

Race Against Time: Experts Rally for Action as Meningitis and Cholera Outbreaks Continue to Spread in Nigeria

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Since January, Nigeria has experienced a concerning increase in cholera and meningitis cases, with the World Health Organization (WHO) reporting 922 cholera cases, 32 fatalities, and a projected 3.5% fatality rate by March 5, 2023. Additionally, the Nigeria Centre for Disease Control (NCDC) has documented 157 confirmed cases of meningitis, 628 suspected cases, and 52 fatalities nationwide. These outbreaks, intensified by insufficient water, sanitation, and health infrastructure, demand immediate intervention from health authorities, policymakers, and international organizations. The NCDC has identified several obstacles in addressing the meningitis outbreak, such as security issues hindering access to certain

communities, a lack of trained personnel for case management, inconsistent reporting from states, poor health-seeking behaviour due to challenging terrain and high transportation costs, and subpar personal and community hygiene promotion. The concurrent spread of cholera and meningitis presents a substantial public health challenge, compounded by the potential for cross-border transmission. To effectively address these outbreaks, a comprehensive approach is crucial, incorporating thorough analysis, innovative strategies, and global health perspectives. We call upon all relevant stakeholders to act swiftly and collaboratively to curtail the devastating impacts of these diseases.

According to the World Health Organization (WHO), Nigeria has seen 922 cholera infections and 32 fatalities since January, with a projected death rate of 3.5% by March 5, 2023 [1,2]. Additionally, the Nigeria Centre for Disease Control (NCDC) reports 157 confirmed meningitis cases, with 628 suspected cases and 52 deaths across [1]. The meningitis outbreak, which was first reported in Jigawa state at the beginning of the season [3], has since spread to over twenty (20) states, resulting in a worsening crisis [4]. According to reports, 91% of all cumulative cases were from four states, namely Jigawa (509 cases), Bauchi (23 cases), Zamfara (22 cases), and Oyo (14 cases). This indicates that the outbreak is not limited to a single region and has become a serious public health concern affecting multiple states.

These diseases, exacerbated by inadequate water, sanitation, and health infrastructure, necessitate immediate attention from health authorities, policymakers, and international organizations. Similarly, the NCDC has identified several challenges in responding to the meningitis outbreak in Nigeria. These include difficulty accessing some communities due to security concerns, inadequately trained personnel for case management, poor and inconsistent reporting from states, poor health-seeking behaviour due to difficult terrain and high transportation costs, and inadequate personal and community hygiene promotion [4].

Escalating cholera and meningitis outbreaks in Nigeria, resulting in 88 fatalities and a significant number of infections, pose a pressing public

health challenge with potential cross-border transmission ramifications. Thence, experts are worried that urgent and effective interventions are needed to control and prevent the further spread of the diseases. For instance, a medical laboratory scientist, Obinna Chukwudi from Nnamdi Azikiwe University Teaching Hospital expressed concern over Nigeria's poor preparedness to tackle disease outbreaks, while Ondo State Epidemiologist Dr. Stephen Fagbemi emphasized the need for joint efforts between the government and the people to fight diseases [5].

Addressing the outbreaks

In addressing escalating cholera and meningitis outbreaks in Nigeria, it is essential to adopt a targeted, multifaceted approach that leverages cutting-edge research findings and involves diverse stakeholders [6]. Prioritizing the distribution of new, more effective vaccines in high-risk areas [7], in collaboration with international organizations and local communities, will enhance disease prevention efforts. Utilizing advances in rapid diagnostic testing will facilitate early intervention and limit disease spread. Strengthening disease surveillance and reporting systems, as well as enhancing public health communication and education through targeted campaigns, will empower communities to adopt preventive measures. Investing in water, sanitation, and hygiene (WASH) infrastructure, with a focus on community-based initiatives, will address the underlying determinants of the outbreaks [6].

Understanding the complex interplay of socioeconomic, environmental, and political factors contributing to these outbreaks is crucial. By addressing these determinants, targeted interventions can be designed to mitigate disease spread and improve overall public health. Recent research has explored novel strategies to combat cholera and meningitis. For instance, a study by Mba et al. [8] highlights the potential of a new vaccine candidate in preventing the spread of bacterial infections such as cholera. Similarly, advances in meningitis research, such as the development of rapid diagnostic tests and more effective vaccines, can significantly impact outbreak management.

