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Bundibugyo Ebola without vaccines or therapeutics: why public health fundamentals matter more than border closures

The return of Ebola without vaccines or therapeutics is no longer a hypothetical scenario; it is unfolding now in Central and East Africa. The ongoing outbreak of Ebola disease caused by the Bundibugyo virus in the Democratic Republic of the Congo (DRC) and Uganda, declared as a Public Health Emergency of Continental Security and a Public Health Emergency of International Concern by the Africa Centres for Disease Control and Prevention (CDC) and the World Health Organization (WHO), respectively, has exposed a dangerous blind spot in global epidemic preparedness.

Despite major scientific advances following the West African Ebola epidemic, no licensed vaccines or therapeutics exist for Bundibugyo ebolavirus, making the outbreak control heavily dependent on non-pharmaceutical measures such as rapid detection, isolation, infection prevention and control (IPC), community trust and regional solidarity[1]. This reflects a broader structural inequity in global health research and development. Scientific investments continue to prioritize pathogens perceived as major threats to high-income countries, whereas diseases that primarily affect vulnerable populations in low-resource settings remain chronically underfunded until emergencies occur. The result is a persistent preparedness gap, leaving affected countries to respond with limited tools once outbreaks emerge[2,3].

The current outbreak demonstrates that Ebola control remains possible even in the absence of vaccines and therapeutics if foundational public health interventions are implemented rapidly and rigorously. Ebola transmission occurs via direct contact with bodily fluids from symptomatic individuals or contaminated materials. Consequently, measures such as early case detection, prompt isolation, contact tracing, decentralized diagnostics, safe and dignified burials, healthcare worker protection, and culturally grounded community engagement remain central to interrupting transmission chains[4].

The outbreak also highlights the continuing importance of supportive clinical care. Even without pathogen-specific therapeutics, supportive care — including early hydration, electrolyte correction, oxygen support, and the treatment of secondary infections — can substantially improve survival. Investment in treatment centers, referral systems and skilled clinical teams therefore remains essential[5]. Healthcare-associated transmission remains another major concern. Early infections and deaths among healthcare workers underscore persistent weaknesses in IPC systems, particularly in fragile and conflict-affected settings. Health facilities require reliable personal protective equipment, triage systems, laboratory support, isolation capacity and adequately trained personnel[6].

The outbreak has also revived a recurrent policy error during health emergencies: border closures and blanket travel restrictions. Despite evidence from previous Ebola epidemics, some countries continue to adopt restrictive measures that provide political reassurance but offer limited epidemiological benefit. During the 2014–2016 West Africa epidemic, excessive travel restrictions disrupted humanitarian operations, delayed the deployment of personnel and medical supplies, weakened economies, and fueled stigma without preventing international spread[7]. Such measures contradict longstanding WHO recommendations and the principles of the International Health Regulations (2005), which emphasize that responses to outbreaks should be evidence-based, proportionate, and avoid unnecessary interference with international trade and travel. Excessive restrictions may also discourage transparency and timely reporting by affected countries concerned about economic isolation[8].

In the Great Lakes region, one of the most densely populated regions in Africa, border closures are particularly impractical. Communities routinely cross borders for trade, healthcare, education and family interactions through both formal and informal routes. Restrictive measures may therefore drive movement underground, weaken surveillance and reduce transparency. By contrast, coordinated cross-border surveillance, harmonized reporting systems, rapid information sharing, and joint investigations among neighboring countries are more likely to sustainably reduce transmission risks. The rapid identification of imported cases in Uganda demonstrates that regional surveillance collaboration can be highly effective when underpinned by trust and coordination[9].

Equally crucial is community trust. Insecurity, misinformation, attacks on healthcare facilities and resistance associated with burial practices continue to complicate response efforts. Public health measures imposed without community ownership often fail. Safe and dignified burials, hand hygiene, avoidance of contact with symptomatic individuals and deceased persons, and culturally sensitive communication of risk remain among the most effective interventions available. These are not secondary social measures; they are central epidemiological interventions. Community engagement must therefore move beyond one-way messaging toward genuine partnership with affected populations[10].

Beyond the immediate outbreak, the implications are global. Climate change, ecological disruption, conflict, urbanization and mass displacement are increasing the likelihood of future zoonotic spillovers and cross-border epidemics. Yet preparedness frameworks remain overly dependent on commercially attractive vaccines and therapeutics while underinvesting in resilient frontline public health systems. The Bundibugyo outbreak demonstrates that epidemic preparedness cannot be pathogen selective. Preparedness strategies must include sustained investment in decentralized laboratory networks, surveillance systems capable of early detection, community-centered response models, emergency workforce capacity, and regional coordination mechanisms. At the same time,

accelerated research and development across all Ebola species, not just Zaire ebolavirus, must become a global scientific and funding priority.

The more sustainable path forward lies in science-based public health action: strengthened surveillance, decentralized diagnostics, rapid isolation, IPC, trusted community engagement, and regional cooperation. The current outbreak should therefore serve as a renewed call to build resilient health systems and to ensure equitable investment in neglected pathogens before, not after, the next epidemic emerges.

Ngashi Ngongo[1,2,3], Mosoka Papa Fallah[1,2], Nebiyu Dereje[1,4] ✉, Yap Boum[1,2] & Jean Kaseya[1]

[1]Africa Centres for Disease Control and Prevention (Africa CDC), Addis Ababa, Ethiopia. [2]Ebola Continental Incident Management Support Team (IMST), Addis Ababa, Ethiopia. [3]School of Public Health, Lubumbashi, Democratic Republic of Congo. [4]School of Public Health, Wachemo University, Hosainna, Ethiopia.
✉e-mail: nebiyuda@africacdc.org

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Competing interests

The authors declare no competing interests.