

## Strengthening climate and health adaptation strategies to combat cholera in Angola and beyond

Abdulrakib Abdulrahim<sup>1</sup>, Valdemiro Amilton Rafael<sup>2</sup>, Bashar Haruna Gulumbe<sup>3</sup>, Victor Abiola Adepoju<sup>4</sup>, Safayet Jamil<sup>5,6</sup>

<sup>1</sup>Department of Medical Microbiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia, <sup>2</sup>Departament of Health, José Eduardo dos Santos University, Huambo, Angola, <sup>3</sup>Department of Microbiology, Faculty of Science, Federal University, Birnin Kebbi, Birnin Kebbi, Kebbi State, Nigeria, <sup>4</sup>Department of HIV and Infectious Diseases, Jhpiego, (an affiliate of Johns Hopkins University) Abuja, Nigeria, <sup>5</sup>Department of Public Health, Daffodil International University, Dhaka, Bangladesh, <sup>6</sup>Department of Public and Community Health, Faculty of Medicine and Health Sciences, Frontier University Garowe, Somalia

**KEYWORDS:** Waterborne disease; Environmental change; Angola; Africa; Endemic

### \*CORRESPONDING AUTHOR

Abdulrakib Abdulrahim. Department of Medical Microbiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia, abdulrakib161@gmail.com

### RECEIVED

18/02/25

### ACCEPTED

04/04/25

### PUBLISHED

08/04/2025

### LINK

<https://afenet-journal.org/strengthening-climate-and-health-adaptation-strategies-to-combat-cholera-in-angola-and-beyond-letter-to-the-editor/>

© Abdulrakib Abdulrahim et al. Journal of Interventional Epidemiology and Public Health [Internet]. This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### CITATION

Abdulrakib Abdulrahim et al Strengthening climate and health adaptation strategies to combat cholera in Angola and beyond. Journal of Interventional Epidemiology and Public Health. 2025;8:17.  
<https://doi.org/10.37432/jieph-d-25-00054>

## Dear Editor

As the new year begins, Angola faces a distressing surge in cholera cases [1]. On January 8, 2025, the Ministry of Health officially declared an outbreak. By February 4, a total of 2,069 suspected cases and 404 confirmed cases had been documented, with 70 deaths reported accounting for a case fatality rate of 3.4% across eight of the country's 18 provinces [1],[2]. This number of fatalities has surpassed the last major outbreaks in 2016 and 2017, which claimed a total of 11 lives [3]. Luanda, the capital, recorded the highest morbidity and mortality, with 1,124 cases and 40 deaths (Table 1) [2]. This outbreak has been linked to poor sanitation, limited access to clean water, and overburdened healthcare systems. Flooding has also been identified as a risk factor that further exacerbates the transmission of the infection during this outbreak, with children and women being the most affected populations [1],[4]. Therefore, this letter highlights the urgent need to build climate-resilient environments and healthcare systems, with a focus on mitigating flooding, improving water, sanitation, and hygiene (WASH), and strengthening public health responses in Angola and across Africa.

Cholera, often referred to as a 'disease of poverty,' is currently classified as a disease of very high risk globally [5],[6]. It is widely recognized as an epidemic in Africa, with significant numbers of cases and deaths reported each year [5],[7]. This diarrheal infection is transmitted through the ingestion of contaminated food or water [3],[7]. According to a recent report published by the World Health Organization (WHO) on 20th February 2025, 34,799 cases and 349 deaths were reported due to cholera globally between 1st January 2025 and 26th January 2025 across 19 countries. The report also highlighted that approximately one billion people are at risk of infection [5]. Africa region had the most affected countries, accounting for 51% of the cases followed by Eastern Mediterranean region [5]. Climate change is known to exacerbate the spread of infectious diseases [8],[9]. WHO identified climate change as the driver of an unprecedented surge in the numbers of cholera outbreaks across the globe [6]. Numerous climate change-related factors such as flooding, cyclones and monsoons have been linked to an increased risk of cholera [6],[8]. These risks include exposure to contaminated water sources, population displacement leading to overcrowded and unsanitary conditions, and the destruction of infrastructure, such as water and healthcare systems.

