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EXPEDITING EVIDENCE-BASED RESPONSES TO NIGERIA'S CHOLERA OUTBREAK THROUGH RAPID REVIEWS: AN URGENT CALL TO PUBLIC HEALTH RESEARCHERS

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ABSTRACT

The outbreak of cholera in Nigeria has escalated into severe public health crises, with 2,102 suspected cases and 63 deaths recorded as of July 3, 2024, across 33 states and 122 local government areas. This highlights a concerning 3.5% case fatality rate. Immediate and evidence-based responses are needed to prevent further spread and impact. Rapid reviews (RRs) are invaluable in this fight because, unlike traditional systematic reviews, they offer accelerated synthesis of evidence to inform timely interventions. RRs have been proven effective in previous outbreaks. This paper calls upon public health researchers to urgently explore RRs in coming up with evidence-based information focusing on prevention strategies, treatment protocols, community engagement, and risk communication. This is hoped to equip the key stakeholders, including policymakers, healthcare providers, community members, and other frontline responders with timely and actionable information to mount an effective, comprehensive response to this public health emergency. We concluded that Nigeria's cholera outbreak requires urgent, evidence-based responses. Rapid reviews (RRs) are crucial for quickly synthesizing essential data to inform effective interventions and strategies.

Keywords: Cholera outbreak; Rapid reviews; Case fatality rate; Public health researchers; Nigeria

Introduction

The current outbreak of cholera in Nigeria has thrown the nation into a severe public health crisis, with lives already being lost and many more hanging in the balance. Cholera, caused by the bacterium *Vibrio cholerae*, can lead to severe dehydration and death within hours if left untreated (Hsiao et al., 2014). As of July 3, 2024 (the time of this report), the country has recorded 2,102 suspected cases and 63 deaths across 33 states and 122 local government areas (LGAs), with a case fatality rate (CFR) of 3.5% (Igwe, 2024; Onyedika-Ugoeze, 2024). The CFR is far exceeding the World Health Organization's (WHO) target of <1% for well-managed cholera outbreaks (World Health Organization, 2023).

The above is a concerning indicator of the severity of the outbreak and the need for urgent action. In dire circumstances such as

this, the need for prompt and evidence-based interventions cannot be overstated. Policy makers, community leaders, healthcare professionals and all frontline responders require immediate access to the most current and relevant information to guide their decision-making processes and implement effective strategies to combat this outbreak.

Rapid reviews (RRs) can provide the necessary foundation for informed action in addressing the cholera outbreak.

Rapid reviews are a streamlined approach to evidence synthesis that can rapidly provide the stakeholders with the latest research findings to inform urgent decision-making. In the usage of WHO (2023), RRs are a type of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a short period of time. In similar usage, Cochrane Collaboration (2023) defines it as a form of knowledge synthesis that accelerates the process of conducting a traditional systematic review. Therefore, unlike traditional systematic reviews that take months or even years to complete, RRs adopt focused research questions, fast-tracked search tactics, and succinct data extraction to produce a timely synthesis of the available evidence (Kolaski, Logan, & Ioannidis, 2023). By so doing, RRs offer timely options for addressing urgent public health challenges.

Rapid reviews have been shown to be effective in offering timely and evidence-based information for addressing disease outbreaks, particularly in bridging the knowledge-to-action gap in healthcare (MacPherson & Rourke 2024). For instance, RRs was useful during COVID-19 pandemic, where they were employed in synthesizing crucial evidence on dynamics of transmission (Wu et al., 2023), public health measures (Menegale et al., 2023), treatments (Rzymski et al., 2023; Ugwu 2021), and vaccine efficacy (Moscara et al., 2023). These guided global responses to the outbreak effectively. Similarly, during Ebola outbreaks, rapid reviews availed strategies for management of cases (Regmi et al., 2015), control of infection (Gupta et al., 2021), and development of vaccine (Bhatnagar et al., 2016). Rapid reviews were effective in linking Zika virus infection to birth defects (Citil-Dogan et al., 2017), evaluation of measures for vector control (Maharajan et al., 2016), and in offering health advise to travelers and pregnant women. Additionally, reviews during Middle East Respiratory Syndrome (MERS) (Chatterjee et al., 2020), H1N1 influenza (Buddolla et al., 2021), SARS outbreaks (Dhama et al., 2020), and cholera outbreaks globally (Remy et al., 2020) provided valuable insights in transmission, prevention strategies, and clinical management of each of the outbreaks, leading to evidence-based responses. Other pieces evidence on how RRs abound (Mohapatra et al., 2023; Mercer et al., 2019; Ramadan, & Shaib, 2019; Mercer et al., 2020).

Given that RRs have earlier proven effective in addressing disease outbreaks of public health concern, leveraging this approach could greatly benefit the response to the current cholera outbreak in Nigeria. This paper serves as an urgent call to public health researchers to prioritize and expedite the

conduct of Rapid Reviews. By accelerating this process, we can strengthen our collective ability to respond swiftly and decisively to this pressing health emergency.