Exploring the convergence of technology and public health within the context of Nigeria's cholera and meningitis outbreaks presents a distinct perspective on innovative strategies to manage and alleviate these pressing health

emergencies. Emphasizing the potential of digital health solutions, such as mobile applications and telemedicine, this approach aims to enhance healthcare accessibility and quality in remote areas disproportionately affected by the outbreaks [9]. Furthermore, incorporating big data analytics and machine learning algorithms could enable the prediction of disease spread, the identification of high-risk populations, and the optimization of resource allocation. This distinctive viewpoint highlights the transformative role of technology in addressing public health challenges, providing novel insights to inform effective and sustainable interventions against cholera and meningitis outbreaks in Nigeria and beyond. In addition to innovative solutions, global trends in cholera and meningitis outbreaks warrant attention. The current situation in Nigeria highlights the broader implications for international public health policies and global health security. Cross-border cooperation and investment in health systems are essential to address potential regional and global transmission risks.

CONCLUSION

In conclusion, the spread of both cholera and meningitis constitute a significant public health challenge with consideration for the threat of cross-border spread. Therefore and addressing the outbreaks requires a comprehensive approach that integrates in-depth analysis, innovative strategies, and global health perspectives. By harnessing the expertise of diverse stakeholders and implementing evidence-based measures, we can work towards mitigating these urgent health crises and safeguarding the well-being of populations in Nigeria and beyond.

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REFERENCES

1. Adigun O. Nigeria recorded 922 cholera cases in 2023 - WHO. *The Quest Times* [Internet]. 2023 Mar 27 [cited 2023 Mar 27]; Available from: <https://www.thequesttimes.com/nigeria-recorded-922-cholera-cases-in-2023-who/>
2. WHO. Cholera in the WHO African Region: Weekly Regional Cholera Bulletin: 22 March 2023 [Internet]. WHO | Regional Office for Africa. 2023 [cited 2023 Mar 27]. Available from: <https://www.afro.who.int/publications/cholera-who-african-region-weekly-regional-cholera-bulletin-15-march-2023-cloned>
3. Gulumbe BH, Idris I, Salisu N. The outbreak of meningitis amidst Lassa fever and diphtheria crisis in Nigeria: An urgent call for action. *Trop Doct*. 2023 Apr 5;00494755231162523.
4. NCDC. An Update of Meningitis Outbreak in Nigeria [Internet]. 2023 [cited 2023 Mar 27]. Available from: <https://www.ncdc.gov.ng/diseases/sitreps/?cat=6&name=An%20Update%20of%20Meningitis%20Outbreak%20in%20Nigeria>
5. Adejoro L. Meningitis, cholera kill 88, experts call for action. *Punch Newspapers* [Internet]. 2023 Mar 27 [cited 2023 Mar 27]; Available from: <https://punchng.com/meningitis-cholera-kill-88-experts-call-for-action/>
6. Preston NW. Prevention of cholera. *The Lancet*. 2004 Mar;363(9412):898.
7. Gulumbe BH, Danlami MB. Shortage of cholera vaccines amidst rising cases worldwide should worry us all. *Bull Natl Res Cent*. 2022 Dec 22;46(1):285.
8. Mba IE, Sharndama HC, Anyaegbunam ZKG, Anekpo CC, Amadi BC, Morumda D, et al. Vaccine development for bacterial pathogens: Advances, challenges and prospects. *Trop Med Int Health*. 2023 Mar 22;tmi.13865.
9. Maroju RG, Choudhari SG, Shaikh MK, Borkar SK, Mendhe H. Role of Telemedicine and Digital Technology in Public Health in India: A Narrative Review. *Cureus* [Internet]. 2023 Mar 10 [cited 2023 Mar 27]; Available from: <https://www.cureus.com/articles/126488-role-of-telemedicine-and-digital-technology-in-public-health-in-india-a-narrative-review>