COVID-19: Make it the Last Pandemic

The Independent Panel FOR PANDEMIC PREPAREDNESS & RESPONSE

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Preface

The COVID-19 pandemic is a sign of how vulnerable and fragile our world is. The virus has upended societies, put the world's population in grave danger and exposed deep inequalities. Division and inequality between and within countries have been exacerbated, and the impact has been severe on people who are already marginalized and disadvantaged. In less than a year and a half, COVID-19 has infected at least 150 million people and killed more than three million. It is the worst combined health and socioeconomic crisis in living memory, and a catastrophe at every level.

The new millennium has seen the havoc which global health threats like severe acute respiratory syndrome (SARS), Ebola and Zika can cause. Experts have been warning of the threat of new pandemic diseases and urged major changes in the way we protect against them — but the change needed has not come about. As soon as a health threat or deadly outbreak fades from memory, complacency takes over in what has been dubbed a cycle of panic and neglect. This cycle must end.

COVID-19 is the 21st century's Chernobyl moment — not because a disease outbreak is like a nuclear accident, but because it has shown so clearly the gravity of the threat to our health and well-being. It has caused a crisis so deep and wide that presidents, prime ministers and heads of international and regional bodies must now urgently accept their responsibility to transform the way in which the world prepares for and responds to global health threats. If not now, then when?

Our message for change is clear: no more pandemics. If we fail to take this goal seriously, we will condemn the world to successive catastrophes.

At the same time, our careful scrutiny of the evidence has revealed failures and gaps in international and national responses that must be corrected. Current institutions, public and private, failed to protect people from a devastating pandemic. Without change, they will not prevent a future one. That is why the Panel is recommending a fundamental transformation designed to ensure commitment at the highest level to a new system that is coordinated, connected, fast-moving, accountable, just, and equitable — in other words, a complete pandemic preparedness and response system on which citizens can rely to keep them safe and healthy.

Given the devastation of this pandemic and its impact on people everywhere, our findings are necessarily tough, and our recommendations actionable.

Since September 2020, the Independent Panel has learned from many stakeholders — front-line health workers, women, youth, mayors, ministers, scientists, chief executive officers, international officials and diplomats. We have also heard loud and clear that citizens are demanding an end to this pandemic, and that is what they deserve. It is the responsibility of leaders of all countries, as duty bearers, to respond to these demands.

The pandemic is not yet over — it is still killing more than 10 000 people every day. Our recommendations are therefore directed first to the immediate measures needed to curb transmission and to begin work now to strengthen future protections. People in many countries continue to suffer successive waves of infection - hospitals have again filled with COVID-19 patients, and families are losing loved ones. The vaccines available are a scientific triumph, but they must now be delivered across the globe. At the time of writing, fewer than one in 100 people in low-income countries had received a first dose — a graphic demonstration of global inequality. As the virus spreads, it is also mutating and creating new challenges.

We must work together to end this pandemic, and we must act urgently to avert the next. Let history show that the leaders of today had the courage to act.

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Abbreviations

ACT-A	Access to COVID-19 Tools Accelerator
Africa CDC	Africa Centres for Disease Control and Prevention
CEPI	Coalition for Epidemic Preparedness Innovations
COVAX Facility	COVID-19 Vaccines Global Access Facility
COVID-19	coronavirus disease
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
IHR (2005)	International Health Regulations (2005)
IMF	International Monetary Fund
MERS	Middle East respiratory syndrome
MS	Member States
ODA	official development assistance
PHEIC	public health emergency of international concern
PPE	personal protective equipment
ProMED	Program for Monitoring Emerging Diseases
R&D	research and development
SARS	severe acute respiratory syndrome
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
WHA	World Health Assembly
WTO	World Trade Organization

Credit: Watsamon Tri-Yasakda

1. Introduction

The world is still in the midst of a pandemic that has spread wider and faster than any in human history. The social and economic crisis precipitated by COVID-19 is affecting families, communities and nations across the globe.

Seized by the gravity of the crisis, in May 2020 the World Health Assembly requested the Director-General of WHO to initiate an impartial, independent, and comprehensive review of the international health response to COVID-19 and of experiences gained and lessons learned from that, and to make recommendations to improve capacities for the future. The Director-General asked H.E. Ellen Johnson Sirleaf and the Rt Hon. Helen Clark to convene an independent panel for this purpose and to report to the World Health Assembly in May 2021.

The Panel has taken a systematic, rigorous and comprehensive approach to its work. It has sought to listen to and learn from a wide range of interlocutors. Since mid-September 2020, the Panel has reviewed extensive literature, conducted original research, heard from experts in 15 round-table discussions and in interviews, received the testimony of people working on the front lines of the pandemic in town-hall-style meetings, and welcomed many submissions from its open invitation to contribute.

The Panel has examined the state of pandemic preparedness prior to COVID-19, the circumstances of the identification of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes, coronavirus disease (COVID-19), and responses globally, regionally and nationally, particularly in the pandemic's early months. It has also analysed the wide-ranging impact of the pandemic and the ongoing social and economic crisis that it has precipitated.

This report presents the Panel's findings on what happened, the lessons to be learned from that, and our recommendations for strategic action now to end this pandemic and to ensure that any future infectious disease outbreak does not become a catastrophic pandemic.

Complementing this report, the Panel presents a companion report describing thirteen defining moments which have been pivotal in shaping the course of the pandemic. In addition, the Panel is publishing a series of background papers representing in-depth research including a chronology of the early response.

The recommendations are ambitious and crucial. The Panel believes that the international system requires fundamental transformation to prevent a future pandemic. The Panel calls on political decision-makers at every level to champion major change and to make available the resources to make it effective. The ask is large and challenging, but the prize is even larger and more rewarding. With so many lives at stake, now is the time for resolve.

The ask is large and challenging, but the prize is even larger and more rewarding. With so many lives at stake, now is the time for resolve.

Credit: Tuane Fernandes Silva

2. The devastating reality of the COVID-19 pandemic

COVID-19 has shown how an infectious disease can sweep the globe in weeks and, in the space of a few months, set back sustainable development by years.

By all measures, the impact of the pandemic is massive:

- 148 million people were confirmed infected and more than 3 million have died in 223 countries, territories and areas (as at 28 April 2021)[1];
- at least 17 000 health workers died from COVID-19 during the pandemic's first year[2];
- US$ 10 trillion of output is expected to be lost by the end of 2021, and US$ 22 trillion in the period 2020–2025 — the deepest shock to the global economy since the Second World War and the largest simultaneous contraction of national economies since the Great Depression of 1930–32[3];
- At its highest point in 2020, 90% of schoolchildren were unable to attend school[4];
- 10 million more girls are at risk of early marriage because of the pandemic[5];
- gender-based violence support services have seen fivefold increases in demand[6];
- 115–125 million people have been pushed into extreme poverty[7].

Wieviel von diesen Effekte

The language of health statistics and economics cannot convey the depth of disruption as COVID-19 has overturned people's lives. People are grieving the loss of their loved ones, and those with long-term health impacts from the disease continue to suffer. There are instances where people with cancer have been unable to attend chemotherapy sessions, and people with suspected tuberculosis have not been diagnosed or treated. Market sellers have been unable to work and put food on the table. Women have found their double workload tripled or quadrupled, as they try to maintain the family income, care for the elderly and sick, become teachers for their home-schooled children, and maintain the well-being of their families.

Most dispiriting is that those who had least before the pandemic have even less now. The experience of previous epidemics shows that income inequality increased in affected countries over the five years following each event. Those working in the informal sector have had little or no support. Migrants, refugees, and displaced people have often been

shut out of testing services and health facilities. Perhaps 11 million of the poorest girls in the world may never go back to the classroom[8]. People living in the poorest countries are at the tail-end of the vaccine queue.

It does not have to be this way.

A groundswell of opinion is determined to address inequality so that we can come out of the pandemic looking forward to a better world, sustaining and expanding responses where they have shown a better path. Governments have offered income support to millions of people in places where, before the pandemic, that had been considered a political impossibility. Campaign-based health services, like immunization, have bounced back rapidly. Service delivery in health is being changed for the better through people-centred initiatives, such as those in telemedicine or with the multi-month dispensing of medications. The links between green and sustainable futures and a pandemic-free world are being drawn more clearly than ever before.

Ending this pandemic as quickly as possible goes hand in hand with preparing to avert another one. Paying attention to what went wrong, as well as to what went right, will be invaluable pointers to ways in which the world can get back on track to realise the 2030 Agenda for Sustainable Development.

This pandemic has shaken some of the standard assumptions that a country's wealth will secure its health. Leadership and competence have counted more than cash in pandemic responses. Many of the best examples of decisive leadership have come from governments and communities in more resource-constrained settings. There is a clear opportunity to build a future beyond the pandemic that draws on the wellsprings of wisdom from every part of the world.

Credit: Angela Ponce

3. The Panel's call for immediate actions to stop the COVID-19 pandemic

The Panel is ***deeply concerned and alarmed*** about the current persistent high levels of transmission of SARS-CoV-2, which are driving illness and deaths, and about the development of virus variants all of which continue to impose an intolerable burden on societies and economies.

Countries have varied significantly in their application of public health measures to keep the spread of the virus in check. Some have sought to contain the epidemic aggressively and drive towards elimination; some have aimed at virus suppression; and some have aimed just to mitigate the worst impacts. Countries with the ambition to aggressively contain and stop the spread whenever and wherever it occurs have shown that this is possible. Given what is known already, all countries should apply public health measures consistently and at the scale the epidemiological situation requires. Vaccination alone will not end this pandemic. It must be combined with testing, contact-tracing, isolation, quarantine, masking, physical distancing, hand hygiene, and effective communication with the public.

Mai 2021

Alongside these non-pharmaceutical measures, vaccine rollout needs to be scaled up urgently and equitably across the world. A number of effective vaccines are now approved. Current production capacity, however, is stretched close to its limits, and vaccination coverage is far from being at the scale needed to reduce the burden of illness and curb transmission globally.

The uneven access to vaccination is one of today's pre-eminent global challenges. High-income countries have over 200% population coverage of vaccine doses, obtained mainly through bilateral deals with manufacturers to secure existing and future stocks. In many cases low- and middle-income countries have been shut out of these arrangements. In the poorest countries, at the time of finalising this report, fewer than 1% of people have had a single dose of vaccine. The COVID-19 Vaccines Global Access Facility (COVAX Facility), rapidly established with the intention of ensuring global, equitable access, is making good progress but has been hampered in that goal by a lack of sufficient funds and by vaccine nationalism, and now, vaccine diplomacy.

There are 5.7 billion people in the world aged 16 and over. All need access to safe and effective COVID-19 vaccines. This is not some aspiration for tomorrow — it is urgent, now.

To prepare ourselves for new phases of the COVID-19 pandemic and to respond effectively, a global strategy with clear goals, milestones and priority actions is needed. **The significant inequity in vaccine access must be addressed immediately**, as it is not only unjust, but also threatens the effectiveness of global efforts to control the pandemic. Variants may still emerge that our vaccines cannot manage. The more quickly we vaccinate now, the less likelihood there is of ever more variants emerging. One action which can be taken now is an equitable redistribution **of available vaccine doses. Scaling up the development and supply of therapeutics and of diagnostic tests** is also very urgent to save lives.

Moreover, to prepare for likelihood of of COVID-19 becoming endemic and to address inequity in vaccine access in a more sustained way, **manufacturing capacity of mRNA and other vaccines must urgently be built in Africa, Latin America and other low- and middle-income regions**. Vaccine manufacturing is highly specialized and difficult. Boosting production takes time so enabling it must begin now. **It requires agreements on voluntary licensing and technology transfer**.

There are 5.7 billion people in the world aged 16 and over. All need access to safe and effective COVID-19 vaccines. This is not some aspiration for tomorrow — it is urgent, now. COVAX has secured 1.1 billion vaccine doses and has optioned 2.5 billion more[(9)]. Before the end of April, one billion vaccine doses were administered, overwhelmingly in high-income or upper-middle-income countries. The Panel joins with political and faith leaders across the world and calls for an all-out effort to reach the world's population with vaccines within a year and set in place the infrastructure needed for at least 5 billion booster doses annually.

Immediate action to end COVID-19 must be guided by explicit strategies with measurable milestones. The Panel recognizes the WHO COVID-19 Strategic Preparedness and Response Plan for 2021[(10)] provides useful technical guidance but the Panel's view is that there is a need for a higher level roadmap for ending the pandemic with clear targets, milestones and dates.

Credit: Mindy Tan

The Independent Panel makes the following urgent calls

I. **Apply non-pharmaceutical public health measures systematically and rigorously** in every country at the scale the epidemiological situation requires. All countries to have an explicit evidence-based strategy agreed at the highest level of government to curb COVID-19 transmission.

II. High income countries with a vaccine pipeline for adequate coverage should, alongside their scale up, commit to provide to the 92 low and middle income countries of the Gavi COVAX Advance Market Commitment, **at least one billion vaccine doses** no later than 1 September 2021 and more than two billion doses by mid-2022, to be made available through COVAX and other coordinated mechanisms.

III. **G7 countries to commit to providing 60% of the US$ 19 billion required for ACT-A** in 2021 for vaccines, diagnostics, therapeutics and strengthening health systems with the remainder being mobilised from others in the G20 and other higher income countries. **A formula based on ability to pay should be adopted for predictable, sustainable, and equitable financing of such global public goods on an ongoing basis**.

IV. **The World Trade Organization and WHO to convene** major vaccine-producing countries and manufacturers to get agreement on voluntary licensing and technology transfer arrangements for COVID-19 vaccines (including through the Medicines Patent Pool). If actions do not occur within three months, a waiver of intellectual property rights under the Agreement on Trade-Related Aspects of Intellectual Property Rights should come into force immediately.

V. **Production of and access to COVID-19 tests and therapeutics, including oxygen**, should be scaled up urgently in low- and middle-income countries with full funding of US$1.7 billion for needs in 2021 and the full utilization of the US$3.7 billion in the Global Fund's COVID-19 Response Mechanism Phase 2 for procuring tests, strengthening laboratories and running surveillance and tests.

VI. **WHO to develop immediately a roadmap** for the short-term, and within three months scenarios for the medium- and long-term response to COVID-19, with clear goals, targets and milestones to guide and monitor the implementation of country and global efforts towards ending the COVID-19 pandemic.

4. What happened, what we've learned and what needs to change

The Panel has carefully reviewed each phase of the present crisis in order to establish facts and draw lessons for the future.

4.1 Before the pandemic — the failure to take preparation seriously

In under three months from when SARS-CoV-2 was first identified as the cause of clusters of unusual pneumonia cases in Wuhan, China, COVID-19 had become a global pandemic threatening every country in the world [11]. **Although public health officials, infectious disease experts, and previous international commissions and reviews had warned of potential pandemics and urged robust preparations since the first outbreak of SARS, COVID-19 still took large parts of the world by surprise**. It should not have done. The number of infectious disease outbreaks has been accelerating, many of which have pandemic potential.

Quelle?

It is clear to the Panel that the world was not prepared and had ignored warnings which resulted in a massive failure: an outbreak of SARS-COV-2 became a devastating pandemic.

The fast-moving **SARS epidemic had shaken the world in 2003**. While the epidemic only lasted some six months and was responsible for 8096 cases and 774 deaths [12], it was judged by the WHO Regional Director for the Western Pacific to have "caused more fear and social disruption than any other outbreak of our time" [13]. SARS was a novel coronavirus causing respiratory disease. It travelled rapidly to 29 countries, territories and areas, and debilitated health systems, with many health workers being infected. Even so, expert observers knew that, with SARS, the world had dodged a bullet — screening and isolation could readily contain its spread, because people with SARS did not transmit the virus until several days after showing symptoms and were most infectious when symptoms were most severe. It was understood that if **a new fast-moving pathogen were transmissible in the absence of symptoms, it would pose a much deadlier challenge.**

The SARS epidemic was followed by the 2009 H1N1 influenza pandemic, the 2014–2016 Ebola outbreak in west Africa, Zika and other disease outbreaks, including another new coronavirus, Middle East respiratory syndrome (MERS). These outbreaks were the impetus for a series of initiatives to strengthen health security, animated by the conviction that disease outbreaks and other health threats constituted a major global risk and required a web of actions across all countries.

