



# Losing time: End this pandemic and secure the future

Progress six months after the report of  
the Independent Panel for Pandemic  
Preparedness and Response

H.E. Ellen Johnson Sirleaf and  
Rt Hon. Helen Clark



*Disclaimer:*

*The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.*

Report Design: Michelle Hopgood  
Icon Illustrator: Janet McLeod Wortel  
Maps: Taylor Blake



# Contents

Preface	4
Glossary of terms	6
I. Vaccine inequity	8
II. Global leadership and accountability	14
III. Financing	18
IV. ACT-A and global public goods	20
V. Strengthening and empowering WHO	23
Conclusion: The next six months are critical	26
Annex: Progress against the Independent Panel's recommendations	28
References	34
Acknowledgements	36



# Preface

Six months ago, we presented the report of the Independent Panel for Pandemic Preparedness and Response to the World Health Assembly and the world at large. We were honoured to co-chair the Panel and to work with eleven distinguished leaders on a meticulous analysis of the international response to COVID-19 and on recommendations on what needed to change.

We recommended a package of reforms required to help stop a future outbreak from becoming a pandemic, addressing leadership and accountability, governance, financing, equity and global public goods, and WHO's authority and independence. We also recommended urgent actions to end the devastation of COVID-19.

There is progress, but it is not fast or cohesive enough to bring this pandemic to an end across the globe in the near term, or to prevent another. Waves of disease and death continue—as people in the northern hemisphere move indoors, fatigue with restrictions sets in, vaccine coverage and other countermeasures remain uneven, and people in the poorest countries have almost no access to vaccines. The world is losing time.

The trajectory of the pandemic over the past six months has underscored the vital need for a package of reforms to international systems, as our Panel recommended in May. The vast immunization gulf between the richest and poorest countries of the world jeopardizes the health of everyone on the planet. It is also increasingly clear that the challenges of SARS-CoV-2 cannot be solved by vaccination alone, but rather require ongoing public health measures, and sustained whole-of-society efforts to protect the most vulnerable and build community resilience.

Initiatives to create a leader-level council for pandemic response continue to be discussed. Such a mechanism is urgently needed now, both to help halt this pandemic and to prevent a future one. Trust among countries, between citizens and governments, and between science and leadership, continues to falter amid a barrage of misinformation and expression of narrow self-interest.

The manifest failures of the COVID-19 response to date should motivate all stakeholders to make serious reforms and minimise the impact of future disease threats. Countries are making efforts to mobilise resources to sustain a new approach to pandemic preparedness and response.

Much of the groundwork to identify the steps to reform has been done —what is needed now is for countries to make a final push so that the opportunity to create a safer world does not slip through our fingers. Planning for future pandemics and fighting the current one call for the same reforms.

**We ask: if this pandemic cannot catalyse real change, what will?**



**Rt Hon. Helen Clark**

Former Co-Chairs of the Independent Panel for Pandemic Preparedness and Response



**H.E. Ellen Johnson Sirleaf**



## Glossary of terms

<b>ACT-A</b>	Access to COVID-19 Tools Accelerator
<b>AVAT</b>	African Vaccine Acquisition Trust
<b>COVAX</b>	COVID-19 Vaccine Facility
<b>COVAX AMC</b>	COVID-19 Vaccine Advance Market Commitment
<b>COVID-19</b>	coronavirus disease 2019
<b>C19RM</b>	COVID-19 Response Mechanism
<b>FIF</b>	Financial Intermediary Fund
<b>G7</b>	Group of 7
<b>G20</b>	Group of 20
<b>HCW</b>	health care worker
<b>HIC</b>	high-income country
<b>HLIP</b>	G20 High Level Independent Panel on Financing the Global Commons for Pandemic Preparedness and Response
<b>IHR</b>	International Health Regulations (2005)
<b>IMF</b>	International Monetary Fund
<b>JEE</b>	Joint External Evaluation
<b>LMICs</b>	low-and middle-income countries
<b>mRNA</b>	messenger RNA
<b>MS</b>	Member States
<b>PP&amp;R</b>	Pandemic preparedness and response
<b>SARS-CoV-2</b>	the virus that causes COVID-19
<b>UN</b>	United Nations
<b>WGSF</b>	Working Group on Sustainable Financing
<b>WHO</b>	World Health Organization
<b>WPRG</b>	Working Group on Strengthening WHO Preparedness and Response to Health Emergencies
<b>WTO</b>	World Trade Organization



*The Independent Panel called for 1 billion redistributed doses by 1 September. To date, one quarter of that amount has been delivered to the poorest countries.*





# I. Vaccine inequity



In the six months since the Panel presented its report, COVID-19 has infected more than 92 million more people and at least 1.6 million more people have died. The reported global death toll, itself an under-estimate, now exceeds five million.<sup>1</sup> The Delta variant, just emerging six months ago, now predominates worldwide. The pandemic continues to have a profound impact on lives and livelihoods and is exacerbating inequality as economic recovery begins to take hold in wealthier countries but falters in the poorest.

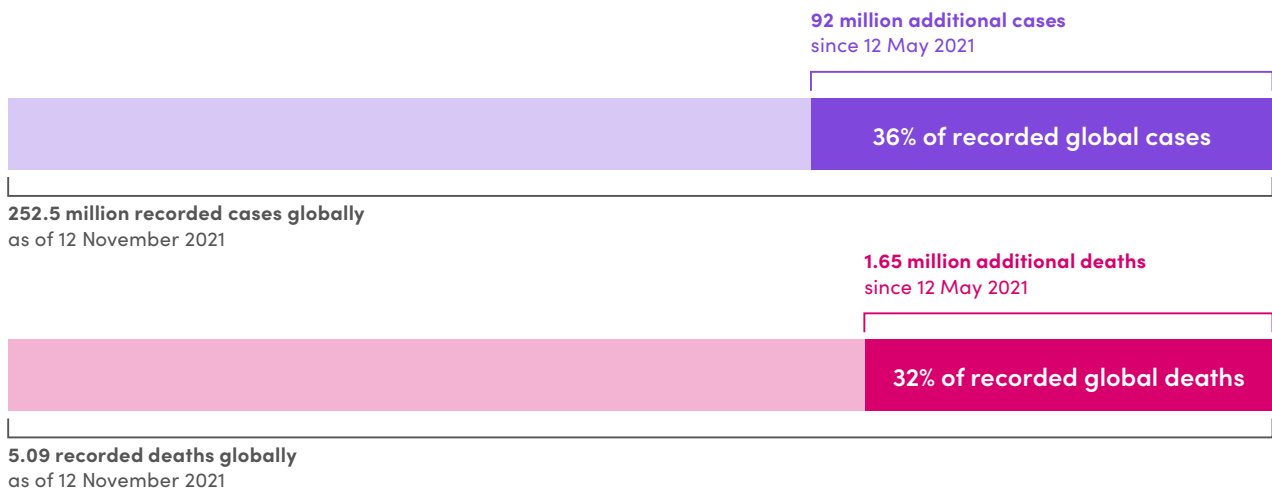
**Figure 1: New COVID-19 cases, deaths, and vaccine coverage in the past six months**

