

PREPRINT

Effective health care and global pandemic preparedness

Policy Brief for G20

Leading authors¹:

Albert S. van Jaarsveld^a, Elena Rovenskaya^{a*}, and Jeffrey Sachs^b

Contributing authors:

Dmitry Erokhin^a, Luis Gomez-Echeverri^a, Heide Hackmann^c, Salim S. Abdool Karim^d, Pradeep Monga^a, John Nkengasong^e, Pratik Patil^a, K. Srinath Reddy^f, Ismail Serageldin^g, Gaudenz Silberschmidt^h, and Paola Testori Coggiⁱ

^a International Institute for Applied Systems Analysis (IIASA), Austria

^b Columbia University, USA

^c Future Africa, University of Pretoria, South Africa

^d Centre for the AIDS Programme of Research in South Africa (CAPRISA), University of KwaZulu-Natal, South Africa

^e U.S. President's Emergency Plan for AIDS Relief (PEPFAR), USA

^f Public Health Foundation India, India

^g Nizami Ganjavi International Center (NGIC), Azerbaijan

^h World Health Organization (WHO), Switzerland

ⁱ Istituto Affari Internazionali, Italy

*Corresponding author

Preamble

Well-functioning health systems are a pre-requisite for achieving Sustainable Development Goal 3 (SDG 3) Good Health and Wellbeing. The COVID-19 pandemic demonstrated that the global health system should become more effective and equitable. The World Health Organization (WHO) serves as a vital resource for countries to enhance their national public health systems, and as a catalyst and enabler of multilateral cooperation for addressing global health-related threats. This policy brief proposes

¹ Authors in each category are listed in the alphabetic order.

several key recommendations that, in the view of an expert panel, could be implemented in the near term to further strengthen and empower the WHO. For participants of the expert panel and their short bios, see **Annex 1**.

This policy brief has been coordinated by International Institute for Applied Systems Analysis (IIASA). Located in Austria and supported by 22 national and regional member organizations, IIASA conducts policy-oriented research into pressing concerns that affect the future of all of humanity, such as climate change, energy security, population aging, and sustainable development. A systems analysis approach, convening power, and political independence help IIASA to coordinate knowledge synthesis and co-development of policy recommendation efforts, including this policy brief.

Challenge and context

The WHO's mission is to "coordinate the world's response to health emergencies, promote wellbeing, prevent disease and expand access to health care." The WHO has been invaluable in eradicating smallpox², the development and deployment of vaccines against numerous diseases, including polio, measles, and rubella^{3,4}, the reduction of child mortality rates through initiatives such as the Expanded Program on Immunization and the Integrated Management of Childhood Illness^{5,6}, as well as the progress made in combatting malaria⁷.

The fragmented and disjointed response to COVID-19 in the absence of a global pandemic prevention, preparedness, and response (PPR) plan highlighted weaknesses and limitations of public health systems and governance at the national and international level. This pandemic demonstrated the need for a more coordinated and comprehensive

² Henderson, D. A. (1980). Smallpox Eradication. *Public Health Reports*, 95(5), 422. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1422744/>.

³ Coughlin, M. M., Beck, A. S., Bankamp, B., & Rota, P. A. (2017). Perspective on Global Measles Epidemiology and Control and the Role of novel vaccination strategies. *Viruses*, 9(1), 11. <https://doi.org/10.3390/v9010011>.

⁴ Aylward, B., & Tangermann, R. (2011). The Global Polio Eradication Initiative: Lessons Learned and Prospects for Success. *Vaccine*, 29, D80-D85. <https://doi.org/10.1016/j.vaccine.2011.10.005>.

⁵ Sarkar, P. K., kumar Sarker, N., Doulah, S., & Bari, T. I. A. (2015). Expanded Programme on Immunization in Bangladesh: A Success Story. *Bangladesh Journal of Child Health*, 39(2), 93-98. <https://doi.org/10.3329/bjch.v39i2.31540>.