SARS propelled the decade-long negotiations to **revise and broaden the International Health Regulations (IHR)** to a rapid conclusion. The current regulations were adopted in 2005, setting out legally binding duties for both States and WHO in notification and information-sharing, prohibitions on unnecessary interference with international travel and trade, and cooperation for the containment of disease spread. The new IHR (2005) came into force in 2007 and **imposed new requirements that must be met before the WHO Director-General could act on emergencies, rather than enabling WHO to act immediately and independently.**

Groups of States also took initiatives to boost health security. The Global Health Security Initiative was established in 2001 by eight States and the European Commission, with WHO as an observer. The Global Health Security Action Group was its implementation and information-sharing body. The **Global Health Security Agenda** was launched by the United States in partnership with two dozen other countries in 2014 and has now grown to include seventy countries and a number of international organizations. It has sought to complement efforts to strengthen IHR (2005) implementation, including through support for voluntary Joint External Evaluations. The fact, however, that not all States participate in the Agenda and its related processes has limited its effectiveness and reach.

Despite the consistent messages that significant change was needed to ensure global protection against pandemic threats, the majority of recommendations were never implemented.

Hm, also das Problem ist, da

Since the 2009 H1N1 influenza pandemic, at least 11 high-level panels and commissions have made specific recommendations in 16 reports to improve global pandemic preparedness. Many concluded that the World Health Organization needed to strengthen its role as the leading and coordinating organization in the field of health, focus on its normative work, and receive more secure funding. Reviews also suggested improvements in the implementation of the IHR (2005). Some of the reviews resulted in specific action, including the establishment of the new WHO Health Emergencies Programme in 2016.

Welche?

Yet, despite the consistent messages that significant change was needed to ensure global protection against pandemic threats, **the majority of recommendations were never implemented.** At best, there has been piecemeal implementation. A coalition of interests with sufficient power and **momentum** to achieve a package of essential reforms has never been assembled. As a result, pandemic and other health threats have not been elevated to the same level of concern as threats of war, terrorism, nuclear disaster or global economic instability. When steps have been explicitly recommended, they have been met with indifference by Member States, resulting in weakened implementation that has severely blunted the original intentions. It is clear to the Panel that pandemics pose potential existential threats to humanity and must be elevated to the highest level.

The United Nations High-level Panel on the Global Response to Health Crises, chaired by President Kikwete of the United Republic of Tanzania, was established in response to the 2014–2016 epidemic of Ebola. It recommended that the United Nations General Assembly should immediately create a high-level council on global public health crises. On receiving its report, the United Nations Secretary-General Ban Ki-moon established a task force to oversee implementation of its recommendations. The task force's report in June 2017 recommended that the Secretary-General implement a time-limited independent mechanism for reporting on the world's preparedness, rather than the high-level independent council which had been recommended by the Kikwete-led panel. The outcome was the establishment of the Global Preparedness Monitoring Board in May 2018, with its members appointed by the heads of WHO and the World Bank.

National pandemic preparedness has been vastly underfunded, despite the clear evidence that its cost is a fraction of the cost of responses and losses incurred when an epidemic occurs. The total cost of the economic losses due to SARS was estimated at US$ 60 billion[14]. The 2015 MERS outbreak in just one country, the Republic of Korea, with 185 cases and 38 deaths, cost US$ 2.6 billion in lost tourism revenue and US$ 1 billion in response costs[15]. The 2016 Commission on a Global Health Risk Framework for the Future argued that its proposed preparedness spending boost of US$ 4.5 billion annually was a small investment compared with a scenario of the potential global cost of pandemics over the whole of the 21st century, which they assessed as being "in excess of $6 trillion"[16].

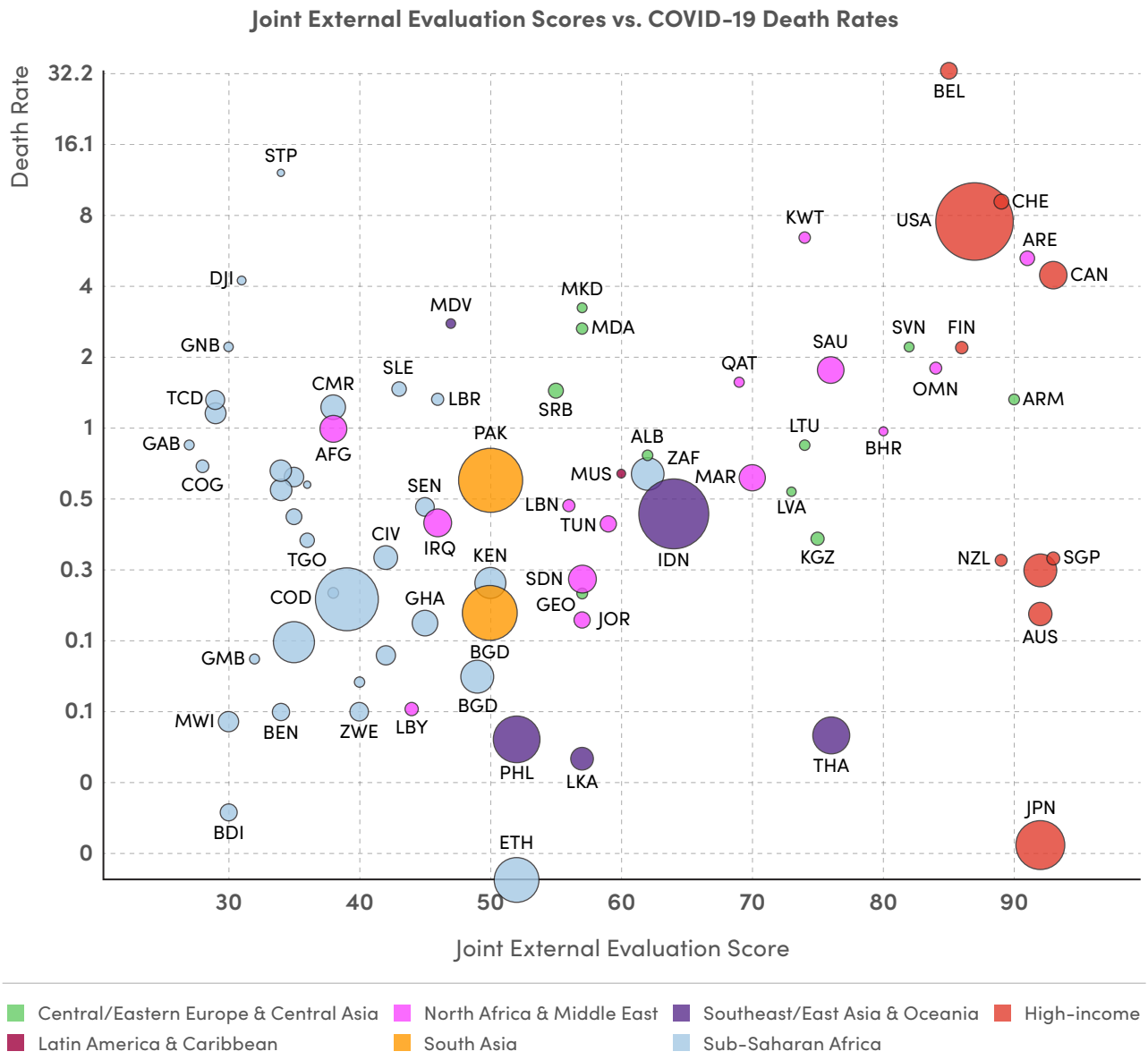
Und die Touristen wären ins

> *"...the Panel notes that the high risk of major health crises is widely underestimated, and that the world's preparedness and capacity to respond is woefully insufficient. Future epidemics could far exceed the scale and devastation of the West Africa Ebola outbreak."*
>
> From: *Protecting humanity from future health crises Report of the High-level Panel on the Global Response to Health Crises*, February 2016.

While there have been concerted efforts in recent years to boost pandemic preparedness, they have fallen far short of what is required. **Too many national governments lacked solid preparedness plans, core public health capacities** and organized multisectoral coordination with clear commitment from the highest national leadership [17]. The self-reported assessment of core capacities for preparedness that countries are required to submit to the WHO under IHR (2005) gave a global average score of 64 out of 100 [18]. Only two-thirds of countries reported having full enabling legislation and financing to support needed health emergency prevention, detection, and response capabilities [19]. Country preparedness was also assessed under the voluntary Joint External Evaluation process, undertaken to date by 98 countries. An independent academic exercise, the Global Health Security Index, also sought to score country pandemic preparedness.

Figure 1: Death rates in this figure shows the cumulative, reported, age-standardized to COVID-19 deaths per hundred thousand people in the 50 days following the date of the first death in that country

Source and adapted from: Sawyer Crosby et al, IHME, Think Global Health



What all these measures have in common was that their ranking of countries did not predict the relative performance of countries in the COVID-19 response [20, 21, 22]. **The measures failed to account sufficiently for the impact on responses of political leadership, trust in government institutions and country ability to mount fast and adaptable responses** [23]. For example, while the US ranked highest in its aggregate score on the Global Health Security Index, it scored less well on universal health care access, and in relation to public confidence in government received a score of zero indicating a confidence level of less than 25% [24].

Yup

The failure of these metrics to be predictive demonstrates the need for a fundamental reassessment which better aligns preparedness measurement with operational capacities in real-world stress situations, including the points at which coordination structures and decision-making may fail. The current pandemic will generate a wealth of data to guide that reassessment.

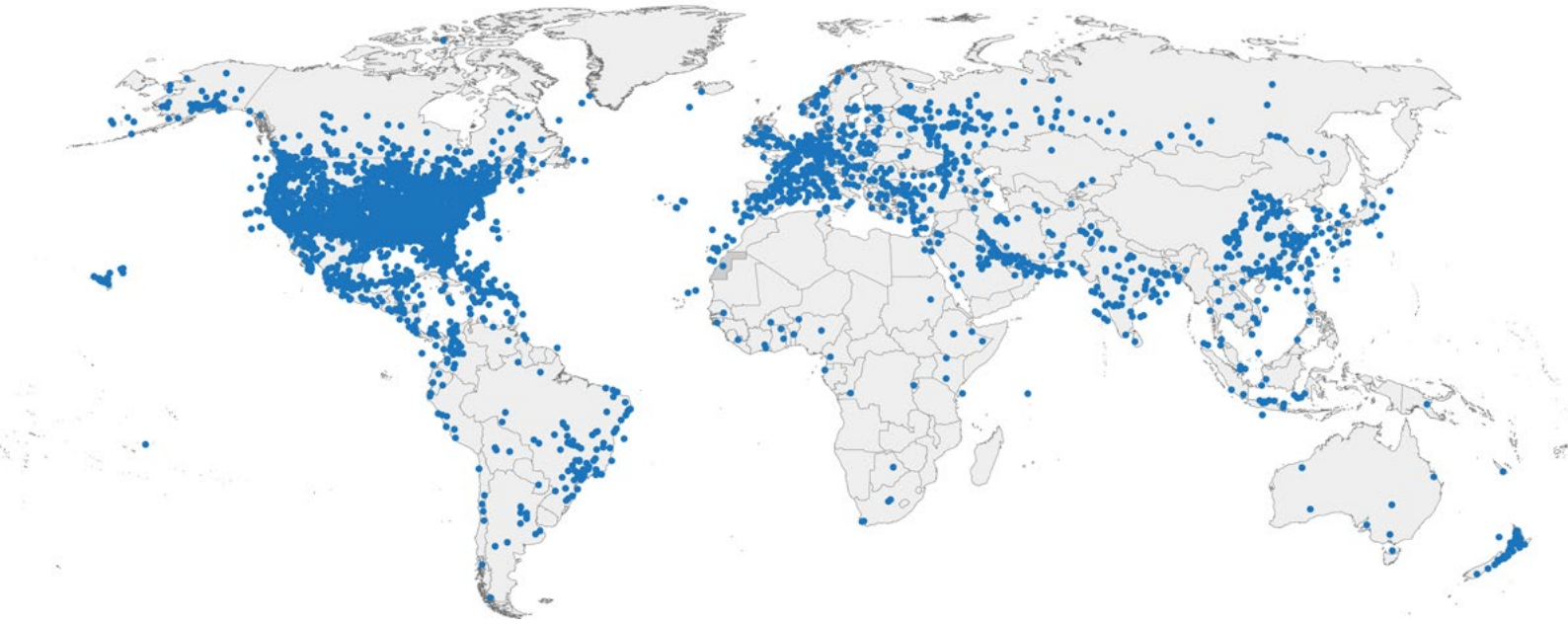
Underscoring the consequences of a failure to invest sufficiently in preparedness capacity is the increasing background level of risk. Population growth and accompanying environmental stresses are driving an increase in emerging novel pathogens. Air travel, which has increased fourfold since 1990, enables a virus to reach any place in the world in a matter of hours [25]. A new pathogen could emerge and spread at any time.

Quelle?

Most of the new pathogens are zoonotic in origin. Driving their increasing emergence are land use and food production practices and population pressure. Global surveillance systems need to monitor burgeoning infrastructure, environmental loss and the status of animal health. One Health interagency and multisectoral collaboration need to be an integral part of pandemic preparedness planning. Accelerating tropical

Figure 2: Air travel has increased four-fold since 1990. This figure shows concurrent flights in the air as of 02 May 2021, 9pm CET

Source: FlightAware, accessed online 2 May 2021.



Pandemic preparedness planning is a core function of governments and of the international system and must be overseen at the highest level. It is not a responsibility of the health sector alone.

deforestation and incursion destroys wildlife health and habitat and speeds interchange between humans, wildlife and domestic animals. The threats to human, animal and environmental health are inextricably linked, and instruments to address them need to include climate change agreements and "30x30" global biodiversity targets [26, 27].

SARS-CoV-2 is just such a virus of zoonotic origin whose emergence was highly likely. Current evidence suggests that a species of bat is the most likely reservoir host. The intermediate host is still unknown, as is the exact transmission cycle. WHO convened a technical mission to better understand the origins of the virus [28]. While the mission has now reported, investigations of the origins of the virus will continue. The experience of other pandemics, such as HIV, suggest that it will be some time, possibly years, before there is an accepted consensus about how and when the virus first infected humans and when and where the first human-to-human transmission clusters occurred. There is some evidence, based both on reconstructions looking backwards in time at the likely epidemiology and through the analysis of samples collected and stored, that the virus may already have been in circulation outside China in the last months of 2019. This evidence, however, still requires further examination, and confounding explanations, such as the contamination of samples, are still to be ruled out.

COVID-19 exposed **a yawning gap** between limited, disjointed efforts at pandemic preparedness and the needs and performance of a system when actually confronted by a fast-moving and exponentially growing pandemic.

The Panel's conclusion is that closing the preparedness gap not only requires sustained investment, it requires a new approach to measuring and testing preparedness. **Drills and simulation exercises resulting in immediate rectification of identified weaknesses must become routine,** and preparedness assessment must place more focus on the way the system functions in actual conditions of pandemic stress.

Zoonotic outbreaks are becoming more frequent, increasing the urgency for better detection and more robust preparedness. Given the increasing stakes, monitoring pandemic threat needs to be on the agenda of decision-makers at the highest levels of governmental, intergovernmental, corporate and community organizations.

Pandemic preparedness planning is a core function of governments and of the international system and must be overseen at the highest level. It is not a responsibility of the health sector alone.

4.2 A virus moving faster than the surveillance and alert system

Is it? Kann so ein pat

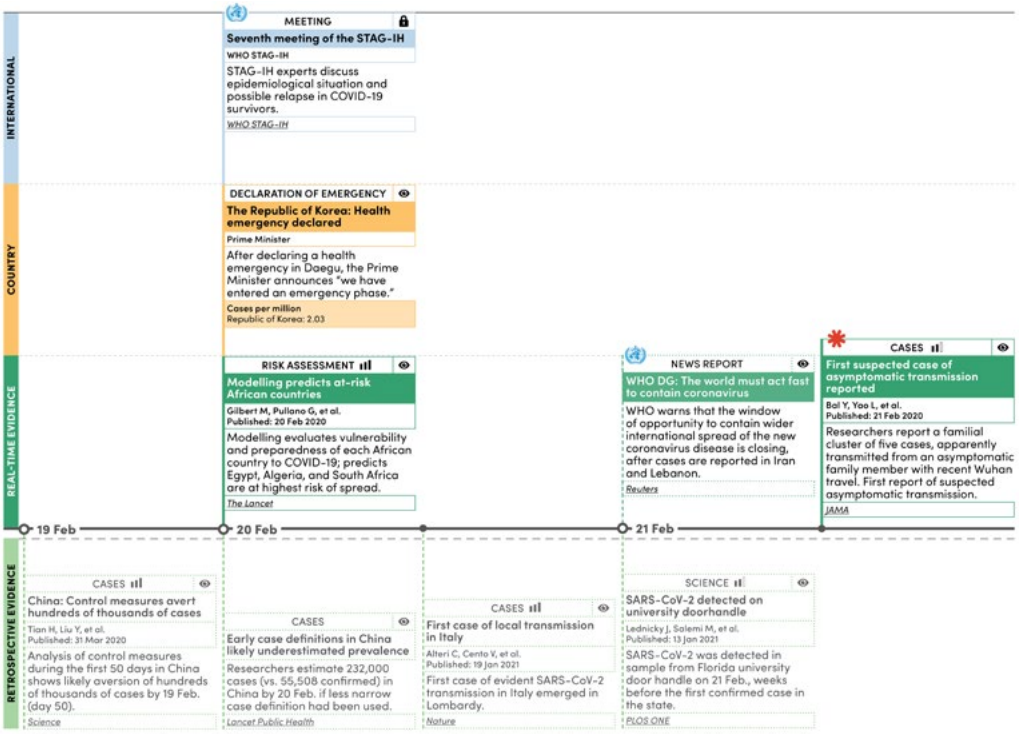
The earliest possible recognition of a novel pathogen is critical to containing it. The emergence of COVID-19 was characterized by **a mix of some early and rapid action, but also by *delay, hesitation,*** and ***denial***, with the net result that an outbreak became an epidemic and an epidemic spread to pandemic proportions.