Source: rounded figures from Our World in Data

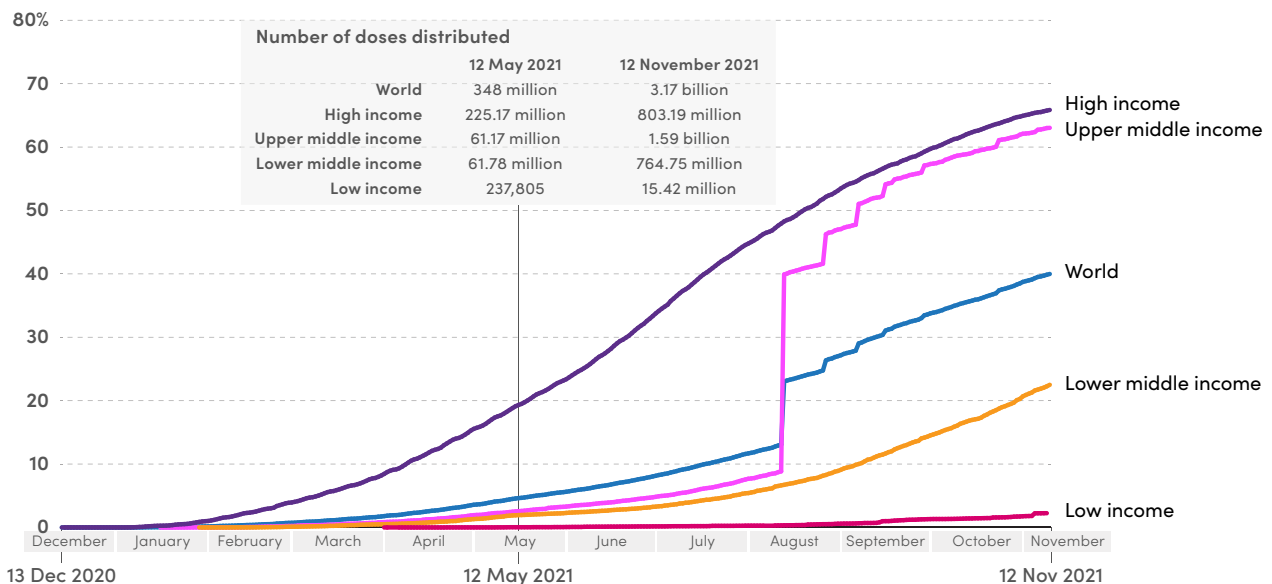
**In the last 6 months:**

**More than 90 million have been diagnosed with COVID-19**

**More than 1.65 million have died from COVID-19**



**Share of population fully vaccinated against COVID-19 by country income level (as of 12 November 2021)**






World Bank Group/IMF Development Committee Communiqué  
15 October 2021

The pandemic has reversed progress on the twin goals of ending extreme poverty and achieving shared prosperity in a sustainable manner, as well as on the SDGs. An estimated 100 million more people have fallen into extreme poverty, about 80% of them in middle-income countries. Millions of jobs have been lost, while informality, underemployment, and food insecurity have increased. Children, especially girls, have lost schooling and educational gaps are widening, with long-term risks for human capital. Women's economic and social situation has worsened, underscoring the importance of promoting gender equality through recovery. The pandemic has also heightened vulnerabilities in low- and middle-income countries and in situations of fragility, conflict, and violence.<sup>2</sup>

More than 67% of the population of all high-income countries has been fully vaccinated against COVID-19, but in low-income countries fewer than 5% of people have received even one dose, and that figure hovers even lower in many. World Health Organization (WHO) targets call for 40% of the population of each country to be fully vaccinated by the end of 2021 and 70% by mid-2022. These targets represent a minimum achievable goal based on vaccine supply forecasts—clearly vaccination rates would need to be far higher to protect health systems from overload. Yet even so, the world is failing to meet them. On the current track, 75 countries will miss the 40% target set for the end of this year.

The Independent Panel called for high-income countries with an adequate supply pipeline to redistribute at least one billion vaccine doses to LMICs by 1 September 2021. They did not meet that target. As of 16 November, 1,494 billion doses have been committed through the Advance Market Commitment (AMC) window of the COVAX Facility, of which 256.5 million had been delivered.<sup>3</sup> Meanwhile, the capacity of low- and middle-income countries to purchase vaccines is squeezed by confidential high-cost deals between manufacturers and wealthy countries as they add booster doses to their immunization programmes, despite powerful arguments against this on equity grounds.<sup>4,5</sup>



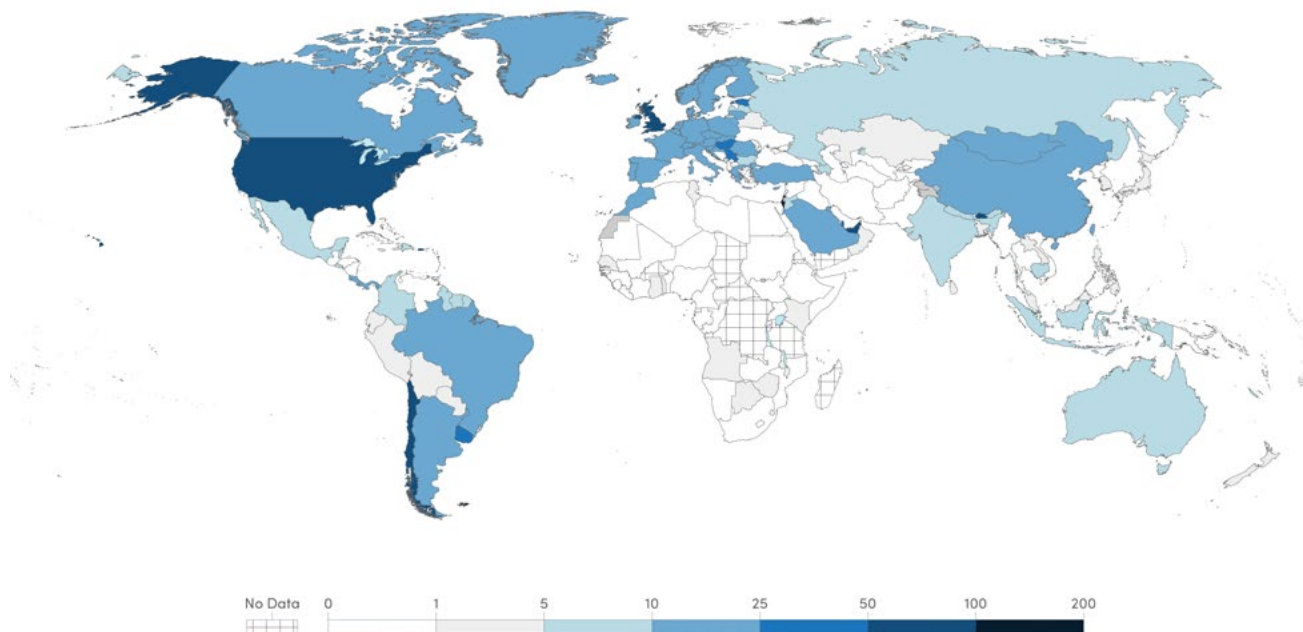
*“How many more deaths must it take before the ... excess vaccines in the possession of the advanced countries of the world will be shared with those who [have] simply no access to vaccines?”*

*Prime Minister Mia Mottley of Barbados, at the 76th UN General Assembly<sup>6</sup>*

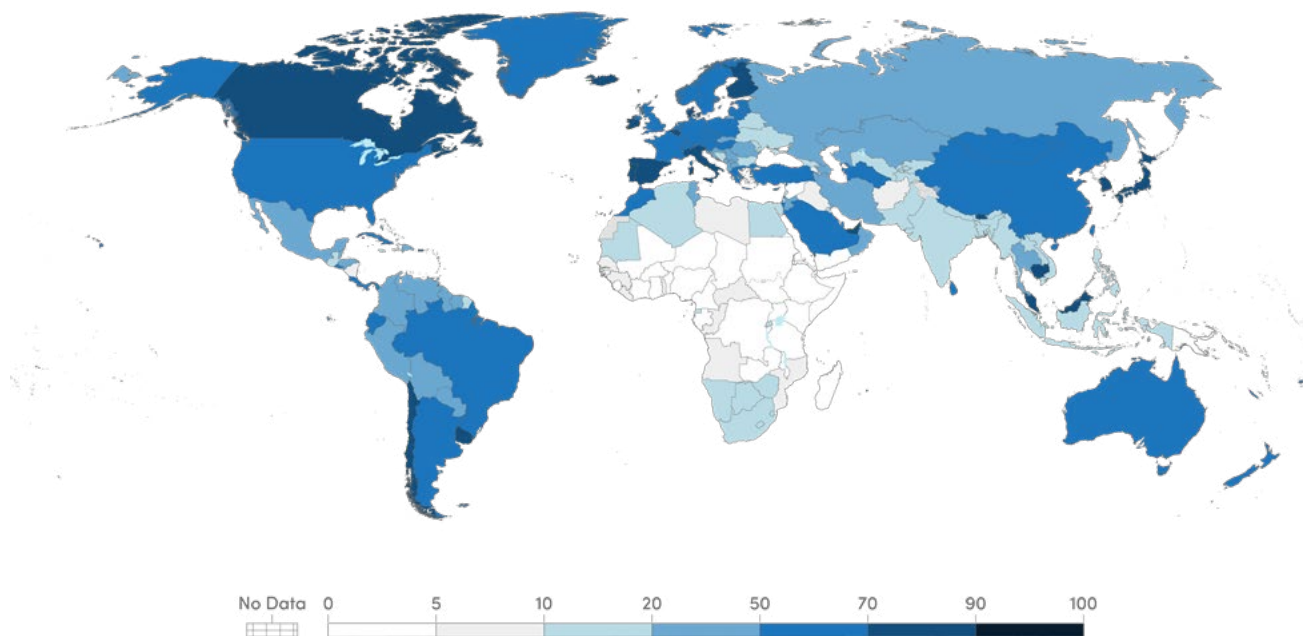
**Figure 2: Low-income country vaccination coverage**

