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Task Force 06

STRENGTHENING MULTILATERALISM AND GLOBAL GOVERNANCE

Catalysing Global Health Resilience: A Comprehensive Roadmap for Strengthening One Health

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Abstract

Global health, intricately linked with human, animal, and environmental welfare, faces heightened challenges due to increased communication, trade, and travel. Human mobility accelerates the transmission of infectious diseases, leading to potential epidemics, as exemplified by the recent COVID-19 pandemic. Present global health concerns encompass zoonotic infections, drug-resistant pathogens, and climate-induced health threats. Antimicrobial resistance (AMR) is emerging as a silent pandemic, projected to cause a 2%–3.5% reduction in GDP and a 3%–8% decline in livestock by 2050, with global costs estimated at $100 trillion. Zoonotic diseases result in 2.5 billion human illnesses and 2.7 million deaths annually. Climate change increases bacterial growth rates and horizontal gene transfer, exacerbating the AMR crisis. Despite the longstanding concept of One Health and its practical hurdles, its effective implementation necessitates coordinated, collaborative efforts. Overcoming challenges such as funding, capacity, political support, and integrated surveillance is essential. Allocating $800 million to early warning systems in developing countries could prevent annual economic losses of $3–$16 billion.

This policy brief, rooted in evidence, offers recommendations to unlock the full potential of One Health, (1) Establish an overarching governance mechanism for effective coordination and implementation of One Health, (2): Initiate National Antimicrobial Stewardship Programs to address socioeconomic disparities in accessing antimicrobials, (3) Ensure capacity strengthening and cross-learning across departments (4) Integrate environment-related data with Health information systems for holistic understanding (5) Enhance diagnostic capacity at all levels for early disease detection (6) Establish integrated surveillance and early warning systems for real-time data analysis (7) Ensure sustainable financing through introducing innovative models (8) Establish “open access” knowledge repositories for all zoonotic diseases.

Key words: Global Health, COVID-19, Pandemic, Zoonotic diseases, Early warning systems, surveillance.

Diagnosis of the Issue

The dynamic nature of global health, illustrated particularly by the recent COVID-19 pandemic, lacks a clear-cut cataloging of issues as challenges morph every year (Jorwal, Bharadwaj and Jorwal 2020).

Numerous infectious disease outbreaks in the recent past, such as severe acute respiratory syndrome (SARS) and Middle East Respiratory Syndrome (MERS), have been zoonotic, originating in animals and then spreading to humans.

Diverse factors such as climate change, population growth, international travel, global trade, loss of biodiversity, erratic human behaviors, and mutations in pathogens have all fueled the emergence of newer infectious diseases. Furthermore, zoonotic infections, such as Ebola, COVID-19 or SARS-CoV-2, and avian influenza, present substantial threats to public health by highlighting their potential to spark pandemics, underscoring the urgent need for robust surveillance and response frameworks. These diseases account for 60% of known infectious diseases and 75% of new illnesses, resulting in approximately 2.5 billion human infections and 2.7 million deaths annually. Additionally, the rise of multidrug-resistant pathogens poses a grave concern, as antimicrobial resistance (AMR) compromises the effectiveness of antibiotics, rendering once-treatable infections incurable. Failure to address AMR could lead to a 2%–3.5% decline in global GDP and a 3%–8% reduction in livestock by 2050, with an estimated global cost of $100 trillion. Moreover, health challenges exacerbated by climate change, including heat-related illnesses, vector-borne diseases, and food insecurity, compound existing risks and strain healthcare systems, particularly in low- and middle-income countries (O'Neill 2014).

The lack of cohesive One Health governance exacerbates challenges by hindering joint efforts and promoting fragmented approaches that impede effective outbreak

investigation and response. Inadequate diagnostic capacities and limited use of innovative techniques delay the timely detection and containment of zoonotic outbreaks, while insufficient funding and capacity, along with political apathy, hamper the successful implementation of strategies against AMR. Furthermore, the absence of integrated surveillance systems across human, animal, and environmental health domains leads to delays in detecting and responding to zoonotic diseases and multidrug-resistant pathogens. Despite recognizing the interconnectedness of environmental, animal, and human health, there's a notable absence of interdisciplinary collaboration. Failing to integrate efforts aimed at protecting biodiversity, mitigating climate change, and promoting sustainable land-use planning undermines upstream disease prevention efforts.