The Independent Panel has consulted widely in order to develop a meticulous and verified ***chronology*** of events as they took place from the end of 2019 when cases were first detected in China through to the end of March 2020, by when the outbreak had spread extensively worldwide and had been characterized as a pandemic. Inputs to this chronology have included a systematic review of all the relevant published studies – both those that were available at the time and retrospective studies; submissions from WHO Member States, interviews with key actors in China and other countries, with WHO and other organizations; and a review of internal documents and correspondence from WHO.

The intention of the Panel in examining in detail the steps taken to respond to COVID-19 is not to assign blame, but rather to understand what took place and what, if anything, could be done differently if similar circumstances arise again, as they almost certainly will. We are conscious that our judgements benefit from the wisdom of hindsight and acknowledge that the decisions made at the time were made in conditions of great uncertainty.

Figure 3: A short segment of the authoritative chronology of the Independent Panel

Source: The Independent Panel for Pandemic Preparedness and Response



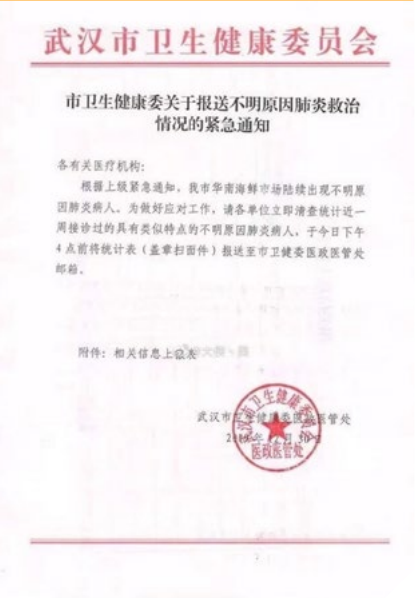
4.2.1 The first reported cases

In **December 2019**, a number of patients with pneumonia of unknown origin were admitted to hospitals in Wuhan, China. Later tests on a cohort of patients admitted between 16 December and 2 January found 41 with COVID-19. On 24 December, doctors concerned about a pneumonia patient not responding to the usual treatments sent a sample to a private laboratory for testing. Clinicians noticed that a number of patients — although not all — had attended the Huanan Seafood Market in Wuhan. For example, in a family group, a woman who was treated on 26 December had attended the seafood market, while her husband and son, whose chest scans were conducted shortly thereafter and showed similar patterns, had not. While the market was the initial focus of investigation, two later studies [29, 30] of the early laboratory-confirmed cases linked only 55–66% of cases to exposures there, suggesting that the market may have been a site of amplification of the virus rather than its origin. The evidence of human-to-human transmission of a new pathogen was not definitive in December 2019 but by the end of the month there were signs of it being likely.

On 30 December 2019, the *Wuhan Municipal Health Commission* issued two urgent notices to hospital networks in the city about cases of pneumonia of unknown origin linked to the Huanan Seafood Market. The market was closed and cleaned between 31 December and 1 January. On the morning of 31 December, Chinese business publication *Finance Sina* reported on one of the notices issued by the Wuhan Municipal Health Commission. This report was replicated and picked up by several disease surveillance systems, including the Centers for Disease Control, Taiwan, China, which in turn contacted WHO via email through the IHR (2005) reporting system, requesting further information. A machine translation of the *Finance Sina* report was published on the website of the Program for Monitoring Emerging Diseases (ProMED). This report was picked up by the Epidemic Intelligence from Open Sources (EIOS) system and alerted WHO Headquarters to the outbreak. Later in the afternoon of 31 December, the Wuhan Municipal Health Commission issued a public bulletin describing 27 cases of pneumonia of unknown origin. The WHO Country Office in China took note of the bulletin shortly after it was posted and immediately informed the IHR focal point in the WHO Western Pacific Regional Office (WPRO).

The Wuhan Institute of Virology sequenced almost the entire genome of the virus on 2 January 2020. On 5 January 2020, the complete genetic sequence was submitted to the open-access website GenBANK from a sample sequenced by the Shanghai Public Health Centre and this was made public on 11 January [31], and further sequences were uploaded by the China CDC. The China CDC successfully isolated the virus by 7 January 2020. Chinese scientists developed a PCR testing reagent for the virus by 10 January 2020 [29].

One of the urgent notices issued on 30 December 2019 by the Wuhan Municipal Health Commission.



武汉市卫生健康委员会

市卫生健康委关于报送不明原因肺炎救治情况的紧急通知

各有关医疗机构：

根据上级紧急通知，我市华南海鲜市场陆续出现不明原因肺炎病人。为做好应对工作，请各单位立即清查统计近一周接诊过的具有类似特点的不明原因肺炎病人，于今日下午4点前将统计表（盖章扫面件）报送至市卫健委医政医管处邮箱。

附件：相关信息上报表

武汉市卫生健康委员会医政医管处

2019年12月30日

These events, as they unfolded in Wuhan in the last two weeks of December 2019 and into January 2020, demonstrate the **diligence of clinicians** who noticed clusters of unusual pneumonia, sent samples for screening where commercially available next-generation sequencing detected signs indicative of a new SARS-like coronavirus, and escalated their concerns about this cluster of unexplained disease to local health authorities. The local health authorities closed and cleaned the market that was suspected as a potential source of the virus.

Within a day of the local alert being issued to hospitals, it was noted in the media. The signal was picked up by other health authorities and by the global epidemic surveillance networks that constantly scour open sources around the world. There were thus **three routes** through which WHO became aware of the outbreak on 31 December 2019 — the Centers for Disease Control, Taiwan, China contacting WHO through the IHR (2005) reporting system after noting media references to the outbreak; the alert published on the ProMED website and picked up by the epidemic surveillance system; and the WHO Country Office in China noting the public bulletin from the Wuhan Municipal Health Commission.

These events, as they unfolded in Wuhan in the last two weeks of December 2019 and into January 2020, demonstrate the diligence of clinicians who noticed clusters of unusual pneumonia

On 1 January 2020, WPRO formally requested further information; and on 3 January it requested verification under the IHR (2005) Article 10 procedures. The Chinese National Health Commission and the Country Office met for a technical briefing on 3 January and provided initial information about the first set of 44 reported cases during the briefing and by email. The WHO subsequently published a Twitter thread about the cases on 4 January, and on 5 January officially alerted all country governments through the IHR Event Information System, as well as issuing its first Disease Outbreak News notice on the cluster.

The Chinese authorities and WHO held a subsequent briefing on 11 January. The Country Office reached an agreement with Chinese authorities on 15 January to visit Wuhan. On 16 January, a further briefing was held, and a more complete list of case information was shared. The first WHO mission to Wuhan took place on 20–21 January.

In an announcement on national television on 20 January 2020 Chinese health experts confirmed publicly that human to human transmission was occurring and that health workers were among those who had become infected. Wuhan instituted a drastic

population lockdown on 23 January to try to contain the virus, as 830 cases and 25 deaths were reported [32]. According to the report of the second joint WHO-China mission, which took place from 16 to 24 February, the lockdown and public health measures taken in China were considered successful in rapidly reducing transmission.

Some places began screening incoming visitors almost immediately, as news of the Wuhan outbreak became public. Meanwhile in Thailand, a case was confirmed on 13 January of a woman who had travelled there from Wuhan on 8 January, the **first case to be confirmed outside China.** Japan reported an infected person on 16 January.

4.2.2 The declaration of a public health emergency of international concern

A Public Health Emergency of International Concern (PHEIC) is the loudest alarm that can be sounded by the WHO Director-General. The IHR (2005) mandate that in determining whether an event constitutes a PHEIC, the WHO Director-General consider the advice of an **Emergency Committee** convened for the purpose and drawn from a roster of experts maintained by WHO. The affected State is invited to present its views to the Emergency Committee. If a PHEIC is recommended, the WHO Director-General has the final authority to make a declaration, taking all information into account. The meeting of the WHO IHR Emergency Committee called to discuss the outbreak on 22–23 January was split on whether to recommend that the outbreak be declared a PHEIC. The Committee met again the following week when the Director-General returned from a mission to China. Following the Committee's recommendation, the WHO Director-General declared that the outbreak constituted a PHEIC on 30 January. At that time there were 98 cases in 18 countries outside China [33, 34]. In the statement from the Emergency Committee reported by the Director-General, it was specified that no travel restrictions were recommended, based on the information available.

Reference to the PHEIC outbreak was included in the 3 February 2020 report by the WHO Director-General to the WHO Executive Board [35]. On 4 February in an oral briefing to Member States he reported that there had been 20 471 confirmed cases and 425 deaths reported in China, and a total of 176 cases in 24 other countries.

The IHR (2005) do not use or define the term "pandemic". The most extensive use of the term by WHO is in relation to the detailed framework and guidelines for pandemic influenza, although even there the distinction between seasonal and pandemic influenza is not clear-cut [36]. As COVID-19 spread during February 2020, and there was an apparent lack of understanding that declaring a PHEIC was to sound the loudest possible alarm, there was an increasing clamour for WHO to describe the situation as a pandemic. Eventually, stating that it was alarmed by the extent of both the spread of the disease and the level of inaction in response, WHO

went on to characterize COVID-19 as **a global pandemic on 11 March 2020**, when there were a reported 118 000 cases in 114 countries [37].

The Panel has considered this sequence of events between December 2019 and the declaration of a PHEIC on 30 January 2020 in detail in order to assess what could potentially have been done differently and whether changes are needed in the international system of alert.

There is a case for applying the precautionary principle in any outbreak caused by a new pathogen resulting in respiratory infections, and thereby for assuming that human-to-human transmission will occur unless the evidence specifically indicates otherwise

The IHR (2005) are designed to ensure that countries have the capacity to detect and notify health events. They require that, when disease or deaths above expected levels are detected, essential information is reported immediately to subnational or national levels. If urgent events, defined as having "serious public health impact and/or unusual or unexpected nature with high potential for spread" are detected, they must be reported immediately to the national level and assessed within 48 hours. Events assessed to warrant a potential PHEIC must be reported to WHO within 24 hours of assessment, via the IHR national focal point. Events with PHEIC potential must meet at least two of four conditions, namely: (1) have serious public health impact; (2) be an unusual or unexpected event; (3) have significant risk of international spread; and (4) carry significant risk of travel or trade restrictions.[a] The Panel's view is that the outbreak in Wuhan is likely to have met the criteria to be declared a PHEIC by the time of the first meeting of the Emergency Committee on 22 January 2020.

While WHO was rapid and assiduous in its early dissemination of the outbreak alert to countries around the world, its approach in presenting the nature and level of risk was based on its established principles guided by the International Health Regulations of issuing advice on the balance of existing evidence. While WHO advised of the possibility of human-to-human transmission in the period until it was confirmed, and recommended measures that health workers should take to prevent infection, the Panel's view is that it could also have told countries that they should take the precaution of assuming that human-to-human transmission was occurring. Given what is known about respiratory infections, there is a case

a In addition, SARS, poliomyelitis, smallpox and a new subtype of influenza are automatically defined as events that may constitute a PHEIC. See International Health Regulations (2005), 3rd edition. Geneva: World Health Organization; 2016 (https://www.who.int/publications/i/item/9789241580496, accessed 26 April 2021).

Credit: Watsamon Tri-yasakda

for applying the precautionary principle and assuming that in any outbreak caused by a new pathogen of this type, sustained human-to-human transmission will occur unless the evidence specifically indicates otherwise.

The Panel's conclusion is that **the alert system does not operate with sufficient speed** when faced with a fast-moving respiratory pathogen, that **the legally binding IHR (2005) are a conservative instrument** as currently constructed and serve to constrain rather than facilitate rapid action and that the precautionary principle was not applied to the early alert evidence when it should have been.

The Panel's view is that **the definition of a new suspected outbreak with pandemic potential needs to be refined**, as different classes of pathogen have very different implications for the speed with which they are likely to spread and their implications for the type of response needed.

4.2.3 Two worlds at different speeds

The chronology of the early events in raising the alarm about COVID-19 show **two worlds operating at very different speeds**. One is the world of fast-paced information and data-sharing. Open digital platforms for epidemic surveillance, in which WHO plays a leading role, constantly update and share outbreak information. Digital tools are now core elements in disease surveillance and alert, sifting through vast quantities of instantly available information. Epidemic surveillance operates symbiotically with information exchange—the constant pace of news, gossip and rumour that characterize social media and can be mined for epidemic-relevant signals. Open data on the information and

collaboration platforms central to scientific exchange also, by their nature, enable near-instant global availability of information.

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.

The critical issue for this two-speed world is that viruses, especially highly transmissible respiratory pathogens, operate at the faster pace, not the slower one.

The Panel's conclusion is that **surveillance and alert systems at national, regional and global levels must be redesigned**, bringing together their detection functions — picking up signals of potential outbreaks — and their relay functions — ensuring that signals are verified and acted upon. Both must be able to function at near-instantaneous speed.

This will require the consistent application of digital tools, including the incorporation of machine learning, together with fast-paced verification and audit functions. It will also require a commitment to open data principles as the foundation of a system that can adapt and correct itself.

Credit: Christine McNab

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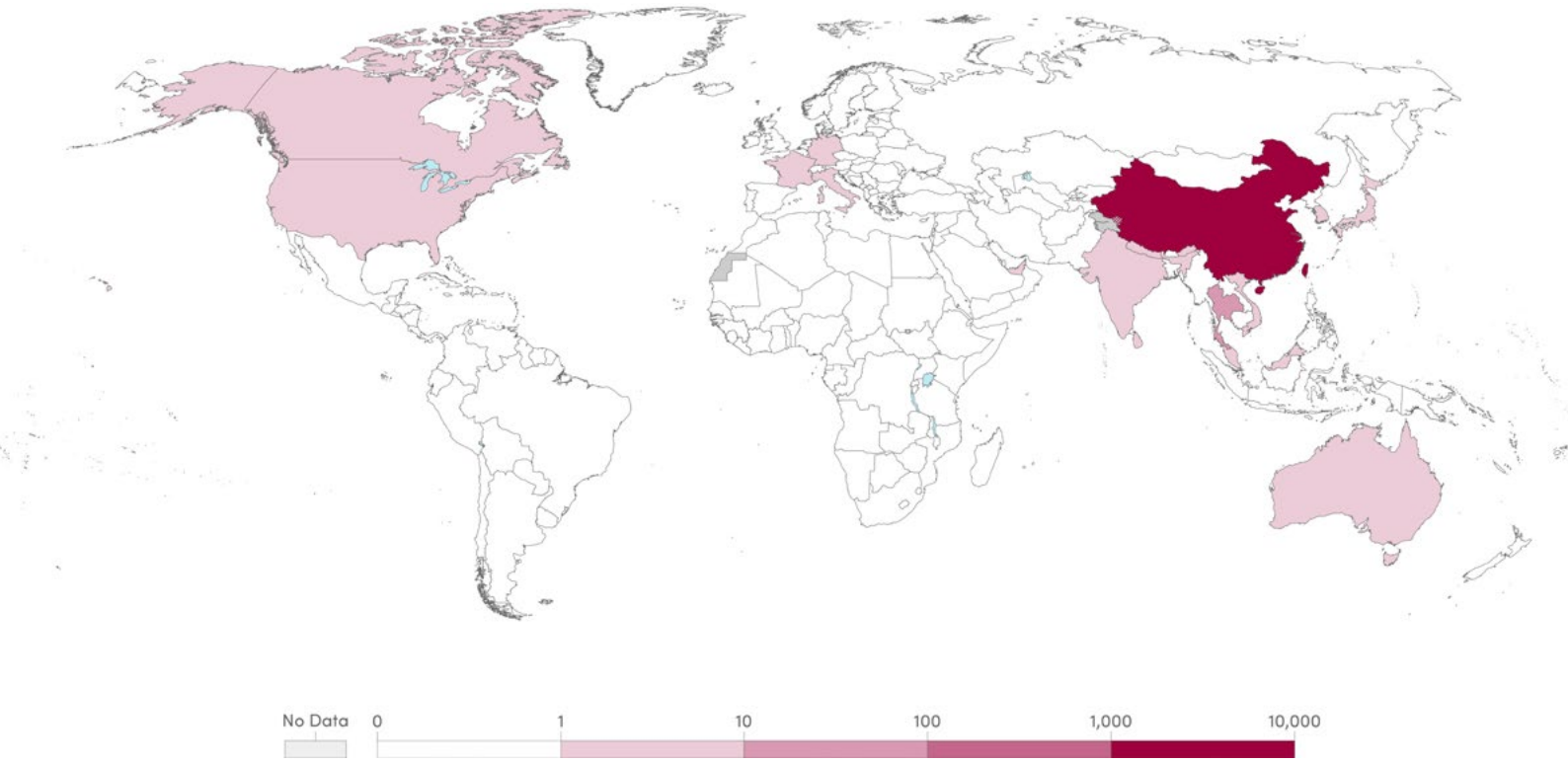
4.3 Early responses lacked urgency and effectiveness

The declaration of a PHEIC by the WHO Director-General on 30 January 2020 **was not followed by forceful and immediate emergency responses in most countries, despite the mounting evidence that a highly contagious new pathogen was spreading around the world**. For a strikingly large number of countries, it was not until March 2020, after COVID-19 was characterized as a "pandemic", and when they had already seen widespread cases locally and/or reports of growing transmission elsewhere in the world, and/or their hospitals were beginning to fill with desperately ill patients, that concerted government action was finally taken.