⁶ Gupta, R., Sachdev, H. P., & Shah, D. (2000). Evaluation of the WHO/UNICEF Algorithm for Integrated Management of Childhood Illness Between the Ages of One Week to Two Months. *Indian Pediatrics*, 37(4), 383-390. <https://www.indianpediatrics.net/april2000/april-383-390.htm>.

⁷ Postels, D. G., & Birbeck, G. L. (2013). Cerebral malaria. *Handbook of Clinical Neurology*, 114, 91-102. <https://doi.org/10.1016/B978-0-444-53490-3.00006-6>.

global health approach with a stronger focus on a) prevention and early detection⁸, b) social determinants of health and underlying health inequities, and c) the nexus of human, animal, and environmental health – One Health approach¹².

As a result, a growing number of reforms have been proposed to strengthen the WHO's capacity, resources and partnerships to ensure more effective responses to new global health challenges of the 21st century (see **Annex 2** for a brief overview). These challenges include an increased likelihood of novel pandemics in a warming climate⁹, population ageing, antimicrobial resistance, health disinformation, and an uneven life expectancy between developed and developing countries, among others¹⁰.

This policy brief builds on numerous previous proposals for WHO and global health system reforms made by many scholars and policy makers, many of which informed this submission. Key recommendations featured in this brief cover the WHO mandate and major WHO activities, and ultimately aim to increase our collective capacity to face future threats to global public health.

Key recommendations

1. Strengthening WHO core activities and resources

1.1 Ensure sustainable financing

Sustainable financial support for the WHO is required to ensure its ability to fulfil its mandate and that its activities are aligned with its goals and priorities for global public health, rather than being defined by the scope of specific grants and priorities of philanthropies. This will also enhance WHO's abilities to intervene effectively in emergencies, including future pandemic responses. The approved proposal to increase the contribution of membership fees to constitute at least 50% of the WHO's core budget¹¹ should be implemented in the next financial cycle to place the WHO on a more financially stable footing. This requires greater commitment from all member countries,

⁸ Wernli, D., Böttcher, L., Vanackere, F., Kaspiarovich, Y., Masood, M., & Levrat, N. (2023). Understanding And Governing Global Systemic Crises in the 21st Century: A Complexity Perspective. Global Policy. <https://doi.org/10.1111/1758-5899.13192>.

⁹ Carlson, C. J., Albery, G. F., Merow, C., Trisos, C. H., Zipfel, C. M., Eskew, E. A., ... & Bansal, S. (2022). Climate Change Increases Cross-species Viral Transmission Risk. *Nature*, 607(7919), 555-562. <https://doi.org/10.1038/s41586-022-04788-w>.

¹⁰ Sachs, J. D., Karim, S. S. A., Aknin, L., Allen, J., Brosbøl, K., Colombo, F., ... & Michie, S. (2022). The Lancet Commission on Lessons for the Future from the COVID-19 Pandemic. *The Lancet*, 400(10359), 1224-1280. [https://doi.org/10.1016/S0140-6736\(22\)01585-9](https://doi.org/10.1016/S0140-6736(22)01585-9).

¹¹ <https://www.who.int/news/item/24-05-2022-world-health-assembly-agrees-historic-decision-to-sustainably-finance-who>.

specifically the G20 nation-states, and the “de-politicization” of WHO resource allocations for the global good. Most recommendations in this policy brief are constrained by the availability of adequate financial resources.

1.2 Strengthen political support for the WHO

Creating a political forum at the level of Heads of States would significantly empower the WHO and support the organization in accomplishing its mission and mandate.

1.3 Enrich scientific input into the WHO work

Scientific input into the WHO is already substantial, however, ensuring integration of the appropriate diversity of inputs from different scientific disciplines and inclusion of perspectives from across different regions and cultures remains a challenge¹². The WHO should strengthen cooperation with all relevant agencies and expert communities to ensure that its recommendations and actions are based on the best possible scientific input.