Relevance to the G20 Agenda

The importance of addressing these global health challenges within the G20 agenda is paramount for several reasons:

Economic Stability: Global health crises, as evidenced by the COVID-19 pandemic, have far-reaching economic consequences, impacting both stability and development. According to estimates from the World Bank, AMR could lead to an increase of up to US$1 trillion in healthcare expenses by 2050. Additionally, the global economy could suffer annual losses ranging from US$1 trillion to US$3.4 trillion in gross domestic product by 2030 due to the impact of AMR (World Bank 2024).

Sustainable Development: Realizing Sustainable Development Goal 3 demands concerted endeavors to tackle emerging health risks and fortify the resilience of healthcare systems. AMR raises treatment expenses, hindering universal health coverage for numerous countries. Effective antibiotics are crucial for reducing child and infant mortality, yet annually, 200,000 newborns succumb to drug-resistant infections (WHO, FAO, OIE and UNEP 2021).

Investments in early warning systems in developing nations can yield substantial economic dividends while advancing sustainable development objectives.

Security: Health security stands as a cornerstone of global stability, as pandemics wield destabilizing impacts across social, economic, and political spheres. The COVID-19 pandemic serves as a stark reminder of the importance of robust medical infrastructure, as many nations are now seeking reinforcement to address the strain on healthcare systems exacerbated by global health crises. Collaborative efforts are indispensable in safeguarding global resilience and stability against health-related threats.

Recommendations

The concept of One Health embodies a holistic approach to health that recognizes the interconnectedness of human, animal, and environmental well-being. Supported by evidence, this policy brief presents a few recommendations that the G20 countries may find helpful in enhancing the implementation of One Health.

Recommendation # 1. Establish an overarching governance mechanism for effective coordination of One Health: Research has shown that fragmented governance has impeded effective implementation of One Health strategies and robust governance is required to ensure equitable resource allocation and address systemic barriers (WOAH 2020; Grace, et al 2021). Hence, it is recommended that the G20 countries should endeavor to establish a centralized governance mechanism to coordinate One Health efforts across sectors, thereby enabling timely responses to emerging health threats.

Their function would also involve overseeing health strategy formulation, resource mobilization, and overall monitoring of One Health activities. Establishing an overarching governance mechanism would require the formation of a dedicated intergovernmental task force, supported by technical working groups at national and sub-national levels.

Recommendation # 2. Initiate National Antimicrobial Stewardship Programs to address socioeconomic disparities: Antimicrobial resistance poses a significant threat to global health security, with marginalized communities facing disproportionate burdens of infections. Implementing inclusive stewardship programs can prove effective in mitigating disparities in gender, race, and economic access to antimicrobials. Besides,

tailored interventions, such as community outreach and education campaigns can promote responsible antimicrobial use among underserved populations. It is recommended that G20 countries should initiate Stewardship programs to address socioeconomic disparities in antimicrobial access and use. Principles of equity and social justice should be integrated into antimicrobial stewardship initiatives.

Recommendations# 3. Ensure capacity strengthening and cross-learning across departments (i.e. Health, Veterinary, Environment, national and regional departments etc.). Research shows that effective response to outbreaks requires interdisciplinary collaboration, and such programs can foster a shared understanding of One Health principles (Kruk et al 2018). Hence, it is recommended that One Health capacity strengthening and training sessions should be organized at regular intervals with diverse stakeholders, such as professionals from public health agencies, veterinary services, environmental organizations, and community representatives. These sessions can be either virtual with simulation exercises or through in-person sessions. The curriculum should aim to enhance the skills of participants in outbreak preparedness, disease diagnostics, risk communication, and other related soft skills.