In recommending the declaration of a PHEIC on 30 January, the WHO COVID-19 IHR Emergency Committee stated its view that it was "still possible to interrupt virus spread, provided that countries put in place strong measures to detect disease early, isolate and treat cases, trace contacts and promote social distancing measures commensurate with the risk" [38]. Most countries did not seem to get that message, despite the fact that, at the time, cases had been reported in 19 countries and human-to-human transmission was reported in at least four countries in addition to China. The majority of reported cases outside China had a history of travel in China, but that was partly because testing was initially directed only at those who both had symptoms and had recently travelled from Wuhan.

Figure 4: Cumulative COVID-19 cases by country as of 30 January 2020

Source: World Health Organization Coronavirus (COVID-19) Dashboard. Data as of 21 April 2021.



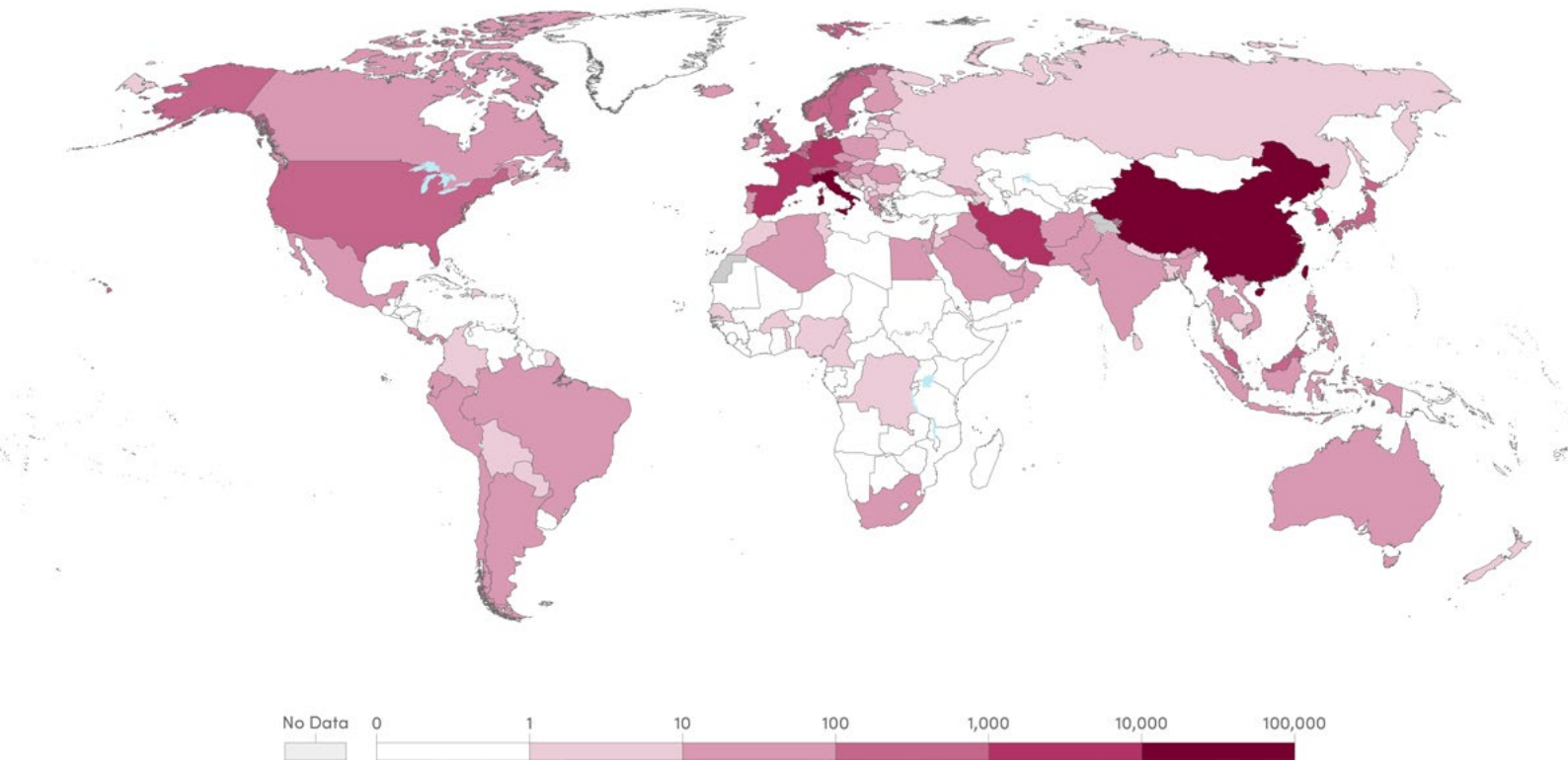


Figure 5: Cumulative COVID-19 cases by country as of 11 March 2020

Source: World Health Organization Coronavirus (COVID-19) Dashboard. Data as of 21 April 2021.

On 30 January 2020, it should have been clear to all countries from the declaration of the PHEIC that COVID-19 represented a serious threat. China had reported upwards of 20 000 confirmed or suspected cases and 170 deaths. The number of countries to which the virus had spread and where local transmission was occurring was growing by the day. Even so, only a minority of countries set in motion comprehensive and coordinated COVID-19 protection and response measures — a handful even before seeing a confirmed case, and the remainder once cases had arrived.

The question we must ask ourselves is why the PHEIC declaration did not spur more action, when the impending threat should have been clearly evident? After a stuttering start to the global response in January 2020 by the end of that month it was clear that a full-scale response would be needed. **It is glaringly obvious to the Panel that February 2020 was a lost month**, when steps could and should have been taken to curtail the epidemic and forestall the pandemic.

The Panel's analysis suggests that the failure of most countries to respond during February was a combination of two things. One was that they did not sufficiently appreciate the threat and know how to respond. The second was that, in the absence of certainty about how serious the consequences of this new pathogen would be, "wait and see" seemed a less costly and less consequential choice than concerted public health action.

Credit: Mindy Tan

4.3.1 Successful countries were proactive, unsuccessful ones denied and delayed

Das ist die entscheidende Studie,

The Panel's review of a range of country responses up until March 2021[b] demonstrates that countries that recognized the threat of SARS-CoV-2 early, and were able to react comprehensively, fared much better than those that waited to see how the pandemic would develop. The early-responding countries acted in a precautionary way to buy time, while getting information from other countries, particularly from Wuhan in China where the impact of the lockdown showed that stringent measures could effectively stop the outbreak.

Response models developed in relation to earlier outbreaks, including SARS and MERS, were rapidly adapted to the specific characteristics of this novel virus and its pathways of transmission. The 2003 SARS epidemic had left a permanent mark, especially in the most affected east Asian and south-east Asian countries. SARS resulted in governments instituting whole-of-government approaches with clearly defined, tiered command structures to prepare for and respond to future outbreaks, with clear involvement of communities and transmission of information. Health protection functions were consolidated under new centralized agencies.

Effective and high-level coordinating bodies were critical to a country's ability to adapt to changing information

Even though Ebola virus disease is a very different type of disease to COVID-19, countries with that experience drew on it to rapidly establish coordination structures, mobilize surge workforces and engage with communities.

National responses were most effective where decision-making authority was clear, there was capacity to coordinate efforts across actors, including community leaders, and levels of government, and formal advisory structures were able to provide timely scientific advice that was heeded. **Effective and high-level coordinating bodies were critical to a country's ability to adapt to changing information;** in the context of a pandemic caused by a novel pathogen, adaptability has been vital.

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The strategies chosen by countries to respond to COVID-19 played out in very different ways. In analysing national responses, the Panel has identified three distinct strategic approaches: aggressive containment, suppression or mitigation. In addition, there are some countries without any discernible or consistently applied strategy.

b The Panel has conducted a review of policy responses in 28 countries selected to represent different regions and the best, worst and median outcomes, measured by deaths per 100 000 population.

The aggressive containment strategy has been dominant in Asian and Pacific countries. Of the 28 country responses analysed in depth by the Panel, those adopting aggressive containment include China, New Zealand, Republic of Korea, Singapore and Thailand and Viet Nam. Most of the countries that adopted this strategy operationalized their national COVID-19 response through a coordinated and centralized governance structure.

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Across all countries with successful responses, timely triage and referral of suspected cases to ensure swift case identification and contact-tracing, and providing designated isolation facilities, either for all or for those unable to self-isolate, were key actions. Social and economic support was instituted to promote widespread uptake of public health measures. High-performing countries developed partnerships on multiple levels across sectors and extra-governmentally, communicated consistently and transparently, and engaged with community health workers and community leaders as well as the private sector.

Successful containment of COVID-19 has required comprehensive approaches which align multiple health actions with public outreach and social and economic support. Prioritizing just one public health intervention at the population level, such as mandatory face masks or school and business closures, has not been effective.

Many countries fell in the middle ground. Their strategies aimed for containment to the greatest extent possible but were often inconsistent over time. Some countries put in place lockdowns when incidence exceeded certain thresholds, or when hospital capacity

Credit: Angela Ponce

was about to be saturated. Changes in lockdown policies were difficult to time and often lagged behind fast-changing epidemic dynamics. Border closure policies differed between countries. Contact tracing programmes proved highly successful where they were implemented stringently, early on, with coherent delivery However, catching up on contact tracing that had been introduced late and in settings of high community transmission often failed and was abandoned.

In contrast, **countries with the poorest results** in addressing COVID-19 had uncoordinated approaches that devalued science, denied the potential impact of the pandemic, delayed comprehensive action, and allowed distrust to undermine efforts. Many had health systems beset by long-standing problems of fragmentation, undervaluing of health workers and underfunding. They lacked the capacity to mobilize quickly and coordinate between national and subnational responses.

The denial of scientific evidence was compounded by a failure of leadership to take responsibility or develop coherent strategies aimed at preventing community transmission. Leaders who appeared sceptical or dismissive of emerging scientific evidence eroded public trust, cooperation and compliance with public health interventions.

In many cases, national efforts were both catalysed and amplified by regional responses. For example, the Africa Centres for Disease Control, as an organ of the African Union, was able to coordinate a continent-wide approach to the pandemic backed by requisite political support from Heads of State and Government and ministers.

4.3.2 The crisis in supplies

Part of the story of the slide of COVID-19 from an outbreak into a pandemic relates to issues of leadership, coordination and decision-making at national level. But another part of the story is the difficulties in which countries found themselves **as they scrambled to get hold of the equipment, supplies, diagnostic tests, advice, funds and workforce** they needed to respond to the exponentially growing COVID-19 caseload. There was no international system that had created accessible stockpiles sufficient for the scale of country needs, or that could trigger the flow of resources and step in to regulate orderly access.

In early February 2020, the Director-General of WHO warned of delays of 4–6 months in the supply of face masks and protective suits. By March, the shortfall between needs and manufacturing capacity was estimated at 40% [39]. Stockpiles created in the wake of the 2009 H1N1 influenza outbreak had been depleted; hoarding, price-gouging and fraud appeared in many countries; border restrictions hampered the flow of supplies; and by April 2020 controls on the export of medical supplies and medicines had been imposed by 75 countries [40]. Furthermore, supply chains were overly dependent on a few manufacturers or concentrated in a few supplier countries.

Credit: Christine McNab

National and international efforts sought to overcome this supply crisis, with mixed success. Countries which were able to establish purchasing partnerships nationally and with neighbours fared best. In conjunction with the African Union and Africa CDC, a partnership platform to increase purchasing power was established to achieve greater leverage in the supplies market in a bid to avoid being frozen out by richer countries.[c] At international level, the United Nations and WHO launched the United Nations COVID-19 Supply Chain System, which eventually channelled half of the essential supplies reaching low- and middle-income countries. Local research, development and manufacturing were used to bolster supplies, ranging from personal protective equipment (PPE) to test kits and developmental work on vaccines.

An early and continuing **critical gap is in oxygen supplies**, vital in a respiratory pandemic, and there is no clear lead agency devoted to its delivery. This is not a new problem — up to half of all health facilities in resource-limited settings have persistently been found to lack reliable oxygen supplies [41, 42].

The shortage of essential supplies had a major impact on health workers in the early stages of the response, contributing to the high death toll. Health workers have reported that their fears

c Africa Medical Supplies Platform (https://amsp.africa): "We help institutional healthcare providers source critical equipment, fast".

at the outset of the pandemic were heightened by initial systems failures, including a lack of evidence-based guidelines, shortages of PPE, sudden lockdowns that disrupted normal operations, and an overwhelming sense that facilities were unprepared.[d]

The agility with which countries were able to manage **surge health workforce** demands has been a key difference between successful and struggling responses. The health systems that managed the COVID-19 response better quickly mobilized, trained and reallocated their health workforce with a combination of hiring new staff, using volunteers and medical trainees and mobilizing retirees. They took proactive steps to increase system capacity — in some cases with the rapid construction of makeshift hospitals in places where COVID-19 was out of control, but also by extending telemedicine, postponing elective medical procedures and supporting primary care.

Rapid research and development: while much of the early response to COVID-19 involves missed opportunities and failure to act, there are some areas in which early action was taken to good effect, most notably in **research and development** (R&D) and, in particular, vaccine product development.

The COVID-19 response benefited from years of effort to expand capacities for R&D to address potential pandemics. Expertise and technology from decades of work — especially on HIV, Ebola and cancer vaccine research and immunology — were available and ready to apply to the new virus.

In the wake of the Ebola epidemic in 2016, a new model for R&D response to emerging pathogens likely to cause severe outbreaks in the future was developed under WHO's R&D Blueprint[43, 44]. It identified bottlenecks in international collaboration, encouraged agreement on basic data-sharing principles, and sought more efficient ways to conduct clinical trials in times of distress[45]. The Coalition for Epidemic Preparedness Innovations (CEPI) was launched in 2017 as a non-profit organization funding basic research and early clinical trials for a list of epidemic-prone infectious diseases.

This infrastructure was deployed almost as soon as the COVID-19 alert was sounded. CEPI sought out and sponsored some of the first vaccine candidates (Moderna and Oxford University) as early as 20 January 2020, when there were fewer than 600 cases around the world. A number of adaptive clinical trials were launched which provided evidence quickly, for example the UK's Recovery trial by June 2020 had shown the effectiveness of dexamethasone, and the lack of clinical benefit of the use of hydroxychloroquine in COVID-19 disease[46]. The R&D Blueprint encouraged adaptive clinical trials and launched the Solidarity trial in mid-April 2020, which exemplified an efficient and robust way to generate randomized evidence using simple large trials.

d Source: Focus group discussions conducted for the Independent Panel Secretariat with a sample of health workers from different disciplines and regions.

Accompanying the global efforts were national measures to support COVID-19 R&D, the largest of which was the United States federal Biomedical Advanced Research and Development Authority, whose cumulative investment in research, development, manufacturing and procurement of COVID-related vaccines, therapeutics and diagnostics was US$ 14 billion by November 2020 [47]. Regulators also raced to find ways to speed up clinical testing while maintaining safety. Several national regulatory agencies, including the European Medicines Agency, in India, the Food and Drug Administration in the United States, and Health Canada approved emergency procedures to expedite clinical testing and approval.