Source: <https://covid19.who.int>

**Total COVID-19 vaccine doses per 100 people as of 21 April 2021**



**Number of persons fully vaccinated for COVID-19 per hundred as of 8 November 2021**



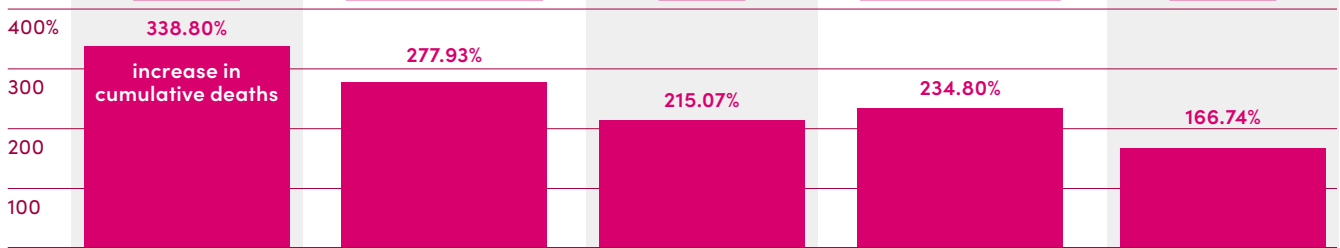
Proportion of the population fully vaccinated, low-income countries				
Source: Our World in Data (as of 9 November 2021)				
Data not available	<1%	<5%	<10%	>10%
Burundi	Uganda (0.88%)	Sierra Leone (3.09%)	The Gambia (8.87%)	Rwanda (15.54%)
Eritrea	Guinea-Bissau (0.72%)	Malawi (2.86%)	Mozambique (7.54%)	
Korea, Dem. People's Rep	Yemen, Rep. (0.71%)	Syrian Arab Republic (2.8%)	Liberia (7.17%)	
	Madagascar (0.65%)	Somalia (1.93%)	Central African Republic (6.54%)	
	South Sudan (0.58%)	Niger (1.60%)	Afghanistan (6.39%)	
	Chad (0.36%)	Burkina Faso (1.38%)	Guinea (5.53%)	
	Congo, Dem. Rep (0.04%)	Mali (1.30%)	Togo (5.26%)	
		Sudan (1.30%)		
		Ethiopia (1.16%)		

### Figure 3: Deaths have increased fastest in the regional groups with the lowest vaccination rates

Source: Johns Hopkins Center for Health Security, data as of 10 October 2021, and as published in *Navigating the World that COVID-19 Made*<sup>34</sup>

Notes: Population vaccinated (doses administered per 100 people) compared to increase in cumulative deaths since 2 December 2020. Doses administered per 100 people may be higher than 100 due to two-dose vaccination courses.

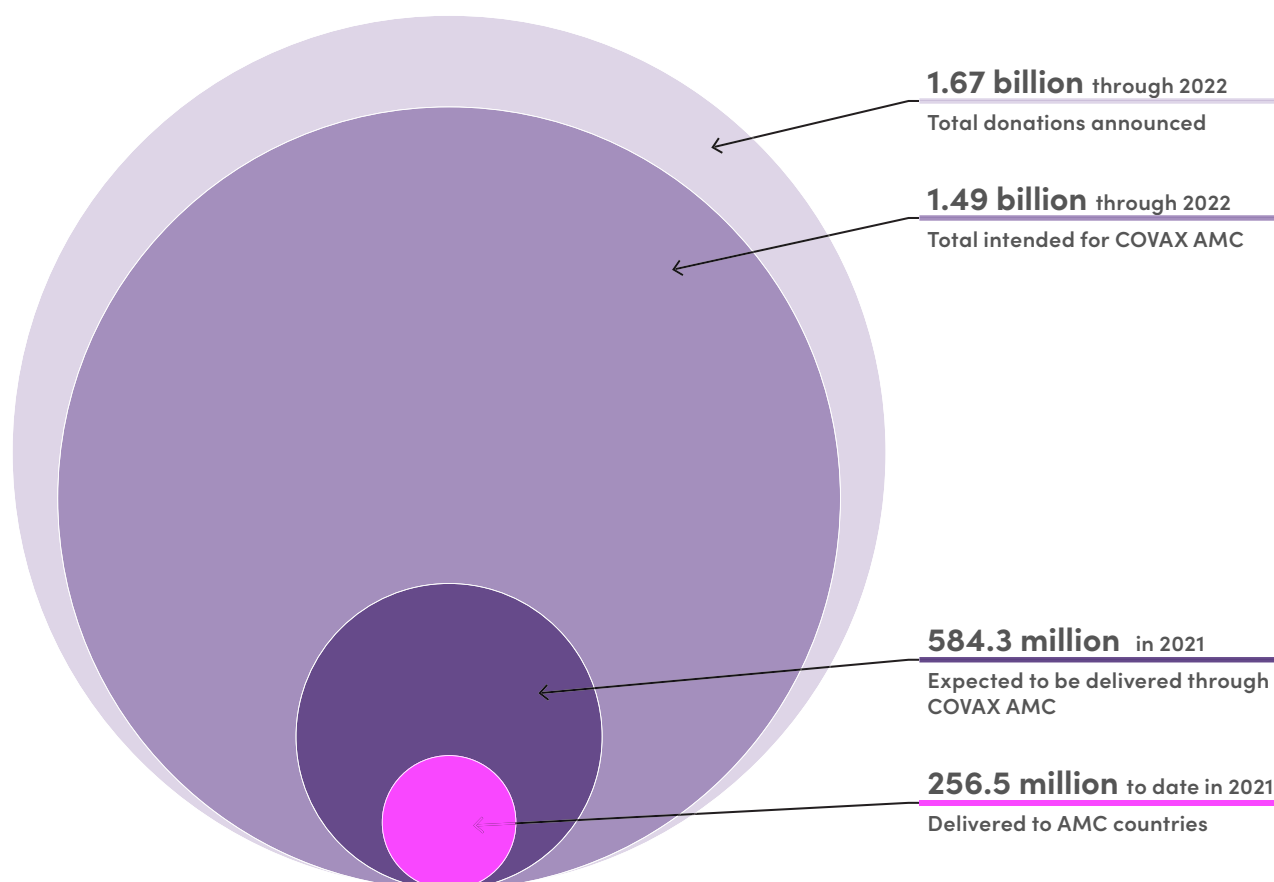
#### Doses administered per 100 people by region/country income level



Percent increase in cumulative deaths since 2 December 2020 by region/country income level

**Figure 4: Vaccine dose donations pledged and delivered by 20 high-income countries/areas as of 16 November 2021**

Source: IMF-WHO Vaccine Supply Forecasts



Countries and manufacturers have made substantial commitments to provide access to additional doses globally both bilaterally and through COVAX, but delivery has fallen far short of these promises. In low-income countries especially, actual delivery of doses is running at only 15% of the expected or secured number of doses.<sup>7</sup> The G7 nations have promised two billion vaccine doses for lower income countries over 2021 and 2022, but largely without transparent plans for delivery.<sup>8</sup> Similarly, China also announced that it would provide two billion vaccine doses to the world by the end of 2021 and has committed to donate 5% of those (100 million doses) to developing countries.<sup>9</sup> A number of other countries have made commitments either to share doses or fund the purchase of vaccines, bilaterally and through COVAX.

