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Urgent need for integrated pandemic policies on pathogen spillover



In response to COVID-19, international organisations (eg, WHO and G20) have convened multiple expert panels tasked with objectives such as assessing what happened during COVID-19, why it happened, and how it can be prevented from happening again.^{1,2} Unfortunately, these panels have failed to develop comprehensive strategies that address the source of most emerging infectious diseases: spillover of pathogens from animals to people.

Instead, expert panels have focused on preparing for and responding to pathogens after they have emerged in human populations. Although these policies are crucial, they only address part of the solution. Pandemic preparedness and response alone are insufficient, partly because it is difficult to predict infectious disease dynamics before spillover. The urban transmission of Ebola virus, sexual transmission of Zika virus, and airborne transmission of SARS-CoV-2 all highlight that emerging infectious diseases can have characteristics that defy conventional clinical and epidemiological expectations. Similarly, it is possible that a future novel pathogen will have attributes (eg, a long pre-symptomatic transmission period) that render even the best public health response efforts ineffective. Furthermore, we cannot assume that pharmaceutical countermeasures, even if available, will have enough uptake to halt spread, given the institutional mistrust, vaccine wariness, and misinformation that have become more prominent in society.

COVID-19 is at least the seventh pandemic to occur over the past century.³⁻⁶ To minimise the risk of future pandemics, pathogen spillover must be prevented along with pandemic preparedness and response. The risk for pathogen spillover is on the rise because of increased human and domestic animal interactions with wildlife related to deforestation, animal husbandry, and wildlife trade.⁷ The global health sector is crucial to the implementation of solutions to prevent spillover that complement existing efforts to prepare for an outbreak.

Among these solutions are policies aimed at stopping deforestation, improving community health in emerging infectious disease hotspots, improving livestock management and surveillance, and banning

or strictly regulating wildlife trade that poses a public health risk. Deforestation brings susceptible people into forest environments, where they come into contact with wildlife and disease vectors (eg, mosquitoes) during logging, hunting, and other activities.⁸ The international community must support relevant countries in stopping deforestation through innovative solutions such as policy-based and market-based incentives for keeping primary forests intact.⁹ In regions where forests have been heavily cleared or degraded and spillover risk is already high (eg, in West Africa and southeast Asia), community health must be strengthened. Additionally, wildlife and livestock pathogen surveillance should be scaled-up to manage and quickly contain outbreaks within animal populations before spillover to humans occurs. Finally, the health sector is uniquely positioned to engage in policy formulation to ban or strictly regulate wildlife trade that poses a public health risk but does not compromise the food security of local communities.

Unfortunately, this type of forward thinking, multisectoral prevention has been almost entirely overlooked by the expert panels. For instance, in May, 2021, the WHO-commissioned Independent Panel for Pandemic Preparedness and Response (IPPPR) released a report titled, COVID-19: Make it the Last Pandemic.¹ The IPPPR provided thorough recommendations on preparedness and response and acknowledged that most emerging pathogens are zoonotic in origin; however, it failed to provide concrete strategies for spillover prevention. This omission could have been expected, given that the IPPPR's objective was to "[prepare] the world...so that the next disease outbreak does not become a pandemic."¹ The scope of this objective does little to address the mechanisms for how pathogens emerge in human populations.⁷ Failure to acknowledge solutions that target pathogen spillover also reveals a disquieting global health injustice. It signals that the international community is tolerant of continued zoonotic outbreaks in low-income and low-resource settings so long as they do not become pandemics.

In July, 2021, the G20 High Level Independent Panel (HLIP) released a report proposing the organisation

of global finances to address future pandemics.² The HLIP's report discussed habitat loss and livestock management as components of prevention requiring greater attention. However, the HLIP excluded a complete One Health approach in their investment calculations because "it would have been difficult to provide comprehensive and up-to-date estimates."² The intentionality of omitting these costs is underscored by the fact that they had been shared by experts engaging with the HLIP but were still excluded.¹⁰ By keeping One Health costs ill-defined and deeming this investment as out of scope, the HLIP abandoned a core public health principle: engaging in primary prevention by addressing upstream drivers of pandemics. The unfortunate reality is that spillover prevention costs of approximately US\$10 billion pale in comparison with the millions of lives and trillions of dollars that it has cost to respond to COVID-19.¹⁰

The IPPPR called for a transformation of global systems on 18 occasions in their 86-page report.¹ True transformational change requires looking beyond traditional disciplines that constrain our ability to solve intersecting systems issues. Preparedness and response are undoubtedly important to planning for future pandemics. However, they are only part of the solution; governments must also commit to incorporating prevention of pathogen spillover to ensure equitable, integrated pandemic policies.

We declare no competing interests.

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