



Global responses to Ebola virus outbreaks in West Africa (2014-2016) and the Democratic Republic of the Congo (2018-2020) demonstrated effective biodefense strategies, including rapid deployment of healthcare personnel, establishment of treatment centers, community engagement initiatives, and accelerated development and deployment of experimental vaccines and therapeutics [9].

The emergence of novel pathogens, antimicrobial resistance, and climate change pose ongoing challenges to biodefense preparedness and response capabilities. Addressing these challenges requires sustained investment in research and development, adaptive response strategies, and resilience-building measures to anticipate and mitigate future biological threats.

Biodefense efforts raise ethical and policy dilemmas related to dual-use research, biosafety regulations, equitable access to medical countermeasures, and the protection of civil liberties during public health emergencies. Balancing security imperatives with ethical considerations is crucial to maintaining public trust and ensuring transparent governance in biodefense practices [10].

Biodefense remains integral to global health security, encompassing a continuum of preparedness, surveillance, response, and recovery efforts to protect populations from biological threats. By advancing innovation, strengthening international collaborations, and addressing emerging challenges, societies can enhance resilience against biological risks and safeguard public health in an interconnected world. This research article advocates for sustained commitment to biodefense strategies that prioritize scientific rigor, ethical principles, and inclusive approaches to mitigate the impact of biological emergencies on global

health and well-being.

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