Pandemic preparedness and response: exploring the role of universal health coverage within the global health security architecture

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In response to the COVID-19 pandemic, several international initiatives have been developed to strengthen and reform the global architecture for pandemic preparedness and response, including proposals for a pandemic treaty, a Pandemic Fund, and mechanisms for equitable access to medical countermeasures. These initiatives seek to make use of crucial lessons gleaned from the ongoing pandemic by addressing gaps in health security and traditional public health functions. However, there has been insufficient consideration of the vital role of universal health coverage in sustainably mitigating outbreaks, and the importance of robust primary health care in equitably and efficiently safeguarding communities from future health threats. The international community should not repeat the mistakes of past health security efforts that ultimately contributed to the rapid spread of the COVID-19 pandemic and disproportionately affected vulnerable and marginalised populations, especially by overlooking the importance of coherent, multisectoral health systems. This Health Policy paper outlines major (although often neglected) gaps in pandemic preparedness and response, which are applicable to broader health emergency preparedness and response efforts, and identifies opportunities to reconceptualise health security by scaling up universal health coverage. We then offer a comprehensive set of recommendations to help inform the development of key pandemic preparedness and response proposals across three themes—governance, financing, and supporting initiatives. By identifying approaches that simultaneously strengthen health systems through global health security and universal health coverage, we aim to provide tangible solutions that equitably meet the needs of all communities while ensuring resilience to future pandemic threats.

Introduction

The health and wellbeing of populations worldwide are at a pivotal, yet precarious, moment. Although the COVID-19 pandemic unveiled health inequities and exposed striking weaknesses in pandemic preparedness and response, our collective failure to build resilient and responsive health systems that meet the needs of all should have come as no surprise. These weaknesses go beyond pandemic preparedness and response, and also apply to health emergency preparedness and response more broadly.[1] The rapid spread of the COVID-19 pandemic simply underscored long-existing gaps and bottlenecks in the global health security architecture that impeded public health systems from preventing, detecting, and responding to international infectious disease threats. Health systems were further weakened by chronic underinvestments in national and subnational health systems over the years, including inadequate mechanisms for real-time epidemiological surveillance and monitoring during health emergencies.[2]

Universal health coverage (UHC) is an equally important, although often overlooked, element in preventing health emergencies. Although UHC is technically focused on mitigating the financial burden of health care, it has often been used to describe the wider set of interventions necessary to ensure that all people have access to comprehensive health services. International commitments to achieve UHC, strengthened through the UN Sustainable Development Goal (SDG) 3.8 target to achieve UHC[3] and the political declaration of the UN High-Level Meeting on UHC,[4]

have long been off-track. Where progress on UHC had been made, the focus has largely been on expanding financial coverage through health insurance rather than ensuring available, accessible, acceptable, and high-quality health services.[5] Few countries had invested in integrated health systems that were equipped to support both global health security and UHC.[6]

Health systems can be considered as the means by which health priorities, including global health security and UHC, can be operationalised. Strengthening of health systems is a necessary component of epidemic and pandemic preparedness and response, supporting essential public health functions including robust health infrastructure, trained and protected health-care workers, adequate funding, reliable supply chains, and evidence-based planning and coordination. Effective and accessible primary health care can be a key approach for creating cohesion between global health security and UHC. Primary health care is the range of people-centred essential health services and goods that support the majority of a person's health needs over their lifetime. Previous studies contend that the lack of adequate primary health care might have jeopardised the ability of countries to mount an equitable response to COVID-19 or ensure resilience in the face of complex, competing health and economic crises.[7]