Recommendation # 4. Integrate environment-related data with Health information systems. As per the World Bank, environmental factors play a crucial role in disease dynamics, and hence, incorporating environmental perspectives enhances risk assessment and intervention planning factors (Boukerche and Mohammad-Roberts 2020). It is recommended that G20 countries should utilize innovative technologies, such as geographic information systems (GIS) and remote sensing, to prioritize integration of environmental data into One Health surveillance systems. This could be done by

increasing investments in interdisciplinary research and data-sharing mechanisms to inform evidence-based policymaking.

Recommendation # 5: Enhance diagnostic capacity at all levels for early disease detection: Research shows that point-of-care diagnostics for improving health outcomes and reducing transmission rates have proven to be effective (Chan et al 2023). Besides, timely and accurate access to rapid diagnostic tests can expedite case identification, treatment, surveillance, and control. Therefore, enhancing diagnostic capacity at the primary care and community levels is essential for disease surveillance and control (Peeling 2015). It is recommended that governments in G20 countries invest in the deployment of affordable diagnostic centers and provide frequent training to healthcare workers. State-of-the-art diagnostic facilities with a seamless supply chain network will be helpful in early detection and disease control. Healthcare professionals should be frequently trained in diagnostic skills. In addition, public-private partnerships can be leveraged for technology transfer and scale-up of diagnostic facilities.

Recommendation # 6. Establish integrated surveillance and early warning systems for real-time data analysis: Global preparedness for health emergencies at local and global levels would necessitate operational efficiency and joint surveillance. Digital technologies offer opportunities for real-time data collection and analysis, whilecommunity-based surveillance engages local populations in disease monitoring efforts (Budd et al 2020). Further, mobile health applications and artificial intelligence tools can support community-based surveillance activities. It is recommended that the G20 countries invest in digital infrastructure and capacity-building initiatives to strengthen surveillance systems at all levels. Integrated surveillance systems should be

enhanced to incorporate community-based surveillance and early warning mechanisms.

Recommendation # 7. Ensure sustainable financing through introducing innovative models: Sustainable financing mechanisms should be adopted to support One Health implementation, research, and capacity building. Funding is essential for sustaining the initiatives, and innovative models such as blended financing, combining public, private, and philanthropic resources, can diversify funding sources and enhance financial resilience (FAO, UNEP WHO, and WOAH 2024). World Bank research suggests that investing in One Health capacity building yields significant returns in terms of disease prevention and healthcare cost savings (*Ibid*). It is recommended that governments prioritize budget allocations for One Health activities and explore innovative financing mechanisms, such as impact investing and social bonds. Besides, public-private partnerships can for expertise and resources. Furthermore, robust monitoring and evaluation frameworks can ensure long-term sustainability by tracking the impact of investments.

Recommendation # 8. Establish "open access" knowledge repositories for all zoonotic diseases: Evidence from the recent COVID-19 pandemic has shown that establishing repositories facilitates data sharing and collaboration among stakeholders (Gardy and Loman 2018).

For example, the Global Initiative on Sharing All Influenza Data (GISAID) facilitated the rapid sharing of data on influenza (EpiFlu) and SARS-CoV-2 (EpiCoV). Hence, G20 countries should invest in the development and maintenance of centralized disease repositories, supported by standardized data collection protocols and interoperable surveillance systems. These repositories can be set up by undertaking a landscape analysis

of R&D institutes, funding and investment options, manufacturers, procurement and logistics, intellectual property rights, and regulatory mechanisms for zoonotic diseases. To ensure affordable access to new medical countermeasures (MCMs) derived from centralized open-source disease repositories, various strategies can be adopted. These include compulsory licensing during public health crises, tiered pricing structures based on economic status, pooled funds by governments and philanthropic organizations, patent pools for fair licensing, voluntary agreements between patent holders and manufacturers, commitments to purchase MCMs at fixed prices, establishment of a global fund for low- and middle-income countries and implementing price caps and negotiations to maintain affordability universally.