The lack of transparent vaccine delivery schedules makes it difficult to track the extent to which commitments are being honoured and undermines planning for immunization programmes in low- and middle-income countries. Important regional initiatives, such as the African Delivery Vaccines Alliance and the Africa Vaccine Acquisition Task Team need clarity from the global market and supply system in order to make plans and deliver on them. Inconsistent delivery, including dumping large shipments at the last minute, is a potential waste of vaccine and therefore a wasted opportunity to protect people.



*A Global Health Threats Council remains key to the reforms required.*





## II. Global leadership and accountability




The need for effective multilateral action to respond to this pandemic could not be clearer. Countries,<sup>10</sup> experts, and citizens are unanimous that the status quo cannot continue given the health, economic, and social devastation still being caused by COVID-19. There is encouraging evidence of the will to make change, and champions are emerging. These efforts need more urgency and cohesion. Otherwise, we are simply losing time.

A global summit of Member States convened by the United Nations is needed to secure commitment to strengthened leadership and mutual accountability. Our Panel called for a summit, in the form of a Special Session of the UN General Assembly, to agree on a political declaration on the way forward, with a new Global Health Threats Council as the centrepiece of the new architecture. The trajectory of the COVID-19 pandemic over the six months since we reported underlines the urgency of implementing this recommendation.

A growing number of global actors have raised their voices in support of a UN-convened summit.<sup>11</sup> We share the view of the Global Preparedness Monitoring Board that the current momentum for change must be channelled into a coherent plan of action. A summit involving heads of state and government can serve to catalyse the agreement needed.<sup>12</sup>

A growing number of United Nations Member States are advancing discussions to convene a General Assembly Special Session. The President of the General Assembly has made it clear that leadership to confront the COVID-19 pandemic must be at the top of the Assembly's priorities in this year's session. He has signalled his intention to call a high-level thematic debate on vaccine equity with leading experts and world leaders for early in 2022.<sup>13</sup> An ambitious and forthright declaration of the United Nations General Assembly, with the commitment of all states at the highest level, should tackle issues of equity, leadership and accountability, governance and financing.



*“We need a system that can ensure that states are mobilised at the highest level—only leaders can take the responsibility and implement these bold and urgent actions. We need to involve all the sectors concerned, well beyond the health sector alone.”*

*Charles Michel, President, European Council<sup>14</sup>*



*“The international response to COVID-19 will be the focus of a crucial discussion for the next session of the General Assembly and well beyond.”*

*H.E. Mr. Abdulla Shahid, President of the 76th UN General Assembly<sup>15</sup>*

### **The Global Health Threats Council remains key to the reforms required**

Core to the Independent Panel’s recommended package of reforms is the establishment of a Global Health Threats Council by the UN General Assembly to galvanise leadership and accountability to end the COVID-19 pandemic and better prepare to stave off the next.

The Council is not intended to duplicate existing global health architecture or create another locus of power, decision-making, or operations, but to be supportive of existing institutions. It would elevate pandemic preparedness and response to the level of heads of state and government, so that action is backed by the authority, imprimatur, and urgency across all sectors and the international system at large that only this level of leadership can offer.

A high-level leadership and accountability mechanism needs to be legitimate and inclusive. For that reason, the Panel proposed that the United Nations General Assembly nominate two co-chairs of a Global Health Threats Council, with another co-chair nominated by the G20, and for it to include private sector, community, and scientific leadership at the highest level.

The Council as proposed by the Panel has received support from the G20’s High Level Independent Panel on Financing the Global Commons for Pandemic Preparedness and Response as a complement to its financing recommendations,<sup>16</sup> and was among the targets discussed at the COVID-19 summit convened by US President Biden during the 2021 UN General Assembly Leaders’ week in September.

We encourage the momentum towards strengthened leadership and accountability, which must be channelled to action at this urgent point in history. An inclusive leader-level council would be invaluable now in addressing the devastating vaccine divide and ensuring that pledges and lofty aspirations are delivered on. It should be independent of WHO and located outside it, but could benefit from being located in Geneva.


The Panel examined the 16 major reviews and reports on previous health threats occurring in the last decade. It drew the inescapable conclusion that when reform proposals are watered down after a crisis has passed, the world is left without the protection it needs. It is clear to us that the package of reforms needed today must significantly extend the reach and impact of governance and accountability with a remit that extends beyond the health sector.



*“For too long, we have allowed a cycle of panic and neglect when it comes to pandemics: we ramp up efforts when there’s a serious threat, then quickly forget about them when the threat subsides.”*

*Dr. Jim Kim, former World Bank President<sup>17</sup>  
- speaking in 2018*





*Governance without  
finance lacks teeth;  
finance without governance  
lacks accountability.*





## III. Financing



New, sustainable, and sustained financing for pandemic preparedness and response is a necessary complement to enhanced leadership. Governance without financing lacks teeth; financing without governance lacks accountability.

Estimates of the level of financial needs for preparedness are at least US\$10 billion annually. A mechanism should be lean, housed in existing agencies, fill identified gaps, distribute funds rapidly, and be overseen by the Global Health Threats Council.


Norway and the US, among others, have supported the establishment of a Financial Intermediary Fund housed at the World Bank to support pandemic preparedness. We applaud those who moved earlier to address financing, but were disappointed by the decision of the G20 Leaders meeting in Rome to respond to 22 months of the COVID-19 crisis by setting up a Health and Finance Minister Task Force rather than addressing financing issues with urgency.<sup>18</sup> We note that the task force has been asked to propose modalities for a financing facility early next year.

### Ability to pay and response funding

Health security is in the mutual interests of all. Pandemic preparedness and response financing needs to make a decisive move away from a charity model towards some form of assessed contribution based on ability to pay.

Preparedness financing needs to operate in tandem with ready availability of response funding in the event that a pandemic threat emerges. Funds should be pre-allocated so that they are available rapidly as needed at the outset of an emerging health crisis. Incentives for preparedness spending should be built into the design of the financial mechanism to ensure that gaps are filled worldwide.

The return on investment for pandemic preparedness and response funding is immense. Given the impact of COVID-19, it would be a dereliction of duty on the part of every global stakeholder to fail to establish a vigorous pandemic preparedness and response mechanism backed by adequate financing.



*Global health cannot be left hostage to a pharmaceutical industry which buys up patents and develops them in the interest of making profits.*





## IV. ACT-A and global public goods



A recent strategic review of the Access to Covid-19 Tools Accelerator (ACT-A) found that short-term national interests had hampered the mechanism's effectiveness and limited truly coordinated action.<sup>19</sup> There has been a consistent gap between ACT-A's needs and the funding provided to it. In late-October 2021, commitments totalled US\$18.8 billion, with a funding gap of US\$15.9 billion, mainly in support for diagnostics (US\$7.9 billion) and health systems (US\$6.2 billion).<sup>20</sup> In line with the Panel's findings, the strategic review found a need for increased ACT-A engagement and participation from low- and middle-income countries and civil society.

These gaps in ACT-A are symptomatic of a wider issue. Since the Panel's May recommendation, the limitations of the current model in delivering equitable access have only become more evident. Global health cannot be left hostage to a pharmaceutical industry which buys up patents for promising products (often originally developed with significant public monies in universities and research institutions) and develops them in the interest of making profits. This system does not achieve the right balance between innovation and global public goods.