Several initiatives have been launched in the wake of COVID-19 to better prepare for and respond to both the current pandemic and future health threats. Three major reports recommended revisions to the international governance of global health security,

such as improving compliance with the International Health Regulations (IHR, 2005) and supporting a new international instrument for pandemic preparedness and response.[2,8,9] The Working Group on Strengthening WHO Preparedness and Response to Health Emergencies was tasked with reviewing the findings of these reports and to explore implications for pandemic preparedness and response.[10] Other initiatives included G20-led discussions for multilateral mechanisms to better finance health emergency preparedness and response, including a Global Health Threats Fund and Global Health Threats Board.[2,11] The Access to COVID-19 Tools (ACT) Accelerator, launched at the start of the pandemic to ensure equitable access to medical countermeasures, has been proposed as a model for a pre-negotiated system to enable rapid response in future outbreaks, in conjunction with accountability mechanisms, including the Universal Health and Preparedness Review.[12] High-level political leadership on pandemic preparedness and response has been envisioned through proposals for a Global Health Threats Council and UN Political Declaration on pandemic prevention, preparedness, and response via the UN General Assembly,[13] opening new avenues for geopolitical, multisectoral engagement to address broader public health challenges.[14] Although these proposals offer crucial opportunities to meaningfully shape the future of pandemic preparedness and response, there is increasing concern that such mechanisms will ultimately not address fragmentation in health systems, inequity in health governance, and poor accountability in pandemic preparedness and response. Such a result would leave us unprepared for not only the next pandemic, but all health crises we have yet to face.

Here, we identify three major challenges that threaten the success of pandemic preparedness and response initiatives proposed in the wake of the COVID-19 pandemic: (1) fragmented approaches to public health and outbreak response, including an over-reliance on global health security at the expense of UHC; (2) weak health systems that are unable to address inequities amid the fragility of highly interconnected economies and social systems; and (3) inadequate engagement of key stakeholders, resulting in a lack of trust in public health institutions and decision makers. We then identify emerging opportunities for integration between global health security and UHC through strengthening of health systems, in particular primary health care, and propose recommendations for a more cohesive, resilient, and responsive pandemic preparedness and response architecture.

Major challenges in pandemic preparedness and response

Over-reliance on global health security
The progression of the COVID-19 pandemic suggests that hyperfocusing only on infectious disease response can distort the overall reality: health systems

worldwide are chronically underfunded, disjointed, and inequitable.[15,16] Investments in early-warning systems and advanced laboratories are undoubtedly needed, such as through initiatives like the WHO Hub for Pandemic and Epidemic Intelligence. However, these investments will not be sufficient unless concretely tied to broader initiatives that strengthen health systems and are supported by UHC.[17] For example, in the first 6 months of the COVID-19 pandemic, about 90% of countries reported disruptions to essential health services, and many individuals were unable to access nearby health centres or afford testing.[18,19] These disruptions can largely be attributed to inadequate progress on UHC and poor consideration of the role of primary health care in preparedness and response. Less than half of the countries in one major analysis included the maintenance of health services in their national COVID-19 strategic plans,[20] and chronic distrust of health-care providers impeded the response in many communities.[21] WHO reported that up to 180 000 health and care workers might have died from COVID-19 in the period between January, 2020, and May, 2021, often from poor working conditions, while inadequate planning and workforce capacity led to the destruction of hundreds of thousands of vaccine doses in high-income and low-income countries alike.[22,23] These issues go beyond the scope of traditional global health security and offer a cautionary tale about the pitfalls of neglecting primary health care, underpinned by commitments to UHC, in future pandemic preparedness and response initiatives.

Gaps in mitigating socioeconomic factors

The prevalence of unprepared health systems partly stems from prioritising clinical care at the expense of promoting healthy populations and societies. As a result, many social, political, and environmental determinants of health, such as economic inequality, racism, gender inequity, and—increasingly—climate change, remain neglected throughout pandemic preparedness initiatives.[24,25] Many reasons exist that account for this oversight, including patronising modes of operation and a power imbalance of funding initiatives between high-income and low-income countries, which often privilege global initiatives over the priorities of local communities or less powerful nations. The poor understanding of the foundational determinants of health has been particularly evident in the absence of support for vulnerable populations, including a striking paucity of social and economic protection policies at the domestic level and of solidarity-based mechanisms to provide affordable medical supplies at the international level.[26–28]

Such inadequacies disproportionately affected groups of individuals who were already marginalised, with factors such as poverty influencing vaccine access within countries and globally. In Brazil, low-income populations had reduced access to health care for COVID-19 symptoms, and availability of intensive care units was considerably reduced among poor and Black communities.[29] In the USA, racial and socioeconomic disparities were reported in COVID-19 infection and death rates; marginalised groups also experienced barriers in accessing prevention and treatment. Income disparities have been reflected in the scarcity of beds in intensive care units, particularly in rural areas.[30]