1.4 Enhance communication

High expectations are placed on the WHO, sometimes stretching beyond its current mandate and resources, that can overshadow the organization’s actual achievements. The WHO is challenged to improve broader understanding of its role, activities, and accomplishments by expert communities, decision makers, and the public, which requires more effective communication and support from national governments and other stakeholders.

Furthermore, the WHO should strengthen its capacity to communicate to the public major science-based information concerning health-related matters. This would help in preventing and addressing health threats.

2. Strengthening aspects of the WHO mandate to support countries

2.1 Facilitate the development of national public health systems

Achieving universal health coverage (UHC) is one of the targets within the Sustainable Development Goals (SDGs) framework. As a foundation for and way to move towards UHC, the WHO recommends reorienting health systems to primary health care (PHC) at the community level. PHC refers to universal access to the full range of quality services and products people need for health and wellbeing in everyday environments. According to the WHO, most of essential UHC interventions (about 90%) can be delivered through

¹² Abimbola, S., Asthana, S., Montenegro, C., Guinto, R. R., Jumbam, D. T., Louskieter, L., ... & Pai, M. (2021). Addressing Power Asymmetries in Global Health: Imperatives in the wake of the COVID-19 pandemic. *PLoS medicine*, 18(4), e1003604. <https://doi.org/10.1371/journal.pmed.1003604>.

PHC^{13,14}. PHC systems play a crucial role in early identification of new diseases and in the promotion of vaccination, to name but two of the many crucial functions it has within a country's overall health system.

PHC must be comprehensive (in essential health services provided); continuous (in follow-up and care provision); capable of delivering chronic & acute care (as needed); integrated (with emphasis on people- and not illness-centered services); and connected to secondary and tertiary care in a bidirectional manner. In many developing countries, PHC systems at the community level are notably weak. It is imperative to enhance these systems on a global scale, with a particular emphasis on low-income and middle-income countries, where PHC is underdeveloped and substantially underfunded¹⁵. The WHO should continue to support countries in developing their PHC systems including proper financing, by sharing good practices and knowledge, facilitating international cooperation, and supporting capacity development. The WHO should also facilitate more development assistance for low-income countries to expand their PHC.

Digital Health presents another opportunity for countries to enhance their national health systems. The WHO should support countries to develop Digital Health to enhance access, affordability, quality, and connectivity of health services, while protecting privacy and preventing inappropriate use of digital tools¹⁶.

Furthermore, early epidemic detection systems should be strengthened in most countries, and the WHO should support the establishment of such in-country systems by sharing best practices, providing road maps, and offering capacity development programs. The WHO should also support countries to develop their national PPR plans using similar means.

2.2 Support more holistic in-country policymaking

Health is a fundamental pre-requisite for human development and wellbeing. Multiple interlinkages exist between SDG 3 Good Health and Wellbeing and other SDGs^{17,18}.

¹³ [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)).

¹⁴ <https://www.who.int/news-room/fact-sheets/detail/primary-health-care>.

¹⁵ Hanson, K., Brikci, N., Erlangga, D., Alebachew, A., De Allegri, M., Balabanova, D., ... & Wurie, H. (2022). The Lancet Global Health Commission on financing primary health care: Putting people at the centre. *The Lancet Global Health*, 10(5), e715-e772. [https://doi.org/10.1016/S2214-109X\(22\)00005-5](https://doi.org/10.1016/S2214-109X(22)00005-5)

¹⁶ <https://www.who.int/health-topics/digital-health>.

¹⁷ Nunes, A. R., Lee, K., & O'Riordan, T. (2016). The Importance of an Integrating Framework for Achieving the Sustainable Development Goals: the Example of Health and Well-being. *BMJ global health*, 1(3), e000068. <https://doi.org/10.1136/bmjgh-2016-000068>.

¹⁸ Guégan J-F, Suzán G, Kati-Coulibaly S, Bonpamgue DN, Moatti J-P. (2018). Sustainable Development Goal #3, "Health and Well-being", and the Need for More Integrative Thinking. *Veterinaria México* 5(2): 443. <https://doi.org/10.21753/vmoa.5.2.443>.