### Voluntary licensing and technology transfer

In May, the Panel recommended that the World Trade Organisation (WTO) and the WHO convene major vaccine producing countries and manufacturers to agree on voluntary licensing and technology transfer arrangements for COVID-19 vaccines. We said that if agreement was not reached within three months, a waiver of intellectual property rights should take effect. In June 2021 the heads of WTO, WHO, the World Bank, and the International Monetary Fund (IMF) formed the Multilateral Leaders Task Force on COVID-19 Vaccines, Therapeutics, and Diagnostics to help track, coordinate, and speed delivery of COVID-19 countermeasures.<sup>21</sup>

We are concerned that the promise of this collaboration has not yet delivered adequate access to COVID-19-related products or technologies everywhere they are needed. Despite an overwhelming majority of countries supporting a waiver of intellectual property rights to overcome barriers to vaccine and medicines production, global agreement on this step still has yet to be reached.

Technology transfer is desperately needed to decentralize production and repair broken supply chains. The major scientific breakthrough of the COVID-19 response to date has been the development and deployment of mRNA vaccines. They have the virtue of relatively simple production, in particular because the vaccines can be produced in-vitro rather than in cells.<sup>22</sup> High-income country experience in manufacturing mRNA vaccines under contract suggests this technology can be transferred in six to nine months.<sup>23</sup>

Technology transfer across all regions has begun, but more of it needs to happen faster. WHO has sponsored the establishment of vaccine manufacturing hubs to develop and produce mRNA vaccines in South Africa, Argentina, and Brazil.<sup>24 25</sup> In other initiatives, the Presidents of Rwanda and Senegal and mRNA vaccine manufacturer BioNTech agreed in August 2021 on steps towards the development of vaccines and their end-to-end production in Africa.<sup>26</sup> Vaccine manufacturer Moderna also has announced its intention to open manufacturing operations in Africa, with locations yet to be confirmed.



*“It’s not that we don’t have vaccines that we can share. It’s not that we don’t have therapeutics. It’s not that we don’t have the tools. It’s that we choose not to act.”*

*Dr. Ayoade Alakija, African Union Vaccine Delivery Alliance<sup>27</sup>*

### **Vaccines-plus strategy needed**

Glaring global inequities have thrust vaccine access into prominence, but it would be a mistake to reduce the question of global public goods to vaccines alone. A “vaccines-plus” strategy is needed to tackle both medical and non-medical measures to counter COVID-19. Reducing SARS-CoV-2 circulation still requires a combination of measures that include vaccines, masks, social distancing, improved ventilation, and contact tracing systems, together with access to diagnostic tests and therapies. The world still lacks a comprehensive and strategic vaccines-plus roadmap.

Waning natural and vaccine-induced immunity will only increase the importance of therapeutics in mitigating the impact of COVID-19. There are promising developments of drugs with significant antiviral effect against COVID and the capacity to reduce hospitalization considerably. Achieving the full benefits of many of these therapeutics requires early case detection, underlining the ongoing importance of testing. The Medicines Patent Pool has made an agreement with pharmaceutical companies Merck and Pfizer to issue non-exclusive sub-licenses for the manufacture of their latest antivirals, the first use of the patents pool in relation to COVID-19.<sup>28</sup> While the Medicines Patents Pool Expert Panel recommended the agreement as a significant improvement in access over the existing *status quo*,<sup>29</sup> there have been criticisms that some major countries are excluded from their scope and that they seek to undermine the right to patent challenges.<sup>30</sup> Meanwhile some effective therapies, such as monoclonal antibodies, are approved by medicine regulatory bodies including WHO, yet are only available in high-income countries. More therapeutics are under development, urgently requiring a robust framework to employ them as global public goods.

The pandemic has demonstrated how important social science, communications, and ethics research are in guiding effective responses. The development of these sciences is critical to being better prepared for the next outbreak.



*Strengthening the authority and independence of the WHO and developing new legal instruments are pivotal to the package of reforms required.*





## V. Strengthening and empowering WHO



The Panel, and many other voices, agree that strengthening the authority and independence of the WHO and developing new legal instruments are pivotal to the package of reforms required. WHO requires more funding and greater ability to investigate and report potential pandemics more quickly and independently.

WHO Member States established two new working groups in May 2021: one on Strengthening WHO Preparedness and Response to Health Emergencies (WGPR); and another on Sustainable Financing (WGSF). There is, however, a manifest mismatch between the lightning pace at which a pandemic threat emerges and mutates and the slow and deliberate pace at which the international system endeavours to reach consensus.

A Special Session of the World Health Assembly at the end of November 2021 will consider the issue of a new pandemic treaty, an agreement or other international instrument. Reforms aimed at strengthening WHO as an organisation are expected to be discussed at WHA in May 2022.

### The case for a treaty

The Independent Panel's close examination of the chronology of early events in the COVID-19 pandemic led to the conclusion that the International Health Regulations should be supplemented by a framework convention on pandemics.<sup>31</sup> The Working Group on strengthening preparedness and response has made significant progress in clarifying that strengthening the International Health Regulations and adopting a new treaty, framework convention, or other forms of legally binding agreement, is not an "either/or" question—rather, multiple approaches can complement one another and address different needs.<sup>32</sup>

There has been surprisingly little use of international treaties by WHO, with only the International Health Regulations and the 2003 Framework Convention on Tobacco Control under its regulatory and treaty-making powers, respectively. By comparison, the International Labour Organization oversees more than 150 binding international agreements, and the International Atomic Energy Agency more than a dozen, including the two conventions on nuclear accidents which were agreed within six months of the Chernobyl disaster.

The scale of the COVID-19 disaster must be the impulse for the international community to make more effective use of binding international agreements to secure collective interests across the spectrum of pandemic preparedness and response, from preparedness capacity building to alert and investigation obligations and fair access

to response measures. Work towards these new provisions, however, should not delay the other urgent reforms referred to in our May report and again in this report.

### **Alert and response**

Many of the specific measures recommended by the Independent Panel to strengthen the authority and autonomy of WHO and reinforce its alert and response functions are under way. A package of reinforcing reforms has the capacity to make a qualitative step change in global pandemic protection as long Member States focus on speedy implementation.

Technical, financial, and governance strengthening go hand in hand. For example, there are a number of initiatives to support more agile pandemic early warning, including the UK's Global Pandemic Radar initiative supported by the G7; the Rockefeller Foundation's Pandemic Prevention Institute; and WHO's foray into creating a collective ecosystem for innovation through its new Hub for Pandemic and Epidemic Intelligence in Berlin. These initiatives will maximise their impact if they are brought together strategically, link to the formal surveillance and alert systems that are the backbone of the International Health Regulations, and in turn are integrated with One Health-based animal and environmental surveillance and health protection.

### **Improve WHO financing**

Of critical importance to a stronger, more effective and independent WHO is reforming the way WHO is financed. The Panel made clear recommendations for the organisation only to accept un-earmarked and flexible resources, a substantial increase of the assessed contribution complemented with a replenishment process. The specific Member State led working group has been working intensively on this and Member States must now support the needed reforms.

It is time for Member States to step up and enable the WHO they say they want. For WHO to respond to its full potential to pandemic threats, constraints on it need to be removed, not least through adequate, flexible funding. The Special Session of the World Health Assembly at the end of November needs to signal agreement to move forward on a new legal instrument, and the regular session of the Assembly in May 2022 needs to set in place key reforms and not just initiate discussions of what they may be in the future.





*The next six months  
are critical.*





## Conclusion: The next six months are critical

In May 2021, the Independent Panel called for the rapid implementation of a package of recommendations to address the current COVID-19 crisis and to mitigate the health, social, and economic impacts of future health threats. In the six months since, the pandemic has continued to cause havoc around the world.

Despite the promise and availability of vaccines, they have not been delivered equitably. Further, widespread vaccine coverage alone cannot end the pandemic—ongoing public health measures will continue to be required. It is clear that the world urgently needs renewed commitment to multilateral leadership and mutual accountability.

We are encouraged that a wide range of voices and forces are expressing determination to make fundamental and systemic change to the global pandemic preparedness and response architecture. That array needs to become a concerted global coalition for action. Different perspectives and national and sectoral interests must not be allowed to stand in the way of effective and lasting change in pandemic preparedness and response.

Successive waves of the pandemic continue to challenge life in every nation, high-, middle- and low-income, and continue to mercilessly batter the most vulnerable. The United Nations General Assembly, as the most inclusive body of all the world's nations, must soon respond to the historic challenge posed by COVID-19.