Scenario of Outcome

If embraced by decision-makers within the G20, the recommended actions have the potential to bring significant advancements in global health security and well-being. However, practical contradictions and trade-offs may emerge alongside these positive impacts, highlighting the complexities inherent in implementing wide-ranging policy changes.

Effective implementation and coordination through centralized governance: Establishing a centralized governance mechanism will facilitate efficient coordination and swift responses to emerging health crises, promoting collaboration across various sectors and jurisdictions. However, implementing centralized governance may face opposition from national and sub-national authorities hesitant to relinquish control, presenting challenges in balancing the necessity for coordination with respect for national sovereignty. Furthermore, organizing regular meetings and securing active involvement from all stakeholders may pose logistical difficulties.

Sustainable and innovative One Health financing model: Sustainable and innovative financing models, such as the blended model explained earlier, can broaden the spectrum of funding channels, and bolster financial stability. Yet, striking a balance amid competing demands on national budgets poses a challenge. Relying on private sector involvement sparks worries about potential conflicts of interest. Moreover, securing prolonged financial commitments amidst uncertain economic landscapes may present difficulties.

Effective disease surveillance, diagnostics, and research: Digital surveillance systems can improve real-time data collecting and processing while also encouraging community engagement, resulting in better disease detection and containment.

Furthermore, including environmental data into the health system will enhance risk assessment and intervention planning, enabling more holistic approaches to healthcare. Furthermore, improved disease surveillance would require strong diagnostic and reporting capabilities. Improved diagnostic skills would speed up the detection and treatment of cases, particularly in resource-constrained contexts, resulting in better health outcomes. Furthermore, knowledge repositories can facilitate data exchange and cooperation, allowing for proactive surveillance and rapid responses to zoonotic disease concerns. However, investing in digital infrastructure may exacerbate inequities in technology access, particularly among impoverished populations. Concerns regarding data privacy and security may reduce public confidence and involvement. Furthermore, the costs involved with maintaining and updating digital systems pose financial challenges. Additionally, addressing environmental problems with human and animal health may face pushback from groups that prioritize economic aims. Striking a balance between environmental protection and economic development is a constant problem. Furthermore, providing money for environmental studies and solutions may divert cash from other healthcare priorities. In addition, investing in diagnostic technology necessitates financial resources and infrastructural upgrades. Guaranteeing the quality and reliability of diagnostics across varied healthcare settings involves constant training and control, which might potentially burden healthcare systems. Likewise, building and maintaining these archives necessitates significant expenditures in infrastructure and capacity augmentation. International collaboration and data exchange may encounter political, logistical, and legal barriers. Furthermore, worries about data sovereignty and intellectual property rights may complicate discussions for sensitive information exchange.

Improved knowledge and skills of healthcare professionals through cross-learning: Regular sessions on capacity strengthening and training of stakeholders will ensure that everyone is updated on the new knowledge and is pandemic-prepared. Cross-learning among diverse stakeholders will foster interdisciplinary collaboration, thereby enhancing response capabilities across various departments and jurisdictions. However, launching joint training initiatives demands ongoing investment in infrastructure and resources. Coordinating schedules and logistics for these programs may present significant challenges.

Furthermore, reconciling differing viewpoints and priorities among participating regions could complicate the development of curricula and the delivery of training sessions.

An all-inclusive initiative for marginalized communities will ease access to antimicrobials: A comprehensive antimicrobial stewardship program will improve the ease of access and usability of antimicrobials in underserved communities. It could alleviate discrepancies in antimicrobial availability, safeguarding the efficacy of these vital medications. Addressing the needs of marginalized communities through such initiatives may demand substantial resources and cultural awareness. Striking a balance between stewardship objectives and guaranteeing access to essential antimicrobials for all segments of the population poses a nuanced policy dilemma.

In conclusion, by implementing these recommendations, the G20 and other multilateral bodies can play a pivotal role in advancing One Health principles and addressing global health challenges effectively. Collaboration, coordination, and investment in interdisciplinary approaches are key to promoting the health and well-being of populations worldwide.

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