Policies and actions focusing on health provide significant economic, social, and environmental benefits. Conversely, policies focusing on other dimensions such as eradication of poverty or improving environmental quality have substantial impact on public health. Integrated policymaking aims at optimizing cross-sectoral co-benefits of policies and reducing negative side effects. The WHO should play a leading role in developing methodologies for designing integrated policies relevant for health and support countries in their efforts to develop and implement such policies. The WHO ought to assume a prominent role in creating methodologies for designing integrated policies pertaining to health, and also provide support to countries in their endeavors to break the siloes and develop and execute such policies. This also includes strengthening capacities for Health Impact Assessment of policies and programs in other sectors. WHO should also help countries to develop and strengthen such capacity.

Furthermore, siloed thinking in governments remains a critical barrier to operationalize the One Health approach which intends to balance and optimize the health of people, animals and the environment. This approach is particularly important to prevent, predict, detect, and respond to global health threats such as the COVID-19 pandemic¹⁹. Implementation of the One Health approach faces challenges in most countries, even developed ones. The WHO should assist countries to shift towards this approach in policymaking by advising on the integrated governance reforms required in specific contexts.

Finally, the WHO should also be clearer in communicating the connections, relations and synergies between multiple relevant global frameworks such as One Health, Planetary Health, the Sendai Framework for Disaster Risk Reduction, the SDGs, and others, and provide clearer recommendations for policymakers as to how national policies could embrace and harness these frameworks effectively.

2.3 Build targeted capacities in the global One Health workforce

A competent and well-trained health workforce competent in the One Health approach is crucial for an efficient health system as well as timely responses to public health emergencies. Many countries lack adequate numbers of qualified health workers and skills. Co-investment in developing a competent and effective health workforce across the world, taking advantage of the demographic dividends offered by some developing countries, can help generate a global health workforce not only for domestic use but also for global deployment.

¹⁹ <https://www.who.int/news-room/questions-and-answers/item/one-health>.

2.4 Strengthen biosafety

Biosafety is a pressing matter that requires immediate attention, given that laboratory work is presently under-regulated. It is imperative to establish universal standards for biosafety and conduct regular appropriate WHO oversight to ensure that laboratories adhere to these standards.

3. Strengthen aspects of the WHO mandate to support global cooperation and equity

3.1 Harness synergies and improve co-ordination

While the WHO remains the leading body to co-ordinate global public health efforts, we need a wider ecosystem of collaborative and complementary partnerships involving the public and the private sectors, national, and regional institutions, to collectively address global health threats. These bodies include those from the humanitarian sector and development agencies, among others. Currently there are multiple bodies, in particular, within the UN system, whose activity covers different aspects of health, however the coordination among these bodies is weak. The WHO needs to play a central, coordinating role in designing, developing and deploying this supportive ecosystem and to ensure that the spirit of multilateral cooperation prevails. The guiding principle should be “think and consult globally, partner regionally, and act locally.” Regional partnerships need to be strengthened to enable the sharing of relevant knowledge and acting with one voice.

3.2 Enhance knowledge sharing

Open science including open data and open access are key enablers of rapid knowledge diffusion in science and beyond. The WHO should actively participate in facilitating the transition from conventional way of doing science to open science.

In this context, it is important for the WHO to take a leadership role in guiding the development and implementation of Digital Public Goods for the betterment of public health. These goods encompass digital solutions that are capable of gathering and analyzing health-related data.

In the event of a public health emergency, the timely and broad sharing of knowledge is crucial for an effective response. This includes sharing information about the outbreak's nature, its spread, and containment measures. To accomplish this, enhanced coordination mechanisms with the WHO serving as a central hub are necessary. An effective “early warning system” for emerging pandemics should be developed under the WHO.