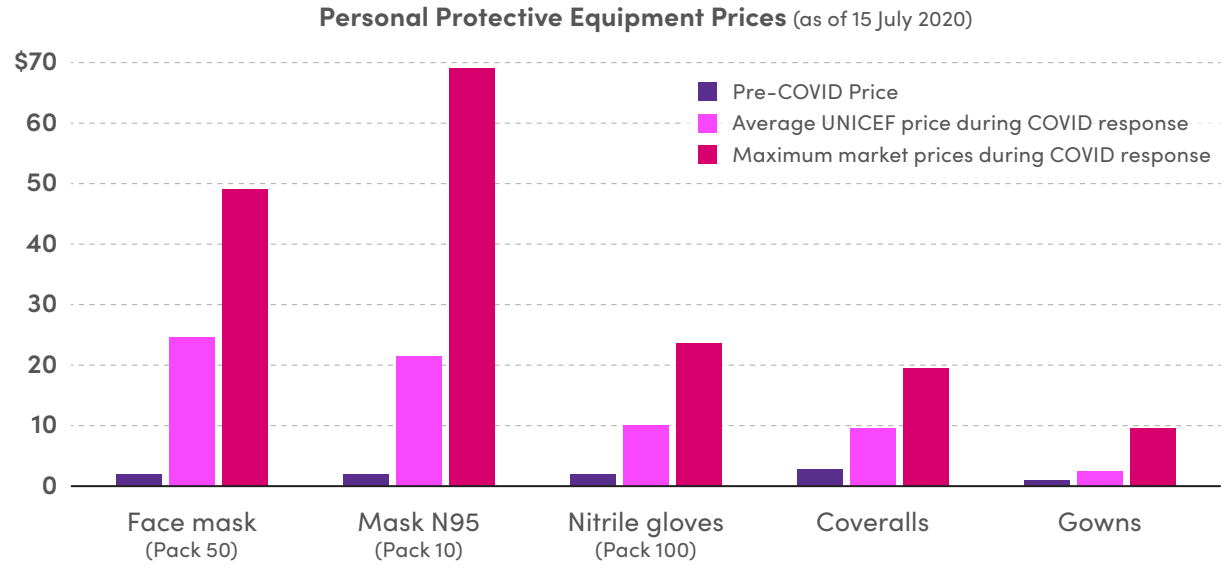
In April 2020, public health experts said the optimistic expectation was that a COVID-19 vaccine was at least 12–18 months away [48]. However, by July, numerous vaccine candidates were already in advanced clinical trials [49].

4.3.3 Lessons to be learnt from the early response

The Panel has analysed closely the early response to the COVID-19 outbreak, to examine whether responses to the outbreak by countries and the international system could have been different, and prevented it from escalating into the devastating pandemic it became.

The Panel's conclusion is that the declaration of a PHEIC, the highest level of global concern specified in the international, legally binding, health regulations did not lead to an urgent, coordinated, worldwide response. It was not until the number of COVID-19 cases increased dramatically and COVID-19 had spread internationally that governments took serious action to prevent transmission.

Figure 6: Personal Protective Equipment Prices (as of 15 July 2020)
Source: UNICEF Global COVID-19 Special Interim Report, August 2020.



February was a lost month of opportunity to contain the outbreak, even as the evidence of infections spreading globally was apparent.

For the Panel it is also clear that timing mattered — for a few countries, early recognition of the COVID-19 threat and quick responses kept the epidemic small. But even countries that acted later have been able to gain and maintain success with adaptable responses that are coordinated, multisectoral and science-based.

Countries that devalued science failed to build trust in their response and pursued inconsistent strategies that left them lagging behind the epidemic and with high infection and death rates.

Credit: Miriam Watsemba

4.4 The failure to sustain the response in the face of the crisis

4.4.1 National health systems under enormous stress

Health systems and health workers were not prepared for a prolonged crisis. The COVID-19 pandemic has taken an enormous physical and emotional toll on the world's health workers. The health systems which had been under-resourced and fragmented over a long period prior to the pandemic were the least resilient. Delivery of essential health services, including those for sexual and reproductive health, noncommunicable and communicable diseases, immunization, and other health programmes were interrupted, with wider impacts in low- and middle-income countries. People with underlying conditions were neglected. People in aged care were especially vulnerable to COVID-19 and for many high-income countries, the huge wave of deaths in these facilities showed profound flaws in protections against a new health threat and in the way care for the elderly and vulnerable is provided.

Many people with underlying health conditions couldn't get the care they needed.

Credit: Tuane Fernandes Silva

As the COVID-19 pandemic progressed, graphic news footage was broadcast of thousands of distressed patients overwhelming health facilities around the world, many of which were woefully unprepared for the surge. Ambulances queued, emergency rooms overflowed, and hospital beds were dangerously oversubscribed. In Spain, as an example, many intensive-care units operated at 200–300% of capacity, and other countries felt similar strain.

Holding it all together were health professionals and other essential workers on the front line — medical technicians, doctors and nurses, border and quarantine staff, midwives and community workers, food suppliers and cleaners — working hour after hour, often lacking adequate protective equipment and patient supplies, watching helplessly while patients died without loved ones by their sides, and worrying about their own health and families. Response measures added to their stresses — as schools and day-care centres closed down, parents who were essential workers found themselves having to juggle impossible demands on their time.

4.4.2 Jobs at risk

In addition to health workers, the pandemic has also affected other essential workers, including those self-employed, small and medium sized entrepreneurs, those working in food shops, delivery and transportation and cleaning, and at national and subnational borders. Those involved in meat processing were at particular risk

Holding it all together were health professionals and other essential workers on the front line —medical technicians, doctors and nurses, border and quarantine staff, midwives and community workers, food suppliers and cleaners

of infection. Meat-packing plants provide favourable conditions for viral transmission, given their low temperature, metallic surfaces, dense production of aerosols, noise levels requiring workers to shout, crowded working conditions and, often, limited access by employees to sick leave.

The nature of the front line and the degree of risk to workers reflects an income gradient, both between and within countries. While those who could, and could afford to, have worked from home during the crisis, others, largely lower-income workers, kept food supplies, transportation and deliveries functioning, risking infection themselves.

The economic impact of COVID-19 has depended on the interplay of **pre-existing structural conditions** in economies, the amount of fiscal and governance space made available for mitigation measures, and the nature and timing of decisions made in response to the pandemic. Prior conditions mattered — there was much more freedom to act and more choices were available in those places where a robust and resilient health system existed, where social and economic protections were solid, and where governments, scientists and citizens trusted each other to do their best.

An analysis of more than 80 countries shows that, where there were high levels of informal employment, mobility restrictions did not reduce the number of cases — leading to the conclusion that stay-at-home orders can only be successful when three conditions are met: households have enough income to make ends meet through the lockdown period; workers have digital access to enable them to work remotely; and there is a level of trust in government sufficient for orders to be complied with [50].

Many have lost their jobs and, in some cases, also their health insurance, creating a negative spiral of disease spread and severity. Social protection floors — the set of guarantees for all of the population that every country should have in place, with

Credit: Mindy Tan

nationally defined levels of income security through the life cycle and access to health care [51] — recognize the intimate relationship between universal health coverage and social protection. The pandemic has underlined the inequities that result when countries fall short of meeting these standards.

Community responses and local engagement have been vital resources in the response. Where community structures, such as cadres of community health workers, have been mobilized, they have made a critical difference in establishing trust in government instructions, extending services, and in relaying scientific information. However, the potential for communities to shape the response at the decision-making table has been severely neglected.

Similarly, **women** constitute almost 60% of the health workforce and front-line workers, yet they were not included in most of the COVID-19 response structures, thus increasing the equity gap for an effective response.

Credit: Miriam Watsemba

4.4.3 Vaccine nationalism

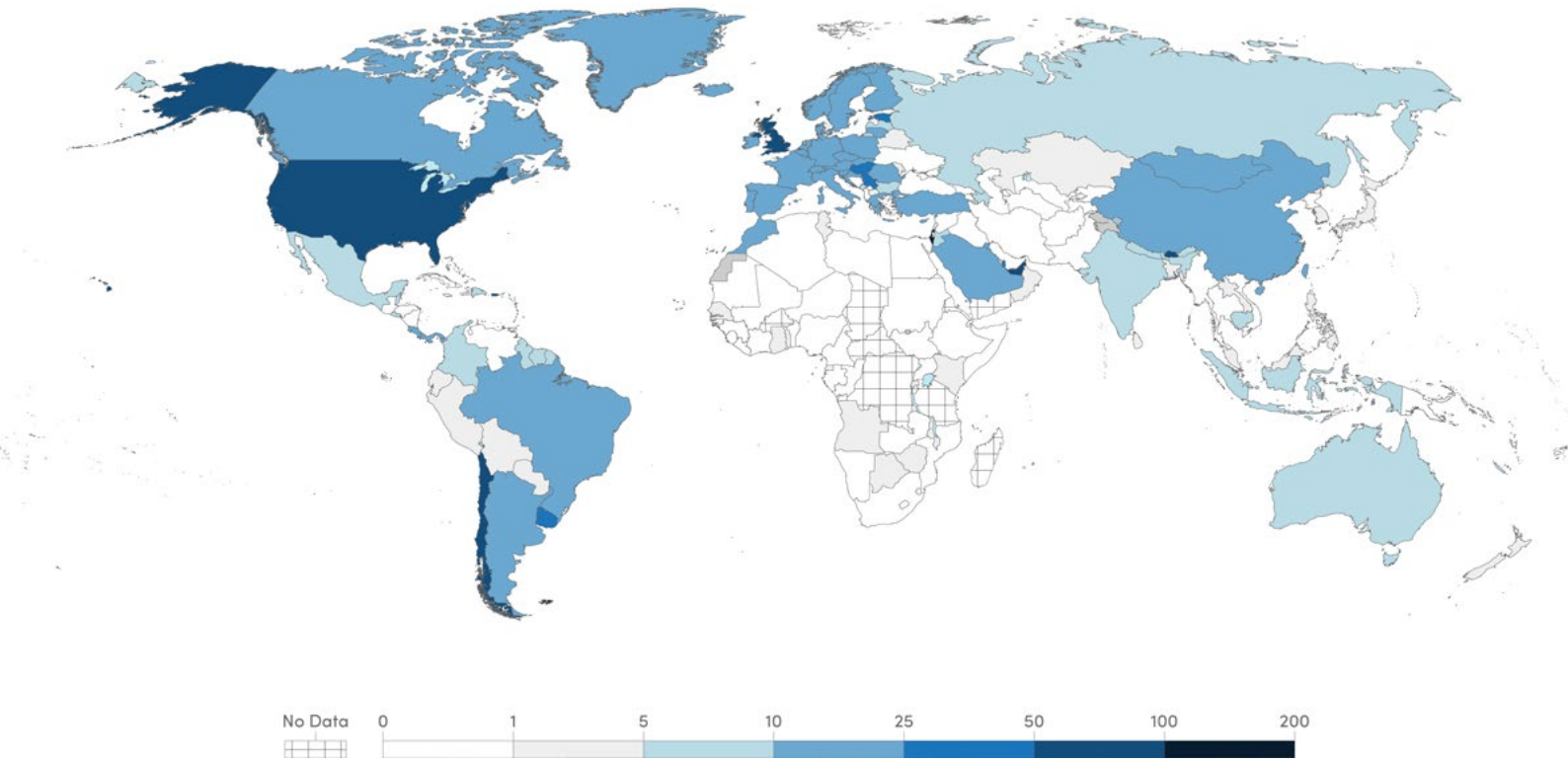
Vaccine access and distribution is a highly charged political issue and choice. As of now, a number of high-income countries, including Australia, Canada, New Zealand, the United Kingdom, across the European Union, and the United States, have been able to secure vaccine doses that would be enough to cover 200% of their populations [52].

A core mechanism to address global vaccine availability is COVAX, launched by WHO and partners in April 2020 as the vaccines pillar of its Access to COVID-19 Tools Accelerator (ACT-A). Its initial aim expressed in September 2020 was to purchase 2 billion COVID-19 vaccine doses by the end of 2021 and deliver them to people in 190 countries. By mid-March 2021, COVAX had shipped 30 million doses to at least 54 countries [53, 54]. At that time COVAX expected approximately 1.8 billion doses to be available to 92 low- and middle-income countries before the end of 2021, covering 27% of their populations.

But these expectations must contend with uncertainties of manufacturing capacity, regulation, funding availability, final contract terms and the readiness of countries to deliver their national COVID-19 vaccination programmes. Had COVAX had sufficient and readily available early funding it would have been better able to secure enough immediate supply to meet its aims [55].

Figure 7: Total COVID-19 vaccine doses per 100 people as of 21 April 2021

Source: World Health Organization Coronavirus (COVID-19) Dashboard. Data as of 21 April 2021.




Credit: Angela Ponce

The immediate issue is how to reach a political agreement for sharing and redistributing available doses of vaccine, and committed doses to come, based on what is best from a global public health perspective with equity at the centre. There is an agreement that covering only one's own population will not end the pandemic, but the failure to move from that rhetoric to an actual effective flow and allocation of vaccine doses as they become available is a severe threat to the fight against COVID-19.

There is no definitive information source on the state of facilities worldwide now ready and able to produce COVID-19 vaccine and in what quantities, nor of the raw materials required. Manufacturers in 2020 were having difficulty even predicting how much vaccine they could make for clinical trials, much less in bulk by the billions of doses. Raw materials in thin supply include syringes and glass vials [56].

Aligning technology transfer, intellectual property and manufacturing capacity could boost efforts to speed up vaccine rollout. Manufacturing capacity, an effective regulatory environment and equitable distribution are interdependent problems, all of which can be solved.

Progress in sharing know-how, licensing and intellectual property has been slow. In May 2020, WHO set up the COVID-19 Technology Access Pool (C-TAP) to pool knowledge, intellectual property and data [57]. Supported in principle by 41 high-, middle- and low-income countries, it has received no contributions so far. A recent push by South Africa and India at the World Trade Organization to waive intellectual property rules and allow generic manufacturers to make COVID-19 vaccines continues to run into opposition. India — potentially among the world's largest vaccine-makers — is itself lagging in vaccine production and delivery, and surges in cases there have constrained its vaccine exports [58].

The Panel notes that COVID-19 has been a pandemic of inequalities and inequities [59]. Those with less social protection were more likely to have pre-existing health conditions that made them more vulnerable to COVID-19, and they were often also more exposed to the virus owing to the nature of their work and their living conditions. When exposed to COVID-19, a lack of social protection prevented vulnerable and sick people from staying at home because of the risk of a loss of income.

Inequality has been the determining factor explaining why the COVID-19 pandemic has had such differential impacts on peoples' lives and livelihoods.

For the Panel it is clear that the combination of poor strategic choices, unwillingness to tackle inequalities, and an uncoordinated system created a toxic cocktail which allowed the pandemic to turn into a catastrophic human crisis.












5. The Independent Panel's recommendations for transforming the international system for pandemic preparedness and response

The Panel believes that system-level change is needed to overcome the manifest failure of the international system to prevent, contain, and mitigate the impact of a pandemic. Pandemic preparedness and response have to function at national, regional and global levels, across different sectors of social and economic life, and include government, business and community.

The current pandemic needs to be stopped as quickly as possible. Then measures in the recovery phase must be taken to ensure that such a pandemic never happens again, by building forward better. The lost ground in progress towards the Sustainable Development Goals needs to be made up by redressing the interlocking impacts of the pandemic on health, livelihoods, and inequality.

The Panel's recommendations follow from the diagnosis we have made of what went wrong at each stage of the pandemic, in preparedness, surveillance and alert and early and sustained response and from our view of the leadership required to transform the system.

There is a need for:

- **Stronger leadership and better coordination** at national, regional and international level, including a more focused and independent WHO, a Pandemic Treaty, and a senior Global Health Threats Council.
- **investment in preparedness now, and not when the next crisis hits,** more accurate measurement of it, and accountability mechanisms to spur action;
- **an improved system for surveillance and alert at a speed that can combat viruses like SARS-CoV-2, and authority given to WHO to publish information and to dispatch expert missions immediately;**
- **a pre-negotiated platform able to produce vaccines, diagnostics, therapeutics and supplies** and secure their rapid and equitable delivery as essential global common goods;
- **access to financial resources**, both for investments in preparedness and to be able to inject funds immediately at the onset of a potential pandemic.

The Panel calls on Member States to request the United Nations Secretary-General to convene a **special session of the United Nations General Assembly** to reach agreement on the reforms needed to ensure that the world can prevent the next outbreak of a new pathogen becoming another pandemic.

