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Setting-based surveillance and One Health in the Mpox response



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Abstract

The resurgence of Mpox (MPXV) provides an opportunity to reflect on global health responses, particularly the lessons from previous outbreaks like Ebola and COVID-19. Although Mpox has been endemic in parts of Africa since the 1970s, it only gained global attention after spreading beyond Africa, highlighting the geopolitical dimension of global health. Like Ebola, Mpox is a zoonotic disease that affects both humans and animals, but the focus of the response has often been on human health, neglecting the broader social-ecological factors that influence disease transmission. A more holistic, "One Health" approach, integrating human, animal, and environmental health can help better understand the complex interactions that contribute to outbreaks. This would include surveillance of the social-ecological systems where spillover occurs and greater engagement with local communities to build trust and improve response efforts. A setting-based surveillance system, focusing on both humans and animals in their environments, would enable more accurate and efficient outbreak or pandemic prevention. Additionally, the involvement of non-health professionals, such as social scientists and community leaders, is essential for fostering locally driven, culturally sensitive response strategies. Strengthening one health systems and expanding healthcare to include animals and plants could also enhance agroecological and ecosystem resilience.

The resurgence of Mpox (MPXV) is an opportunity to assess how the global health community implements lessons learned from Ebola outbreaks in central and western Africa and the COVID-19 pandemic. Like Ebola, Mpox has been known to be endemic in parts of Africa since the 1970s. Both are considered zoonoses and cause severe lesions in infected animals and people. However, it took half a century for both diseases to become a global concern. This delay reflects a broader issue of inequity in

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global health, as it was not until the disease spread beyond Africa that it garnered widespread international attention. Prior to their declaration as a Public Health Emergency of International Concern (PHEIC) by the World Health Organization (WHO) and MPox as a Public Health Emergency of Continental Security (PHECS) by Africa Centers for Disease Control and Prevention (Africa CDC) [1, 2], solidarity with the affected populations was absent. Additionally, considerations of the importance of wildlife health have only vaguely gained traction since the World Conservation Society published the Manhattan Principles, which emphasize the intricate links between healthy humans, animals and ecosystems and how these links should be addressed [3]. These have been adopted by the Tripartite (WHO, WOAH, FAO) in their concept notes and recently endorsed by the Quadripartite (including UNEP) "One Health Joint Plan of Action" in 2022 [4,



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5]. However, the response to all, Ebola, SARS-CoV-1 and -2, as well as MPXV [6], has been overly focused on the human health sector, with little emphasis on upstream prevention measures. A more holistic approach, including the surveillance and investigation of the social-ecological systems in which spillover occurred, is lacking. Since mammals are confirmed or suspected reservoirs of these viruses, a One Health approach would allow for a better understanding of the human-domestic-wildlife interface, including not only the presence of viruses but also economic, cultural, behavioral and ecological conditions. In retrospect, we know that this would have informed more effective response strategies to Ebola while building trust [6] and avoiding violence against healthcare providers and response teams as they occurred, e.g., during case investigations in the community during the Eastern Democratic Republic of the Congo Ebola outbreak [7]. Engaging local communities, understanding their concerns, and involving them in the response is crucial in understanding outbreaks and responding appropriately. Moreover, despite a growing number of cases in countries where Mpox was endemic, global partners remained largely silent until the virus reached other continents. This lack of interest in anything that is not transmitted from humans to humans in countries in the North contributed to a missed opportunity for early containment and prevention of its further spread [8].

A surveillance system that takes interest in humans, animals and ecosystems is essentially setting-based surveillance, analogous to setting-based health promotion. Instead of constructing intelligence on the basis of different surveillance streams, which require many assumptions and high levels of uncertainty, sampling humans, animals and the ecosystem in which they live delivers inherent and simple (geographical) associations [9]. At scale, it allows learning more about interactions and patterns that may be species- or location specific. Taking interest in other-than-human species that are concerned about their health requires recognition that all of these factors contribute to functioning and resilient social-ecological systems. This is a call for reflection on our social values and our cohabitation with other forms of life. However, first and foremost, as illustrated by the distribution of the COVID-19 vaccine, our species seems to have disengaged with conspecifics and lacks even the most basic empathy for others. The most trivial opportunity to prevent pandemics from spilling over is to establish universal health care and expand it to other species to allow for diagnostics and health services for all. This not only endorses public health but also enhances (subsistence) agriculture through healthy animals, which are more productive and increase ecosystem resilience [1, 2]. Finally, the inclusion of non-health professionals, such as social scientists, anthropologists, and community leaders, Page 2 of 3

in the response efforts can deepen our understanding of the sociocultural context in areas where Mpox transmission is most likely. This multidisciplinary collaboration can inform more community-centered response activities, fostering greater local ownership and acceptance of control measures, including vaccination campaigns.

Abbreviations

Africa Centers for Disease Control and Prevention
Food and Agriculture Organization of the United Nations
Public Health Emergency of International Concern
Public Health Emergency of Continental Security
United Nations Environment Programme
World Organization for Animal Health
World Health Organization

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