A lack of inclusive and equitable engagement mechanisms

Because global response to health emergencies is primarily coordinated at the nation-state level, the absence of engagement from local communities and civil societies undermines equitable governance that represents all perspectives.[31,32] Although these issues have been well documented even before the pandemic, they risk being further exacerbated in the wake of the COVID-19 pandemic,[33] because an increasing focus on strengthening global health security initiatives tends to sideline much needed investment in UHC. Meanwhile, global administrations pursued a particular notion of equity by focusing solely on addressing inequitable access to medical countermeasures among countries (eg, vaccine equity) but overlooked in-country disparities in delivering life-saving COVID-19 supplies and maintaining routine health services.[34]

These challenges can be addressed by improving whole-of-society representation in health systems as a core component of future pandemic preparedness and response initiatives. Leveraging diverse, multistakeholder governance is a key factor for better delivering UHC-related interventions.[15] Improved delivery includes expanding and strengthening primary health care to support health emergency preparedness and response—for example, by removing user fees in health facilities, making medical countermeasures (eg, diagnostics and therapeutics) free, scaling up a robust community health workforce, and leveraging primary care data and social insights.

Emerging opportunities in pandemic preparedness and response

Aligning global health security and UHC capacities

Although most countries have had difficulties in sustaining an effective response over the duration of the pandemic, initial studies suggest that health systems that could effectively leverage both robust global health security core capacities (eg, surveillance, laboratories, and risk communication) and fundamental UHC interventions (eg, primary health care, affordable medicines and supplies, accessible health facilities, and community health workers) were often in a better position to protect their citizens against the social and economic impacts of the pandemic.[6,35–37] For example, researchers in the USA have argued that UHC could have averted more than 212 000 deaths and US$105 billion in just 2020 alone.[38]

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Mitigating wider determinants of health

Countries found that they could not rely on isolated technological innovations, standardised solutions, or fragmented health programmes when addressing long-standing gaps in emergency preparedness. The COVID-19 pandemic has therefore incetivised fresh calls to address the systemic political, social, environmental, and economic determinants and effects of public health threats. Examples of this increasing awareness should include plans to mitigate the anthropogenic drivers of zoonotic spillovers and other outbreaks (eg, climate change, changes in land use, and antimicrobial resistance) and invest in health systems that advance both global health security and UHC. Strong investments in social security and safety nets as well as a primary health-care approach to pandemic preparedness and response[39,40] are required to effectively address these determinants of health.[41]

Developing equitable and inclusive pandemic preparedness and response mechanisms

Sustained political leadership and effective governance were key factors in COVID-19 response and will continue to influence future pandemic preparedness and response. Good governance requires that health decision-making processes and institutions at national and international levels are accountable, transparent, equitable, inclusive, participatory, and consistent with the rule of law.[42,43] These principles can inform the range of reforms to global governance for pandemic preparedness and response (eg, revisions to the IHR, global financing, and equitable mechanisms for global public goods) currently being explored. Good governance can also be reflected in the standardised tools that researchers use to assess countries' performance in responding to health threats.[44] Many analyses have shown the paucity of metrics to explain why some countries performed well and others poorly in controlling the COVID-19 pandemic; political and societal indicators could therefore be included in tools such as the Joint External Evaluations, which until now have relied heavily on biosafety and biosecurity when ranking countries' preparedness and readiness.

Holistic and modernised approaches to health emergency prevention, preparedness, response, and recovery include being equipped to support equitable and resilient health systems that can promote essential public health functions together with emergency risk management, and mitigate market failures in research and development of medical countermeasures. Global health security efforts could actively address gaps in health legislation, incorporating the protection of public health and human rights, and enshrining accountable and transparent decision making consistent with the rule of law.[45–47] These efforts could be strengthened by bold and inclusive institutional arrangements (eg, multisectoral, whole-of-government initiatives spanning health and finance ministries, mechanisms that empower marginalised communities through cooperation across regional blocs or low-income countries, and civil society engagement) that diversify leadership to balance power and safeguard equity at all levels.[48] Governments should also develop costed National Action Plans for Health Security that accurately estimate the resources necessary for pandemic preparedness and response and to allocate responsibility to relevant agencies and donor programmes.[49] Ultimately, these emerging opportunities are only achievable through renewed progress on UHC.