*“The recommendations of the Independent Panel for Pandemic Preparedness and Response must be a starting point for urgent reforms to strengthen the global health architecture.”*









*António Guterres, UN Secretary-General<sup>33</sup>*

















A political declaration of the United Nations General Assembly, agreed at the highest level and with the commitment of all the world's nations to it, with a new Global Health Threats Council at its centre, would be a critical step towards transforming pandemic preparedness and response. It is urgent also to develop a shared commitment to a practical plan, based on equitable and sustainable foundations and pertinent to every region and every country, to bring the COVID-19 pandemic to a rapid close.











There is no single magic bullet to end pandemics, but there is a combination of measures that will: commitment, finance, global public goods, alerts and preparedness, and leadership.

It's time now to make change happen. We call on all leaders and foreign, finance, and health ministers, working through the mechanisms of the international system, to put their weight behind decisive moves at the UN General Assembly, the World Health Assembly, and the international and regional financial institutions to enable that change.

## Annex: Progress against the Independent Panel's recommendations

Urgent calls to stop the COVID-19 pandemic 					
Recommendation	Main actor	Panel recommended due date from May 2021	Status	Completion success	Next steps
All countries to apply systematic and rigorous non-pharmaceutical public health measures; and have highest-level strategy to curb COVID-19 transmission.	National governments	Immediately	Application of public health measures and policy positions continue to be inconsistent between countries. <a href="#">(Source)</a>		Countries must redouble efforts to apply public health measures alongside vaccination commensurate with local and national epidemiological contexts.
High-income countries to commit to provide at least one billion doses for 92 LMICs through COVAX by 1 Sept 2021 and ...	High-Income countries	No later than 1 September	As at 1 November, 410 million doses had been donated through the AMC COVAX facility, of which 159 million had been delivered. <a href="#">(Source)</a>		Transparency in availability of doses, slot swaps to ensure priority to LIC doses through COVAX or AVAT; support for country readiness planning and prioritization of HCWs and vulnerable are key to maximizing benefit of vaccination before end of 2021.
... more than 2 billion doses by mid-2022 through COVAX and other coordinated mechanisms.	National governments	Mid 2022	The G7 nations have promised 2 billion vaccine doses for lower income countries over 2021 and 2022. China aims to provide 2 billion vaccine doses to the world by the end of 2021 and has committed to donate 100 million doses to developing countries. <a href="#">(Source)</a>		Government accountability for timely delivery is key.
G7 countries commit to provide 60% of the US \$ 19 billion required for ACT-A; with remainder from G20/higher income countries.	G7, G20 and nat'l governments of HICs, foundations	Immediately	At 15 October 2021, US\$3 billion in new commitments have been made, leaving a gap of US\$16 billion for 2021. <a href="#">(Source)</a>		ACT-A should urgently take on recommendations of its review. Donors must urgently close ACT-A's 2021 budget gap on path toward fulfilling total of US\$23.4 billion to meet global targets and deliver the tools that are needed over the next 12 months.
WTO & WHO to convene major vaccine producing countries and manufacturers to agree on voluntary licensing and technology transfer for COVID-19 vaccines. If no actions within three months, a TRIPS waiver should come into force immediately.	WTO, WHO and vaccine-producing countries and manufacturers	Immediately	On June 30th 2021 the heads of WTO, WHO, the World Bank and IMF formed a Multilateral Leaders Task Force on COVID-19 vaccines, therapeutics, and diagnostics to increase access, in partnership with key players. <a href="#">(Source)</a> A large majority of countries support an IP waiver. No TRIPS waiver has come into force.		As voluntary licensing agreements have not yet been forthcoming, WTO member states must use upcoming Ministerial Conference (30 Nov to 3 Dec 2021) to align on TRIPS waiver.
Production and access to COVID-19 tests and therapeutics scaled up urgently in LMICs; and fully fund and use GFATM COVID-19 Response Mechanism II (US\$ 1.7 b needed; spend US\$3.7 b).	Test- and therapeutics-producing countries and manufacturers / GFATM and funding partners.	Immediately	As of Oct 2021 0.4% of 3.5 billion tests performed globally were in LICs. As of 20 Oct 2021, C19RM has awarded or recommended for Board approval US\$3,084 million to over 116 applicants. (Source: <a href="#">WHO</a> , <a href="#">The Global Fund</a> )		Donors must urgently close the ACT-A budget gap through 2022. New therapies, including monoclonal antibodies and the promising new oral therapies, must be rapidly deployed to LMICs, if it is authorized as part of test and treat strategies for all countries.
WHO to develop a road map for short, medium and long term response to COVID-19.	WHO	Immediately	On Oct 7, WHO issued a Global COVID Vaccine Strategy to meet global targets of up to 70% vaccination by mid-2022. On Oct 28, the ACT Accelerator released a global strategy through late 2022. Neither represents a complete global roadmap to end the pandemic. (Source: <a href="#">WHO</a> , <a href="#">WHO</a> )		WHO and ACT-A should produce strategic guidance on managing the transition from responding to the current COVID-19 pandemic to future scenarios of evolution of COVID-19 disease.

Recommendation	Main actor	Panel recommended due date from May 2021	Status	Completion success	Next steps
<b>1. Elevate political leadership for global health to the highest levels to ensure leadership, financing and accountability</b> 					
Establish a Heads of State/Government-led Global Health Threats Council endorsed by a UN General Assembly resolution. The Panel proposed membership, functions and terms of reference in its report.	UNGA	Q4 2021 (UNGA Special Session)	The Council has received endorsement from many including some UN Member States, the G20's High Level Independent Panel.		Member States should urgently agree on a means to discuss and negotiate the establishment of a Global Health Threats Council so that it can support mobilisation to end the current pandemic and avert the next.
Adopt a Pandemic Framework Convention within six months, using the power under Article 19 of the WHO constitution.	WHO / National governments	Within 6 months (November 2021)	WHO Member States negotiating the potential of an international instrument since June, 2021. To be discussed at WHA Special Session 29 Nov–1 Dec. <a href="#">(Source)</a>		Member States must seize the opportunity of the special session to align on the value of a framework convention and start a formal negotiation process with a view to completing negotiations in 2022.
Adopt a political declaration by Heads of State and Government at a UNGA Special Session committing to transform pandemic preparedness and response.	United Nations General Assembly	Q4 2021 (UNGA Special Session)	Several Member States have called for a Special Session. Modalities for establishing such a session are under discussion. <a href="#">(Source)</a>		Member States must align on modalities and every effort must be made to convene within the 76th Session of the GA.
<b>2. Focus and strengthen the authority and financing of WHO</b> 					
Focus WHO's mandate on normative, policy, and technical guidance, including supporting countries to build capacity for PP&R and resilient and equitable health systems.	WHA Decision	No later than WHA75	Two working groups are deliberating these issues: (1) the working group on strengthening WHO preparedness and response to health emergencies and (2) the working group on sustainable financing. (Source: <a href="#">WHO</a> , <a href="#">WHO</a> )		Member States should undertake further discussion on this during EB 149 in 2022 in response to WGPR.
Establish WHO's financial independence based on fully unearmarked resources; and an increase in MS fees to 2/3 of the base programme budget with replenishment for remainder.	WHA Decision	No later than WHA75	Under debate in the EB-established Sustainable Financing Working Group. It will present recommendations to EB149 in Jan 2022. <a href="#">(Source)</a>		Member States should support an ambitious set of recommendations from the WGSF and give unambiguous support for higher degree of financial sustainability for WHO.
Strengthen the authority and independence of the WHO Director-General, including a single term of seven years. The same should apply for RDs.	WHA Decision	No later than WHA75	Recommendation documented by the Working Group on Strengthening WHO Preparedness and Response to Health Emergencies. But current status is unclear. <a href="#">(Source)</a>		Member states should undertake further discussion on this during EB 149 in 2022.
Strengthen the governance capacity of the Executive Board, including by establishing a Standing Committee for Emergencies.	WHA Decision	No later than WHA75	Has been documented and discussed by Member States as part of the WGPR.		Member states should undertake further discussion on this during EB 149 in 2022 in response to WGPR.
Empower WHO to take a leading, convening, and coordinating role in operational aspects of an emergency response to a pandemic.	WHA Decision	No later than WHA75	The WGPR has discussed this.		Member states should undertake further discussion on this during EB 149 in 2022 in response to WGPR.
Resource and equip WHO Country Offices to respond to technical requests for PP&R.	WHO Secretariat	Immediately	Unable to fully assess implementation with publicly available data.		
Prioritize the quality and performance of WHO staff, and de-politicize recruitment	WHO Secretariat	Short-term	This recommendation has been documented and is expected to be discussed by the WGPR. <a href="#">(Source)</a>		Member states should undertake further discussion on this during EB 149 in 2022 in response to WGPR.
<b>3. Invest in preparedness now to create fully functional capacities at the national, regional and global level</b> 					
WHO to set new and measurable targets and benchmarks for pandemic preparedness and response capacities.	WHO / National governments	Q3–4 2021	Refining or setting new targets and benchmarks for IHR compliance through JEE would occur after MS agree via WGPR to address this.		WGPR to prioritise this beyond the November WHA Special Session.
National governments update and resource their preparedness plans against WHO benchmarks, ensuring whole-of-government and whole-of-society coordination.	National governments	Within 6 months	Not being systematically tracked.		National governments should report on progress at WHA75.
WHO formalize universal periodic peer reviews of nat'l PP&R capacities against WHO targets.	WHO / National governments	Q4 2021	The WHO has consulted with multiple countries on the development of Universal Periodic Reviews. The first country pilot is expected to begin in Quarter 4 2021.		WHO and Member States should move towards creating a full peer review program.
As part of the Article IV consultation with member countries, the IMF should routinely include a pandemic preparedness assessment; with five-yearly Pandemic Preparedness Assessment Programs in each member country.	International Monetary Fund	Q3–4 2021	There has been no progress on discussions to include pandemic preparedness assessments as part of the article IV consultation.		This should be discussed at the IMF Spring Meetings in 2022