1. Elevate leadership to prepare for and respond to global health threats to the highest levels to ensure just, accountable and multisectoral action

The COVID-19 pandemic has laid bare **the lack of high-level political leadership in coordinated global action against the pandemic, with resultant failures in securing agreement between governments in support of common goals and alignment of efforts to tackle health, social and economic challenges**. As a result, coherent global strategic directions in pandemic response have not been set and linked to international agencies and regional institutions. Nor have the private sector and civil society organizations been able to contribute to strategic direction setting in an effective way.

The organic evolution of **the international health system** over recent decades in order to address particular health problems has resulted in pockets of major progress but also created inefficiencies resulting from unclear roles and responsibilities and an inability to leverage effectively the comparative advantages of different actors. Global health crises have whole-of-system impacts and require coordinated leadership from WHO, the International Monetary Fund (IMF), World Bank, and the United Nations Secretary-General. Similar coordination is required regionally. At country level where there is a United Nations presence the Resident Coordinator system provides United Nations system coordination in support of countries.

The international system for pandemic preparedness and response requires fundamental transformation, catalyzed by political leadership at the highest level. That transformation needs to deliver synergies between international, regional and national organizations, increased pandemic preparedness and response capacities at all levels, and effective monitoring and compliance systems.

The Panel is convinced that a Global Health Threats Council at the most senior level is vital to success in the future. The pandemic shows such a body is long overdue. It would help secure high-level political leadership and ensure attention to pandemic prevention, preparedness and response is sustained over time in the service of a vision of a world without pandemics. The Council should be an inclusive and legitimate voice of authority with the ability to utilise both accountability mechanisms and provide access to financing to ensure preparedness as well as response at the national, regional and global levels.

Any transformation of the international system will require more robust international governance for pandemic preparedness and response. International legal instruments should support that goal. **The Panel believes that a Framework Convention would be an opportunity** to address gaps in the international response, clarify responsibilities between States and international organizations, and establish and

reinforce legal obligations and norms. Mechanisms for financing, research and development, technology transfer, and capacity building could also be enshrined in the Convention. Expeditious adoption of a Pandemic Framework Convention should capitalize on political will at the peak of global determination to avoid future pandemics and serve to accelerate governance reforms.

The commitment of Heads of State and Government to transform the international system for pandemic preparedness and response must go together with their commitment to lead strong and effective national implementation. It will dovetail with continued and enhanced implementation of the 2030 Agenda and the Sustainable Development Goals.

The Panel recommends

I. **Establish a Global Health Threats Council**. The membership should be endorsed by a United Nations General Assembly resolution (see below recommendations for a Special Session of the General Assembly and Terms of Reference for a Global Health Threats Council). The Council should be led at Head of State and Government level and the membership should include state and relevant non-state actors, ensuring equitable regional, gender and generational representation, with the following functions:

   a. **Maintain political commitment** to pandemic preparedness between emergencies and to response during emergencies.

   b. Ensure maximum **complementarity, cooperation and collective action** across the international system at all levels.

   c. **Monitor progress towards the goals and targets set by WHO**, as well as against potentially new scientific evidence and international legal frameworks, and report on a regular basis to the United Nations General Assembly and the World Health Assembly.

   d. **Guide the allocation** of resources by the proposed new finance modality according to an ability to pay formula.

   e. **Hold actors accountable** including through peer recognition and/or scrutiny and the publishing of analytical progress status reports.

VI. **Adopt a Pandemic Framework Convention within the next 6 months**, using the powers under Article 19 of the WHO Constitution, and complementary to the IHR, to be facilitated by WHO and with the clear involvement of the highest levels of government, scientific experts and civil society.

VII. **Adopt a political declaration by Heads of State and Government at a global summit under the auspices of the United Nations General Assembly** through a Special Session convened for the purpose and committing **to transforming pandemic preparedness and response in line with the recommendations made in this report**.

2. Focus and strengthen the independence, authority and financing of the WHO

The WHO has an indispensable leadership role in the international system for prevention, preparedness and response to a global health emergency such as a pandemic. The work of WHO during the COVID-19 pandemic has been at a substantively different scale and level compared for example to the initial period of the response to Ebola in west Africa in 2014. WHO must be central to the global health system. For many years, it has been given new tasks without sufficient authority or resources to undertake them fully. In this pandemic, the efforts of its leadership and staff have been unstinting but **structural problems have been exposed**.

WHO is and should be the lead health organization in the international system, but it cannot do everything. It is imperative that the international preparedness and response system works together at the global, regional, and country levels as a well-defined and well-coordinated system in support of countries where different actors' comparative advantages are maximized.

WHO should in its support to national governments be the convener, but also in cases of emergencies it should strengthen its role as the coordinator without, in most circumstances, also taking on delivery functions (such as procurement and supply). WHO should focus on providing strategic direction and analysis, and formulating norms, standards and technical advice to ensure that countries have resilient health systems that are prepared with the required response capacities for health emergencies. In the case of emergencies WHO has an important operational role to play providing technical advice and support.

The quality, timing and clarity of the technical advice and direction WHO provides to the world are of the utmost importance. Programmes should be staffed with up-to-date, relevant, high quality experts, supported by the necessary financial, organizational, and management systems. Regional offices can play a key role in tailoring global advice more specifically to local contexts. A core technical function of WHO is the translation of models of successful national response into strategies that can be applied elsewhere.

The **way that WHO is financed** today has serious impacts on the quality of the organization's performance. Its precarious financing is **a major risk to the integrity and independence of its work**. Incremental attempts in recent decades to improve the present funding model have not been successful.

While the WHO Director-General nominally has many of necessary formal and legal authorities to make decisions, and guide and communicate with the world concerning pandemics and health at large, in practice there are challenges to the use of that authority. Global health is inevitably a politically charged domain and it is vital that WHO as an institution

is strong enough to be able to perform with maximum independence. The same degree of independence is also desirable for other institutions across the multilateral system.

Governance needs to align with the expectations laid on the organization, especially when it comes under the extreme stress of dealing with a pandemic. Reform attempts directed towards the role of the Executive Board have met with little success. The failure of the Board to perform as an executive body, closely supporting and guiding the work of the organization, has been evident during the current pandemic.

The Panel recommends

I. **Establish WHO´s financial independence**, based on fully unearmarked resources, increase Member States fees to 2/3 of the budget for the WHO base programme and have an organized replenishment process for the remainder of the budget.

II. **Strengthen the authority and independence of the Director-General**, including by having a single **term of office of seven years with no option for re-election. The same rule should be adopted for Regional Directors**.

III. **Strengthen the governance capacity of the Executive Board**, including by establishing a **Standing Committee for Emergencies**.

IV. **Focus WHO's mandate on normative, policy, and technical guidance**, including supporting countries and regions to build capacity for pandemic preparedness and response and for resilient and equitable health systems.

V. **Empower WHO to take a leading, convening, and coordinating** role in operational aspects of an emergency response to a pandemic, **without**, in most circumstances, taking on responsibility for procurement and supplies, while also ensuring other key functions of WHO do not suffer including providing technical advice and support in operational settings.

VI. **Resource and equip WHO Country Offices** sufficiently to respond to technical requests from national governments to support pandemic preparedness and response, including support to build resilient equitable and accessible health systems, UHC and healthier populations.

VII. **Prioritize the quality and performance of staff at each WHO level**, and de-politicize recruitment (especially at senior levels) by adhering to criteria of merit and relevant competencies.

3. Invest in preparedness now to create fully functional capacities at the national, regional and global level

Pandemic preparedness has received insufficient political priority. It has been largely confined to the health sector. The extent of pandemic risk has not been appreciated in financial decision-making or in whole-of-government or organizational priority-setting at national, regional or global levels.

An immediate opportunity to integrate pandemic risk awareness and pandemic preparedness with economic development would be to incorporate relevant pandemic considerations into existing instruments used by the IMF and World Bank.

Multisectoral coordination of preparedness has been lacking. While the Sendai Framework for Disaster Risk Reduction includes pandemic risk in its purview, disaster risk reduction capacity-building has largely been separated from health-sector pandemic preparedness efforts.

One consequence of the lack of priority given to pandemic preparedness is a financing gap to support national preparedness planning and capacity-building and global support functions. National pandemic response plans have often not been strategic and have lacked realistic financial mobilization plans.

The funding gap for preparedness exists globally and in countries at all income brackets. While low- and middle-income countries may need international support to supplement their domestic resources for pandemic preparedness, high-income countries can meet all the required costs from domestic resources.

Preparedness assessments were not robust, and in practice they failed to predict actual performance in COVID-19 responses. The use of simulation exercises was at best patchy and not systematically followed up with remedial action. Animal and environmental health systems were largely not integrated with human health protection systems. Explicit One Health planning was not adopted at the top governance level nationally, regionally or globally.

There was a **lack of surge plans, rapidly deployable human resources, stockpiles, and pre-positioning of essential supplies**.

A new pathogen with pandemic potential could emerge at any time. **These gaps in preparedness need urgent rectification**. While many governments and regional and international organizations are focused on the ongoing COVID-19 crisis, they may find it challenging to pay attention to the measures needed to prepare better for future outbreaks. Those future outbreaks may also be of very different pathogens with different

implications. So, the shared learnings about the successes in responding to COVID-19, and the hard-won lessons from failings, represent a once-in-a-lifetime opportunity to get preparedness right to prevent a catastrophic pandemic from arising again.

The Panel recommends

I. **WHO to set new and measurable targets and benchmarks** for pandemic preparedness and response capacities.

II. **All national governments to update their national preparedness plans against the targets and benchmarks set by WHO within six months**, ensuring that whole-of-government and whole-of-society coordination is in place and that there are appropriate and relevant skills, logistics and funding available to cope with future health crises.

III. **WHO to formalize universal periodic peer reviews** of national pandemic preparedness and **response capacities** against the targets set by WHO as a means of accountability and learning between countries.

IV. **As part of the Article IV consultation** with member countries, the IMF should routinely include a pandemic preparedness assessment, including an evaluation of the economic policy response plans. The IMF should consider the public health policy evaluations undertaken by other organizations. Five-yearly Pandemic Preparedness Assessment Programs should also be instituted in each member country, in the same spirit as the Financial Sector Assessment Programs, jointly conducted by the IMF and the World Bank.

4. Establish a new international system for surveillance, validation and alert

Epidemic intelligence is increasingly based on a constant process of surveying tens of thousands of signals from open sources and identifying and verifying potential public health threats. Advances in **real-time digitally based surveillance**, supported by machine learning, have created an always-on system that rapidly identifies information of concern. In contrast, the alert, verification and notification processes integral to the IHR (2005) require information to be methodically relayed through the machinery of government nationally and then to WHO. The methodical IHR-based process is not equipped to respond at a speed commensurate with surveillance systems, and the lag between the two is a critical point of system failure. This failure is especially evident if containment of a fast-moving respiratory pathogen is at issue.

WHO Member States have been reluctant to give the organization and its Director-General the power to investigate and report immediately on potential outbreaks. Technical expert missions can be dispatched to individual countries only with their permission, and a system of pre-authorization of missions has not been established. Often lengthy negotiations with governments for access by missions are required after an outbreak has been notified.

The bias of the current system of pandemic alert is towards inaction — steps may only be taken if the weight of evidence requires them. This bias should be reversed — precautionary action should be taken on a presumptive basis, unless evidence shows it is not necessary.

A PHEIC should serve as a clarion call for emergency pandemic response across the world, with countries being attentive to the precise nature of the emergency and the potential threat it contains. Instead, the processes around a PHEIC declaration are more oriented to ensuring that unwarranted trade and travel restrictions are not imposed. The IHR (2005) establish no obligations on States for action following declaration of a PHEIC.

In changing the system of alert to orient it towards speedy action, the **incentive structures** need to be addressed. At present, from local up to international level, public health actors only see downsides from drawing attention to an outbreak that has the potential to spread. **Incentives must be created** to reward early response action and recognize that precautionary and containment efforts are an invaluable protection which benefits all humanity.

Explicit performance standards should be attached to outbreak alert and response. These performance standards have to address different classes of emerging pathogen. Each of the steps leading up to and following the alert should be predictable and trigger requisite response action without delay.

The Panel recommends

I. **WHO to establish a new global system for surveillance, based on full transparency by all parties, using state-of-the-art digital tools to connect information centres around the world and including animal and environmental health surveillance**, with appropriate protections of people's rights.

II. **WHO to be given the explicit authority by the World Health Assembly to publish information** about outbreaks with pandemic potential on an immediate basis, without requiring the prior approval of national governments.

III. **WHO to be empowered by the World Health Assembly to investigate pathogens with pandemic potential** in all countries with short-notice access to relevant sites, provision of samples and standing multi-entry visas for international epidemic experts to outbreak locations.

IV. **Future declarations of a PHEIC** by the **WHO Director-General** should be **based on the precautionary principle** where warranted, as in the case of respiratory infections. PHEIC declarations should be based on clear, objective, and published criteria. The Emergency Committee advising the WHO Director-General must be fully transparent in its membership and working methods. On the same day that a PHEIC is declared, WHO must provide countries with clear guidance on what action should to be taken and by whom to contain the health threat.

5. Establish a pre-negotiated platform for tools and supplies

ACT-A was launched on 24 April 2020 and evolved organically. Its vaccines, diagnostics, therapeutics pillars, and health systems connector are intended to be agile, collaborative partnerships rather than hierarchical structures. While **ACT-A was able to establish a successful platform** in many respects, the fact that it did not exist before the COVID-19 pandemic and had to be created for that purpose is reflected in its shortcomings. **Not all pillars of the initiative have been equally successful**, and a coherent, strategic, inclusive, and fully funded framework has not been achieved, to this day. ACT-A is seen by some countries and civil society as supply-driven and not sufficiently inclusive, with large donor countries and institutions having an asymmetrical influence on decision-making.

There is a lack of shared vision among all stakeholders, including both countries and manufacturers, that the therapeutics, vaccines and diagnostics needed to counter pandemics are global health commons. Without that shared vision, the "business-as-usual" approach prevails dominated by the development and sale by global corporations of proprietary products designed for wealthy countries, leaving the rest of the world dependent on the goodwill of donors, development assistance and charity to gain access — eventually — to life-saving health technologies [60].

The alignment of international instruments should support such a shared vision, for example, by including the open licensing of vaccines, therapeutics and diagnostics in the United Nations Educational, Scientific and Cultural Organization's forthcoming Recommendation on Open Science, an international standard-setting instrument that is currently being negotiated with Member States for adoption in 2021.

Concentration of manufacturing capacity, and of trials and knowledge generation, for vaccines, therapeutics, diagnostics and other essential supplies in a small number of countries has been a major contributor to inequity. While vaccine product development has been the most successful, there was a **lack of end-to-end planning** with R&D, clinical trials and manufacturing processes guided by a goal and strategy for equitable and effective access.

A pre-negotiated system to accelerate R&D and achieve equitable access is vital to pandemic response and the development and delivery of vaccines, therapeutics, diagnostics, and essential supplies. ACT-A provides a valuable model. Lessons drawn from both its strengths and weaknesses should guide the establishment of a permanent platform which can stand in readiness for any future pandemic.

The Panel believes that a **comprehensive review** of the achievements, financing, and governance of ACT-A should be conducted to make it more robust and fit for the extended purpose it should assume.

The current model of high-income-country dominated systems must be transformed to a global, inclusive approach, because it is the morally right thing to do and because it is the only way to manage a global pandemic.

Critically, such a system needs to be able coordinate decision-making globally; maintain effective relationships with vaccine and other product manufacturers from both the public and the private sector and from all regions; strengthen global and local manufacturing capacity, including long-term and sustained investment in technology transfer; and incorporate a financing mechanism that invests early in the development cycle in order to support rapid and equitable development, manufacturing, and access.

The Panel recommends

I. **Transform the current ACT-A into a truly global end-to-end platform for vaccines, diagnostics, therapeutics, and essential supplies**, shifting from a model where innovation is left to the market to a model aimed at delivering global public goods. Governance to include representatives of countries across income levels and regions, civil society and the private sector. R&D and all other relevant processes to be driven by a goal and strategy to achieve equitable and effective access.

II. Ensure **technology transfer and commitment to voluntary licensing are included in all agreements** where public funding is invested in research and development.

III. **Establish strong financing and regional capacities for manufacturing, regulation, and procurement of tools for equitable and effective access to vaccines, therapeutics, diagnostics and essential supplies, and for clinical trials:**

    a. **based on plans jointly developed by WHO, regional institutions, and the private sector;**

    b. **with commitments and processes for technology transfer, including to and among larger manufacturing hubs in each region; and**

    c. **supported financially by International Financial Institutions and Regional Development Banks and** other public and private financing organizations.