Recommendations
Governance

The Working Group on Strengthening WHO Preparedness and Response to Health Emergencies draft report[10] found consensus among member states that many aspects of pandemic preparedness and response, such as equity (described as "the core of the breakdown in the current system"[10]), were not adequately addressed under the existing IHR and could instead be best enforced through new international legal instruments, such as a pandemic treaty. In a promising shift from conventional health security approaches, the working group called for the need to "achieve universal health coverage and health system strengthening, which includes the enhancement of primary health care, the health workforce and social protection".[10] Accordingly, negotiations for the IHR and pandemic treaty have echoed these same calls to move beyond the status quo in health security.[50] In this way, legal and policy reforms for pandemic preparedness and response can reconceptualise solutions that advance both global health security and UHC through resilient health systems. The success of a new international instrument for pandemic preparedness and response to prevent the next health crisis will depend on whether it recognises the gaps in health systems as key contributors to the exacerbation of health threats, and whether it responds to these challenges by mandating that traditional infectious disease interventions be implemented together with the multisectoral, comprehensive, and proactive interventions made possible by UHC.

Furthermore, the inability to achieve equity should be remedied through legal reforms based on a human rights approach.[51] Such an approach includes ensuring equitable access to medical countermeasures and affordable medicines and supplies through the full use of flexibilities and waivers for public health, such as those under the Agreement on Trade-Related Aspects of Intellectual Property Rights.[52,53] Through diplomatic and legislative means, an instrument for pandemic preparedness and response and more enforceable IHR amendments provide novel opportunities to codify and prenegotiate obligations and mechanisms for equity in the development and distribution of vaccines, diagnostics, personal protective equipment, and

treatments in low-income and middle-income countries before, during, and after health emergencies.

International and intranational equity can only be assured through multistakeholder and multisectoral engagement at all stages of policy development. Any international law reform should align with humanitarian principles and ensure meaningful participation of marginalised groups in decision making (eg, women, refugees, migrants, displaced or homeless populations, and racial minorities). Clear national and subnational strategies for intersectional and rights-based approaches should therefore be institutionalised across global health security and UHC programmes.[27,54]

Broadening political leadership in pandemic preparedness and response governance—for example, through the proposed Global Health Threats Council and the UN High-Level Meeting on pandemic prevention, preparedness, and response—might not only enhance accountability at the highest levels of power but also help incentivise political will and investments in health systems strengthening at national and subnational levels. These efforts should be reinforced by equitable institutional arrangements and governance of power relations (such as gender parity and diverse representation), cognisant of the role of civil society together with both public and private sectors, and supported by legislative review and reform.[55]

Reimagined global and national accountability for pandemic preparedness and response should involve non-state actors and take an integrated approach, such as through independent reviews (eg, the Global Health Security Index or the Universal Health and Preparedness Review) that draw on the example of the Universal Periodic Review set up by the UN Human Rights Council. Additionally, assessments could be pursued together (eg, jointly conducting Joint External Evaluations and Service Availability and Readiness Assessments).[56] Crucially, these independent reviews and assessments should consider the spectrum of social, political, and commercial determinants of health. By strengthening international solidarity via the facilitation of cross-national learning, such independent evaluations could offer practical insights on ways forward to address context-specific public health needs and build healthy societies.[57]

New legal governance instruments should not be conceived and developed by high-income countries and then imposed on low-income countries. To ensure comprehensiveness, appropriateness, and fairness, all countries should be able to meaningfully contribute to the development of pandemic preparedness and response reforms.[58–60] With ongoing vaccine inequity, the emergence of new SARS-CoV-2 variants, and travel restrictions that disproportionately affect low-income and middle-income countries, international organisations and high-income countries have a special obligation to prevent and mitigate direct, indirect, and discriminatory exclusion of stakeholders from low-income countries in pandemic preparedness and response negotiations.[61]