Recommendation	Main actor	Panel recommended due date from May 2021	Status	Completion success	Next steps
<b>4. Establish a new agile system for surveillance, validation and alerts</b> 					
WHO to establish a new global system for surveillance based on full transparency, state-of-the-art digital tools and include animal and environmental health surveillance, with appropriate protections of people's rights.	WHO Secretariat	Q4 2021	On May 24, 2021 WHO launched its BioHub for pathogen storage, sharing and analysis in partnership with Switzerland. On September 21, 2021 WHO inaugurated its Hub for Pandemic and Epidemic Intelligence in partnership with Germany. (Source: <a href="#">WHO</a> , <a href="#">WHO</a> )		MS should fully finance the hubs and establish norms for data sharing.
WHO to be given explicit authority by the WHA to publish information about outbreaks with pandemic potential immediately. WHO to be empowered to investigate pathogens with pandemic potential in all countries at short notice. Future PHEIC declarations should be based on the precautionary principle where warranted (e.g. respiratory infections). The Emergency Committee must be fully transparent. When PHEIC is declared, WHO to issue same-day guidance on actions to take.	WHA Decision	No later than WHA75	No substantive progress to date, though potentially debated by WGPR in early 2022.		WGPR should prioritise these areas in time for decisions at WHA75.
<b>5. Establish a pre-negotiated platform for tools and supplies</b> 					
Transform the current ACT-A into a truly global end-to-end platform for vaccines, diagnostics, therapeutics, and essential supplies delivered as global public goods.	National governments / Member States	Medium-term	The ACT Accelerator Strategic Review focused solely on near term solutions to extend and strengthen its work for one additional year. The G7's 100 Day Mission articulated a set of principles and approach to speeding R&D and equitable access. It is unclear how this will be taken forward. (Source: <a href="#">WHO</a> , <a href="#">100 Days Mission</a> )		MS should review ACT-A comprehensively in 2022 with a view to designing and creating an end-to-end platform that includes support for non-exclusive intellectual property licensing and technology transfer and an international legal instrument supporting sharing of R&D.
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	Progress towards this recommendation is unclear. There is progress towards vaccine manufacturing in some African countries as described on page 19-20 of this report. (Source: <a href="#">AFRO</a> , <a href="#">World Bank</a> , <a href="#">European Commission</a> , <a href="#">European Commission</a> )		MS should provide sustainable financing for pooled technology access (including WHO C-TAP), the Medicines Patent Pool and WHO-facilitated technology transfer hubs.
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.	National governments / WHO / IFIs / regional institutions / private sector	Medium-term			MS, WHO and IFIs identify resource needs and mobilize funds for building manufacturing capacity for pandemic countermeasures in low- and middle-income countries and to enhance regional self-sufficiency.
<b>6. Raise new international financing for the global public goods of pandemic preparedness and response</b> 					
Create an International Pandemic Financing Facility to raise additional reliable financing for pandemic preparedness and ensure rapid surge financing for response in the event of a pandemic.	G20 and Member States	Before the end of the year	G20 discussions have led to a Health and Finance task force which will continue to discuss the issue but there was no consensus or funding announced. The US/Norway have shared a proposal to create a Financial Intermediary Funds. An initial US\$250 million was announced by the US gov't in September. (Source: <a href="#">G20</a> , <a href="#">US Government</a> )		An inclusive coalition of fast movers should support the calls for a FIF and make financial commitments to reach the projected goal of \$10B per annum. The World Bank should immediately signal their willingness to host the FIF.
<b>7. Put in place effective national coordination for pandemic preparedness and response based on lessons learned and best practice</b> 					
The Independent Panel called for several actions within countries for national coordination for PP&R. Progress on these are not are not being systematically tracked.					

For full recommendations see [COVID-19: Make it the Last Pandemic](#).