6. Raise new international financing for the global public goods of pandemic preparedness and response

"More money" is an easy response to any problem. But the Panel's call is for specific financing for specific purposes. In addition to funding needed for the current response, and more and different funding for WHO, the COVID-19 crisis has revealed two particular challenges in respect of the global public good of effective pandemic preparedness and response: **insufficient funding** of pandemic preparedness at national, regional and global levels before the pandemic, and the **slow flow** of funding for response once the PHEIC was declared.

It is a vital function of the international system for pandemic preparedness and response to bridge two specific gaps that exist in poorer countries for the delivery of the global public good of **regular funding** for pandemic preparedness and **fast funding** for early response. Examples of preparedness funding of this kind include helping countries and regions run simulation exercises and set up genomic sequencing facilities. Examples of response funding would be expediting the purchase of therapeutics and diagnostics or expanding testing.

It is necessary to think beyond aid and official development assistance (ODA) to finance global public goods. Pandemic preparedness and early response capacity should be thought of as critical infrastructure elements which cannot be allowed to fail, requiring stable and reliable financing in the same way as other critical international systems such as finance and banking, or security and peacekeeping.

The present international system for raising, channelling and spending international resources for pandemic preparedness and response has a diversity of actors, mandates, and financing tools. **We do not recommend creating new implementing agencies**. But we do believe that existing implementing agencies need additional funding, directed towards the vital public goods they deliver.

Already there are successful examples in COVID-19 financing which are a starting point for the comprehensive overhaul of financing which is needed; for example the mobilisation and reallocation by the Global Fund to Fight AIDS, TB and Malaria of US$ 1 billion to meet urgent COVID-19 needs early in the pandemic and its recent addition of US$ 3.5 billion to support COVID-19 responses, including testing, PPE and oxygen supplies. Our determination is to ensure that these efforts are proactive and planned, not reactive and rushed.

The Panel recommends

I. Create an International Pandemic Financing Facility to raise additional reliable funding for pandemic preparedness and for rapid surge financing for response in the event of a pandemic.

- **The facility should have the capacity to mobilize long-term (10–15 year) contributions of approximately US$ 5–10 billion annually to finance ongoing preparedness functions**. It will have the ability to disburse up to US$ 50 –100 billion at short notice by **front-loading future commitments** in the event of declaration of a pandemic. The resources should fill gaps in funding for global public goods at national, regional and global level in order to ensure comprehensive and inclusive pandemic preparedness and response.
- There should be **an ability-to-pay formula adopted whereby larger and wealthier economies will pay the most, preferably from non-ODA budget lines and additional to established ODA budget levels**.
- **The Global Health Threats Council will have the task of allocating** and monitoring **funding from this instrument to existing regional and global institutions**, which can **support development of pandemic preparedness and response capacities**.
- **Funding** for **preparedness** could be pre-allocated according to function and institution. Surge financing for **response** in the event of a new pandemic declaration should be guided by prearranged response plans for the most likely scenarios, although flexibility would be retained to adapt based on the threat.
- **The Secretariat for the facility should be a very lean structure**, with a focus on working with and through existing global and regional organizations.

7. Countries to establish highest level national coordination for pandemic preparedness and response

National responses in a significant number of countries failed to get ahead of the pandemic. Measures that were taken too late had all of the costs but none of the benefits of early containment, resulting in a negative feedback loop in which the economy was pitted against health.

Countries which successfully managed the disease took **whole-of-government and whole-of-society approaches, sought scientific guidance, engaged with community health workers and community leaders**, involved vulnerable and marginalized populations, also in conflict-affected countries, and worked closely with subnational governments. But where scientific advice was side-lined, and national approaches were characterized by denial, delay, and distrust, the result was uncoordinated and confused national efforts that were ineffective in curbing community transmission.

Building resilient and equitable societies requires a serious shift in mindsets. The extent to which the COVID-19 pandemic has exacerbated inequalities is an emphatic demonstration of the interconnectedness of social, economic, environmental and political factors in society. Health programmes and COVID-19 responses need to recognize and act upon gender, ethnic, and other inequalities. Both community and private-sector actors have been viewed as conduits for resources to supplement the core business of health systems, rather than as actors with a vital stake in pandemic outcomes and a right to a seat at the decision-making table.

Accomplishing a change of paradigm to a resilient, equitable and inclusive system for pandemic preparedness and response is **an inevitably political exercise** because it demands that respect for human rights and promotion of equality are brought to the foreground. Health and well-being require the intersectional nature of disadvantage and exclusion to be tackled.

The Panel recommends

I. Ensure that **national and subnational public health institutions** have **multidisciplinary capacities and** multisectoral reach and **the engagement of the private sector and civil society. Evidence-based decision-making** should draw on inputs from across society.

II. Heads of State and Government to appoint national pandemic coordinators accountable to the highest levels of government, with the mandate to drive whole-of-government coordination for both preparedness and response.

III. **Conduct multisectoral active simulation exercises on a yearly basis** as a means of ensuring continuous risk assessment and follow-up action to mitigate risks, cross-country learning and accountability and establish independent, impartial and regular evaluation mechanisms.

IV. **Strengthen the engagement of local communities** as key actors in pandemic preparedness and response and as active promoters of pandemic literacy, through the ability of people to identify, understand, analyse, interpret, and communicate about pandemics.

V. **Increase the threshold of national health and social investment**s to build resilient health and social protection systems, grounded in high-quality primary and community health services, universal health coverage and a strong and well-supported health workforce, including community health workers.

VI. Invest in and coordinate **risk communication** policies and strategies that ensure timeliness, transparency, and **accountability**, and work **with marginalized communities, including those who are digitally excluded, in the co-creation of plans that promote health and well-being at all times, and build enduring trust**.

Actions that together will transform the international system for pandemic preparedness and response

The transformation of the international system for pandemic preparedness and response which the Panel recommends will fail if it is approached piecemeal. The lesson from previous recommendations for change following earlier pandemics is that change will only result from the adoption and implementation of inter-linked and interdependent measures. Just as pandemic preparedness itself is undone by failure in the weakest link in the chain, so too recommendations for change will fail if the hardest problems are set aside.

The Panel has assessed the set of recommendations it has proposed against one criterion only: if they had been in place, would they have stopped the COVID-19 pandemic? We believe the answer is yes, and therefore urge their implementation as a whole and in a timely manner.

The Panel's recommendations aim to equip countries and the international system to prevent an outbreak from becoming a pandemic and, if a pandemic does occur, to prevent it becoming a global health and socioeconomic crisis.












6. A roadmap forward

The Panel has made bold, considered, and pragmatic recommendations. The stakes are too high for these to be ignored or postponed. They deserve debate and may be challenged, but they must not be put off for some "better" or more convenient time. It is in the interests of every leader to act now. We are confident of the way we have carried out the task assigned to us. The Panel has conducted its work independently and impartially. We have made clear the focus on data, facts and science as the basis for our recommendations.

The shelves of storage rooms in the United Nations and Member State capitals are full of the reports of previous reviews and evaluations that could have mitigated the global social and economic crisis in which we find ourselves. They have sat ignored for too long. This time, it must be different. This Panel's findings are lessons to be learnt and the recommendations a springboard for action.

Implementation should start now and will help open up the many pathways to recovery worldwide. The pandemic is not yet over, and its social and economic consequences will continue to be felt for years.

This pandemic has shown us that this is not only a health crisis requiring medical solutions: its impact has gone far beyond the health sector and therefore must involve whole-of-government and whole-of-society political decision-making and investment.

The coming weeks and months require concerted action by different actors in a range of settings:

- National **governments taking responsibility** both **at home** but also **regionally and at the global level, both demonstrating and demanding accountability**;
- The **World Health Assembly** in its carriage of **governance responsibility for WHO**;
- Heads of State and Government in a global summit, as recommended;
- Regional **political bodies** in their **proximity to** member states giving **them a great opportunity for rapid decisions and sharing of information, successes and failures, based on a shared regional context and histories of work together**;
- Other **structures, such as the G7, G20 and G77, and the Bretton Woods institutions, as catalysts for political and financial measures and for the implementation of the solutions and recommendations identified**.

A timetable for immediate action

Who needs to do what, when

Action	Main actor	When
Apply non-pharmaceutical public health measures systematically and rigorously in every country at the scale the epidemiological situation requires. All countries to have an explicit strategy agreed at the highest level of government to curb COVID-19 transmission.	National governments	**Immediately**
High income countries with a vaccine pipeline for adequate coverage should, alongside their scale up, commit to provide to the 92 low and middle income countries of the Gavi COVAX Advance Market Commitment, at least one billion vaccine doses no later than 1 September 2021 and more than two billion doses by mid-2022, to be made available through COVAX and other coordinated mechanisms.	National governments	**Immediately** (& no later than 1 September 2021)
G7 countries to commit to providing 60% of the US$ 19 billion required for ACT-A in 2021 for vaccines, diagnostics, therapeutics and strengthening health systems with the remainder being mobilised from others in the G20 and other higher income countries. A formula based on ability to pay should be adopted for predictable sustainable, and equitable financing of such global public goods on an ongoing basis.	G7, G20 and national governments of high-income countries, foundations	**Immediately**
WTO and WHO to convene major vaccine producing countries and manufacturers to get agreement on voluntary licensing and technology transfer arrangements for COVID-19 vaccines (including through the Medicines Patent Pool (MPP)). If actions do not occur within 3 months, a waiver of TRIPS intellectual property rights should come into force immediately.	WTO, WHO and vaccine- producing countries and manufacturers	**Immediately**
Production of and access to COVID-19 tests and therapeutics, including oxygen, scaled up urgently in low- and middle-income countries with full funding of US$ 1.7 billion for needs in 2021 and the full utilization of the US$3.7 billion in the Global Fund's COVID-19 Response Mechanism Phase 2 for procuring tests, strengthening laboratories and running surveillance and tests.	Test- and therapeutics-producing countries and manufacturers / GFATM	**Immediately**
WHO to develop immediately a road map for the short-term and within three months scenarios for the medium- and long-term response to COVID-19, with clear goals, targets and milestones to guide and monitor the implementation of country and global efforts towards ending the COVID-19 pandemic.	WHO	Immediately

Recommendations for building the future — Who needs to do what, when

1. Elevate political leadership for global health to the highest levels to ensure leadership, financing and accountability

Actions	Main actor	When
Establish a Global Health Threats Council. The membership should be endorsed by a UN General Assembly resolution (see below recommendations for a Special Session of the UNGA). The Council should be led at Head of State and Government level and the membership should include state and relevant non-State actors, ensuring equitable regional, gender and generational representation, with the following functions; • maintain political commitment to pandemic preparedness between emergencies and to response during emergencies; • ensure maximum complementarity, co-operation and collective action across the international system at all levels; • monitor progress towards the goals and targets set by the WHO, as well as against potentially new scientific evidence and international legal frameworks, and report on a regular basis to the United Nations General Assembly and the World Health Assembly; • guide the allocation of resources by the proposed new finance modality according to an ability to pay formula; • hold actors accountable including through peer recognition and/or scrutiny and the publishing of analytical progress status reports.	UNGA	**Q4 2021** (UNGA Special Session)
Adopt a Pandemic Framework Convention within the next 6 months, using the powers under Article 19 of the WHO Constitution, and complementary to the IHR, to be facilitated by WHO and with the clear involvement of the highest levels of government, scientific experts and civil society.	WHO / national governments	**Within 6 months**
Adopt a political declaration by Heads of State and Government at a global summit under the auspices of the UN General Assembly as a Special Session convened for the purpose and committing to transforming pandemic preparedness and response in line with the recommendations made in this report.	United Nations General Assembly	**Q4 2021** (UNGA Special Session)

2. Focus and strengthen the authority and financing of WHO

Actions	Main actor	When
Establish WHO´s financial independence, based on fully unearmarked resources, increase Member States fees to 2/3 of the budget for the WHO base programme and have an organized replenishment process for the remainder of the budget.	WHA decision	**May 2022**
Strengthen the authority and independence of the Director-General, including by having a single term of office of seven years with no option for re-election. The same rule should be adopted for Regional Directors.	WHA decision	**May 2022**
Strengthen the governance capacity of the Executive Board, including by establishing a Standing Committee for Emergencies.	WHA decision	**May 2022**
Focus WHO's mandate on normative, policy, and technical guidance, including supporting countries to build capacity for pandemic preparedness and response and for resilient and equitable health systems.	WHA decision	**May 2022**
Empower WHO to take a leading, convening, and coordinating role in operational aspects of an emergency response to a pandemic, without, in most circumstances, taking on responsibility for procurement and supplies, while ensuring other key functions of WHO do not suffer including providing technical advice and support in operational settings.	WHA decision	**May 2022**
Resource and equip WHO Country Offices sufficiently to respond to technical requests from national governments to support pandemic preparedness and response, including support to build resilient health systems, UHC and healthier populations.	WHO Secretariat	**Immediately**
Prioritize the quality and performance of staff at each WHO level, and de-politicize recruitment (especially at senior levels) by adhering to criteria of merit and relevant competencies.	WHO Secretariat	**Short-term**

3. Invest in preparedness now to create fully functional capacities at the national, regional and global level

Actions	Main actor	When
WHO to set new and measurable targets and benchmarks for pandemic preparedness and response capacities.	WHO / national governments	**Q3-4 2021**
All national governments to update their national preparedness plans against the targets and benchmarks set by WHO within six months, ensuring that whole-of-government and whole-of-society coordination is in place and that there are appropriate and relevant skills, logistics, and funding available to cope with future health crises.	National governments	**Within 6 months**
WHO to formalize universal periodic peer reviews of national pandemic preparedness and response capacities against the targets set by WHO as a means of accountability and learning between countries.	WHO / national governments	**Q4 2021**
As part of the Article IV consultation with member countries, the IMF should routinely include a pandemic preparedness assessment, including an evaluation of the economic policy response plans. The IMF should consider the public health policy evaluations undertaken by other organizations. Five-yearly Pandemic Preparedness Assessment Programs should also be instituted in each member country, in the same spirit as the Financial Sector Assessment Programs, jointly conducted by the IMF and the World Bank.	International Monetary Fund (IMF)	**Q3-4 2021**

4. Establish a new agile system for surveillance, validation and alerts

Actions	Main actor	When
WHO to establish a new global system for surveillance based on full transparency by all parties, using state-of-the-art digital tools to connect information centres around the world and include animal and environmental health surveillance, with appropriate protections of people's rights.	WHO Secretariat	**Q4 2021**
WHO to be given the explicit authority by the World Health Assembly to publish information about outbreaks with pandemic potential on an immediate basis without requiring the prior approval of national governments.	WHA decision	**May 2021**
WHO to be empowered by the World Health Assembly to investigate pathogens with pandemic potential in all countries with short-notice access to relevant sites, provision of samples, and standing multi-entry visas for international epidemic experts to outbreak locations.	WHA decision	**May 2021**
Future declarations of a PHEIC by the WHO Director-General should be based on the precautionary principle, where warranted, as in the case of respiratory infections. PHEIC declarations should be based on clear, objective and published criteria. The Emergency Committee advising the WHO Director-General must be fully transparent in its membership and working methods. On the same day a PHEIC is declared, WHO must provide countries with clear guidance on what action should to be taken and by whom to contain the health threat.	WHA decision	**May 2022**

5. Establish a pre-negotiated platform for tools and supplies

Actions	Main actor	When
Transform the current ACT-A into a truly global end-to-end platform for vaccines, diagnostics, therapeutics, and essential supplies, shifting from a model where innovation is left to the market to a model aimed at delivering global public goods. Governance to include representatives of countries across income levels and regions, civil society, and the private sector. R&D and all other relevant processes to be driven by a goal and strategy to achieve equitable and effective access.	National governments/ member states	**Medium-term**
Ensure technology transfer and commitment to voluntary licensing are included in all agreements where public funding invested in research and development.	National governments	**Medium-term**
Establish strong financing and regional capacities for manufacturing, regulation, and procurement of tools for equitable and effective access to vaccines, therapeutics, diagnostics, and essential supplies, and for clinical trials: • based on plans jointly developed by WHO, regional institutions, and the private sector, • with commitments and processes for technology transfer, including to and among larger manufacturing hubs in each region, • supported financially by International Financial Institutions and Regional Development Banks and other public and private financing organizations.	National governments / WHO / IFIs / regional institutions / private sector	**Medium-term**

6. Raise new international financing for the global public goods of pandemic preparedness and response

Actions	Main actor	When
Create an International Pandemic Financing Facility to raise additional reliable financing for pandemic preparedness and for rapid surge financing for response in the event of a pandemic.	G20 and member states	**Before the end of the year**
The facility should have the capacity to mobilize long-term (10-15 year) contributions of approximately US$5-10 billion per annum to finance ongoing preparedness functions. It will have the ability to disburse up to US$50-100 billion at short notice by front loading future commitments in the event of a pandemic declaration. The resources should fill gaps in funding for global public goods at national, regional and global level in order to ensure comprehensive pandemic preparedness and response.		
There should be an ability-to-pay formula adopted whereby larger and wealthier economies will pay the most, preferably from non-ODA budget lines and additional to established ODA budget levels.		
The Global Health Threats Council will have the task of allocating and monitoring funding from this instrument to existing institutions, which can support development of pandemic preparedness and response capacities.		
Funding for preparedness could be pre-allocated according to function and institution. Surge financing for response in the event of a new pandemic declaration should be guided by prearranged response plans for the most likely scenarios, though flexibility would be retained to adapt based on the threat.		
The Secretariat for the facility should be a very lean structure, with a focus on working with and through existing global and regional organizations.		