Africa is particularly vulnerable to the impacts of climate change, which continues to worsen public health challenges in the region, especially for vulnerable groups such as children, women, and those living in poverty [8],[9]. Multi-hazard early warning systems remain limited in Africa, and it is the only region where no country has demonstrated comprehensive risk assessment and management capacities [9]. Earlier, Angola's meteorological agency forecasted higher-than-usual rainfall for the current rainy season, which could lead to flooding. The Africa Centers for Disease Control and Prevention has identified this issue, along with delays in accessing medical care, as one of the potential challenges during the ongoing cholera outbreak in Angola [3],[10]. At this pivotal moment, there is an urgent and significant need for Africa, including Angola's healthcare system, to build a climate- and health-resilient environment (Figure 1). This can be achieved through wide-ranging support and funding from global communities, countries, donors, and the private sector [8]. However, this effort is complicated by growing challenges in securing support from high-income country donors. Withdrawal from climate agreements could raise significant concerns about their potential impact on coordinated efforts to address public health challenges in Africa and other parts of the Global South. These actions could leave the continent without or reduce the necessary financial and technical support to address public health challenges.

Notwithstanding, Africa needs to find ways to contain the recurring public health challenges. Authorities, including health and environmental scientists as well as disaster managers, must collaborate more closely to share ideas and strategies aimed at achieving the common goal of mitigating the cholera crisis in Africa. Similarly, funding is key in achieving this; the African region must expand its reach through partnerships with local and international organizations.

The need for public education campaigns and sensitization cannot be overemphasized. Face-to-face and social media initiatives targeting schools, religious centers, parks, and markets are needed to promote a culture of disease prevention, mitigation, and response, as well as flood preparedness in both rural and urban areas. Furthermore, the need for data-driven decision-making is equally vital, as it aids in predicting, understanding, and monitoring

diseases. Its cost-effectiveness and ability to generate insights quickly make it a critical tool during epidemics and emergencies [11]. Vaccination, along with other critical cholera prevention and treatment measures such as ensuring access to rehydration therapy and improving WASH infrastructure must also be prioritized. Empowering Africa's public health sector is crucial for building a resilient future. Together, we can lead the charge in safeguarding our communities, preventing diseases, and creating lasting health solutions for generations to come.

### Competing Interest

The authors of this work declare no competing interest.

### Funding

This manuscript received no grants from any public, commercial, or not-for-profit funding agency.

### Authors' contributions

AA and VAA conceptualised the idea. AA, VAR, BHG, VAA and SJ participated in manuscript writing, reviewing, and editing the manuscript. All authors have read and approved the final manuscript for publication.

### References

1. Da Ascensão Gonçalves MA, Lopes Ribeiro Júnior H. Angola's cholera outbreak: a wake-up call for global action. *The Lancet* [Internet]. 2025 Feb 22 [cited 2025 Apr 6];405(10479):620–1. Available from: [https://doi.org/10.1016/S0140-6736\(25\)00240-5](https://doi.org/10.1016/S0140-6736(25)00240-5)
2. WHO Regional Office for Africa, Ministry of Health (Angola). Boletim informativo da cólera N° 28/2025 [Cholera Bulletin 2024 No. 28] [Internet]. Luanda (Angola): Ministry of Health; 2025 Feb 4 [cited 2025 Apr 6]. [2 p.]. Portuguese. Available from: Download PDF to view full text.
3. WHO Regional Office for Africa, Ministry of Health (Angola). Boletim informativo da cólera N° 25/2025 [Cholera Bulletin 2024 No. 28] [Internet]. Luanda (Angola): Ministry of Health; 2025 Feb 1 [cited 2025 Apr 6]. [2 p.]. Portuguese. Available from: Download PDF to view full text.
4. UNICEF. Angola Cholera Outbreak Situation report #3 [Internet]. New York (NY): UNICEF; 2025 Feb 17 [cited 2025 Apr 6]. [3 p.]. Available from: Download PDF to view full text.
5. WHO. Multi-country cholera outbreak, external situation report #23 -20 February 2025 [Internet]. Geneva (Switzerland): WHO; 2025 Feb 20 [cited 2025 Apr 6]. 12 p. Available from: Download PDF to view full text.
6. UN News. Global cholera surge likely accelerated by climate change, warns WHO [Internet]. New York (NY): United Nations; 2022 Dec 16 [cited 2025 Apr 6]. Available from: <https://doi.org/10.1016/j.scitotenv.2024.171896>
7. Giroto CD, Behzadian K, Musah A, Chen AS, Djordjević S, Nichols G, Campos LC. Analysis of environmental factors influencing endemic cholera risks in sub-Saharan Africa. *Science of The Total Environment* [Internet]. 2024 Mar 20 [version of record 2024 Mar 30; cited 2025 Apr 6];926:171896. Available from: <https://doi.org/10.1016/j.scitotenv.2024.171896>
8. Kaseya J, Dereje N, Tajudeen R, Ngongo AN, Ndambi N, Fallah MP. Climate change and malaria, dengue and cholera outbreaks in Africa: a call for concerted actions. *BMJ Glob Health* [Internet]. 2024 Mar 7 [cited 2025 Apr 6];9(3):e015370. Available from: <https://doi.org/10.1136/bmjgh-2024-015370>
9. World Meteorological Organization (WMO), United Nations Office for Disaster Risk Reduction (UNDRR). Global Status of Multi-Hazard Early Warning Systems: 2024 [Internet]. Geneva (Switzerland): WMO; 2024 [cited 2025 Apr 6]. 180 p. Available from: Download PDF to view full text.