Financing

Several initiatives developed in the wake of the COVID-19 pandemic have drawn particular attention to the absence of sustainable financing for pandemic preparedness and response. World leaders should maximise resources and avoid duplicative efforts by integrating investments in health systems to support both global health security and UHC. All financial mechanisms intended to support pandemic preparedness and response should thus include a core component of financing for community-based health systems, particularly through primary health care.[40]

The World Bank-based Financial Intermediary Fund for Pandemic Prevention, Preparedness and Response, also known as Pandemic Fund, has been developed to mobilise health security investments such as global surveillance, provision of emergency countermeasures, and funding for research and development in pandemic prevention. However, this framing largely neglects the basic health systems components required to comprehensively address public health threats, including robust primary health care, well trained and supported local and community health workers, interoperable data systems, and accessible health centres.[11] Accordingly, the Pandemic Fund should mandate a minimum base amount of financing for essential public health functions that support the health workforce and maintain routine health services in pandemic preparedness and response. This approach would avoid the pitfalls of the now defunct World Bank Pandemic Emergency Financing Facility—a financing mechanism that was criticised for being too focused on managing rather than preventing epidemics in low-income and middle-income countries.[62] Furthermore, the fund should foster coherence across the pandemic preparedness and response architecture by prioritising investments identified through pandemic treaty negotiations, IHR amendments, and WHO's health emergency preparedness and response framework.[1]

The Global Health Threats Board has been proposed to provide systemic global financial oversight to enable effective and efficient resourcing of pandemic prevention, detection, and response capacities. This mechanism and the governance for the Pandemic Fund should meaningfully involve civil society and community stake-holders in its decision-making architecture, providing cross-sectoral health and social science perspectives to ensure timely, proactive, and systems-wide support during health emergencies. Clear indicators and targets on equity and resilience should accompany this mechanism to protect both lives and livelihoods. The Global Health Threats Board should also operationalise pandemic preparedness and response investments through alignment with broader SDGs (eg, SDG 3 [gender equality], SDG 8 [decent work and economic growth], SDG 13 [climate action], and SDG 17 [partnerships for the goals]) to ensure global health security investments advance, rather than potentially undermine, progress towards health and wellbeing.[6,15,63]

Fostering global solidarity, such as by funding the common goods for health, is an overlooked role of global health security financing. Common goods are interventions that require collective financing and include investing in essential public health functions, building local health systems, and incetivising UHC.[64] To ensure the provision of common goods for health, WHO member states need to support proposals for a substantial increase (at least 50%) in assessed contributions to WHO, and provide the organisation with non-earmarked funding, as proposed by the Working Group on Sustainable Financing.[65] All efforts should be made to ensure that these funds come from equitable contributions of high-income countries, donors, and private sector partners, and that clear enforceability mechanisms exist for all participating stakeholders.

Pandemic preparedness and response financing should contribute towards pooled funding to sustain health capacities through primary health care, because outbreaks begin and end at the local level; its design should thus be centred on community health workers and services.[66] Regionally, these people and services can support the expansion of affordable and accessible essential medicines and supplies through pooled procurement mechanisms, such as the Strategic Fund of the Pan American Health Organization, and mobilise financial resources for social protection during health emergencies. Domestically, removing user fees at health facilities, delinking health insurance from employment, and funding health promotion are crucial factors that could further enable the operationalisation of UHC to better support broader preparedness and response financing.[67,68]

Supporting initiatives

Programmes designed to address health security challenges have been heavily influenced by the COVID-19 pandemic. As pandemic preparedness and response initiatives are redesigned to better cope with future health threats, it is key they incorporate UHC principles by scaling up people-centred health systems.