The Current Crisis

Cholera disease has persistently posed a weighty public health challenge in Nigeria since its initial outbreak in 1972 (Mengel et al., 2014). Ever since then, there have been intermittent outbreaks. In late 2010, a severe outbreak originated from northern Nigeria and spread across the country, resulting in approximately 300 cases and 78 deaths (Adagbada et al., 2012). Another noteworthy outbreak occurred in October 2020, and extended through much of 2021, worsening the situation nationwide (Elimian et al., 2020).

The cholera situation in Nigeria is rapidly deteriorating, with cases and deaths mounting on a daily basis. As of June 13, 2024, the Nigeria Centre for Disease Control (NCDC) reported 1,141 suspected cases, with 65 cases confirmed and 35 fatalities recorded across 95 local councils across 30 states of the nation (NCDC, 2024a). By June 24, 2024, the total number of suspected cases had risen to 1,528, with 53 reported deaths across 31 states and 107 local government areas (Agwam, & Salman, 2024). As of July 3, 2024 (the time of this report), the country has recorded 2,102 suspected cases and 63 deaths in nation's 33 states (Igwe, 2024; Onyedika-Ugoeze, 2024). Remarkably, 10 states including: Abia, Bauchi, Bayelsa, Cross River, Delta, Imo, Katsina, Lagos, Nasarawa, and Zamfara, accounted for 90% of the country's cholera burden (NCDC, 2024b). The cumulative case fatality rate since the beginning of the year stood at 3.5%, underscoring the severity of the ongoing outbreak (NCDC, 2024 a & b). Generally, Nigeria has documented a total of 54 deaths and 1,579 suspected cases since the outbreak (Galadanci et al., 2023). Globally, Nigeria ranks among the leading contributors to the burden of cholera (Charnley et al., 2024), which is about four million cases and 143,000 deaths annually (WHO, 2023). Given the urgent need for action, the Global Task Force on Cholera Control (GTFCC) targets achieving a 90% reduction in cholera mortalities and the eventual eradication of the disease by 2030 (Charnley, et al., 2023).

In the light of this critical moment, decision-makers at all levels would require access to the most up-to-date and relevant information for prevention, case management, community engagement, and risk communication pertaining to cholera. Given the urgency of the situation, there is no time for the lengthy process typically required in traditional systematic reviews, which can sometimes take months or even years to complete. This is where RRs become necessary to strike the balance between speed and scientific rigour to inform urgent public health actions.

Key Areas Requiring Rapid Reviews

In Nigeria's cholera outbreak, several critical areas would benefit from rapid reviews including:

1. **Prevention strategies:** RRs can synthesize evidence on the most effective preventive measures, from water treatment methods to sanitation practices. This could help authorities prioritize interventions and allocate resources more efficiently.

2. **Case management protocols**: Reviews of the latest evidence on cholera treatment, including fluid replacement therapies and antibiotic use, can help standardize and optimize patient care across healthcare facilities.
3. **Community engagement methods:** Synthesizing evidence on successful community engagement strategies from past cholera outbreaks can guide efforts to mobilize community support and participation in prevention and control measures.
4. **Risk Communication Techniques:** Rapid reviews of effective risk communication strategies can inform public health messaging, helping to disseminate crucial information and combat misinformation.

By focusing on these key areas, rapid reviews can provide a solid evidence base for a comprehensive response to the cholera outbreak.

Call to Action for Public Health Researchers

The urgency of the situation in Nigeria necessitates an urgent response from the public health research community. This paper calls upon researchers to prioritize RRs focusing on the critical aspects of cholera prevention, management, and control. The expertise and swift action of the public health researchers can directly influence policy-making and community interventions, thereby saving numerous lives. For this reason, this paper urges researchers to:

1. identify critical questions that can be solved through RRs.
2. form collaborative teams to expedite the review process.
3. utilize existing links and resources to access relevant literature quickly.
4. engage with policy makers and health authorities to ensure reviews address their most urgent needs.
5. share findings on time through various pathways, including open-access platforms and pre-print servers.

Through pooling resources and expertise, the public health researchers can come up with a body of evidence that can guide Nigeria's effective response to this outbreak of cholera.

Overcoming Challenges

While the need for speed is paramount, it is also crucial to address potential limitations of RRs. Researchers must endavour to observe methodological rigour while expediting evidence synthesis. This can be achieved through:

- clear and focused research questions
- predefined and transparent methodologies
- use of standardized tools and templates
- involvement of experienced reviewers
- peer review processes, even if expedited

It is also important to take note of the evolving nature of evidence. Rapid reviews should be seen as a work-in-progress, updated as new evidence arises.

Conclusion

The cholera outbreak in Nigeria demands an urgent, coordinated, and evidence-based response. The public health researchers have an essential role to play in supporting

Nigeria's cholera emergency response. By prioritizing RRs, public health researchers can provide the evidence needed to inform effective interventions, guide resource allocation, and ultimately save lives. Every day counts in the fight against this outbreak. The public health researchers should rise to this challenge by leveraging their expertise and resources to produce rapid, rigorous, and relevant reviews. Their collective effort can make a huge difference in Nigeria's cholera response.

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