competences that cannot be divided.

## Responsibility for global medical countermeasures

e creation of ACT-A in the early months of the pandemic was an unprecedented global solidarity e ort to provide medical countermeasures. But the experience has shown that a political mandate from the G20 with some nancing was not enough to build a proper global response. While the players in the global health eld should be thanked for having built a coalition of the willing in the middle of a pandemic, they struggled at each stage: to collect funds, conclude procurement contracts, organise logistics and ensure that programmes reached their ultimate bene ciaries in low-income countries. Transaction costs have prevented collective e ectiveness. is di culty re ects a fragmented landscape where responsibilities are shared between the WHO and other institutions, and where the WHO has no comparative advantage. Organisations including CEPI, UNICEF, Unitaid, GAVI, GFATM and the Bill & Melinda Gates Foundation deliver targeted services, either focusing on diseases or speci c programmes like immunisation.

is is not to say that everything should be centralised and standardised. Coalitions of the willing are here to stay. But to be better prepared for future outbreaks, the world needs a permanent ACT-A or at least, a permanent coordination centre, which would work with the di erent partners or regions, in peace and crisis times. e mechanism should be tailor-made to di erent tasks: research, technology-sharing and capacity-building for medical supplies, and their procurement and distribution. is requires streamlining and consolidation among existing institutions and initiatives; the WHO with its limited nancial and operational track record is not necessarily the best candidate to coordinate ACT-A functions.

11 https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/14/Financial-Sector-Assessment-Program.

## A 'whole-of-government' approach

COVID-19 has shown that global health security requires global health governance in the world order to be repositioned and put on par with economic interdependence or nancial stability, in terms of governance, institutional backing and resources. Experience has also demonstrated that health ministers by themselves cannot deal with the management of a pandemic. Lockdowns, travel bans, border controls, mass vaccination (and the associated incentives) and the introduction of vaccination certi cates are not decisions they can take alone. Such decisions necessarily involve rst-order trade-o s between preserving individual liberty and ensuring collective security, or between saving lives and saving jobs, to give just two examples. Political leaders and parliaments are necessarily involved, as they are in the

cooperation schemes or structures for operational aspects linked to essential medical supplies, a G20-type body to provide leadership and ensure a whole-of-government approach at global level, and, nally, a self-standing fund.

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