3.3 Strengthen health distribution networks

The WHO should lead efforts to establish effective global networks for sharing resources, such as medical supplies, equipment, and personnel. Furthermore, it is vital to guarantee

the distribution of other biological countermeasures, such as treatments and diagnostics. The WHO should play a key role in facilitating this competency.

3.4 Ensure global vaccine equity

In order to ensure global health security against communicable diseases, it is necessary to address various challenges and barriers hindering the achievement of global vaccine equity, as no one is safe until everyone is. A primary impediment remains the inconsistent viewpoints among countries concerning equity and vaccine distribution. The WHO should be empowered to lead global collaboration to accelerate equitable access to vaccines. In this context, COVAX is a ground-breaking initiative focusing on COVID-19 vaccines co-led by the WHO²⁰.

Furthermore, the WHO should facilitate that countries converge on their positions around IP rights for vaccines and other countermeasures. A global systems vaccine strategy would lead to different and less fragmented outcomes than the presently dominant bottom-up national approach.

²⁰ <https://www.who.int/initiatives/act-accelerator/covax>.

Annex 1

Participants of the consultation that informed this brief:

Heide Hackmann is Director of Future Africa, a pan-African platform for collaborative research at the University of Pretoria in South Africa. She was the founding CEO of the International Science Council (ISC), headquartered in Paris, France, and Executive Director of the Council's two predecessor organizations, the International Council for Science and International Council for Social Sciences. Dr Hackmann is a Fellow of the ISC and serves as an advisor to numerous international scientific organisations and initiatives, including within the UN system.

Salim S. Abdool Karim, FRS is Director of Centre for the AIDS Programme of Research in South Africa (CAPRISA) and Professor of Global Health at Columbia University. He is an Adjunct Professor at Cornell and Harvard Universities, Pro Vice-Chancellor at the University of KwaZulu-Natal. He is Special Advisor on pandemics to the Director-General of the WHO.

John N. Nkengasong is a Cameroonian-American virologist serving as the Global AIDS Coordinator in the Biden administration since 2022. He previously worked as Director of the Africa Centres for Disease Control and Prevention from 2016 to 2022, as well as at the World Health Organization (WHO) and Centers for Disease Control and Prevention. During the COVID-19 pandemic, Nkengasong was appointed the WHO Special Envoy for Africa.

K. Srinath Reddy is Founder (Past) President of the Public Health Foundation of India which has established five Indian Institutes of Public Health. A cardiologist and epidemiologist by training, he previously headed the department of Cardiology at the All India Institute of Medical Sciences. He is an Adjunct Professor at Harvard, Pennsylvania, Emory and Sydney universities. He is Co-Chair of the Health Thematic Group of the UN Sustainable Solutions Development Network, an International Member of the US National Academy of Medicine and a Fellow of the London School of Hygiene and Tropical Medicine. He has published over 570 scientific papers and had edited the National Medical Journal of India.

Ismail Serageldin is Founding Director of the Bibliotheca Alexandrina inaugurated in 2002 and currently serves as Emeritus Librarian, and member of the Board of Trustees of the Library of Alexandria. He also serves on a number of advisory committees for academic, research, scientific and international institutions, including as co-Chair of the Nizami Ganjavi International Center (NGIC), and as a member of the Board of the Science and Technology for Society (STS) Foundation of Japan. He has held many international positions including as Vice President of the World Bank (1993–2000). He also co-chaired

the African Union's high-level panel for Biotechnology (2006) and again for Science, Technology and Innovation (STI) in 2012-2013, and was a member of the ICANN Panel for the review of the internet future (2013), and more recently, he was a member of the US National Academies' panel on Human Genome Editing (2017).

Gaudenz Silberschmidt is Director, Health and Multilateral Partnerships of the World Health Organization (WHO), where is responsible for private sector, civil society, youth, sports for health, multilateral and parliamentary engagement. He was also responsible for the creation of a WHO Foundation, the Solidary Response Fund and the Global Youth Mobilization. Before joining WHO in 2012 he headed as Ambassador for Global Health the International Affairs Division of the Swiss Federal Office of Public Health.