10. Africa-CDC. Special briefing on Mpox & other health emergencies | Jan. 23, 2025 [Internet]. Addis Ababa (ET): Africa CDC; 2025 Jan 23 [cited 2025 Apr 6]. Video: 57 min Available from: <https://doi.org/10.1177/20552076241278939>.
11. Pezanowski S, Koua EL, Okeibunor JC, Gueye AS. Predictors of disease outbreaks at continental-scale in the African region: Insights and predictions with geospatial artificial intelligence using earth observations and routine disease surveillance data. Digital Health [Internet]. 2024 Nov 5 [cited 2025 Apr 6];10:20552076241278939. Available from: <https://doi.org/10.1177/20552076241278939>.

**Table 1:** Number of cases and deaths reported by the Angola Ministry of Health from six provinces as of February 4, 2025 [2]

Provinces	Suspected Cases	Confirmed Cases	Deaths	CFR*
Bengo	634	95	22	3.5
Cuanza Norte	1	1	0	0.0
Huambo	4	4	0	0.0
Huíla	4	4	0	0.0
Icolo e Bengo	294	64	8	2.7
Luanda	1,124	228	40	3.6
Malanje	4	4	0	0.0
Zaire	4	4	0	0.0
<b>Total</b>	<b>2,069</b>	<b>404</b>	<b>70</b>	

\*Case Fatality Rate

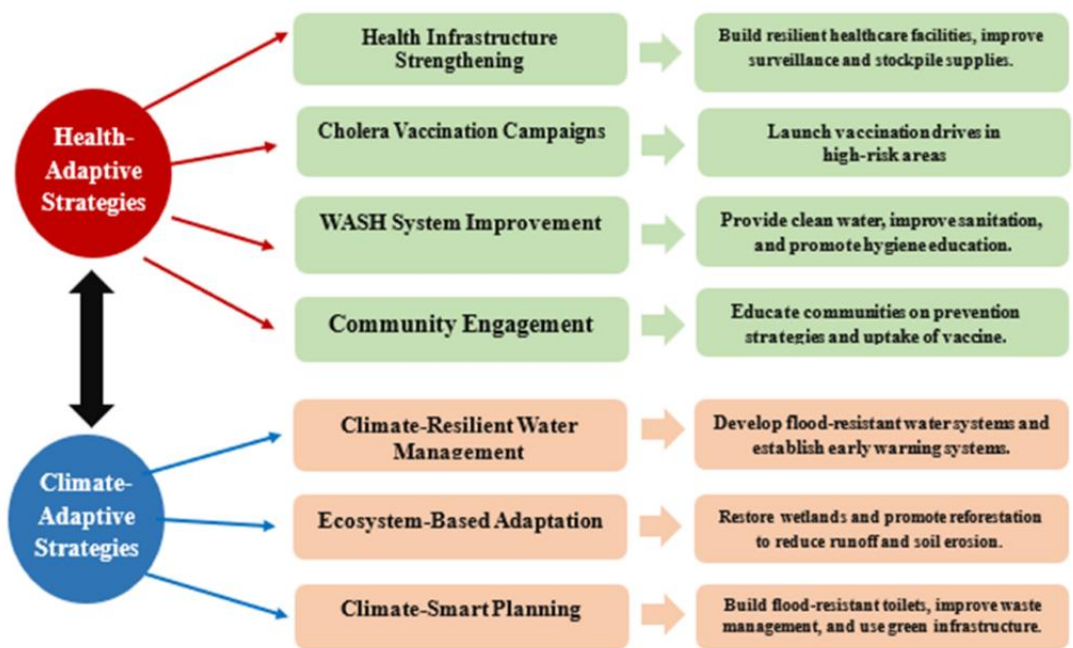


Figure 1: Climate-Resilient and Health-Adaptive Strategies to Combat Cholera