The ACT Accelerator attempted to leverage its Health Systems and Response Connector pillar to better support in-country integration and delivery of COVID-19 countermeasures, such as vaccines, diagnostics, and therapeutics.[12] However, the pillar was developed too late, received too little funding, and struggled to effectively serve as a supporting foundation for the other pillars, such as the COVID-19 Vaccines Global Access for equitable vaccine procurement. Furthermore, the strategy took a myopic view of the role of health systems, focusing on personal protective equipment for health workers while neglecting other crucial interventions, such as accessible health facilities and proactive community engagement. Future mechanisms should leverage the Health Systems and Response Connector's model of country coordination teams, which consisted of multisectoral representatives at the national level, including ministries, multilateral offices, and civil society; these teams could be established as standing coordination bodies and integrated within national IHR focal points to support prevention, preparedness, response, and recovery. Such an approach can help maintain essential health services, ensure sustainable workforce surge staffing through training and remuneration,[69] empower low-income and middle-income countries in bilateral or multilateral negotiations, and harmonise emergency and routine data to guide decision making.[70–72]

Follow-on iterations of the ACT Accelerator should apply a holistic definition of equity beyond merely considering disparities at the nation-state level between high-income and low-income countries. This means taking a human rights approach to in-country disparities exacerbated by emergencies, such as mitigating gender barriers and inequities due to socioeconomic status, enforcing collection of disaggregated data that explicitly track intersectional inequities across vulnerable communities, and safeguarding freedom of press and speech to ensure accurate and timely health information during emergencies.[66,73,74] Such efforts should be affirmed and closely monitored by the newly-proposed WHO Global Health Emergency Council.

Pandemic preparedness and response initiatives, such as the Global Health Security Agenda, should leverage UHC and social protection to support traditional health security core capacities.[75–77] Other high-profile, donor-driven global health security programmes (eg, the US President's Emergency Plan for AIDS Relief, the Global Fund to Fight AIDS, Tuberculosis and Malaria, or the Coalition for Epidemic Preparedness Innovations) should promote health systems resilience in low-income countries and fragile and conflict-affected states, in accordance with self-identified community and national priorities.[78,79] Resilience can be further achieved by strengthening primary health care as a way to foster greater alignment across pandemic preparedness and response spending and objectives. The governance and frameworks used to guide future health emergency response mechanisms should be rooted in whole-of-society and multisectoral structures, including diverse civil society and community-led organisations from low-income countries, to achieve equity and support long-term goals for both global health security and UHC, as suggested by the Global Preparedness Monitoring Board.[80]

Conclusions

In the wake of the COVID-19 pandemic, there have been multiple reports, reviews, and proposed initiatives. However, the global response has been debilitated by an alarming shortage of timely action and investment. Although the push towards global health security has helped make the case for global cooperation to counter public health threats, such efforts have largely neglected to consider how health systems function within

countries. Health systems designed for UHC have been shown to support communities more equitably through primary health care. Future pandemic preparedness and response mechanisms should prioritise health systems strengthening that simultaneously leverages global health security and UHC to ensure long-term resilience and equity, particularly through core capacities that are most vulnerable during health emergencies, such as a robust health workorce and sustained essential health services.

There is a need for multistakeholder and inclusive governance for pandemic preparedness and response through legal and policy mechanisms, including through a binding pandemic treaty and enforceable IHR amendments, that considers the breadth of health systems interventions needed to prevent future health emergencies. Sustainable financing through the proposed Pandemic Fund and common goods for health are required to simultaneously advance global health security and UHC in all countries while supporting the most marginalised people and communities, particularly through targeted and coherent investments that support primary health care. Health security initiatives and strengthened response mechanisms like the ACT Accelerator should also leverage diverse stakeholders and all parts of the health system through essential public health functions to effectively control future outbreaks.

Ultimately, high-level political commitment for health systems, brokered through effective health diplomacy and inclusive global leadership, is essential for ensuring equity in all pandemic preparedness and response interventions. The UN High-Level Meeting on UHC and the UN High-Level Meeting on pandemic prevention, preparedness, and response (both taking place in 2023) should therefore serve as important, complementary milestones to ensure synergies between the goals of global health security and UHC, and foster for resilient, equitable health systems. Dedicated investments in strengthening health emergency architecture, particularly through primary health care, can enable collective action to counter the false dichotomies between global health security and UHC, ensuring the world is better equipped to deal with multifaceted public health threats. Reconceptualising pandemic preparedness and response in this way can not only strengthen the basic foundations of global health, but also safeguard our shared path towards good health and wellbeing for years to come.

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