Paola Testori Coggi is Scientific Advisor of the Istituto Affari Internazionali (IAI) and Ambassador of the Federated Innovation @MIND, Milano Innovation District. She is Member of the Italian Delegation to Horizon Europe-Cluster Health Programme Committee and Special Advisor of the National Technological Cluster on Life Sciences, Alisei. Testori Coggi has done all her career within the European Commission where she has been Director General for Health and Consumer until 2014. Testori Coggi is a biologist with a Master degree in Ecotoxicology; she received a Doctor Honoris Causa in Veterinary Medicine and she was awarded the Cross of Merit of Official of the Italian Republic.

Annex 2

Submissions and suggestions for the fundamental reform of The World Health Organization (WHO) multiplied after the global COVID-19 pandemic experience, collectively requesting increased global health collaboration to support developing countries timely²¹. These included an early nine-point plan for WHO reformation from the Indian government made during 2020²². The Covid-19 pandemic emphasized multiple failures of international cooperation and led to renewed calls from the scientific community to strengthen the global multilateral system to enable the UN systems to tackle global emergencies, achieve sustainable development, human rights and peace as members of the UN. This Lancet Commission²³ also made numerous recommendations to improve pandemic preparedness, global cooperation and coordination, the WHO itself, pandemic surveillance and spill-over prevention, global research capacities and health systems and pandemic response plans and a global health funding. The UN also requires a suitable financial architecture to finance LMICs to meet the pandemic preparedness challenge, the Paris Climate Agreement, and the Sustainable Development Goals.

Concurrently with the finalization of the Lancet Commission in 2022, the WHO had already received some 300 proposals to strengthen the body. These multiple recommendations were all distilled into a 2022 WHO white paper containing ten recommendations to build a safer world. These recommendations covered WHO governance, systems and financing aspects²⁴. At the time that the Lancet recommendations were received, the WHO had already implemented some measures strengthen the global health system. These included:

- In May 2022, the World Health Assembly adopted a text that would increase the proportion of the budget financed by member states from 16-50%. This would strengthen the leadership of the WHO and make the WHO less dependent on voluntary contributions.
- Established a new Financial Intermediary Fund for Pandemic Prevention, Preparedness and Response at the World Bank.
- Established the WHO Hub for Epidemic and Pandemic Intelligence in Berlin.

²¹ <https://www.hindustantimes.com/india-news/pm-modi-calls-for-reforms-in-who-to-combat-future-pandemics-101652381398172.html>.

²² <https://main.mohfw.gov.in/sites/default/files/India%27s%20Approach%20on%20WHO%20Reforms.pdf>.

²³ Sachs, J. D., Karim, S. S. A., Aknin, L., Allen, J., Brosbøl, K., Colombo, F., ... & Michie, S. (2022). The Lancet Commission on Lessons for the Future from the COVID-19 Pandemic. *The Lancet*, 400(10359), 1224-1280. [https://doi.org/10.1016/S0140-6736\(22\)01585-9](https://doi.org/10.1016/S0140-6736(22)01585-9).

²⁴ WHO (2023). Ten Proposals to Build a Safer World Together – Strengthening the Global Architecture for Health Emergency Preparedness, Response and Resilience. Geneva: World Health Organization. https://apps.who.int/gb/ebwha/pdf_files/EB152/B152_12-en.pdf.

- Established the mRNA Technology Transfer Hub in South Africa - sharing with 15 country recipients.
- Established the WHO BioHub in Switzerland to foster increased sharing of biological samples.
- Established the Scientific Advisory Group for the Origins of Novel Pathogens – develop a framework to study the emergence of new viruses.
- Developed the Universal Health and Preparedness Review, a peer review mechanism being piloted in four countries.
- WHO Intergovernmental Negotiating Body has started negotiations on a global accord on pandemic prevention, preparedness and response in March 2023.