7. Put in place effective national coordination for pandemic preparedness and response based on lessons learned and best practice

Actions	Main actor	When
Ensure that national and subnational public health institutions have multidisciplinary capacities and multisectoral reach and the engagement of the private sector and civil society. Evidence-based decision-making should draw on inputs from across society.	National governments	**Medium-term**
Head of States and Government to appoint national pandemic coordinators accountable to the highest evels of government with the mandate to drive whole-of-government coordination for both preparedness and response.	National governments	**Short-term**
Conduct multi-sectoral active simulation exercises on a yearly basis as a means of ensuring continuous risk assessment and follow-up action to mitigate risks, cross-country learning, and accountability, and establish independent, impartial, and regular evaluation mechanisms.	National governments	**Medium-term**
Strengthen the engagement of local communities as key actors in pandemic preparedness and response and as active promoters of pandemic literacy, through the ability of people to identify, understand, analyse, interpret, and communicate about pandemics.	National governments	**Medium-term**
Increase the threshold of national health and social investments to build resilient health and social protection systems, grounded in high-quality primary and community health services, universal health coverage, and a strong and well supported health workforce, including community health workers.	National governments	**Medium-term**
Invest in and co-ordinate risk communication policies and strategies that ensure timeliness, transparency, and accountability, and work with marginalized communities, including those who are digitally excluded, to build trust and resilience, in the co-creation of plans that promote health and wellbeing at all times, and build enduring trust.	National governments	**Short-term**

Terms of reference for the Global Health Threats Council

Purpose:

The role of the Global Health Threats Council (the Council) will be to ensure that high level political leadership and attention to pandemic prevention, preparedness and response are sustained over time in the service of a vision of *a world without pandemics*. The council will be an inclusive and legitimate voice of authority with the ability to utilise both accountability mechanisms and provide access to financing to ensure preparedness as well as response at the national, regional and global levels.

Background:

The COVID-19 pandemic has demonstrated insufficient high-level political leadership; engagement across health, social and economic sectors; and agreement between governments. This has resulted in the failure to set coherent global strategic directions in pandemic response and link them to international agencies and regional institutions. Nor have the private sector and civil society organizations been able to contribute to strategic direction setting in an effective way.

The organic evolution of the international health system over recent decades in order to address particular health problems has resulted in pockets of major progress but also created inefficiencies resulting from unclear roles and responsibilities and an inability to leverage effectively the comparative advantages of different actors.

A key finding of the Panel is that accountability for pandemic preparedness and response has been lacking across the system. National governments are the primary duty-bearer in pandemic response, and the lack of accountability has been accompanied by a failure to learn from mistakes and take up the opportunity for learning between countries.

The Independent Panel on Pandemic Preparedness and Response concluded that a transformation of the international system for pandemic preparedness and response is needed, catalysed by political leadership at the highest level.

The commitment of Heads of State and Government to a transform of the international system for pandemic preparedness and response must go together with their commitment to lead strong and effective national, regional and global implementation. This within the framework of continued and enhanced implementation of the 2030 Agenda and the Sustainable Development Goals.

The international system is the sum of national action and the connective tissue of regional and global learning, cooperation and support for filling gaps. Confidence in the collective determination to make a safer and healthier world is the force that can conquer the threat pandemics pose to humanity's future.

Functions:

- Elevate and maintain political commitment to pandemic prevention, preparedness and response over time in the service of a vision of a world without pandemics.
- Monitor progress towards the goals and targets set by WHO, as well as against potentially new scientific evidence and international legal frameworks.
- Draw the world's attention to gaps in pandemic preparedness and response through high level advocacy and reporting to the UN General Assembly, the World Health Assembly and the IMF board.
- Contribute to the mobilisation of funding and oversee the allocation of resources by the International Pandemic Financing Facility.
- Hold actors accountable including through peer recognition and pressure as well as the publishing of analytical progress status reports.

Establishment:

- The Council shall be established through a political declaration of the UN General Assembly Special Session on the COVID-19 Pandemic as an independent body. The negotiation of the declaration to be facilitated by two Member States.
- The UN General Assembly through the Resolution to appoint two Co-Chairs for the Council and the G20 shall be invited to nominate a Co-Chair.
- The Three Co-Chairs to put forward suggestions for the remaining Council members according to these Terms of Reference, for the UN General Assembly to endorse.

Membership:

The council shall consist of 18 members and 3 co-chairs and shall be composed as follows:

[Co-chairs, at least one being a woman]:

1. Nominee of UNGA #1
2. Nominee of UNGA #2
3. Nominee of G20

[Members]:

1. Two Asia Pacific Representatives
2. Two Western Europe and Other Representatives (including North America (USA and Canada)
3. Two African Representatives
4. Two Eastern European Representatives
5. Two Latin American and Caribbean Representatives
6. Three civil society representatives
7. Three private sector representatives
8. Two prominent global citizens or experts

Duration:

Member terms will initially be either for three years, with flexibility for early termination or renewability for a second three-year term, on agreement of the co-chairs. To provide for continuity of the Group's work and ensure that the complete membership does not turn over at any one point, the terms of the members not serving as ex-officio will be staggered with half of the members being offered an initial 2-year term and half a 3-year term. If a Head of State or Minister who is a member of the Council ceases to hold office during his/her term, then a vacancy will be created to be filled with another government representative not necessarily from the same country.

Selection criteria:

- Council members shall be at the level of Head of State or Government. They could be the chairs of regional political entities.
- Representatives of the private sector and civil society will be at the head of organisation level with a high public profile and a track record of working on relevant issues.
- Priority will be given to ensuring gender and age balance in selection of both government and non-governmental council members.

Relationships:

The Council will engage with key relevant partners of the international system for pandemic preparedness and response including the World Health Organisation, the United Nations, the International Financial Institutions (including the regional development banks), civil society and private sector.

The UN Secretary-General, the Director-General of WHO, the Executive Director of IMF and the President of the World Bank Group will be strategic and key leaders for the Council to interact with.

Ways of working:

- The Council shall meet monthly during the current pandemic with the ability to call additional meetings on an ad hoc basis as required.
- When feasible, the Council will shift to a focus on ensuring continued work with less frequent meetings of the Council and regular sessions of surrogates as determined by the Council.
- In times without a crisis the work shall focus on preparedness and monitoring progress.
- Strive for inclusive multi-stakeholder engagement with Member States, UN agencies, international and intergovernmental organizations and regional entities, civil society, the private sector, researchers and other key stakeholders.

- An evidence-based approach drawing on data and analytical work done by WHO and other relevant international organisations. The Council shall benefit from the Universal Periodic Peer Review outcomes.
- The Council shall support the United Nations Secretary-General in convening a High-Level Meeting of the UN General Assembly every year to review global progress.
- The Council shall be supported by a lean independent secretariat located in Geneva with the ability to draw upon technical expertise from the WHO, the UN and the IFIs as necessary.

7. About the Panel and its work

The Independent Panel has worked steadily to fulfil its vision to be trusted as an independent, evidence-based, impartial, respectful and diverse body the world can rely on to make bold recommendations which help safeguard every person's health, economic and social well-being.

The mission of the Panel has been to provide an evidence-based path for the future, grounded in lessons of the present and the past to ensure that countries and global institutions, including WHO, can prevent an outbreak from becoming a pandemic; and if a pandemic occurs, to prevent that from becoming a global health and socioeconomic crisis.

The Panel was established by the Director-General of WHO in response to World Health Assembly resolution WHA73.1.

The Panel's Co-Chairs, Her Excellency Ellen Johnson Sirleaf, former President of Liberia and Nobel Laureate, and the Right Honourable Helen Clark, former Prime Minister of New Zealand, were appointed by the Director-General. The Co-Chairs were then mandated to select panellists, establish their terms of reference and recruit an independent Secretariat. The Co-Chairs announced the full membership of the Panel on 3 September 2020.

The Panel comprises people with the experiences and expertise to focus on pandemics, health and the broader impacts of COVID-19. Their mix of skills and expertise covers a wide range of areas including infectious disease, global and national health policy and financing, public administration, outbreaks and emergencies, economics, youth

advocacy and the well-being of women and girls. Panellists also share knowledge of the international system, including WHO, and other relevant international processes.

The Panel was charged with reviewing the spread, actions and responses to the COVID-19 pandemic, compile facts, distil lessons and make evidence-based recommendations to ensure countries and global institutions, including WHO, can more effectively address health threats.

The Panel has taken a systematic, rigorous and comprehensive approach to its work and has placed an emphasis on listening and learning from others. Since mid-September, the Panel has conducted numerous literature reviews, its own original research, has learned from dozens of experts in round-table discussions and in-depth interviews, has heard directly from people working on the front line of the pandemic in town-hall style meetings, and has invited contributions from anyone wishing to make one. The Panel has benefited from interactions with the Global Preparedness Monitoring Board, the IHR Review Committee and the Independent Oversight and Advisory Committee. The Panel has met formally six times, and several times in subgroups to discuss specific areas.

The Independent Panel has valued openness and transparency throughout, publishing news summaries and meeting reports shortly after each meeting. The Secretariat has operated in an open-door manner and welcomed conversations with anyone who has wished to speak to it.

At its second meeting on 20–21 October 2020, the Panel established a Program of Work, which includes four interconnected themes: to build on the past by learning from previous epidemics and pandemics, including the extent to which lessons and recommendations from these have been applied; review the present, examining why and how COVID-19 became a global pandemic, including building an authoritative chronology of facts and actions by countries, regional and international actors; understand the impact of COVID-19 on people's health and on health systems, including the role of communication and community resilience and the significant socioeconomic impact; and identify gaps in the international system and recommend changes for the future.

The Program of Work laid out specific questions for review, and the Panel has studied these through:

- **desk reviews** of selected topics to provide background reports to the Panel;
- **semi-structured in-depth interviews** with key actors from national governments, academia, international organizations, including WHO, civil society, health workers and subject-matter experts;
- requests for information to WHO through a repository established by the Panel;

- **expert round tables** that allowed the Panel to learn from and listen to a wide range of resource persons who are knowledgeable and experienced on different aspects of the **Program of Work**. Topics included:
    1. A future international system
    2. WHO Financing
    3. Essential Supplies
    4. From Science to policy
    5. Access to Vaccines
    6. Socioeconomic impact – regional dimensions
    7. Socioeconomic impact – global perspectives
    8. Private sector roundtable
    9. National Responses
    10. Therapeutics and Diagnostics
    11. Mobilizing Across Generations to Realize Health and Social System Reforms
    12. Human Rights
    13. Communication and Community Engagement
    14. Sustaining and Strengthening Cities During a Pandemic: A Roundtable Discussion with Mayors
    15. Digital solutions
- papers on key topics relevant to each of the sections, commissioned by the Panel;
- a public call for contributions: Member States, academics, civil society and front-line workers were invited to contribute their experiences and ideas through the Panel's website, both on the Program of Work and on the chronology; more than 90 submissions had been made at time of publication of the present report;
- open webinars EXCHANGE inviting specific groups and themes to talk about their experiences, lessons and ideas for future with Panel members; these attracted hundreds of participants from around the world, including speakers from remote areas; recordings and reports from these meetings are available on the Panel's website:
    1. Learning from nurses on the front line of COVID-19
    2. COVID 19: delivering sexual and reproductive health and rights services in crisis settings
    3. Youth on the front lines of COVID-19
    4. Learning from midwives at work during a pandemic
    5. The gendered impact of COVID-19
    6. Noncommunicable diseases: affecting and affected by COVID-19

Reporting to WHO's governing bodies

The Independent Panel reported to the WHO Executive Board Special Session on 5–6 October 2020, to the resumed 73rd World Health Assembly in November 2020, to the WHO Executive Board in January 2021; it will present this report to the Seventy-fourth World Health Assembly in May 2021.

Members of the Independent Panel

The members of the Independent Panel for Pandemic Preparedness and Response are:

- **Rt Hon. Helen Clark**, former Prime Minister of New Zealand (Co-Chair)
- **H.E. Ellen Johnson Sirleaf**, former President of Liberia and Nobel Laureate (Co-Chair)
- **Mauricio Cárdenas**, Senior Scholar, Center on Global Energy Policy at Columbia University and former Finance Minister of Colombia
- **Aya Chebbi,** African Union Special Envoy on Youth, diplomat, pan-African activist and feminist, from Tunisia
- **Mark Dybul** Professor at Georgetown University and former head of the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and the President's Emergency Plan For AIDS Relief, from the United States
- **Michel Kazatchkine**, Professor of Medicine and global health diplomat from France; and a former head of the Global Fund
- **Joanne Liu**, Canadian physician, Professor at McGill University and former International President of MSF, including during the response to Ebola
- **Precious Matsoso**, former Director-General of Health from South Africa, and former Chair of the Independent Oversight and Advisory Committee for the WHO Emergencies Programme
- **David Miliband**, President and Chief Executive Officer of the International Rescue Committee, and former Foreign Secretary of the United Kingdom
- **Thoraya Obaid**, former Executive Director of the United Nations Population Fund (UNFPA)
- **Preeti Sudan**, Former Secretary of Health of India, and former Vice-Chair of the Partnership for Maternal, Newborn and Child Health
- **Ernesto Zedillo**, Former President of Mexico and economist, Director of the Yale Center for the Study of Globalization, Yale University,
- **Zhong Nanshan**, Professor of the Department of Respiratory Disease, Guangzhou Medical University, China and Director of the National Clinical Research Center for Respiratory Disease

The Independent Panel has been supported by a Secretariat headed by Anders Nordstrom and including Alexandra Phelan, Celeste Canlas, Christine McNab, Helena Legido-Quigley, Jane Saville, Marjon Kamara, Mathias Bonk, Michael Bartos, Michael Dumiak, Mike Kalmus Eliasz, Nellie Bristol, Rosemary McCarney, Salma Abdalla and Shun Mabuchi. George Werner served as advisor to Co-Chair H.E. Ellen Johnson Sirleaf, together with Raj Panjabi until 31 January 2021, and Sudhvir Singh as advisor to Co-Chair the Rt. Hon. Helen Clark.

The Independent Panel documents

The Independent Panel published the following final documents in May 2021.

The main report

COVID-19: Make it the Last Pandemic

COVID-19: Make it the Last Pandemic: A Summary

The companion narrative

How an Outbreak Became a Pandemic: The defining moments of the COVID-19 pandemic

Background documents

1. Learning from the past
2. The Chronology
3. From Science to Policy
4. National and sub-national responses
5. Access to vaccines, diagnostics and therapeutics
6. Scaling up Vaccine Production Capacity: Legal Challenge
7. Access to Essential Supplies
8. Impact on Essential Health Services
9. The Social impact
10. Community involvement
11. Human Rights
12. Understanding Communication
13. The Economic impact
14. International financing
15. WHO – an institutional review
16. International Treaties and Conventions

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WHO

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National Governments

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International and regional organizations and partnerships

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Individual leaders and experts (in alphabetical order)

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Exchanges and Online Submissions

The Panel hosted six **Exchange** webinars to learn directly from people working on the frontline from around the world people participating in panel discussions with hundreds 'in the virtual audience': Nurses on the Frontline, Delivering SRHR in Crises Settings, Youth on the Frontlines, Midwives at Work, The Gendered Impact, Noncommunicable Diseases. The Panel would like to especially thank all of these "frontline" participants for their valuable input. The Panel would also like to thank organizations that helped to bring people together. With thanks to: C40 Cities, the Communication Initiative, the International Council of Nurses, the International Confederation of Midwives, International Planned Parenthood Federation, NCD Alliance, Nursing Now, The Partnership for Maternal, Newborn & Child Health, the Pandemic Action Network, United Cities and Local Governments, the White Ribbon Alliance, Women in Global Health and the World Health Professionals Alliance.

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