# References

- 1 Institute for Health Metrics and Evaluation. COVID-19 Projections. Available here: <https://covid19.healthdata.org/global?view=cumulative-deaths&tab=trend>
- 2 The World Bank/IMF Annual Meetings 2021:Development Committee. 15 October 2021. Available here: <https://www.worldbank.org/en/news/press-release/2021/10/15/world-bank-imf-annual-meetings-2021-development-committee-communiqu>
- 3 Data from IMF-WHO Vaccine Supply Forecasts as of 16 November 2021. Available here: <https://www.imf.org/en/Topics/imf-and-covid19/COVID-Vaccine-Supply-Forecast>
- 4 Krause PR, Fleming TR, Peto R, Longini IM, Figueroa JP, Sterne JAC, Cravioto A, Rees H, Higgins JPT, Boutron I, Pan H, Gruber MF, Arora N, Kazi F, Gaspar R, Swaminathan S, Ryan MJ, Henao-Restrepo AM. Considerations in boosting COVID-19 vaccine immune responses. Available here: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02046-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02046-8/fulltext)
- 5 Rohit Malpani and Alex Maitland. Dose of Reality: How rich countries and pharmaceutical corporations are breaking their vaccine promises. The People's Vaccine. 21 October 2021. Available here: <https://app.box.com/s/hk2ezb71vf0sla719jx34v0ehs0l22os>
- 6 United Nations Foundation. Nine Quotes We'll Remember from UNGA 76. 28 September, 2021. Available here: <https://unfoundation.org/blog/post/nine-quotes-well-remember-from-unga-76/>
- 7 Multilateral Leaders Task Force on COVID-19 database. Available here: <https://data.covid19taskforce.com/data/tables>
- 8 G7. Carbis Bay G7 Communiqué. Our shared agenda for global action to build back better. [Internet]. Carbis Bay, United Kingdom. 2021. Available here: <https://www.g7uk.org/wp-content/uploads/2021/06/Carbis-Bay-G7-Summit-Communique-PDF-430KB-25-pages-1-1.pdf>
- 9 China Daily. Full text of Xi's statement at the General Debate of the 76th Session of the United Nations General Assembly. 22 September 2021. Available here: <http://www.chinadaily.com.cn/a/202109/22/WS614a8126a310cdd39bc6a935.html>
- 10 World Health Organization. ZERO DRAFT Report of the Member States Working Group on Strengthening WHO Preparedness for and Response to Health Emergencies to the special session of the World Health Assembly. WHO A/WGPR/4/3, 28 October 2021. Available here: [https://apps.who.int/gb/wgpr/pdf\\_files/wgpr4/A\\_WGPR4\\_3-en.pdf](https://apps.who.int/gb/wgpr/pdf_files/wgpr4/A_WGPR4_3-en.pdf)
- 11 Pandemic Action Network. Framework for a Global Action Plan for COVID-19 Response. Available here: <https://pandemicactionnetwork.org/>
- 12 Global Preparedness Monitoring Board. From Worlds Apart to A World Prepared, 2021 Annual report. 26 October 2021. Available here: <https://www.gpmb.org/annual-reports/annual-report-2021>
- 13 Remarks by H.E. Mr. Abdulla Shahid, President of the 76th session of the United Nations General Assembly 14 September 2021. Available here: <https://www.un.org/pga/76/2021/09/14/press-stakeout-opening-remarks-a-presidency-of-hope-delivering-for-people-planet-and-prosperity/>
- 14 European Council. International health resilience: A defining challenge. 26 October 2021 Available here: <https://www.consilium.europa.eu/en/press/press-releases/2021/10/26/international-health-resilience-a-defining-challenge/>
- 15 H.E. Mr. Abdulla Shahid. Vision Statement, President of the General Assembly. Available here: <https://www.un.org/pga/76/vision-statement/#recovering>
- 16 G20 High Level Independent Panel. A global deal for our pandemic age. 2021. Available here: <https://www.g20.org/wp-content/uploads/2021/07/G20-HLIP-Report.pdf>
- 17 The Borgen Project. The Creation of the Global Preparedness Monitoring Board. 5 July 2018. Available here: <https://borgenproject.org/global-preparedness-monitoring-board/>
- 18 G20 Summit COVID-19 outcome deeply disappointing. Statement by Former Co-Chairs of the Independent Panel for Pandemic Preparedness and Response. Her Excellency President Ellen Johnson Sirleaf and Right Honourable Helen Clark. 1 November 2021. Available here: <https://theindependentpanel.org/g20-summit-covid-19-outcome-deeply-disappointing/>
- 19 Dalberg Advisers. ACT-Accelerator Strategic Review: An independent report prepared by Dalberg. 8 October 2021

- Available here: <https://www.who.int/publications/m/item/act-accelerator-strategic-review>
- 20 WHO Access to COVID-19 tools funding commitment tracker. 29 October 2021.  
Available here: <https://www.who.int/publications/m/item/access-to-covid-19-tools-tracker>
  - 21 Joint Statement by the Heads of the World Bank Group, International Monetary Fund, World Health Organization, and World Trade Organization on the First Meeting of the Task Force on COVID-19 Vaccines, Therapeutics and Diagnostics for Developing Countries. 30 June 2021.  
Available here: <https://www.worldbank.org/en/news/statement/2021/06/30/joint-statement-on-first-meeting-of-task-force-on-COVID19-vaccines-therapeutics-and-diagnostics-for-developing-countries>
  - 22 Rosa S.S., Prazeres D.M.F., Azevedo A.M., Marques M.P.C. mRNA vaccines manufacturing: challenges and bottlenecks. Vaccine. 24 March 2021.  
Available here: <https://pubmed.ncbi.nlm.nih.gov/33771389/>
  - 23 Alsalhani A, Martin M, Dovifat L. An African mRNA jab: The hub as a first step towards African vaccine independence. MSF Access Campaign. 7 July 2021.  
Available here: <https://msf-access.medium.com/an-african-mrna-jab-the-hub-as-a-first-step-towards-african-vaccine-independence-d5e132b29924>
  - 24 World Health Organization Regional Office for Africa. Towards Africa's first mRNA vaccine technology transfer hub. 17 September 2021. Available here: <https://www.afro.who.int/news/towards-africas-first-mrna-vaccine-technology-transfer-hub>
  - 25 PAHO, news. PAHO selects centers in Argentina, Brazil to develop COVID-19 mRNA vaccines. 21 Sep 2021. Available here: <https://prais.paho.org/en/paho-selects-centers-in-argentina-brazil-to-develop-covid-19-mrna-vaccines/>
  - 26 kENUP Foundation. Vaccine Equity for Africa Communiqué on the development of vaccines for the continent, and their end-to-end production in Africa. 27 August 2021.  
Available here: <https://www.kenup.eu/vaccine-equity-for-africa>
  - 27 Remarks made at the launch of the Global Pandemic Preparedness Board's third report at the World Health Summit. 26 October 2021.  
Available here: <https://www.youtube.com/watch?v=5b1FqCreRXc>
  - 28 Medicines Patent Pool. News Releases and COVID-19 updates.  
Available here: <https://medicinespatentpool.org/covid-19/>
  - 29 Medicines Patent Pool. Report of the Medicines Patent Pool Expert Advisory Group on the Proposed Licence Agreement with Merck Sharp & Dohme (MSD) on Molnupiravir, 25 October 2021. Available here: <https://medicinespatentpool.org/uploads/2021/06/MPP-EAG-Report-Molnupiravir-updated-October-21-signed.pdf>
  - 30 Médecins Sans Frontières. MSF: Merck and Medicines Patent Pool license for new COVID-19 drug molnupiravir doesn't go far enough. News release. 27 October 2021.  
Available here: <https://www.doctorswithoutborders.org/what-we-do/news-stories/news/msf-merck-and-medicines-patent-pool-license-new-covid-19-drug>
  - 31 Singh S et. al. How an outbreak became a pandemic: a chronological analysis of crucial junctures and international obligations in the early months of the COVID-19 pandemic, The Lancet. Published online 8 November 2021.  
Available here: [https://doi.org/10.1016/S0140-6736\(21\)01897-3](https://doi.org/10.1016/S0140-6736(21)01897-3)
  - 32 Draft report of the Member States Working Group on Strengthening WHO Preparedness and Response to Health Emergencies to the special session of the World Health Assembly. A/WGPR/5/2, 12 November 2021.  
Available here: [https://apps.who.int/gb/wgpr/pdf\\_files/wgpr5/A\\_WGPR5\\_2-en.pdf](https://apps.who.int/gb/wgpr/pdf_files/wgpr5/A_WGPR5_2-en.pdf)
  - 33 United Nations Secretary-General. Secretary-General's remarks to the U.S.-hosted Global COVID-19 Summit Ending the pandemic and building back better health security to prepare for the next [as delivered]. 22 September 2021.  
Available here: <https://www.un.org/sg/en/node/259385>
  - 34 Navigating the World that COVID-19 Made: A Strategy for Revamping the Pandemic Research and Development Preparedness and Response Ecosystem. October 2021. The Johns Hopkins Center for Health Security. Available here: <https://www.centerforhealthsecurity.org/our-work/publications/navigating-the-world-that-covid-19-made>





# Acknowledgements

The former Co-Chairs would like to acknowledge the many people who have assisted with this report. In particular we wish to thank:

## Former panelists

Mauricio Cárdenas, Aya Chebbi, Mark Dybul, Michel Kazatchkine, Joanne Liu, Precious Matsoso, David Miliband, Thoraya Obaid, Preeti Sudan, Ernesto Zedillo, Zhong Nanshan

## Additional contributors to this report

Kate Dodson, Jeremy Farrar, Alice Jamieson, Helena Legido-Quigley, Cecilia Mundaca Shah, Alexandra Phelan, Elizabeth Radin, Noor Shakfeh, Ellen 't Hoen, Robert Yates; staff at the Act-A Hub; staff at the World Health Organization including Catharina Boehme, Gregory Hartl and Ian Smith

## Members of the Secretariat and Co-Chair support team

Former head of Secretariat Anders Nordström, Michael Bartos (lead editor), Nellie Bristol, Celeste Canlas, Mike Kalmus Eliaz, Marjon Kamara, Rosemary McCarney, Christine McNab, Sudhvir Singh, George Kronnisanyon Werner

